

William O'Donohue
Akihiko Masuda *Editors*

Behavior Therapy

First, Second, and Third Waves

 Springer

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Preface

Cognitive behavior therapy (CBT), encompassing behavior therapy, behavior modification, applied behavior analysis, cognitive therapy (CT), and acceptance- and mindfulness-based CBTs, has been the dominant psychotherapeutic paradigm in the Western world, enjoying this status for a few decades. Managed care and third-party payers have favored its emphasis on scientific validation, short-term efficient treatment, and relatively easy-to-learn techniques (often in treatment manuals). In practice, CBT also attained a wide range of applicability: from childhood problems, such as functional enuresis and oppositional defiant disorder, to problems of adults, such as depression, anxiety, chronic pain, and so on. For this reason, it is important to understand CBT paradigm, particularly for those entering the field. More specifically, one needs to understand *waves* of CBT as well as their relative strengths and weaknesses to understand CBT and to make intelligent therapeutic choices and research questions. While taking the agnotology of CBT into consideration, the present volume will help readers do this by gathering experts in the field of CBT who wrote key chapters on the key component issues in CBT.

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About the Editors

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Part I
Introduction

The Three Waves of Cognitive Behavior Therapy: Scientific Aspirations and Scientific Status



William O'Donohue and Akihiko Masuda

In its beginnings cognitive behavior therapy (CBT) was not monolithic, and currently CBT has remained not monolithic in theoretical orientation, experimental principles relied on, specific therapy techniques employed, or even assessment methods used (see O'Donohue et al., 2001). Behavior therapy, a more preferred term in its beginnings in the 1950s and 1960s, immediately had two major branches; the operant branch of Skinner and his students and colleagues (e.g., Lindsley, 1956; Bijou, 1957) as well as a branch lead by the work of South African psychiatrist Joseph Wolpe (1958). Wolpe emphasized Hullian learning theory and largely focused on a technique called systematic desensitization (see Kazdin, 1978; O'Donohue & Chin, chapter “[Meta-science and the Three Waves of Cognitive Behavior Therapy: Three Distinct Sets of Commitments](#)”, this volume; O'Donohue et al., 2001). When, a few decades later, cognitively oriented researchers and therapists began to think of themselves as cognitive therapists or cognitive behavior therapists, this added still additional heterogeneity to these Skinnerian and Wolpean branches of behavior therapy. This cognitive movement also created additional heterogeneity as there soon became several schools of cognitive therapy within what was now often thought of as CBT with two of the leading schools led by the rational emotive therapy (RET) of Albert Ellis (Ellis & Harper, 1975) or cognitive therapy (CT) of Aaron Beck (1979; see also Davison, chapter “[Personal Perspectives on the Development of Behavior Therapy and Cognitive Behavior Therapy](#)”, this volume).

This brief historical summary does not fully reflect the full heterogeneity of contemporary CBTs as there was further diversity. Some of this heterogeneity was created around the development of specific therapy approaches, such as EMDR (Shapiro, 2017), which also created questions around whether this was an approach

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with sufficient commonality to be properly subsumed under the general rubric of CBT (Herbert et al., 2000). Another example of such heterogeneity was the development of dialectical behavior therapy (DBT) in the 1980s (Linehan, 1993) that had some traditional CBT components, such as skills training, but also unique components, such as increased support for the therapist and the importance of validation to address the complexities of a personality disorder. Still another aspect of this diversity has been the incorporation of mindfulness and meditation into several behavior therapies, including DBT, acceptance and commitment therapy (ACT; Hayes et al., 2012), mindfulness-based cognitive therapy (MBCT; Segal et al., 2013), and similar others (see Masuda & O'Donohue, 2017). This movement came not only from the learning laboratory or the cognitive experimental laboratory, but also from influences largely external to scientific psychology, such as Buddhism and other forms of meditation practice.

And yet, still further diversity arose within CBT was created in that cognitive behavior therapists focusing on a set of disorders often used a set of unique techniques thought best to address these specific problems (O'Donohue & Fisher, 2008). For example, therapists focusing mainly on children suffering from oppositional defiant disorder focused on operant techniques to achieve improved parenting skills; therapists mainly focusing on anxiety relied heavily on exposure techniques; therapists focusing on marital therapy focused on skills training such as communication and relationship skills; and therapists focusing on depression often were most concerned with cognitive techniques, such as cognitive disputation and behavioral activation.

History and Revolution of CBT: A Kuhnian Perspective

The historian of science Thomas Kuhn (1970) has asserted that, as a science advances, it often evolves into what he called "microcommunities". For example, Kuhn stated that the perception of the scientific puzzle-solving effectiveness of some paradigm may not be monolithic but can vary across smaller sub-groups within a scientific discipline. Kuhn also stated that in the development of science, "Many episodes will then be revolutionary for no communities, many others for only a single small group, still others for several communities together, a few for all of science" (Kuhn, 1970, p. 253). As some support for Kuhn's assertion, many within the Skinnerian tradition of behavior therapy did not see the so-called "cognitive revolution" as a legitimate scientific revolution (see O'Donohue et al., 2003) and were little influenced by developments within this paradigm. Kuhn also asserted that in what he called "normal science," it is the scientific community that judges the problem-solving effectiveness of the proposed solutions elaborated by paradigms, and cautioned that the unanimity or size of the community of relevant scientists should not be overestimated. Scientific communities often split into a number of subgroups, some numbering as few as a hundred members or less, sharing a somewhat unique, but a still reasonable version of the general paradigm (Kuhn, 1970).

It seems that the modern enterprise of CBT can be seen to have such subgroups. Microcommunities of cognitive behavior therapists can be defined by a number of variables including the clinical problems of interest (e.g., autism vs. depression), the particular cognitive behavior therapy technique of particular interest (e.g., prolonged exposure vs. behavioral activation), the particular characteristics of the population of interest (e.g., children vs. the elderly), the particular overall theoretical orientation (e.g., radical behaviorism vs. cognitivism), the general school of therapy (e.g., rational emotive therapy vs a Beck influenced behavior therapy), and the modality of intervention (prevention vs treatment; e-health vs face to face therapy). One interesting aspect of this is that it is possible that two individuals both of whom consider themselves cognitive behavior therapists may have so little overlap in actual interests and skills that they might find it difficult to talk to each other. Each reads different journals, attend different conferences, is trained and skilled in distinct therapy techniques, see clients that have little overlap in demographics, and have theoretical commitments that are even contradictory.

Some of this heterogeneity can be organized by viewing CBT has having three generations or waves (Hayes, 2004; O’Donohue & Chin, chapter “[Meta-science and the Three Waves of Cognitive Behavior Therapy: Three Distinct Sets of Commitments](#)” this volume). The first wave of CBT is based on operant psychology and radical behaviorism. The second wave came after this and emphasizes cognition; and the third wave emphases acceptance and values. But despite these different points of emphasis, there are key commonalities (see Herbert & Forman, 2013; Mennin et al., 2013).

Wittgensteinian Fibres and CBT

The early twentieth century philosopher Ludwig Wittgenstein (2009) warned that in defining terms one must not necessarily find essential properties that all elements subsumed under that category must share. Wittgenstein stated:

Instead of producing something common to all that we call language, I am saying that these phenomena have no one thing in common which makes us use the same word for all,—but that they are related to one another in many different ways. And it is because of this relationship, or these relationships, that we call them all “language”. (§65)

Consider for example the proceedings that we call “games”. I mean board-games, card-games, ball-games, Olympic games, and so on. What is common to them all?—Don’t say: “There must be something common, or they would not be called ‘games’”—but look and see whether there is anything common to all.—For if you look at them you will not see something that is common to all, but similarities, relationships, and a whole series of them at that. To repeat: don’t think, but look!

I can think of no better expression to characterize these similarities than “family resemblances”; for the various resemblances between members of a family: build, features, colour of eyes, gait, temperament, etc. etc. overlap and criss-cross in the same way.—And I shall say: ‘games’ form a family... And we extend our concept of number as in spinning

a thread we twist fibre on fibre. And the strength of the thread does not reside in the fact that some one fibre runs through its whole length, but in the overlapping of many fibres. (p. 67)

There are some possible candidates of such Wittgensteinian fibres running through CBT. These are: (a) an emphasis on science in providing evidence for a wide variety of claims, particularly the scientific results supporting process variables from the learning and the cognitive laboratory, (b) an emphasis on shorter term, cost effective therapy versus longer term therapy resulting personality reconstruction, (c) a rejection of psychodynamic constructs and a consequent emphasis on measurable behavior, (d) manualized treatment (perhaps at the level of principles or at the level of specific techniques) where treatment fidelity can be measured, and (e) often more recently the development, testing and dissemination of packages of CBT that forms a treatment for some problem.

However, a very important thread running throughout the candidates listed above is a reliance on science for knowledge production and evaluating the truth of claims. It is important to note that science is running through the list of the preceding “fibres” even at a meta-level. Behavior therapy and CBT take science as its epistemology (McFall, 1991). Ideally, cognitive behavior therapists use principles like operant conditioning that have been tested scientifically in experimental psychology laboratory, assessment instruments that have been tested (and validated) psychometrically; and deliver therapies whose outcomes have been tested in randomly controlled studies. In fact, sometimes behavioral and cognitive therapists teach what they consider to be the scientific method to their clients so that their clients can test their beliefs and perhaps replace these false and dysfunctional beliefs with true and functional ones (Ellis & MacLaren, 1998). Behavioral and cognitive behavioral therapists have traditionally been puzzled when their fellow therapists of other orientations have either not put their therapies to the same scientific test and/or have ignored or minimized the scientific results associated with CBT.

Scientific Epistemology and CBT

But if science is so important to cognitive behavior therapists perhaps a more careful and detailed look of the actual scientific practice of CBT is in order. Scientific practice can vary in its quality. Perhaps it is the case that cognitive behavior therapists, or at least some of these, have been too quick to engage in self-congratulation regarding their scientific credentials. The question of the quality of science is made difficult in that there is no consensus by those who study science, such as philosophers of science on exactly what the scientific method is, and even if there is a scientific method (O'Donohue, 2013). This ambiguity seems to carry over in CBT—Skinner's conception of science differs very much from Ellis's conception (O'Donohue & Halsey, 1997). O'Donohue and Houts (1985) for example, found that behavior therapists could be defined by their allegiance towards different research designs: behaviorally oriented first generation behavior therapists relied on

single subject experimental designs, while second generation behavior therapists (i.e., cognitive or cognitive behavioral therapists) relied on group designs.

Perhaps the practice of science at times has been more a rhetorical marketing device—to attempt to persuade others that a test has been conducted when it in fact has not (O’Donohue et al., 2016). There has been an explosion of interest in questionable research practices (QRPs) in medicine (e.g., see Ioannidis, 2005) and in social psychology but in CBT there has been little interest in either scientific direct replications or in the identification and elimination of QRPs (O’Donohue et al., 2022).

Perhaps the bar was set too low by rival nonscientific therapies and there has been a bit of complacency on the part of cognitive behavior therapists. Perhaps cognitive behavior therapists are so intent to find therapies that work for their suffering clients that more severe testing in their therapy outcome research brings about a kind of ambivalence—negative results mean less hope for relief for clients. The philosopher of science Sir Karl Popper’s (1972) concept of severe test can best be captured by an example. If one wants to test the hypothesis that “My religious leader does not lie”, a more severe test would be to observe instances after he or she stubs a toe, or is cut off in traffic; a less severe test is to only observe them while they preach or conduct a Sunday school class.

Perhaps cognitive biases like confirmation bias are still operative—researchers really just want to find out they are right. Perhaps there is too much a stake personally: grants, publications, promotions, workshop fees, and books sales can be jeopardized by negative or disappointing results. Thus, important questions can be raised about the quality of the science in CBT as well as more traditional questions such as, “To what extent do cognitive behavior therapists consistently avoid making claims that outstrip the scientific evidence?” Perhaps cognitive behavior therapists have been quick to overlook or excuse problems, such as the paucity of replications, the use of QRPs as well as inconsistencies of gaps in their scientific orientation. QRPs include the use of the “file drawer” to hide negative results, p-hacking, hypothesizing after results are known (HARKing), selective reporting of multiple outcome variables, deciding to collect more data when the results are not significant, and failing to disclose all experimental conditions (see O’Donohue et al., 2022). There has been a disappointing neglect on open data and pre-registration of studies in CBT despite strong movements toward this in experimental psychology and particularly social psychology.

Agnotology and CBT

Perhaps a part of scientific knowledge is also a full and frank acknowledgement of what is not known. The study of ignorance has recently become to be known as agnotology. Agnotology also focuses on how and why some forms of knowledge do *not* come to be, or are ignored or delayed. Ignorance, though, is thought to be more complex than this. Ignorance is viewed as having a distinct and changing geography

that is viewed as an excellent indicator of the politics of knowledge. CBT may profit from an agnology to complement and further understand our scientific epistemology.

What might an agnology of CBT look like? What as a field are we often ignorant of? Here's a partial list:

1. Relating to the focus of this book, the relative efficacy of therapies from the three waves of CBT, e.g., which is generally more efficacious for some particular problem, rational emotive therapy, behavioral activation, or acceptance and commitment therapy? This ignorance may allow cognitive behavior therapy not to choose therapies that are actually most effective for clients, but to base their choices largely on antecedent theoretical allegiances.
2. To what extent are the positive outcomes of some therapy in any wave is due to the use of questionable research practices? It may be the case that any outcome study can be successful if sufficient QRPs are employed.
3. To what extent are scientific studies biased by personal motivations of the scientist? It is commonly acknowledged by cognitive behavior therapists that Big Pharma has biased results in psychopharmacology research in depression (see for example Antonuccio et al., 2002) but similar motivations are largely ignored for researchers in CBT. In another example, Etter et al. (2007) found in an examination of all randomized controlled trials of nicotine replacement therapy for smoking cessation, more industry-supported trials found statistically significant results than non-industry trials and these reported larger effect sizes as well. Admittedly for cognitive behavior therapists the magnitude of the possible financial gain is less by order of magnitudes but financial consequences are still there.
4. Finally, there are a host of relatively orphaned questions such as actual cost effectiveness, actual safety data, knowledge of process variables, a clear understanding of the error in our measurement devices, actual recidivism, actual effect sizes, and so on.

Some have suggested that epistemic honesty and humility might be a key part of science (Lilienfeld & Bowes, 2020; Lilienfeld et al., 2017). Intellectual humility is well captured by the philosopher, Bertrand Russell who stated that good scientists hold both “the passion not to be fooled and not to fool anybody else” (as accounted by Meehl, 1993). Part of not fooling anyone is to admit ignorance where ignorance actually exists.

For example, O'Donohue et al. (2017) have attempted to cash out the scientific attitude with a set of epistemic virtues. Science practice in this view is seen as having an essential ethical dimension. Virtue epistemologists examine the qualities of the rational agent in evaluating knowledge claims (Greco, 2000). Intellectual virtues are those cognitive and attitudinal assets that allow the inquirer to both maximize truth and minimize error (Sosa, 1985). This represents an important shift from the epistemologists' previous focus on properties of beliefs/sentences (such as “justified” or “corroborated”) to the properties of agents in their epistemic activities as the most important dimension in generating the warrant for a knowledge claim. The

core of virtue in epistemology is the condition, in which one knows *P* if and only if *knowledge of P is virtuously acquired true belief* (DePaul & Zagzebski, 2003).

Overview of Chapters in the Present Volume

CBT has been the dominant psychotherapeutic paradigm in the Western world, enjoying this status for a few decades. As discussed extensively elsewhere (O'Donohue & Fisher, 2009) as well as in this volume, it emerged in the late 1950s and after competition with psychoanalytic and humanistic paradigms it rode the wave of "evidence-based therapies" into dominance certainly by the 1990s. Managed care and third party payers favored its emphasis on scientific validation, short-term efficient treatment, and relatively easy to learn techniques (often in treatment manuals). In practice, CBT also attained a wide range of applicability: from childhood problems, such as functional enuresis and oppositional defiant disorder, to problems of adults, such as depression, anxiety disorders, chronic pain and so on. As such, it is also fair to say that modern CBT has no direct competitor with similar evidential credentials or the same number of adherents and none is on the immediate horizon.

So it is important to understand CBT paradigm, particularly for those entering the field. To understand CBT and to make intelligent therapeutic choices as well as research questions, one needs to understand waves of CBT as well as their relative strengths and weaknesses. This book will help readers do this by having leaders in the field write key chapters on the key component issues. More specifically, while taking the agnology of CBT into consideration, this book is organized into five sections.

The first section offers a general introduction to each of the three waves of CBT, setting these into a historical context. Following the present chapter (this chapter), Gerald Davison of the University of Southern California presents his personal reflections on the development and history of behavior therapy and CBT (chapter "[Personal Perspectives on the Development of Behavior Therapy and Cognitive Behavior Therapy](#)"). As reflected in his chapter, Davison's earlier empirical and clinical work brought the cognitive trend to the field of behavior therapy. His highly cited collaborative book with Marvin Goldfried of Stony Brook University, *Clinical Behavior Therapy* (1976), has continued to influence the generations of CBT scholars and clinicians for almost five decades. Following Dr. Davison's opening chapter, William O'Donohue and Fredrick Chin of the University of Nevada, Reno, introduce meta science as a fibre of CBT, which serves a guiding framework to understand different waves of CBTs (chapter "[Meta-science and the Three Waves of Cognitive Behavior Therapy: Three Distinct Sets of Commitments](#)"). O'Donohue et al. also argue that notable pioneers of each waves of CBT (i.e., B. F. Skinner of the first wave; Albert Ellis of the second wave; Steven Hayes of the third wave) adhered to different meta scientific ideas for knowledge production and for evaluating the truth of claims that they made. Learning these different forms of scientific

epistemology is extremely important for both trainees and professionals as the Inter-Organizational Task Force on Cognitive and Behavioral Psychology Doctoral Education advocates that CBT-oriented doctoral training programs “expose students to the philosophy of psychology, with particular emphasis on epistemology and the role of preanalytic assumptions in defining the scope and methods of science and practice” (Klepac et al., 2012, p. 697).

Following the explication of the historical context of CBT and the importance of scientific epistemology in advancing CBT, the remainder of the first section covers the overview of first-, second- and third- waves of CBT. More specifically, Edward Morris of the University of Kansas highlights a profound impact of learning principles (i.e., operant principles) and principles-informed practice, the heart of first wave CBT, on contemporary CBT theory and practice even to this date (chapter “[What Is First-Wave Behavior Therapy?](#)”). Subsequently, Daniel Strunk and his colleagues of the Ohio State University then highlight the central premise in the second wave of CBT in theory and practice (chapter “[What Is Second Wave Behavior Therapy?](#)”). That is, the premise that how people interpret a situation (and its implications) influence their emotional responses as well as any efforts they make to cope with that situation remains the core in theory and practice, especially for the second wave CBTs. As presented in their chapter, Albert Ellis (1913–2007) and Aaron T. Beck (1921–2021) originated this core promise because of their dissatisfaction not only with their perceived limitations of the first wave behavior therapy, but also with psychoanalytic thinking which dominated the field of behavioral health at that time. Those who just entered into the field may find it intriguing that both Ellis and Beck had been trained extensively in psychoanalysis. Finally, Lance McCracken, Ph.D. of the Uppsala University presents his view on what third wave of CBT is and the contribution that it has made to the field of CBT (chapter “[What Is Third Wave Behavior Therapy?](#)”). McCracken points out its contextualistic worldview (scientific epistemology) as a unique feature of the third wave of CBTs.

The second section of this volume presents assessment and case conceptualization in second wave CBT (chapter “[Second Wave Assessment and Case Formulation](#)” by Gary Brown, Ph.D. of Royal Holloway University of London), DBT (chapter “[Dialectical Behavior Therapy: Assessment and Case Conceptualization](#)” by Skye Fitzpatrick, Ph.D., of York University and Shireen Rizvi, Ph.D. of Rutgers University), and radically open DBT (RO-DBT; chapter “[Radically Open Dialectical Behavior Therapy: Theory, Assessment and Case Conceptualization](#)” by Kirsten Gilbert, Ph.D. of Washington University in St. Louis and R. Trent Codd, III, Ph.D. of Cognitive-Behavioral Therapy Center of Western North Carolina). These chapters will deal with how these treatments conceptualize assessment and what assessment strategies each relies on with the strengths and weaknesses of these. We have included DBT and RO-DBT as they are often viewed as being independent from the waves of CBT. Another important thing to note here is that we originally planned to have chapters for first wave CBT and third wave CBT in this section, too. However, given challenges we have faced for the past 18 months due to the global level COVID-19 pandemics, we are not able to secure the authors for these two chapters. That being said, the readers will see assessment and case conceptualization of the

first and third waves of CBT in depth with case examples in subsequent chapters (e.g., see those in the fourth section of this volume).

The third section of this volume will allow major proponents of each wave to critique the other waves—this is often done and the reader will be able to better understand how each views the strengths and limitations of the other. In chapter “[The Advantages of First Wave Behavior Therapy and Problems with the Others](#)”, Peter Sturmey, Ph.D., of the City University of New York presents the advantages of first wave CBT. He characterizes the first wave of CBT mainly in terms of operant psychology and its application to human suffering that took off in the 1960’s. He concludes that one wave is enough, and that developments, such as cognitive behavior therapy and third wave therapies, have lost their philosophical and methodological roots. Subsequently, in chapter “[Cognitive Therapy and the Three Waves: Advantages, Disadvantages and Rapprochement](#)”, rather than “defend” the cognitive model, Robert Leahy, Ph.D. of the American Institute of Cognitive Therapy, describes the second wave of CBT, reviews the rationale for it, the research supporting it, its limitations and its strengths. His contention in his chapter is that we all have a lot to learn from each other, stating that perhaps this is the message of the Fourth Wave. Finally, in chapter “[Advantages of Third Wave Behavior Therapies](#)”, Akihiko Masuda, Ph.D. of the University of Hawai‘i at Mānoa and his doctoral student, Samuel Spencer, presents their thoughts on the advantages of the third wave CBT. Masuda and Spencer argue that one major historical contribution of third wave CBTs has been to revitalize the importance of linking evidence-based processes/mechanisms of change to evidence-based procedure and to revitalize Gordon Paul’s pressing question: “What treatment, by whom, is most effective for this individual with that specific problem, under which set of circumstances, and how does it come about” (Paul, 1969, p. 44).

The fourth section will describe how each of the waves differentially treat seven major disorders (i.e., anxiety, depression, obesity, psychosis, substance abuse, ADHD, and chronic pain). Presenting a clinical case example, this section provides the reader with very concrete and detailed differences in the treatment approaches of each; Chapters in this section also will offers research reviews so that the reader will see which wave of CBT has the best evidential support for individuals diagnosed with a given particular disorder. This section is also written to be of great interest to clinicians.

Today, CBT cognitive behavior therapy (CBT) as a family of cognitive-behaviorally based therapies is best known as the treatment of choice for anxiety and anxiety-related issues (e.g., Barlow et al., 2015; Nathan & Gorman, 2015). In chapter “[First Wave Conceptualizations of Anxiety Disorders](#)”, Cynthia Lancaster, Ph.D. of University of Nevada, Reno and her colleague present first wave conceptualizations and treatments of anxiety disorder. Highlighting that a horse-race comparison of behavioral therapies, such as exposure therapy, to subsequent waves of therapy, including cognitive-behavioral and mindfulness-based therapies, has yielded an overall picture of relatively equivalent treatment effects for anxiety disorders, Lancaster et al. argue that important to work with patients with anxiety disorders are stepping back to the beginning of CBT (i.e., first wave CBT) and better

understanding the basic behavioral conceptualization of anxiety disorders. Subsequently, in chapter “[Third Wave Conceptualization of Anxiety, Obsessive Compulsive Disorders, and Obsessive Compulsive Related Disorders](#)”, Michael Twohig, Ph.D., of Utah State University and his colleagues presents third-wave CBT conceptualizations of anxiety, obsessive compulsive disorder (OCD), and obsessive compulsive and related disorders (OCRDs). They argue that the third wave build upon the previous two by retaining the behavioral thinking of the first wave and the focus on cognition from the second. They also argue that the third wave takes a different stance towards language and cognition than the second wave, which is new from their perspective. Finally, they argue that having strong technologies that can focus on first order change (second wave) and second order change (third wave) of cognitions and other internal experiences is key, and that third wave movement situates the important work of process-based cognitive behavioral therapies (PB-CBT) at the forefront.

As with the case for anxiety and anxiety-related disorders, various forms of CBT are known to be the treatment(s) of choice for depression (Craighead et al., 2015). To highlight these, Amy Naugle, Ph.D. of Western Michigan University, Jane Fisher, Ph.D. of University of Nevada, and Zindel Segal, Ph.D. of University of Toronto, together with their coauthors, present case conceptualizations and treatments of individuals with depression from the perspectives of the first wave (chapter “[Depressive Disorders: First Wave Case Conceptualization](#)”), second wave (chapter “[Second Wave Treatment for Depressive Disorders](#)”), and third wave (chapter “[Depression: Third Wave Case Conceptualization](#)”), respectively. Although these waves of CBT shared some major characteristics in theory and practice, each also has its unique features that are differentiated from the other two waves of CBT. More specifically, chapter “[Depressive Disorders: First Wave Case Conceptualization](#)” outlines the original operant model of depression proposed by Lewinsohn (1975) and presents behavioral activation, an operant principle-informed behavioral therapy, as a notable example of first-wave CBTs for depression. In chapter “[Second Wave Treatment for Depressive Disorders](#)”, Fisher and her colleague introduce cognitive models of depression and depression treatment, and then present cognitive therapy (CT; Beck et al., 1979) as a hallmark second wave CBT for depression. Subsequently, in chapter “[Depression: Third Wave Case Conceptualization](#)”, Segal and his colleague presents decentering as the overarching mechanism of change in CBTs for depression from various waves, and argue how MBCT (Segal et al., 2013), the most well-known third wave CBT for depression, explicitly targets this generalized process of change in practice.

The third major behavioral issues on which these three waves of CBT are compared with one another in this section is obesity, which is now recognized as a major public health issue across the globe (e.g., James, 2008). In chapter “[First Wave Treatment of Obesity](#)”, R. Wayne Fuqua of Western Michigan University outlines how a classic behavioral account conceptualizes the issues related to and causes of obesity as well as how it informs the first wave CBT for individuals with obesity. In chapter “[Obesity: Third Wave Case Conceptualization](#)”, Evan Forman of Drexel University and his colleagues presents third wave CBTs for obesity in theory and

practice as well as empirical evidence of these intervention, including acceptance-based behavior therapy (ABT; Forman et al., 2016).

The fourth behavioral issues that the three waves of CBT are compared and contrasted is psychosis. CBT has a long history in psychosis treatment. In chapter “[First-Wave Behavior Therapies for Schizophrenia and Related Psychotic Disorders](#)”, Stephen Wong of Florida International University outlines the first-wave conceptualization of psychosis and its treatment strategies (e.g., contingency management for daily living skills, social skills training), which was originated in as early as 1950s. Subsequently, Dennis Combs of University of Texas at Tyler presents a second wave CBT for psychosis, which incorporates the role of cognitive processes into theory and practice (chapter “[Schizophrenia Spectrum and Other Psychotic Disorders: Second Wave Case Conceptualization](#)”). Finally, in chapter “[Schizophrenia Spectrum and Other Psychotic Disorders: Third Wave Case Conceptualization](#)”, Brandon Guadiano of Brown University proposes willingness and acceptance as a set of alternative way that patients with psychosis relate to their psychotic symptoms (e.g., auditory hallucination).

The fifth behavioral problem examined in this volume is substance and alcohol misuse. This has been a notoriously difficult problem to treat with high drop-out, and high recidivism. In chapter “[Substance-Related and Addictive Disorders: 1st Wave Case Conceptualization](#)”, Hendrik Roozen and Jane Ellen Smith of the University of New Mexico present Community Reinforcement Approach (CRA; Hunt & Azrin, 1973) along with Token Economy (Ayllon & Azrin, 1968) and Contingency Management (CM; Higgins et al., 2007) as exemplars of the first wave CBT for individuals with substance use issues. Then, Anthony Ecker of Baylor University and Michael Cucciarre of University of Arkansas presents a second wave CBT accounts of substance and alcohol misuse and its treatment (chapter “[Substance Use Disorders: Second Wave Approaches](#)”). Finally, the discussion on CBT for substance and alcohol misuse is summarized by Angela Stotts of the University of Texas (chapter “[Third Wave Therapies and Substance Abuse: A Case Example](#)”). She and her colleagues argue that third wave approaches, such as ACT and other mindfulness-based approaches has been built on previous generations of CBT and at the same time have expanded the scope of treatment by targeting processes, such as values-based behavior activation and psychological openness.

The sixth behavioral health problem to be examined in this section is attention deficit hyperactivity disorder (ADHD). To date, of non-pharmacological treatment approaches to ADHD in children, behavioral interventions (i.e., first-wave CBTs) have the largest evidence-base (Piffner & Haack, 2015). In chapter “[Attention Deficit Hyperactivity Disorder: First Wave Case Conceptualization](#)”, Michelle Wallace of California State University, Los Angeles presents the overview of the first-wave CBT interventions for children and adolescents with ADHD. In chapter “[Attention Deficit Hyperactivity Disorder: Second Wave Conceptualization and Intervention](#)”, Will Canu of Appalachian State University and Dane Hilton of Wofford College outline the theory and practice of second wave CBT for ADHD. These authors argue that CBT is promising for adults with ADHD, but not necessarily for children and adolescents with ADHD. Finally, Bridget Beachy,

David Bauman, and Melissa Baker present the application of third-wave CBT to adults with ADHD in theory and practice (chapter “[Attention Deficit Hyperactivity Disorder: Third-Wave Behavior Therapy Conceptualization](#)”).

The final and seventh behavioral health problem covered in this section is chronic pain. In chapter “[Chronic Pain: Perspective on the Second Wave](#)”, Leah Adams of George Mason University and Dennis Turk of the University of Washington present the second wave CBT account and intervention of individuals with chronic pain. They argue that unlike common misconception of the second wave CBT, the second wave CBT does not have an explicit focus on reducing or eliminating the experience of pain in and of itself, but that instead, *emotional distress* related to pain and pain-interference are targets. They also note the marked similarities between the second and third wave CBTs for chronic pain in both theory and practice. In chapter “[Chronic Pain: Third Wave Case Conceptualizations](#)”, Kevin Vowles of Queen's University Belfast presents an ACT account of chronic pain and chronic pain treatment as it is the most well-established third wave approach to chronic pain (e.g., McCracken & Vowles, 2014).

The final section will provide the history of CBT in non-Western contexts as well as a summary of some of the key issues and the future of behavior therapy and CBT. These chapters may be helpful for readers to see CBT from a historical and longitudinal perspective and plan their own research and clinical careers. Regarding the history of CBT in non-Western context, Jan Luiz Leonardi and Gabriel Vieira Cândido presents the history and future of CBT in Brazil (chapter “[The History of Behavior Therapy in Brazil and Its Relationship with the Three Waves](#)”), which is followed by the history and future of behavior therapy and CBT in Japan by Takashi Muto of Doshisha University and Akihiko Masuda of the University of Hawaii at Manoa (chapter “[History of Cognitive and Behavior Therapies in Japan: A Behavior Analytic Perspective](#)”). Following these chapters, Bruce Thyer of Florida State University presents the future of first wave CBT from a behavior analytic perspective, especially in the domain of applied behavior analyst training and careers in applied behavior analysis (chapter “[The Future of First Wave Behavior Therapies](#)”). Finally, our volume will end with Robert Zettle of Wichita State University and his chapter presenting his reflection on the history of the first, second, and third wave CBTs as well as making predictions regarding the future of CBT (chapter “[The Future of Third Wave Cognitive Behavior Therapies](#)”).

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Personal Perspectives on the Development of Behavior Therapy and Cognitive Behavior Therapy



Gerald C. Davison

In June 1999 I was privileged to be invited to a two-day conference at the University of Nevada, Reno to participate in presentations by colleagues regarded by the organizing committee (William T. O'Donohue, Deborah A. Henderson, Steven C. Hayes, Jane E. Fisher, and Linda J. Hayes) to be founders of behavior therapy. Most of the other speakers and for those, having passed, their surrogates, were people whose seminal writings I had learned from as a graduate student and as a young researcher, teacher, and practitioner. The task set for each of us was to describe what we saw as the strongest influences in our professional lives and to discuss a publication that we believed had had some importance in the development of (cognitive) behavior therapy. We were also encouraged to engage in something which occasionally happens only in personal settings with friends and perhaps also with colleagues and students, namely autobiographical material that each of us believed had had bearing on our intellectual and professional development. The assumption of the conference organizers was that this framework would provide a context for a deeper understanding of the field than is available in published materials and, if one is lucky, from direct and extended contacts with a small handful of senior colleagues. There was laughter and, yes, there were tears as each of us learned something hitherto unknown about our colleagues and how these intimate details were seen by them as pivotal to their professional achievements. Articles based on these speeches were edited and published in O'Donohue et al. (2001).

It was similarly daunting and humbling to have been asked by the editors of the present volume to write my reflections on behavior therapy's past as I have experienced it. I hope that the following account can place behavior therapy and cognitive behavior therapy into a useful perspective. We all know that this kind of material is almost never allowable in our publications. The focus in scientific writings is on hypothesis-testing, research methodology, and statistical analysis. But where did

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the ideas come from? How did the investigators come to spend inordinate amounts of time, energy, and grant money on asking questions in a controlled, scientific fashion? For myself, if there's a main theme to my story and, I believe, to the evolution of behavior therapy/modification, which is rhetorically derived from "modern learning theory", to cognitive behavior therapy and thence to the "third wave," it's the centrality of cognition – how people construct their world and how therapeutic efforts to alter their constructions can improve their lives as well as the human condition.

Earliest Influences

I've been fortunate – damned lucky, to put it more bluntly – to have done my Ph.D. work at Stanford in the early 1960s and to have had the opportunity to learn from four giants in the field: Albert Bandura, Walter Mischel, Perry London, and Arnold Lazarus. My sense of good fortune is enhanced by the fact that I went to Stanford after college to study dissonance theory with Leon Festinger (1957). As it turned out, he had just changed his research interests from his pioneering work in cognitive dissonance to basic laboratory work in eye movements (and I don't mean EMDR). My boundless admiration of him as a leading and creative social psychologist was exceeded only by my lack of interest in his newfound research focus, and so I wandered a bit my first year only to end up with having Bandura as my advisor.

These happy accidents are, I believe, instructive in how one might view behavior therapy's past (with major considerations for its present and its future). For at its core, what we call behavior therapy, behavior modification, and more recently cognitive behavior therapy has its essence in a desire to apply as rigorously as possible various scientific methods to studying the exceedingly complex challenges in helping people achieve changes in thinking, feeling, and behaving that will ease their suffering and perhaps enrich their lives.

I entered graduate school in 1962 uncertain of what specialty I would pursue (beyond designing clever analogue deception-laden dissonance experiments with Festinger¹), but I was certain of one thing, namely that my specialty would not be clinical psychology. The reason was that the only kind of clinical I had been exposed to during my undergraduate days at Harvard was psychoanalytic and its variations. I just couldn't accept the epistemology. When is a cigar just a good smoke? After my disappointment at Festinger's radical change in direction and after immersing

¹A valued colleague and good friend at Stony Brook, where I had my first academic position after graduate school, the late Jerome E. Singer, once commented that the most interesting aspects of dissonance theory experiments were the cover stories. This wry observation came from the co-author of the famous Schachter-Singer study on the centrality of cognition in how people understand their autonomic arousal. Talk about a cover story! Among the many classic studies pertinent to cognitive behavior therapy that younger cohorts would enjoy and benefit from, none is more significant for earlier generations than this article.

myself for a few months in physiological psychology in J. A. Deutsch's (Deutsch, 1960) lab (and having to confront my serious allergies to animal dander), I learned that there was this young full professor teaching ways to help people psychologically without forsaking one's interest in and commitment to testable theorizing and hard-nosed experimentation. This person was the above-mentioned Albert Bandura.

In the olden days, when I had to trudge uphill in the biting cold to go to school and then uphill in the afternoon to return home, one could actually read everything that had been published in what was called "behavior therapy" or "behavior modification." One could also master the experimental animal learning literature that was boldly asserted to be the firm foundation for these startlingly new therapeutic techniques. I did just that as part of my Ph.D. qualifying exams.²

There were a handful of books that were pivotal in the early 1960s –Andrew Salter's "Conditioned Reflex Therapy" (1949), Hans Eysenck's edited "Behavior Therapy and the Neuroses (1960)," Joseph Wolpe's "Psychotherapy by Reciprocal Inhibition" (1958), Arthur and Carolyn Staats's "Complex Human Behavior" (1963), and an almost poetically crafted and little known gem by a former mentor, Perry London (1963), "The Modes and Morals of Psychotherapy." Noteworthy as well, of course, was B.F. Skinner's (1953) "Science and Human Behavior". As Marv Goldfried and I reviewed in the first chapter of our 1976 book, "Clinical Behavior Therapy," (Goldfried & Davison, 1976) there were also other earlier books and articles that are seldom cited and appreciated, most especially Julian Rotter's "Social Learning and Clinical Psychology" (1954), George Kelly's "Psychology of Personal Constructs (1955), and a 1961 Psychological Bulletin article by my Doktorvater, Albert Bandura. The books by London, Rotter, and Kelly are rightly seen as foundational in the evolution of behavior therapy into cognitive behavior therapy, but the CBT literature seldom references and discusses these earlier seminal writings. Of course no deep understanding of and appreciation for CBT is possible without the seminal contributions of Albert Ellis (e.g, 1962) and Aaron T. Beck (e.g.,1967). I believe it's useful to mention these foundational publications because, unfortunately, they are seldom even read or taught these days in our continuing efforts to stay abreast of the explosion of books, chapters, and articles that are generally seen as seminal.³

My exceedingly enjoyable and stimulating years at Stanford were immeasurably enriched by the visit of Arnold Lazarus from Johannesburg, South Africa during my second year, 1963–1964. Another totally unpredicted and unexpected bit of luck. With a few of my fellow clinical students, I sat in on therapy sessions that Lazarus

²There's an old joke about a computer nerd rising from his cumbersome PC on a day in 1996 to exclaim with great satisfaction that he had just finished viewing every website on the World Wide Web. After completing my Ph.D. qualifying exams in the fall of 1964, I had the same feeling about behavior therapy – I had read all that had been published plus a great deal of in press articles as well as related material, like the aforementioned animal avoidance learning literature. I doubt that anyone has been able to say this about behavior therapy for at least the past 50 years.

³I've often considered offering an elective seminar that would involve a study of these and other early works, but I seriously doubt that it would meet minimum enrollment.

had with patients from the area south of San Francisco who eagerly sought help from a highly touted clinical psychologist who was one of the few clinicians in the world widely acknowledged to be an expert in this new thing called behavior therapy. I spent 10–15 h a week from September to May sitting in with Lazarus. It's hard to put into words how important that year was in my intellectual and professional development. Anticipating a theme that I will develop later in this chapter, I came to appreciate the complexities of the clinical interaction, and gradually the abstract concepts and experimental research that I was immersed in through courses with Bandura and Mischel⁴ came to life. I had the unique and priceless opportunity of watching how a master clinician implemented what behavior therapy was at that time, described and explained in Wolpe and Lazarus's 1966 book, "Behavior Therapy Techniques". I was stunned by the improvement of most of Lazarus's patients but also dumbfounded by how much more there was to actual clinical work than was evident in the extant body of theory and research. Lazarus referred to these factors as "non-specifics," which I later came to appreciate as deriving largely from Rogers's client-centered therapy (Rogers, 1942), in particular the importance of a trusting therapeutic relationship marked by empathy and mutual respect. The importance of the therapeutic relationship loomed much larger than was discussed in the behavior therapy literature of the time. I had the opportunity to formalize and elaborate on these factors in my book with Goldfried (Goldfried & Davison, 1976) after I had gained some "seasoning" in the clinical world, especially in my teaching and clinical supervision in my first job at Stony Brook beginning in 1966.

Cognitive Factors in Behavior Therapy – The Development of Cognitive Behavior Therapy

As Lazarus and I have written in several chapters and articles (e.g., Lazarus & Davison, 1971; Davison & Lazarus, 1995), case studies occupy an honored place in the developing science of clinical psychology. Their heuristic value is probably their key importance and will be addressed throughout this chapter. I hope it will be informative to illustrate this essential point by discussing in some detail an early publication on what I called "cognitive restructuring" and which, for me, took me into the hybrid field of cognitive behavior therapy (Davison, 1966b).

Context: During my postdoctoral clinical internship at the Palo Alto Veterans Administration Hospital in 1965–1966, I treated a middle-aged patient who had been presented at a Grand Rounds by a psychiatry resident for treatment of paranoid

⁴I have found that many younger cohorts of students and colleagues are sometimes unfamiliar with Walter Mischel. In the current context, he was what Thomas Kuhn would have called a paradigm-buster. In a painstaking and creative analysis of how well traits assessed by personality tests predicted behavior in various situations and over time, Mischel (1968) argued that situational analyses were more useful and valid. In this way he made seminal contributions to behavior therapy's emphasis on functional analysis.

delusional beliefs centering around spirits communicating through some cysts on his forehead. He described these as “pressure points”. Though psychodynamic in orientation, the resident had fulfilled the patient’s request by convincing the surgery department to remove the cysts based on the belief that this would eliminate his delusion. The delusions did not abate.⁵

Possessed with a nascent cognitive behavior therapy fervor, I asked the patient during the Grand Rounds Q&A if he experienced his spirits communicating with him at any particular times. He replied that it tended to happen when he had to make a decision, even a very minor one. I queried the patient further, operating with the very tentative hypothesis that he was very anxious about making mistakes and that, for some reason, he had developed the paranoid delusion about helpful spirits as way to cope with his decisional anxieties. This kind of situational assessment had not been a part of his prior sessions with the psychiatry resident. The patient’s answers prompted me to seek and obtain the approval of my clinical supervisor to volunteer to have some sessions with the patient. I believe that it will be informative to quote extensively from this brief publication:

Mr. B’s psychiatric problems seemed to begin 4 yr. prior to hospitalization, with the suicide of his only brother. It was during this time that he began to be preoccupied with ‘pressure points’ over his right eye, which he interpreted as being caused by a spirit either inside or outside his body, helping him make decisions. His marriage of 3 yr. held, from the very outset, little more than continuous arguments with his wife and her family. He would often be squelched by being called a ‘mental case.’

Upon admission his speech was described as tangential, with loose associations and grandiose schemes and persecutions by others, but centering around information from his pressure points. There was no evidence of hallucinations.

In the first session [with me], when asked to relate as many instances as he could of their occurrence, the patient brought up several situations which were clearly anxiety-provoking, e.g., losing his way on the freeway [he was a truck driver], being late with a truckload of goods, and then, along with severe anxiety, receiving ‘messages’ of which turns to take. In every case Mr. B. volunteered that he had been extremely tense and upset in these situations. Towards the end of the hour, I suggested to him that, while he had his own ideas about the nature of these sensations, he entertain another notion. At this point I requested him to extend his arm, clench his fist, and slowly bend his wrist downwards so as to bring the closed hand toward the inside of the forearm. A definite feeling of severe muscle tension was thereby produced in the forearm, at which time he smiled slightly and muttered that it felt very much like a ‘pressure point.’ I then suggested that perhaps these sensations [his “pressure points”] were purely natural phenomena, a consequence of his becoming very tense in particular kinds of situations. To appeal to his interest in philosophy and anthropology (which may account for his construction of the sensations), I cited Malinowski’s (1948) discussion of how Man’s need to explain phenomena probably gives rise to mystical explanations in areas where scientific, naturalistic explanations are lacking. To test my hypothesis, I asked him to undergo training in deep muscular relaxation, designed to reduce his generally high level of anxiety and especially to determine the nature of the pressure points and perhaps to control them. The first session ended with a half hour’s training in relaxation [by means of tapes I made based on Edmund Jacobson’s original work but modified by Lazarus to involve quick tension and release rather than Jacobson’s gradual tensing and relaxing of muscles]. After completing the relaxation exercises, the patient reported sponta-

⁵Your tax dollars at work, I thought ruefully to myself at the time.

neously: 'I feel relaxed inside like I haven't felt in a long time.' I deemed this as a very favorable and promising initial outcome and had the patient practice with the tape on his own between subsequent sessions.

There were eight additional sessions over a 9-wk. period. During these meetings, Mr. B. was instructed in differential relaxation (Davison, 1965), in order to enable him to eliminate pressure points when they arose as well as to reduce his maladaptively high levels of anxiety. He began to report on the occurrence of pressure points at the hospital, all of which confirmed the hypothesis that we were testing; he was also succeeding in reducing them markedly by relaxing. After 1 mo. he began to refer to them as 'sensations,' and his conversation generally was losing its paranoid flavor.

In the fourth session I initiated a game of black-jack with him, feeling that it would provide the occasion for a pressure point. This, indeed, turned out to be the case, and being able actually to produce the sensation in a manner analogous to real life and then to eliminate it by relaxing provided further evidence, for both of us, as to the utility of both the hypothesis and the therapy.

During a week-long leave of absence at home, Mr. B. began to assert himself to his wife and in-laws, as had been suggested; the favorable effects of this behavior, in terms of clarifying some misunderstandings, were augmented by his feeling significantly more at ease. He also reported significant relief from the realization that his 'crazy,' 'sick' behavior in the past could be fruitfully interpreted in terms of quantitatively different reactions to situations, rather than in terms of a 'mental illness,' which notion had placed him in a most unfavorable, 'one-down' position at home.

For the remaining 3 wk. of his hospitalization we spoke often about the effects which our behavior has on others; how these effects can in turn influence our own feelings; about the advisability of asserting oneself in the appropriate situation so as to avoid the buildup of tension and often the subsequent, sometimes 'crazy' outbursts; and especially about the benefits to be derived from the control of one's tensions through differential relaxation.

A follow-up of [only] 6 wk. was obtained by letter. Mr. B. reported that the 'pressure points' (his quotation marks) were far less frequent, fairly amenable to relaxation, but most importantly, of no concern to him. He has been far less tense generally and has managed to complete a correspondence road-building course which he had been able to work on very little the previous 2 yr. His marital relationship has also shown continued improvement.

It would appear that improvement was due, in greatest part, to the combination of differential relaxation and cognitive restructuring of the pressure points. In addition, the general use of relaxation is assumed to have made the patient less tense overall and perhaps also to have occasioned "in vivo desensitization" of various aversive stimuli (Davison, 1965; Lazarus et al., 1965). The reduction of tension and the shift of ideational and verbal behavior from socially unacceptable to socially approved patterns seem to have consolidated the improvement by changing the reactions of others to him, thereby setting the stage for still further gains.

In this short report one [with very limited follow-up] can only allude to earlier work with paranoid cases. In spite of radically different orientations, such workers as Cameron (1959), Salzman (1960), and Schwartz (1963) seem to agree strikingly with the present therapy to the extent that the paranoid's constructions of the world should be subtly challenged, with alternate explanations being offered.

Is this 'behavior therapy'? Surely an answer depends on one's definitions. As techniques derived from 'modern learning theory' (cf. Eysenck, 1960), especially from studies in classical and operant conditioning, this certainly is not the case. The intentional appeal to cognitive processes points to this therapy as being perhaps "neobehavioristic," in the sense used by Peterson and London (1964), who report the first case in the behavior therapy literature which explicitly extends the therapist's concerns into cognition. (Davison, 1966b, pp. 177-178)

Of course a case study is very limited in strictly scientific terms. Many other factors were operating here, among them the nature of the trusting and respectful relationship that I managed to establish, which apparently reduced the usual negative reaction that paranoid people have when their delusional beliefs challenged. I was able to encourage this hospitalized patient to question his paranoid beliefs and subject them to experimental analysis. On the other hand, a variety of other therapeutic interventions had been attempted without success, which is consistent with the strong possibility that my sessions with him had specific desirable effects. Efforts to apply variations of CBT to people with serious mental disorders have become an active area of research and application (e.g., Beck et al., 2020).

The Person as an Active, Thinking Agent

In 1966 and in 1973 I published two articles that relate to the current conception of people as active and thinking participants in their lives. This seems pretty unremarkable to any sentient human being and has for years been an underlying assumption in many specialties in our field, especially in social psychology, where choosing and deciding and wanting and demurring have underlain decades of theory and research. Festinger’s dissonance theory, for example (Festinger, 1957), would have no meaning without the core assumption that people can freely choose and that their attributions for their choices matter. (My own work in attribution is described in a later section.)

However, I would argue that this was not a formal part of behavior therapy in its early days.

Recall that behavior therapy was defined in the late 1950s into the mid-1960s as based on “modern learning theory,” which for all intents and purposes referred to Pavlov, Skinner, and to some extent Hull. People were characterized in theory – though doubtless not in practice – as passive objects of environmental events. In my view, the earliest experiments and position statements in behavior therapy did not state or imply that animals or humans played an active role in their relearning/“reconditioning.” Like Pavlov’s dogs, Skinner’s pigeons, and Wolpe’s cats, people were acted upon by environmental manipulations. Relax them, provide stimuli to them, observe their responses, reward them etc. Mediating states themselves were viewed à la Mowrer (1939) and Miller (1948) as “little r’s” subject to the same stimuli and reinforcing events as overt behavior.

Relaxation as an Active Cognitive Process

Radical behavioristic theorizing was exemplified by the pioneering research and clinical work of a physician, Edmund Jacobson (1929). He published numerous investigations of training in deep muscle relaxation, painstaking exercises to relax

muscles to the extent that proprioceptive stimuli were eliminated and *therefore*, he asserted, all affect and ideation. Per John Watson's radical behaviorism (Watson, 1913), it was the reduction of proprioceptive stimuli that effected a reduction in anxiety and even thought. This led Wolpe to build systematic desensitization on muscle relaxation as a functional substitute for the eating that Mary Cover Jones had employed as an anxiety-inhibiting "response" in eliminating little Peter's fear of rabbits (Jones, 1924).

This was the context for two events, one based on clinical observation, the other on some reading I did during my short period in Tony Deutsch's physiological psychology laboratory.

On the clinical side, recall the many hours I was fortunate to sit in with Arnie Lazarus during his visiting year at Stanford, 1963–1964. Watching him conduct training in muscle relaxation with anxious patients, I was struck by the emphasis on alternate tensing and relaxing of muscles. Of particular interest was the "letting go" part of the exercises, the softly spoken instructions to the patient that they actively release the tension that they had just created in a group of muscles (for transcripts of such exercises, see pp. 82–98 in Goldfried & Davison, 1976). It was a very active process. The reduction in tension, the reduction of proprioceptive input from the muscles, was created by the patient releasing the tension.

I saw a possible connection between Jacobson's peripheralistic conception of thought and feeling with research in curare, a drug that is sometimes used to prevent anesthetized surgery patients from moving their bodies in ways that would interfere with the surgery. Their striate muscles are rendered flaccid via a blocking of excitatory efferent nerve impulses at the neuromuscular junction. In plain language, messages from the brain don't get translated into contraction of the muscle. Experiments with curarized rats as reviewed by Solomon and Turner (1950) showed, though, that avoidance learning is possible when the musculature is rendered flaccid by curare, supporting the presence of anxiety under total curarization.

These animal findings were confirmed in a remarkable article by Smith, Brown, Toman, and Goodman (1947). One of the co-authors, a biologist, had himself paralyzed with the drug without being rendered unconscious. *He found it an absolutely terrifying experience*. Even though he was on a ventilator and in good hands medically with professionals he trusted, he found it alarming not to be able to move his muscles. Hardly surprising! He did, though, try mightily to do so, which strongly suggests that his cortex was sending efferent messages to his muscles to tense up. Ergo, reduction in proprioceptive feedback from muscles is not at all inconsistent with cognition and anxiety, contrary to the Watsonian theorizing of Edmund Jacobson and Joseph Wolpe.

I summarized the implications of these animal and human studies as follows:

... there seems to be an important difference between relaxing one's own muscles and having them relaxed by a paralytic drug, quite aside from one's subjective reactions. In both states there is a virtual elimination of proprioceptive feedback from the muscles. If one looks beyond the elimination of afferents, he might ask whether efferent activity offers a clue. Quoting from Ruch et al. (1961), 'Reduction of a skeletal muscle is accomplished by inhibition within the spinal cord of the motoneurons which excite it (p. 221).' Therefore, it

would seem that, in a person relaxing his own musculature, the efferent activity from his cortex would be quite different from that during muscle contraction, i.e., it would entail inhibitory efferents which would block activity in the actual efferents that innervate muscles. (Davison, 1966a, p. 446)

And with respect to awareness or cognition, I pointed out that:

Briefly stated, if we are to suggest that *letting go* of one's muscles is the crucial factor in the use of Jacobsonian relaxation in systematic desensitization, a question to ask might be whether, over above the afferent feedback we usually get as a result of an efferent, we can be aware of our efferents. By means of an experiment on spatial visual localization in humans, Festinger and Canon (1965) have been able to show that we do, in fact, make use of 'outflow information'. (p. 446)

Putting it all together – the clinical practice of teaching deep muscle relaxation and the human experience of abject terror when the muscles are relaxed by a drug – led me to conclude that awareness (cognition) and agency by the person had to be incorporated into behavior therapy, a self-evident truth that I'm sure was not lost on practicing behavior therapists but was not incorporated into the “conditioning therapies” behavior therapy paradigm of the 1950s and 1960s. Obviously people are active controllers and deciders rather than passive organisms being acted upon by the environment. This fact needed to be formally integrated into behavior therapy.

Countercontrol

The other stream regarding agency and cognition arises from a paper I gave at the annual international Banff Conference on Behavior Modification in Banff, Canada in the spring of 1972 and published in a volume edited by the conference organizers (Davison, 1973). I decided to talk about a topic I had been discussing with Stony Brook colleagues for a few years, namely countercontrol (Skinner, 1953).

Of course this concept, referred to as resistance for many decades, is an integral part of psychoanalytic thinking, indeed a very important defensive maneuver by the patient's unconscious to avoid examination of repressed problems that needed to be explored to effect improvement. And the similar concept of “reactance” had been a focus in social psychology since Brehm (1966). So the idea was nothing new. But in spite of Skinner's (1953) discussion, there was little if any serious attention paid to countercontrol in the early behavior therapy literature, to the best of my knowledge. In the Banff paper I described many ways that patients could resist behavior therapy treatment. For example, if a patient undergoing systematic desensitization does not generate a fearsome image when asked by the therapist to do so, there is no way that imaginal exposure to an instantiation of the person's fear is going to happen. And regardless of the change mechanisms hypothesized to be operating that underlie the efficacy of the procedure – which I explored at length with one of my first Ph.D. students, Terry Wilson (Wilson & Davison, 1971; Davison & Wilson, 1973) – nothing was going to happen if the patient didn't follow some basic procedural requirements. Not that our clinical pioneers were unaware of the need for patients to follow

directions, but it took the form of what I found to be rather casual instructions like “Have the patient lean back in a comfortable chair;” “Ask the patient to imagine scenes that you present to her;” “Be sure to have the patient raise a finger when she feels even the slightest degree of anxiety and then to stop imagining the aversive image.” Nothing startling here except that words like “have” as in “have the patient stop imagining” and other such cooperative rule-following were lightly glossed over and not fully addressed conceptually within a behavioristic paradigm in which the imagining of a fearsome event is the functional equivalent of sounding a tone that had been previously associated with an electric shock in an experiment with rats. (The example here is systematic desensitization but the principle applies across the board.)

A few years later Marv Goldfried and I (Goldfried & Davison, 1976) elaborated on the concept of resistance in our chapter on the therapeutic relationship, suggesting various ways that clinicians might reduce the patient’s reluctance and lack of cooperation or actually to use it to enhance therapeutic change. Many of our proposals can be seen in later developments in what has come to be referred to as “third wave” behavior therapies, such as dialectical behavior therapy (Linehan, 1993) and Acceptance and Commitment Therapy (Hayes et al., 1999).⁶

Attribution

You may recall that I went to Stanford primarily to work with Leon Festinger in dissonance theory. Though I switched to clinical during my first year, social psychology remained an area of great interest. And why not? Social psychologists concern themselves with humans as “the social animal”, the title of Eliot Aronson’s charming and engaging introduction to the field (Aronson, 1972). This metatheoretical perspective was the theme of an important book by a Arnold Goldstein, Kenneth Heller, and Lee Sechrest (1966) “Psychotherapy and the Psychology of

⁶My countercontrol paper had a section aimed at behavior therapy colleagues who were enthused primarily about operant conditioning and who interpreted Skinner as discouraging, even forbidding, inferences about mediators like thoughts, feelings, and willing. While colleagues more knowledgeable about Skinner than I regard such rejection of internal states as a misinterpretation of Skinner, it was a guiding assumption at least during the earliest stages of what was called “behavior *modification*.” But, I asked in my presentation, what if patients change their overt behavior due to any manner of contingency management without changing their actual feelings and thinking, domains which of course constitute the focus of CBT? I then semi-facetiously proposed “the Kol Nidre Effect” to describe this possibility. For my non-Jewish colleagues: Kol Nidre is a Jewish prayer chanted on the evening of Yom Kippur, the day of atonement. It means “all vows” and it is believed to have originated over a thousand years ago but is usually associated with the forced conversion of Jews to Catholicism during the Spanish Inquisition in the fifteenth century. The prayer asks for God’s forgiveness for having behaved contrary to Jewish beliefs, that is, changing only one’s overt behavior just to keep from getting killed. So I suggested that even if one obtained the collaboration/cooperation of the patient, a focus only on overt behavior might well not be enough to effect meaningful and enduring change.

Behavior Change". In this scholarly and prescient book, a strong case was made for the emerging science of clinical behavior change to encompass theory and research in social psychology. And an inherent part of social psychology is of course cognitive in nature.

My growing interest in bringing cognition into behavior therapy, spurred on no doubt by the Goldstein et al. book, developed further during my fledging days at Stony Brook when I began an exhilarating collaboration with Stuart Valins, a Stanley Schachter Ph.D. Given the very environmentalistic and openly manipulative stance of early behavior therapy, it occurred to us that the reasons we give to why we have changed, in other words our attributions for change, might be important in how that change would be maintained once formal therapy sessions are terminated. How do patients view the reasons for their improvement? The usual relapses following the termination of drug therapies – if indeed they are ever terminated – are consistent with the hypothesis that people who attribute their improvement to an external source like a drug are less likely to maintain their therapeutic gains than patients who attribute their change to something internal to themselves.

Valins and I decided to examine this issue in a laboratory analogue of drug treatment. The study was described as an evaluation of a new drug⁷ that increased people's ability to tolerate pain. Subjects (a) underwent a pain threshold and shock tolerance test, (b) ingested what they believed was a drug (really a placebo), and (c) repeated the test with the shock intensities surreptitiously halved. All subjects were thus led to believe that a drug had changed their tolerance for pain. Half of the subjects were then told that they had actually received a placebo, whereas the other half continued to believe that they had received a true pain-reducing drug. It was found that subjects who attributed their behavior change to themselves (i.e., who believed they had ingested a placebo) subsequently perceived the shocks as less painful and tolerated significantly more than subjects who attributed their behavior change to the drug (Davison & Valins, 1969).

I then did a conceptual replication (Davison et al., 1973). Undergraduate and graduate students suffering from insomnia participated in a controlled field experiment in which beneficial change was brought about in falling to sleep via a treatment package composed of 1000 mg of chloral hydrate per night and modified Jacobsonian (Jacobson, 1929) relaxation procedures as well as regularizing when Ss were to get into bed for sleep. Following treatment, half of the Ss were told that they had received an optimal dosage of the sleep aid while the others were informed that the dosage they had received was too weak to have been responsible for any improvement. All Ss were then instructed to discontinue the drug but to continue with the relaxation and scheduling procedures during a post-treatment week. As predicted, greater maintenance of therapeutic gain was achieved by those who could not attribute their changes to the drug. Participants were also asked how often they had continued their relaxation exercises and sleep-scheduling during the week

⁷As an ode to Schachter and Singer's "Suproxin", we called our drug "Parataxin".

following their being told whether they had received an optimal versus an inadequate dose of the sleep aid. No differences in their self-reports emerged.

Taken together, I concluded that these two experiments on analogue and actual drug treatment had important practical and conceptual implications for behavior therapy and contributed to the new field of *cognitive* behavior therapy. As an extension of general experimental psychology, behavior therapy was essentially environmentalistic, looking to external variables for the control and alteration of “abnormal” behavior. The literature of the time was marked by little if any concern about how the individual so manipulated *perceives the reasons for their changing*. Early behavior therapy – in its theorizing though probably not in its practice – seemed to be consistent with the assumption that behavior therapy clients construe the reasons for change to be *outside* themselves, that is, that therapeutic improvement is to be attributed primarily if not entirely to external influence. It seemed to me that especially the operant approaches would pose problems for the maintenance of behavior change once the artificially imposed contingencies are withdrawn (cf. Davison, 1969); and the difficulty of maintaining therapeutic change might be accounted for at least in part by the notions of attribution proposed by Valins and myself. If a person realizes that his behavior change is totally dependent upon an external reward or punishment, there is no reason in the patient’s mind for his new behavior to persist once the environmental contingencies change. The external contingencies assumption, widely held in the 1960s and even for decades later, can be seen in the belief that maintaining desired changes had to be effected through trying to ensure that patients would receive reinforcement from the social environment in which they were living, rather than to working to make changes in internal processes like beliefs, schemata, and attributions, the foci of cognitive behavior therapy. And it is noteworthy, I believe, that this shift coincided with the psychotherapy integration movement of the 1970s with my 1976 book with Marv Goldfried and the 1977 book by Paul Wachtel, discussed below. But before we get to that, I’d like to discuss another relevant theme.

Perceived Control

As part of my interest in cognitive factors is an experiment the idea for which grew out of one of my graduate school specialty examinations. As a behavior therapy warrior and enthusiast for all things Wolpean as well as for the animal avoidance learning experiments and scholarly writings in the 1940s and 1950s inspired by O. H. Mowrer and Neal Miller (Mowrer, 1939; Miller, 1948), I was intrigued by a 1948 rat experiment by Mowrer and Viek entitled “An Experimental Analogue of Fear from a Sense of Helplessness.” Interestingly it was published in the *Journal of Abnormal and Social Psychology*, a journal that very, very seldom published studies using non-human models. Because the concept of control and most especially *perceived* control has become important in social psychology (Taylor, 1983) and in CBT, I’d like to provide some background and details.

The avoidance learning literature, which was the foundation of most of early behavior therapy's appeal to "modern learning theory, was almost entirely with rats. (Wolpe's creative experiments in the early 1950s employed cats [Wolpe, 1952], perhaps because he was using Masserman's earlier experiments involving cats [Masserman, 1943] as an animal model.) It was for this reason that I channeled my youthful energies into a diligent and comprehensive study of the animal avoidance learning literature as part of my doctoral specialty exams at Stanford in the summer and early fall of 1964. My growing interest in and respect for Wolpe was enriched by the increasingly cognitive interests of two of my primary instructors, Albert Bandura and Walter Mischel, and most importantly by my "clinical apprenticeship" with Arnold Lazarus. These cognitive influences went back a couple of years to my undergraduate mentorship under Jerome Bruner at Harvard, to be discussed below. For all these reasons, at least as I reflect retrospectively over the past 55+ years, I began to chafe under the early behavior therapy constraints of "modern learning theory" and I returned to my undergraduate appreciation that a useful understanding of the human condition had to include explicit and careful attention to cognitive factors. If this sounds naïve and dated, that is totally understandable. But it was diametrically opposed to the foundational behavior therapy mantra against what Perry London aptly termed "the insight therapies," which included all that had come before, principally psychoanalytic/psychodynamic and humanistic-existential approaches.⁸

In the aforementioned experiment by Mowrer and Viek, laboratory rats were trained in an instrumental response to obtain food. Then they were shocked when eating the food reinforcer. Randomly selected rats were then assigned to one of two conditions. One group was able to terminate the shock by jumping. Each member of this "control" group was paired with/yoked to a rat in the "no control" group, for whom the shock was terminated not by anything it was doing when shocked but when its partner in the "control" group made the movement that terminated the shock. Thus, nothing that the "no control" rats did had any bearing on how long they had to endure the shock; that was determined by its yoked partner's behavior in the "control" group. The rats whose jumping terminated the shock later exhibited less fear than the group that had no actual control over the shock.

These experimental findings were consistent with prior (e.g., Rotter, 1954) as well as with subsequent clinical and anthropological observations of people's reactions to fearsome events over which they have no actual control. For example, in a 1957 anthropological report by Richter, entitled "On the Phenomenon of Sudden Death in Animals and Man", it was reported that "A Brazilian Indian condemned

⁸The contempt for insight-oriented paradigms, in particular psychoanalysis and its variants but also the humanistic-existential tradition of Rogers and Maslow, can be appreciated by the colorful first paragraph of Andrew Salter's classic *Conditioned Reflex Therapy*: "It is high time that psychoanalysis, like the elephant of fable, drag itself off to some distant jungle graveyard and died. Psychoanalysis has outlived its usefulness. Its methods are vague, its treatment is long drawn out, and more often than not, its results are insipid and unimpressive" (Salter, 1949, p. 1). This kind of mantra was common in the earliest behavior therapy/modification literature of the 1950s and 1960s.

and sentenced to death by a so-called medicine man is helpless against his own emotional response to this pronouncement – and dies within hours.... In New Zealand a Maori woman eats fruit that she only later learns has come from a taboo place. Her chief has been profaned. By noon of the next day she is dead (Basedow, 1925, cited in Richter, 1957, p. 191).”

Reports like this abound in the anthropology literature. Similar observations can be found in our own society. Bettelheim, for example, a concentration camp survivor, wrote as follows (I am citing him despite the controversies that swirl around him. The following quote is consistent with numerous other reports): “Prisoners who came to believe the repeated statements of the guards – that there was no hope for them, and that they would never leave the camp except as a corpse – who came to feel that their environment was one over which they could exercise no influence whatever... these prisoners were in effect walking corpses... they had given the environment total power over them (Bettelheim, 1960, pp. 151–152).”

My aforementioned case study about paranoid delusions (Davison, 1966b), my collaboration with Stu Valins on attribution (Davison & Valins, 1969), my clinical experience and clinical supervision during my first few years at Stony Brook – I think that all these factors underlay how I began to interpret the Mowrer-Viek study. With a measure of unabashed anthropomorphism, I hypothesized that for humans it might not (entirely) be the objective measure of control that was important, rather it might be the *perception* of control. That is, perhaps stress can be reduced in humans if the belief is induced that it is under their control even if it not. I began brainstorming with another Stony Brook colleague, James Geer, and, together with a promising undergraduate, Robert Gatchel, we designed an analogue experiment with humans to address the issue.

Briefly stated, male undergraduate volunteers underwent a series of 6-s painful electric shocks – levels set at mildly painful for each subject – at baseline while their stress (spontaneous GSR fluctuations) and reaction times to turn off each shock were measured. Then half the subjects were told that if their reaction times to a second series of shocks were quick enough, the duration of the shocks would be reduced in length from 6 s to 3 s. The other half were simply told that their second series of shocks would be reduced to 3 s in duration. In fact, the second series of shocks were reduced from 6 s to 3 s for *all* subjects, the key difference being that “control” Ss *believed* that they were exerting control over the duration of the second series of shocks. As predicted, those subjects who *believed incorrectly* that they were exerting control over aversive stimulation reacted with less stress than those who did not. We considered these findings all the more significant since other research had shown that our perceived control Ss might have been more on edge during the second series of shocks because they were performing a demanding task, trying to reduce their reaction times, in order to achieve a goal, namely reducing their discomfort. The important role of belief in control moved us to end the article with a reference to the anthropologist Malinowski (1949) to the effect that “Man creates his own gods to fill in gaps in his knowledge about a sometimes terrifying

environment.⁹ Perhaps the next best thing to being master of one's fate is being deluded into thinking at he is (Geer et al., 1970, pp. 737–738)."¹⁰

Of course, reality bites. Nonveridical perception, like primary process thinking a la Freud, has its limits,¹¹ but the concept of perceived control has become a focus of great interest in both social and clinical psychology.

Science and Practice: A Two-Way Street

As a new assistant and then associate professor at Stony Brook, I was invited in 1968 to co-author a chapter with Arnold Lazarus entitled "Clinical Innovation in Research and Practice." It was to be included in the weighty "Handbook of Psychotherapy and Behavior Change" that Allen Bergin and Sol Garfield were putting together. The list of contributors was impressive and I felt almost giddy about being asked, especially since I would be co-authoring the piece with my mentor, teacher, and soon-to-be best friend Arnie Lazarus. It turned out to be a piece that managed to annoy as many people as it pleased. In this chapter we tried to lay out the intricate relationships, dialectics if you will, between applied and scientific work in clinical psychology and other mental health disciplines. Among the unique characteristics of clinical work that we deemed essential was the following:

While it is proper to guard against ex cathedra statements based upon flimsy and subjective evidence, it is a serious mistake to discount the importance of clinical experience per se. There is nothing mysterious about the fact that repeated exposure to any given set of conditions makes the recipient aware of subtle cues and contingencies in that setting which elude the scrutiny of those less familiar with the situation. Clinical experience enables a therapist to recognize problems and identify trends that are usually beyond the perceptions of novices, regardless of their general expertise. It is at this level that new ideas come to the practitioner and often constitute breakthroughs that could not be derived from animal analogues or tightly controlled investigations. Different kinds of data and differing levels of information are obtained in the laboratory and the clinic. Each is necessary, useful, and desirable. (Lazarus & Davison, 1971, p. 199)

⁹The reader may recall my using Malinowski in persuading the paranoid patient to entertain a more naturalistic explanation of his delusional beliefs. Clearly I still am influenced by his book, which was part of a sophomore tutorial seminar.

¹⁰I'm sure that the later Walter Mischel, my old teacher and mentor, would not have minded my recounting the following. When he was editor of the *Journal of Personality and Social Psychology*, I was visiting at Stanford in 1969–1970 and was officed across the hall from him. He had received reviews of our manuscript and had decided to accept it. In what is surely the rarest of experiences, he came into my office smiling and gave me the good news. But he then asked if I would be prepared to drop the quote from Malinowski. "We don't usually have articles that end in a poem", he said with that twinkle in the eye that marked his delightfully impish sense of humor. "But I really like it," I replied, "It makes an important point." One of my few wins with Mischel.

¹¹It also has possible strengths, like enhancing a sense of self-efficacy (Bandura, 1977) and encouraging persistence and efforts to achieve certain goals.

The importance we placed on clinical work was anathema to some of our behavior therapy colleagues, who inveighed against the role that on-the-ground experience had in developing a scientific approach to etiology, assessment, and intervention (which included not only what community psychologists call tertiary prevention but also primary and second prevention, efforts to prevent clinical problems in the first place and efforts to keep developing problems from getting worse, respectively). It may not be a controversial issue these days, but those who were not around 50-plus years ago might benefit from appreciating that it was a major kerfuffle. Behavior therapy was trying mightily, some would say frantically, to be taken seriously as a scientific approach to intervention. Arguing that the more scientific people were limited if they were not experienced in applied settings was troublesome and viewed as a risk to the scientific respectability of our approach.

Controlled research (as defined by a community of knowledge-generators at a given place and time) can be informed by clinical experience about which phenomena are worthy of study. In fact, as stated above by Lazarus and myself, relevant clinical science *requires* such applied experiences. Clinical observations have primarily heuristic value; scientific research tests the ideas and hypotheses emanating from the applied setting. The interactions – two-way street as we put it initially and as I renamed it later, dialectics – are mutually enriching. Both components are essential to a clinical psychology that is both scientifically based and professionally relevant.

Since I was a young pup in graduate school, behavior therapy was an exemplar of this interaction between and blending of research and practice. Indeed, we were doing “evidence-based practice” long before the term and variations thereof became a mantra in mental health fields. But is there a gap between research and practice? Absolutely, and this has for years been the subject of discussion in education and training circles, though we have found an appreciation of the applied side primarily among colleagues who are experienced in clinical work themselves and/or in clinical supervision.¹²

The original position of behavior therapy was that it was the application of “modern learning theory” to the modification of abnormal behavior. This definition was, it always seemed to me, more aspirational than actual – as I learned in graduate school, controversies abound in the field of learning and memory. But setting this aside for the moment, Lazarus and I put the challenge this way:

The clinician... approaches his work with a given set, a framework for ordering the complex data that are his [or her] domain. But frameworks [paradigms, theories, hypotheses, hunches etc.] are insufficient. The clinician, like any other applied scientist, must fill out the theoretical skeleton. Individual cases present problems that always call for knowledge beyond basic psychological principles. (Lazarus & Davison, 1971, p. 203).

¹²The interested reader might like to look at my analyses of APA’s report on “empirically-based practice in psychology” published in *The Clinical Psychologist* during my year as president of APA’s Division 12, The Society of Clinical Psychology (Davison, 2006a, b, c).

This dialectical interplay between theory and research, on the one hand, and practice on the other is where the rubber hits the road. This is true not only in clinical psychology but in every specialization that employs experimental methods. Consider the following from the esteemed Handbook of Social Psychology, a chapter by esteemed social psychologists Eliot Aronson and Merrill Carlsmith:

In any experiment, the investigator chooses a procedure which he intuitively feels is an empirical realization of his conceptual variable. All experimental procedures are ‘contrived’ in the sense that they are invented. Indeed it can be said that the *art* [italics added] of experimentation rests primarily on the skill of the investigator to judge the procedure which is the most accurate realization of his conceptual variable and has the greatest impact and the most credibility for the subject. (Aronson & Carlsmith, 1968, p. 25)

Principles of Change Not Treatment Packages

Consistent with the very beginnings of behavior therapy, my focus has always been on principles and mechanisms rather than techniques and certainly not on treatment packages that are often vigorously marketed in workshops and sold in books. When Albert Bandura, my Doktorvater, published his classic and daunting tome, *Principles of Behavior Modification* in 1969, my delight was surpassed only by my lack of surprise. What was far more important than extant therapeutic procedures or therapies named after their founders/promoters was the underlying mechanisms. An example of this was my 1965 dissertation, the publication of which was entitled “Systematic Desensitization as a Counterconditioning Process” (Davison, 1968).

But, in my view, the focus shifted in the 1980s to comparing treatment package with each other. A landmark effort was by Sloane, Staples, Cristol, Yorkston, and Whipple (1975), followed by the famous NIMH Treatment of Depression Collaborative Research Program (Elkins et al., 1985) which cost many millions of dollars and which provided material for many scores of articles, each of them seeing in the voluminous data reasons to feel good about Beck’s version of CBT, Klerman’s psychodynamic therapy (Klerman, 1990), and even the venerable placebo effect.¹³

The seeds for a welcome return to basic science can be seen in this excerpt from Goldfried’s and my Preface to *Clinical Behavior Therapy*, to wit:

.... We have attempted to describe the way behavior therapists analyze clinical problems and *move from general principles to clinical applications* [italics added] ... We hope that the book will serve a heuristic purpose in helping the reader generate clinical innovations within a broad behavioral framework. (Goldfried & Davison, 1976, pp. vi–vii)

This principles-focussed conception of CBT (and of any science-based approach to therapeutic change, which was certainly characterized by Rogers and indeed by

¹³In my teaching I’ve sometimes referred to the findings as a giant Rorschach test.

Freud) has emerged in recent years as a more productive strategy than the treatment package approach of comparing treatment X with Y in what some have called the gold standard for research in psychotherapy. Obviously, I and others have never agreed with that (e.g., Bandura, 1969; Davison, 1994, 1997, 2000; Davison et al., 1970; Goldfried, 1980; Rosen & Davison, 2003). I went further almost 20 years ago in proposing a research strategy that turns therapy research on its head:

Several years ago I commented on the role of basic research in clinical psychology (Davison, 1994) and had occasion to develop the argument further during a conference sponsored by the National Institute on Drug Abuse (NIDA) concerned with untapped opportunities to use basic research in developing clinical procedures de novo (Davison, 1997). Simply put, searching for change mechanisms in existing effective techniques is to work after the fact, and although such process research is very important ..., working in the other direction may be even better ...: Moving from experimentally established principles of change to novel and effective clinical application ... is an inadequately explored strategy for developing new therapeutic procedures that, from the outset, will have known mechanisms of change because such research begins with principles of change. (Davison, 2000, p. 581)

Abnormal Psychology Textbook

The complex and vital dialectical tension between science and practice played a role in my collaborating in the writing of an abnormal psychology textbook with my late Stony Brook colleague and friend, John Neale. After teaching the undergraduate course for 5 years, I came to realize that there wasn't a textbook whose leitmotif was the interplay that I had come to recognize in my clinical work and teaching. I had been using a very fine book by Brendan Maher (1966) and then for 1 year the textbook by Leonard Ullmann and Leonard Krasner (Ullmann & Krasner, 1969). Maher's book was excellent in its scientific approach to the subject matter but, in my view, didn't emphasize enough the applied side of things. Ullmann and Krasner appealed to my behavior therapy interests but was too extreme in trying to apply operant conditioning to the entire gamut of psychopathology and treatment.

For these and other reasons, I began discussing with Neale in the fall of 1971 whether we could co-author a textbook that would truly integrate science and clinical application. I saw it at the time as an incarnation of the Boulder Model (Raimy, 1950), with a heavy emphasis on hard-nosed analysis blended with the humanity and complexity of intervention. Reflecting this focus, the subtitle of the first edition was "An Experimental-Clinical Approach (Davison & Neale, 1974)."

Since I was by that time strongly identified with CBT, the book was seen by many as a cognitive-behavioral one integrated with a strong emphasis on biological factors. It was actually by no means limited to CBT, and, especially in succeeding editions, the importance of non-cognitive-behavioral perspectives was explored at length and in depth. Our primary audience was the so-called upper-tier

undergraduate market and, to some extent, beginning graduate students in the mental health disciplines. For me, the book and its many succeeding editions constituted the most intense and challenging scholarly activity of my entire career.

It is gratifying to observe that the book was well-received. I had the responsibility and the opportunity to describe and critically discuss the kinds of issues in CBT that are covered in this chapter. In my more than 55 years of teaching, I have never worked harder than when I had to explain the complexities of psychopathology, science and practice, CBT and of psychotherapy generally in this book and in my hundreds of hours in the classroom. It has been said that you never really understand a topic until you've explained it adequately to (motivated) undergraduates and to graduate students. I can attest to that simple truth.¹⁴

Clinical Complexity and Psychotherapy Integration

Based on our respective clinical supervisory experiences, Marvin Goldfried and I began collaborating in 1972 on "Clinical Behavior Therapy" (Goldfried & Davison, 1976). I believe that this book was seminal in what was then the somewhat heretical notion that we (cognitive) behavior therapists might have something to learn from our non-behavioral colleagues and vice versa. Coupled with Wachtel's classic 1977 book, "Psychoanalysis and Behavior Therapy: Toward a Rapprochement," I believe we helped create a fruitful dialogue with theorists, researchers, and clinicians who began both to feel uneasy about the limitations of their respective approach and to believe that there might be something of value in other approaches.

It seemed to us that the more hands-on actual clinical experience one had, the less certain one was with the hegemony of one's preferred theoretical orientation. To be sure, one way that science progresses is for scientists to be dogged about their paradigm or theory as a way to test the limits. Researchers seldom forsake an hypothesis or, or a grander scale, their theory or paradigm the first time that an experiment doesn't work out or, in clinical settings, when one's preferred approach does not yield the hoped-for outcome. It's a tricky business to know when to give up on an idea and when to stay with it by pursuing additional research or clinical innovations.¹⁵

Goldfried and I held then, and hold now, that when clinicians of *any* theoretical persuasion engage deeply in actual practice and/or thoughtful clinical supervision, they recognize the limits of their preferred paradigm. Sometimes techniques can be imported and assimilated into one's applied and conceptual efforts (cf. the technical

¹⁴Having studied during a Fulbright year at the University of Freiburg, it was quite thrilling to be told by German colleagues that Davison/Neale has been a staple for decades in the Staatsexamen in psychology, required for licensure and professional recognition.

¹⁵For careful and incisive arguments *against* integration, see inter alia Haaga (1986).

eclecticism of Arnold Lazarus and the theoretical integrative efforts of Paul Wachtel), sometimes not. Certainly we see in the mindfulness and acceptance approaches of the past three decades a willingness to look outside of what can reasonably be regarded as a cognitive-behavioral paradigm, and to develop techniques and theories that take us far afield from “the mother ship.” This “third wave” is discussed in other chapters of this volume.

It may be instructive to quote from the Preface of Goldfried and Davison:

A colleague of ours [Paul Wachtel] once alluded to a ‘therapeutic underground’ among clinical workers of various orientations. He struck a resonant chord, for we are continually impressed by the distance between written descriptions of behavior therapy and what occurs in practice. In *Clinical Behavior Therapy*, we have tried, within the constraints of the written word, to describe in detail the complexities inherent in effective and humane intervention into the lives of others.

As behavior therapists, we are ever-mindful of the importance of tying our clinical procedures to our data base. Whenever possible, we present material that is consistent with available research. But as any knowledgeable student of behavior therapy can appreciate, more is required of the behavioral clinician than familiarity with well-established principles and procedures. Much of what you will find in this book will necessarily be based on clinical experience, our own and that of our students and colleagues. While some readers may be uncomfortable with an appeal to clinical experience, for the time being this seems to be the most straightforward way of talking about clinical behavior therapy and, most important, communicating our thinking to others. A special virtue of the behavior therapy approach is that we are answerable to data, and are prepared to alter or give up entirely any suggestion contained in this book that is found wanting in the light of controlled research.

.... We have attempted to describe the way behavior therapists analyze clinical problems and move from general principles to clinical applications... We hope that the book will serve a heuristic purpose in helping the reader generate clinical innovations within a broad behavioral framework. (Goldfried & Davison, 1976, pp. vi–vii).

The foregoing is meant to convey a few things of relevance and, I hope, interest. First and foremost, it’s the focus we had – and still have, along with many colleagues – on the gap between science and practice and on the exquisitely complex challenges clinicians confront at every moment with a patient. How do I intervene right now and in the future in a way that has the most scientific evidence behind it while at the same time making sense for this particular patient at this particular time? This was a question Lazarus and I had framed a few years earlier, as described above.

This science-practice gap is hardly specific to cognitive behavior therapy, but I think it is especially pertinent for us because our core foundational assumption is that we can apply findings from controlled research, usually analogue in nature, to messy real-life situations, the complexity of which are never more profound and at times more daunting than when dealing with behavior considered to be abnormal and at least worthy of professional change efforts.

Related to this central theme of the Goldfried/Davison book is a feature discussed next that was designed to try to make vivid the great complexity and intellectual challenge of clinical work.

The Therapist's Thoughts and Feelings During Interactions with Patients

Our cognitive-behavioral perspective and our intensive involvement in both clinical supervision and hands-on clinical work, along with my role as director of Stony Brook's unique postdoctoral program in behavior therapy, established in 1966, the same year that saw the first graduate students entering our as-yet-unaccredited clinical Ph.D. program – all of these factors blended into a feature that I believe Goldfried and I innovated in *Clinical Behavior Therapy* (1976, 1994). We wanted to share with the reader the reasoning behind the on-the-ground implementation of change principles. So we included numerous transcripts throughout the book but with a novel pedagogical device that we believe is the core of good clinical supervision. This was basically a think-aloud strategy that for me evolved from my senior thesis with Bruner and anticipated my development of a research paradigm to be described below. This pedagogical technique can be seen in the following excerpt from the third session of a course of therapy. It illustrates how a cognitive behavior therapist worked to reconceptualize the patient's complaints into a behavioral framework, giving her problems what we called "a behavioral twist", a particular conceptualization of the patient's complaints. The italicized text in brackets are the thoughts of the therapist:

Therapist: I'd like now to give you an idea of the problem as I see it, and then you can tell me whether or not I've missed anything, and whether or not it agrees with the situation as you see it. *[I think I've pretty much covered the major problem areas. It's time for me to present a summary statement (a la Sullivan) so that she can fill in any gaps or change any misconceptions I may have about the presenting problem. It can also help me communicate to her that I've been listening to what has been said so far and that I'm trying to understand her.]* The primary problem that you want to have dealt with involves your nervousness and anxiety in social situations, primarily new situations, and particularly when you feel you are being evaluated by others. This may involve being at a party, presenting a talk, and other similar situations. Does that sound accurate?

Client: Yes, that's about it. The most important problem in my day-to-day life is really my anxiety when I'm with people....

Therapist: *[Based on what she said earlier, I think her problem reflects more of an inhibition than an actual behavioral or skill deficit...I'm going to have to check it out further]* There was one other thing you had mentioned. You said that when you are in social situations, you know what to say, and you know what to do, but you feel too nervous to say or do it. Is that right? You become immobilized?

Client: Well, yes, but I wouldn't say I'm immobilized, though I think I should certainly be much better than I am. I do know what to do. I'm just afraid. (Goldfried & Davison, 1976, pp. 68–69)

We were trying to provide a glimpse into the inner world of the therapist, the kind of monologue that all sentient beings engage in as they negotiate their way. A common element in clinical supervision is not only observing and discussing what one's supervisee did with a particular patient at a particular time during a session but *why* the student-clinician did it. This teaching strategy is, I opine, no different from the general cognitive-behavioral approach, only in the present context it entails both the supervisor and the supervisee attending carefully to the thoughts and feelings

coursing through the clinician's mind and using this information to understand the reasons for what the therapist does.

Furthermore, attending to actual problem-solving in concrete applied situations makes one less doctrinaire, I believe. It's necessary to have principles and a theoretical framework when doing applied work, but abstractions are not enough. As APA's report of "empirically based practice in psychology" (APA, 2006) suggested, idiosyncrasies matter, and when one is faced with the challenge of applying abstractions, one inevitably ventures out of one's particular conceptual framework, however rough and crude as it may be, to put meat on the theoretical skeleton, to use the metaphor Lazarus set forth in our 1971 effort.

The Phenomenological Essence of CBT

In recent years I have been teaching a first year required course in University of Southern California's clinical science program entitled "Clinical Interviewing and Professional Issues." For much of the semester, we practice Rogerian interviewing, something which, in my halcyon graduate school days at Stanford, was ignored or even derogated as an unnecessary element of "insight therapy," one of the *betes noir* of the brave new movement. I began to see the undesirability of this extreme focus when I spent much of my second year sitting in on numerous clinical sessions conducted by Arnold Lazarus, as noted earlier. Watching him for hundreds of hours, I noticed that what he called "the nonspecifics" were really not non-specific at all, rather they involved the kind of empathic listening that is the foundation of Carl Rogers's work. I began to see these strategies as a way both to establish a trusting working relationship with the patient and also, most importantly, as a means to get relevant information that was essential to designing and implementing a cognitive behavioral intervention. Empathic listening helps fill out the familiar functional-analytic framework for determining what Bandura called the "controlling variables" necessary for devising and implementing a science-based intervention.

As I have argued for many years, CBT has much in common with humanistic perspectives because it is at its core phenomenological. As I put it 40 years ago:

All cognitive behavior therapists heed the mental processes of their clients.... They pay attention to the world as it is perceived by the client. It is not what impinges on us from the outside that controls our behavior, the assumption that has guided stimulus-response psychology for decades. Rather our feelings and [overt] behavior are determined by how we view the world. [As often cited by Albert Ellis] The Greek philosopher Epictetus articulated this core feature in the first century, 'Men are not disturbed by things, but by the views they take of them'. Thus behavior therapy is being brought closer to the humanistic therapies. A central thesis of therapists like Rogers and Perls is that the client must be understood from the client's own frame of reference, from his or her phenomenological world, for it is this perception of the world that controls life and behavior.

From the philosophical point of view, such assumptions on the part of those who would understand people and try to help them are profoundly important. Experimentally minded clinicians and researchers [i.e., cognitive behavior therapists and researchers] are intrigued

by how much the new field of cognitive behavior therapy has in common with the humanists and their attention to the phenomenological world of their clients. To be sure, the *techniques* used by the cognitive behavior therapists are usually quite different from those of the followers of Rogers and of Perls. But as students of psychotherapy and human nature, these surface differences should not blind us to the [conceptual] links between the two approaches. (Davison & Neale, 1982, pp. 616–617)

This is an important point, so allow me to elaborate.

The phenomenological core of humanistic and existential therapies, which is essential to CBT, is, I believe, evident in the fact that Rogers and his followers did not restrict their empathic work to what is obvious in the client's verbal and nonverbal expressions. This was spelled out more clearly in Gerald Egan's "The Skilled Helper" (Egan, 1975). Here's an example I have used often in my teaching of both undergraduates and graduate students:

Client: I don't know what's going on. I study hard, but I just don't get good marks. I think I study as hard as anyone else, but all of my efforts seem to go down the drain. I don't know what else I can do.

Counselor A: You feel frustrated because even when you try hard you fail [primary empathy].

Counselor B: It's depressing to put in as much effort as those who pass and still fail. It gets you down and maybe even makes you feel a little sorry for yourself [advanced empathy]. (Egan, 1975, p. 135)

Bear in mind that therapists operating both within a humanistic-existential framework and a cognitive-behavioral one assume that the client views things in an unproductive way, as evidenced by the psychological distress that has brought the client into therapy. At the primary empathic level, the therapist accepts this view, understands it, and communicates to the client that it is appreciated and respected. But *at the advanced or interpretive level, the therapist offers something new, a perspective that he or she hopes is more productive and implies new modes of action.* Advanced empathizing builds on the information provided over a number of sessions in which the therapist concentrates on making primary-level empathic statements.

The client-centered therapist, operating within a phenomenological perspective, *must* have as the goal the movement of a client from his or her present phenomenological world to another one, hence the importance of the advanced-empathy stage. *Since the core belief of both the humanists and cognitive-behavioral clinicians is that people's emotions and actions are determined by how they construe themselves and their surroundings – by their phenomenology – those who are dysfunctional or otherwise dissatisfied with their present mode of living are in need of a new phenomenology.* From the very outset, then, all phenomenological therapies concentrate on clients adopting frameworks *different from* what they had when they began treatment. Merely to reflect back to clients their current phenomenology cannot in itself bring therapeutic change. *A new phenomenology must be acquired.*

Thus, the core of CBT is essentially the same as all the phenomenological therapies – what matters most is how people construe their world. And I would propose also that the essence of Freud since his second theory of anxiety has been that the perception, the recollection that people have of their past fearsome events, is more

important that what may actually have happened. This is worlds away from original behavior therapy, whereby the person responds to stimuli and is either reinforced or not. That's an oversimplified picture of course but it is not inaccurate. What Rotter, Kelly, Mischel, Bandura, and even myself brought into the picture was the centrality of how patients view the world, the meaning they attach to what is going on in and around themselves. The defining feature of the CBT paradigm has always been that these constructions of the world can change the person's emotional and behavioral reactions in enduring ways.

This refocus on the internal has not been easy fit, and I have interacted over the years with many CBT colleagues who object to being in bed with theoreticians and therapists whom we have actively and sometimes poetically (cf. Salter, *supra* at footnote 7) vilified. But at the end of the day, I believe that is where we have found ourselves since at least the mid-1960s, with the seeds on this paradigmatic shift being discernible in people not usually regarded as part of the CBT family (e.g., George Kelly and Julian Rotter).

The foregoing is most assuredly not new to today's cognitive behavior therapy. And that's the point, for these ideas and practices were either poo-pooed by behavior therapy's leading lights in the 1950s and 1960s or were assigned to the realm of "clinical know-how" or "non-specifics", which was intellectually honest but not conducive to searching and sober analysis of psychosocial assessment and intervention.

Early Involvement in Basic Cognitive Research

The "cognitive revolution" in CBT of the past 4 decades has another thread for me that I have alluded to above and believe would be useful to describe in greater detail. This takes us back to my undergraduate days. As I wrote in the abnormal textbook with John Neale beginning with the first edition in 1974, CBT really represents a return to earlier periods in experimental psychology, for example the research of Duncker on problem-solving (Duncker, 1926). My own extended and intensive exposure to the study of cognition was during my undergraduate years as a research assistant to and then a senior honors thesis advisee of Jerome S. Bruner, one of the pioneers of the so-called "new look" in perception that germinated soon after the second world war. Together with George Miller and other colleagues, Bruner's prolific theoretical and experimental publications (e.g., Bruner et al., 1956) demonstrated the central importance of cognition in understanding the human condition, a general perspective which I saw at the time as a response to his Harvard colleague, B.F. Skinner, and his behavioristic focus on reinforcement contingencies with no inference to internal cognitive and affective processes.

Pivotal for my entry into CBT years before the concept even existed was doing my honors thesis with Bruner in 1955–1957. The purpose of my thesis was to explore Duncker's concept of "functional fixedness" – familiarity with a cognitive challenge can interfere with rather than facilitate one's solving it if one cannot shake

an hypothesis that is not proving fruitful. Changing one's mind is often very difficult. Under Bruner's supervision, I adapted Jean Piaget's (1954) recording of children talking to themselves while they solved problems. I had undergraduate subjects verbalize their hypotheses about what was in pictures that were shown to them gradually coming into focus, beginning with presentations in which each picture was so blurry that virtually no one could accurately identify it. Participants' words were tape-recorded, transcribed, and then content-analyzed.

For example, one of the pictures I used was of a black puppy standing in sunlight on grass. When the photo is very much out of focus, nearly everyone sees it as some kind of heavy dark object like a sofa, a fat pig, some other kind of heavysset thing. But as the photo becomes clearer, the shadow underneath the puppy's stomach becomes discernible as separate from the animal's stomach. There is a sliver of light between the tummy and the shadow, thus rendering the heavy dark thing as not so heavy and fat, leading to the "aha" experience of its being a slimmer puppy. I coined the term "constraint set" for the underlying assumption that tied together all the pre-recognition hypotheses. The research participants *seemed* to be changing their minds as the visual information improved, but, at a more basic level, they were not. Like scientists operating within a theory or paradigm, their perception was, I proposed, constrained by their general assumption of what the dark object was. And their hypotheses, guesses actually, were almost always wrong because the poor focus of each picture kind of seduced them into adopting a constraint set that was inconsistent with the actual visual stimulus. They had to free themselves from their earlier underlying assumption as the focus improved.

When I discuss this experiment with my students as an analogue to scientific thinking I tell them the old joke about the inebriated man crawling around under a streetlamp at midnight. "What are you doing?" asks a suspicious police officer. "Lookin' for my keys," mutters the drunken man. "Well, do you remember where you lost them?" inquires the police officer, now trying to be helpful. "Over there," says the man, gesturing to a dark area several yards in the distance. "Why are you looking for the keys *here*?" asks the officer incredulously. "Because there's light here from the lamp." I tell students that if they get the joke, they have some understanding of the nature of paradigms and theories in science.

Thus, in addition to replicating earlier research that prior exposure to suboptimal visual stimuli interferes with accurate perception, my content analysis of participants' pre-recognition hypotheses suggested a reason for this delay. When people are trying to understand something that is complex and murky, they usually have unspoken (unconscious, actually) assumptions of what it could be. When the data are poor, their initial ideas are probably wrong. And these ideas, though they may be changing as the information improves, are usually within a restricted domain of which they are seldom even aware. People usually get attached to these underlying assumptions even when additional and improved data become available. This has been a theme in psychology from its very beginnings as a science, cf. the Wurzburg School's concept of "unbewusste Einstellung," or "unconscious set", in the early twentieth century, a concept applied mostly to perception. and more recently

elaborated in the study of implicit bias in social prejudice (Greenwald & Banaji, 1995, 2017).

Even as a newly minted B.A. in 1961 – or maybe *because of my youth* – I boldly suggested that my analogue experiment had implications far beyond looking at fuzzy pictures gradually being brought into focus. I ended that first publication of mine (Davison, 1964) with the proposal that my analysis of the findings could be viewed as the way scientific hypotheses and theories function to both facilitate discovery and to discourage it. Not to be limited to scientific inquiry, my imagination took flight to propose that a societal-cultural *Weltanschauung* (world view) could be fruitfully understood as a massive constraint set that helps make sense of the world but that can also interfere with new and possibly more useful perspectives.¹⁶

Cognitive Assessment

Over the past 40 years or so there has been increasing interest in assessing the thoughts and feelings, both overtly expressed and implied, as people go about their daily lives. My think-aloud work with Bruner guided me to design a procedure that could, I thought, enable us to assess thoughts and feelings in a situational context consistent with the functional analytic behavioral paradigm.

In my original experiment on what we (Davison et al., 1983) called the “Articulated Thoughts in Simulated Situations paradigm” (ATSS), subjects are instructed and coached into immersing themselves imaginatively in audiotaped complex interpersonal situations, like being criticized, and verbalizing what is going through their minds (cf. my discussion above of my undergraduate think-aloud research with Jerome Bruner). To facilitate accessing their thoughts and feelings in a non-retrospective and very situational fashion, our fictional scenarios are divided into segments of between 5 s and 10 s in length. After each seconds-long segment is presented, there is a pause and a signal to talk out loud about what is passing through their minds in reaction to what they have just heard. After about 30 s to permit thinking aloud, another signal tells them to listen to the next segment and imagine some more, and so on through a number of segments that comprise the story. The raw data can then be content-analyzed in an infinite number of ways depending on one’s theoretical focus.

Since the publication of the first article in 1983, dozens of subsequent experiments, both in my lab and elsewhere, have employed the research paradigm to investigate the cognitive components of a wide range of human problems such as social anxiety, depression, hate crimes, fear of flying, marital anger and aggression, and withdrawal from smoking (for reviews see Davison et al., 1997; Zanov & Davison, 2010). Psychometrically the ATSS has been shown to possess good content,

¹⁶Imagine my excitement when I read Thomas Kuhn’s analysis of scientific paradigms in terms of perceptual set (Kuhn, 1962).

concurrent, predictive, and construct validity; and a variety of coding schemes have been applied with a very high measure of interrater reliability. The ATSS is part of the growing interest in situational cognitive assessment, such as Ecological Momentary Assessment (Stone & Shiffman, 1994) and related approaches.

Ethics and Psychotherapy of All Kinds

My doctoral education in behavior therapy, as rigorous and sophisticated as was available at the time, eschewed careful consideration of ethical issues, specifically, what the goals of intervention were and how they were decided upon. Not that goals were regarded as unimportant! The very nature of behavior therapy required a clear sense of the directions that therapy would take. Not only was this fair to the patient but it was essential in any attempts to evaluate the success of assessments and intervention – one needs a dependent variable to do experimental research, after all.

But the kinds of changes that a behavior therapist and the client focused on were seen as separate from the theories and findings being applied in therapeutic change efforts. And in a way the two issues are. But responsible application cannot properly eschew ethical considerations. This issue often brings to mind what I have described as the Will Rogers “aw shucks” model. It goes something like this: “I’m just a simple technician. I have techniques that I can use to help you move from Point A to Point B. Point A is where you are right now. Point B is the goal of treatment. The latter is your choice entirely. I’m not going to make that judgment for you. Assuming that getting you to Point B is not illegal and/or unethical – I won’t desensitize you to any anxieties around murdering someone, for example – you can hire me to help you get there.”

Most of the time this works, that is, there is nothing to worry about. We are usually children of the same culture; agreement on values is more the rule than the exception. The earliest patients that Wolpe and Lazarus reported on were clearly suffering from anxieties and depression that were unwarranted, even diagnosable in the DSM of the period, and which, if alleviated or eliminated, would allow the patient to live a happier, more productive life. Surely a person who avoids social interactions because of debilitating fears of negative evaluation deserves the benefit of the evolving behavior therapy armamentarium of techniques that have been demonstrated to be effective and that, at least metaphorically and rhetorically, derive from theory and experimental data, the essential lifeblood of behavior therapy.

I had no problems with this perspective and system of (implicit) beliefs in graduate school and in the first few years of my academic and professional life. But things began to shift, perhaps beginning with the following experience in the small, part-time clinical practice that I have had for most of my career. One day in the spring of 1970 I was consulted by a very accomplished professional woman who, knowing of my expertise in anxiety-reduction via systematic desensitization, asked me to help her eliminate the extreme anxiety she felt about her husband cheating on her. Possible anxiety hierarchy items, it was readily determined even in the first session,

included sitting alone at her kitchen table, a lovingly prepared dinner for two getting cold, with the time approaching 10:00 pm, and her husband not yet home. The anxiety was usually accompanied by anger and/or feelings of hopelessness and depression. Other anxiety-provoking scenes could readily be determined as I listened to her tearful account. However, I felt uncomfortable with her request. Running through my mind were questions as to whether, in *my* system of values and ethics, a spouse *should be* or *has every right to be* anxious and angry about their partner showing all sorts of signs of being unfaithful. So perhaps half an hour into the initial session, I decided to share my ethical concerns and, while allowing for people's intimate relationships to be highly variable, I said (gently but unequivocally) that I would not be comfortable working toward her stated goal of being able to tolerate her husband's infidelity. Then I engaged her in a discussion about her own perspectives on marriage. I no longer have my notes on this session of more than 50 years ago but I do clearly recall her *relief* that I was not prepared to meet her stated wishes. She was eager to schedule several more sessions to discuss the problems in her marriage and how she might try to make changes in the relationship rather than within herself in an effort to remain married. As things turned out, I learned a few years after termination that the marriage had been dissolved.¹⁷

I'm certain that other therapists have had similar experiences, many of them preceding my own. My point is that, despite what I consider to have been very good education and training in behavior therapy in the early 1960s, I cannot recall these issues being thoroughly explored.¹⁸

My concerns about ethics and behavior change took an unexpected and rather cataclysmic turn when I became president-elect of the Association for Advancement of Behavior Therapy in 1972. As may be familiar to some readers, I argued against offering sexual reorientation therapy to gay people in my 1974 AABT presidential address. I had been inspired by remarks of Charles Silverstein (1972).¹⁹ The core of my speech (published 2 years later, Davison, 1976) was that the values and biases of therapists inevitably influence the way they construe problems and which goals they work towards; that goals are determined much more by the therapist than by the patient; that therapists never make decisions about goals outside of a political and moral context; and that change-of-orientation programs should be stopped, even when gay patients request them, because prejudice and often physical attacks have made it highly unlikely that "voluntary" change requests are in fact self-determined. Several years later, I offered the following fantasy to try to encapsulate the situation of gays in therapy as of the 1970s (that this argument may seem belabored and unnecessary in the 2020s speaks to how much things have changed in many segments of North American society and indeed around the world):

¹⁷The reader may have a different conception of marriage. It might be religious – marriage is sacred and divorce must be avoided at all costs. This possibility proves my point.

¹⁸The exception was Lazarus's ethical view that sometimes efforts to "save a marriage" can be not only unsuccessful but even destructive and demeaning.

¹⁹A documentary film, "Conversion", has recently been released that portrays Charles Silverstein's and my seminal roles in the movement against conversion therapy.

API (Apocryphal Press International). The governor recently signed into law a bill prohibiting discrimination in housing and job opportunities on the basis of membership in a Protestant Church. This new law is the result of efforts by militant Protestants, who have lobbied extensively during the past ten years for relief from institutionalized discrimination. In an unusual statement accompanying the signing of the bill, the governor expressed the hope that this legislation would contribute to greater social acceptance of Protestantism as a legitimate, albeit unconventional, religion.

At the same time, the governor authorized funding in the amount of twenty million dollars for the upcoming fiscal year to be used to set up within existing mental health centers special units devoted to research into the causes of people's adoption of Protestantism as their religion and into the most humane and effective procedures for helping Protestants convert to Catholicism or Judaism. The governor was quick to point out, however, that these efforts, and the therapy services that will derive from and accompany them, are not be imposed on Protestants, rather are only to be made available to those who express the voluntary wish to change. 'We are not in the business of forcing anything on these people. We only want to help,' he said (Davison, 2001).

When a lead article based on my speech was published two years later in *Journal of Consulting and Clinical Psychology* (Davison, 1976),²⁰ there were invited critiques by Seymour Halleck, Hans Strupp, and Irving Bieber. You can imagine Dr. Bieber's paper. Since publication my article has become part of a growing and influential literature on dealing with human problems that homosexuals can have rather than the alleged problem of homosexuality that had to be "fixed." Beginning in the 1980s there have been far fewer requests for sexual orientation change. Indeed, almost 20 states and several countries have made it illegal to offer sexual reorientation treatment at least for minors. I expect this will be extended to people of all ages in the next decade or two.

It merits mention that the argument that such programs *can* succeed if more effort is put into them (Sturgis & Adams, 1978) is irrelevant. In an invited response to this article, I pointed out that the decision is an ethical and political one, not an empirical one. "Not Can But Ought" was the title of my rejoinder to Sturgis and Adams (Davison, 1978). Over the years, I have extended the argument against sexual conversion therapies to the entire gamut of assessment and intervention. As articulated in a behavioral medicine handbook chapter a few years ago:

Often, the most important and influential forces in our immediate world are those that we think little about in our day-to-day life. If we are fish, our values are the water that surrounds us. They guide our thoughts, our questions, and our behaviors. They inform us if we are doing something "right" or "wrong" and can sway us in different directions, like the waves of an ocean. While this guidance, of which we are usually unaware, can be good in

²⁰When I first submitted my paper to the *American Psychologist*, I received a brief letter from the editor saying that he was rejecting it without sending it out for review because he did not consider it of general enough interest to the APA membership. I was dumbfounded by this editorial gatekeeper decision so I sent it to JCCP. As before, I received a thin envelope a week later which, I feared, was the same negative decision. To my delight (though not surprising, knowing the editor, Brendan Maher), the decision was also not to send it out for review but to accept it right away and, if I agreed, to invite critiques. My first recommendation was Irving Bieber, who I knew would assert an opposing position. I was not disappointed.

many ways, our values feel so natural to us – to the extent that we even think of them – that they can sometimes be mistaken for absolute truths.

We – both scientists and non-scientists – take certain values for granted, not even considering them an issue. For example, we can safely assume that most individuals would not tolerate a child banging her head against the wall. In fact, in certain situations such as working with children diagnosed with autism, health professionals have gone to great lengths, including heavy sedation and/or physical restraints, to prevent this behavior. Why? Well, it has to be because we as a society value keeping the human brain as undamaged as possible. But why do we value this? The reason has to be that we place a high value on children benefitting from life experiences that require as undamaged a brain as possible. These value choices sometimes result in our being prepared to take drastic measures to protect human brains. As social scientists and human beings, we certainly agree with this position, but it is a values-laden position, not an empirical one. (Davison & Feng, 2018, p. 1053)²¹

Clinical Problems as Clinicians' Constructions

In writings since my 1976 article, influenced importantly by my teaching and clinical supervision as well as my activities as a clinician, the conversion issue evolved into a social constructivist epistemology. What most of our patients come to us with are vague complaints, signs, and symptoms that are subject to an infinite array of interpretations/diagnoses. The questions we ask and the methods we use to make our assessments are determined ahead of time by our paradigms and other biases. Therapists, goes my argument, don't simply do what their patients ask them to do. Our decisions about treatment are guided both by legal constraints and, most importantly, by scientific and personal biases about what a problem is and how it might be treated.

Most human psychological problems, then, are constructed by the clinician in ways that are more or less useful. An example is the following discussion of hierarchy construction in systematic desensitization:

Another aspect to the assessment situation [in considering and designing a regimen of desensitization] is the notion of a basic theme as a *conceptualization* of the therapist. We have long ago stopped asking ourselves whether we have 'truly' isolated a basic anxiety dimension of our clients. Rather, we ask ourselves how best to construe a person's difficulty so as to maximize his gains. In other words, rather than looking for the 'real hierarchy,' we look for the *most useful* hierarchy. This has important implications, not the least of which is the freedom to attempt to reconceptualize various client problems in terms amenable to desensitization. An ... example [is] how one might fruitfully construe a problem of depression in terms of an anxiety/avoidance gradient, where desensitization would be appropriate.

²¹In my teaching I have tried to drive home the simple truth of "not can but ought" by telling students that I have a cure for all human problems. It's inexpensive, direct, and sure-fire. After getting their attention, I announce that my cure is a bullet in the head. It's been my experience that many students are shocked, even scandalized, by this. I encourage that reaction and use it to make vivid that we don't always do what it is in our capacity to do! Health professionals swim in these waters all the time, but like the proverbial fish who don't know that they are swimming in water, they don't realize their political, legal, and moral constraints until they are brought to their attention.

The clinician must ask himself what the implications are likely to be should a particular desensitization actually succeed. For instance, will a person depressed about her lack of meaningful social contacts be happier if her inhibitions about talking to people are reduced by desensitization? Looked at in this way, the clinician would seem to have both greater freedom and greater challenge in isolating anxiety dimensions. (Goldfried & Davison, 1976, p. 115)

Put differently, and this is how my position against conversion therapy blends with my social constructionist perspective:

... clients seldom come to mental health clinicians with problems as clearly delineated and independently verifiable as what patients often bring to physicians. A client usually goes to a psychologist or psychiatrist in the way described by Halleck (1971). That is, the person is unhappy; life is going badly; nothing is meaningful; sadness and despair are out of proportion to life circumstances; the mind wanders and unwanted thoughts intrude, etc. The clinician *transforms* [italics in original] these often vague and complex complaints into a diagnosis or functional analysis, a set of ideas of what is wrong, what the controlling variables are, and what might be done to relieve the suffering and maladaptation. My argument, then, is that psychological problems are for the most part *constructions* of the clinician. Clients come to us in pain, and they leave with a ... problem or set of problems that we *assign* to them. (Davison, 2001, p. 347)²²

Conclusion

“Behavior therapy” used to be synonymous with “the conditioning therapies” as articulated by our innovative and intellectually courageous pioneers – people like Joseph Wolpe, Andrew Salter, Cyril Franks, Hans Eysenck, Arthur Staats, Albert Bandura, Walter Mischel, and Arnold Lazarus. Most of them, in my view, evolved in a cognitive direction in the mid- to late-1960s, some of them perhaps influenced by the seminal writings of Albert Ellis and Tim Beck. I had the dumb luck of being a part of this by virtue of having entered the Ph.D. program at Stanford in 1962 with the express purpose of specializing in anything but clinical psychology. I believe I was able to contribute to the evolving cognitive directions of behavior therapy in the ways described in this paper – cognitive restructuring of a paranoid delusion, arguing for agency in deep muscle relaxation and in countercontrol, attribution in the maintenance of behavior change, perceived as contrasted with actual control, integrating humanistic elements into CBT, the complexities of the science-practice dialectic, calling attention to the essential phenomenological nature of CBT, providing insights into therapists’ thinking through a pedagogical innovation in explaining clinical applications, social constructivism in clinical assessment, innovating with a laboratory-based think-aloud cognitive assessment paradigm, and the ethics and politics of conversion therapy for gay people.

²²This social constructivist argument seems far less appropriate for psychological problems that have or are believed to have a biological basis, cf. Paul Meehl’s (1999) “carving nature at its joints”.

I conclude now by offering for your consideration, whether you are a student, practicing professional, or an academician, some general comments about interdisciplinarity, breadth within the field of psychology, and the role of the liberal arts. As I wrote in an earlier article:

... a liberal arts education provides undergraduate psychology majors – who account for the vast majority of applicants to our doctoral programs – with a suitably broad historical, social, and philosophical context for their specialty study of psychology. But ... when students apply to graduate psychology programs, the primary focus of admissions committees is, I believe, on statistics, research methods, psychology content courses, and especially involvement in psychological research to the virtual exclusion of non-psychology work and intellectual interests that can provide ... [a] broad context [for understanding the human condition] ...

Once they enter a doctoral program in clinical or counseling psychology, the de-emphasis on topics not tightly linked to psychology becomes even stronger. When Ph.D. programs required comprehensive examinations, including history and systems, there was some assurance that students would gain a modicum of exposure to the larger historical, social, and epistemological context of the study of the human condition. But [I believe that] students are not being encouraged or required to appreciate the macro factors that influence their subject matter. (Davison, 2005, p. 1062)

And with respect specifically to clinical psychology programs:

I have long believed in the importance of a solid liberal arts education as the foundation for all fields of graduate and postgraduate specialization. [But the liberal arts are especially important to clinicians, and perhaps particularly for cognitive behavior therapists.] Whether it makes the more hard-nosed amongst us uncomfortable or not, both researchers and clinicians – to the extent that there are sharp differences between them – have to be *Menschenkenner*, people who know and understand people, including themselves. I believe that a broad education – in addition, no doubt, to some inborn abilities of empathy and interpersonal sensitivity – can contribute to the ability to figure out the vagaries of human conduct and how most effectively to devise ethically proper methods of change. (Davison, 2006b, p. 3)

I have for years disagreed with most of APA's standards and procedures for accreditation, but on one issue I have always believed they have it right, namely the importance of *breadth*, that is, the need for clinical psychologists (and other mental health professionals of course) to engage in graduate level study of history and systems, social, developmental, neuroscience, quantitative, research methods, and cognition and learning. And that preferably they study these specialties with faculty who are content experts, which usually means faculty who are not in clinical programs. I do not believe, for example, that the cognition and learning requirement be satisfied by taking a cognitive behavior therapy course with someone like myself.

As both a scientific endeavor and a profession offering effective, humane, and morally sound interventions, cognitive behavior therapy has a heavy responsibility. I hope that this journey of my own development will prove useful to the reader.

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Meta-science and the Three Waves of Cognitive Behavior Therapy: Three Distinct Sets of Commitments



William O'Donohue and Fredrick T. Chin

An Overview

Behavior therapies, which include applied behavior analysis, cognitive behavior therapy, and third wave behavior therapies are generally thought of as “scientific” approaches to behavioral health. For example, behavior therapies play a large role in the evidence-based therapy movement (Chambless et al., 1996). However, it is fair to say that, despite the fact that behavior therapy in one form or another has been around for nearly seven decades, progress is still often frustratingly slow (Meehl, 1978; O'Donohue, 2013). The issues are myriad, including but not limited to:

- The field still has many clinical problems that lack established evidence-based treatments (e.g., narcissistic personality disorder);
- Assessment measures, which play a role clinically but also in research as measures of outcome and process, have disappointing or missing psychometric data (see O'Donohue et al., 2022);
- All the waves rely in many ways on a diagnostic system that is generally regarded as suffering from multiple problems;
- Even many “successful” outcome studies elicit relatively small effect sizes;
- Too little is known about the relapse rates, even of these so called “evidence based” therapies;
- Too little is known about how best to ensure treatment fidelity;
- Too little is known about how to increase access to these therapies;
- Very few treatment guidelines exist regarding how to handle complex cases with multiple co-morbidities; and

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- There is a dearth of literature regarding effective therapies for understudied client populations, such as individuals belonging to more than one minority group.

More recently, there are also pressing concerns about the use of questionable research practices (QRPs; see O'Donohue et al., 2022) as well as replicability crisis in the field of clinical psychology as there has been too little concern about these issues in the field of clinical psychology when compared to social psychology or even medicine. Perhaps most alarmingly, there are no solved problems in clinical psychology (O'Donohue, 2013). Although behavior therapies do better than other schools of therapy in demonstrating treatment effects, even they still face many longstanding, serious, and limiting gaps and shortcomings (Chambless et al., 1996).

Furthermore, all this slow progress may be particularly surprising given the voluminous nature of psychological research. For example, in 2020, there are at least 2281 (American Psychological Association [APA], 2020) psychological journals publishing on average 111 articles per year (Bjork et al., 2009). In addition, in 2017 there were nearly 500,000 graduates of masters or doctoral programs in psychology (Conroy et al., 2019), each having done at least a master's project or doctoral dissertation. Yet despite all of this effort, problem-solving progress in behavior therapy has been slow.

Science and Problem Solving

Science, when applied to problems in many other fields, has generally resulted in an unprecedented growth of knowledge, and this knowledge has lent itself to applications and related technology relevant to improving human welfare (see for example, Popper, 1959). Most recently, one can see the productiveness of the scientific approach in the development of tests, treatments and vaccines for the novel coronavirus.

For centuries, humans were confronted with numerous serious and possibly life-threatening problems relating to disease, famine, and adequate shelter as well as a host of other desires for comfort that were not solved. Humans also wanted to understand themselves and others and engaged in various means for obtaining answers to these social and psychological questions. There have been a wide variety of different kinds of attempts to gain knowledge to address these problems—consulting sacred texts, attempting to understand what influential philosophers and thinkers said, relying on astrology, and relying on one's intuitions. However, the problem-solving progressiveness of these kinds of procedures was underwhelming, to say the least.

There was then a rise of science in the sixteenth and seventeenth centuries. In the early 1600s, Kepler and Galileo relied on what they conceived as the scientific method and made important discoveries in understanding planetary motion as well as identifying key descriptive information about planetary bodies, such as the moon. In that same century, Boyle discovered the first gas law, Hooke used the microscope

to discover the cell, and Harvey made significant advances in anatomy when he discovered the role of the heart in the circulation of blood (Daintith, 2009; Friedland, 2009; National Geographic, 2019). Furthermore, in that same century, Newton made important advances in optics discovering that light consists of a spectrum of many different rays, and separately discovered the force of gravitational attraction (Cantor, 1983). In the next century, Lavoisier and other early chemists used their understanding of the scientific method to make important discoveries regarding oxygen, ending the notion of phlogiston (West, 2013).

Later in 1861, Louis Pasteur discovered the germ theory of disease, leading to important gains in understanding physiology and cell biology that resulted in numerous advances in medical technology (Pasteur et al., 1878). At around the same time, Darwin made several voyages to the Galapagos islands and generated an important evolutionary theory (Ellegård, 1990). In the early twentieth century, a host of physicists, again using the scientific method, made key discoveries in understanding subatomic behavior which culminated in the atomic bomb, which for some concluded that the technologies associated with science might not all be for the good.

It is important to note that these scientific successes are only a small sample, and scientific progress continues in fields such as computer science, material science, and medicine. In psychology there were fewer such discoveries in that period; the best candidates are probably Pavlov's discovery of classical conditioning in the 1890s and Thorndike's law of effect in 1898.

However, there are several points to note regarding the status of science. First, the scientific methodologies often differed significantly across these scientific accomplishments (see Gower, 1997), raising questions about what exactly is the scientific method or even if a single method exists (Gower, 1997; Feyerabend, 2010; O'Donohue, 2013). Second, some scholars of science found that there can be fundamental differences in the quality of science and, as a result, constructs like *pseudoscience* (Lilienfeld et al., 2014) were developed and used. More recently, there has been concern about what are called questionable research practices (QRPs; O'Donohue et al., 2022), that can result in so-called replication failures, particularly in social psychology.¹ For this reason, Altman (1994, p. 308), an observer of the medical literature, has stated, "We need less research, better research, and research done for the right reasons."

Third, meta-scientists began to realize that there are human, noncognitive elements to science that go beyond the "craving to be right" to use Popper's (1959) colorful phrase, in which various biases that idealized conceptions of science, failed to adequately address what might be captured best by notions of seven deadly sins (greed, desire for fame, etc.). Critics were quick to point out the role of Big Pharma in biasing the scientific literature (e.g., see Healy, 2012), but perhaps they are slower in seeing how these same forces, although with fewer dollars, could affect the psychotherapy literature.

¹It is worth noting that some (e.g., Ioannidis, 2005) have argued that most published research in medicine is false; thus, these issues do not solely occur in social psychology, or in psychology as a whole.

Fourth, some important problems (e.g., antisocial or narcissistic personality disorder) were increasingly seen as being refractory to science and still are (Chambless et al., 1996). Fifth, some thought that science is fine for inanimate nature or lower animal forms, but that it is not for humans due to some alleged special qualities of humans, such as free will (see for example, O'Donohue et al., 2020). Sixth, there came to be a realization that science cannot even in principle solve all problems, particularly moral problems (Hempel, 1966), but most probably conceptual problems too--no effective methods beyond traditional philosophical argumentation and conceptual analysis have been developed to address these. Finally, scientists themselves needed to understand science because they were sometimes criticized for the quality of their science—or criticize rivals on this issue.

This last point is particularly critical. Researchers are always concerned about the extent to which they are using the best methods to solve the problems that they investigate. The slow progress of “soft psychology,” to use Meehl’s (1978) felicitous phrase, is a cause for concern, and many including Meehl have suggested that perhaps psychologists are not using the right scientific methods. As stated above, proponents of certain positions of science often claim that their opponents in science are not scientific or at best poor scientists. One could see behavior in the history of behavior therapy in the initial friction of accepting single subject experiment designs in the mid part of the last century, as well as when some therapies, such as EMDR, were proposed (for example see Herbert et al., 2000).

One can see that many of these problems about the quality and progressiveness of science play out in the domain of behavioral health. For example, when McFall (1991) in his famous Manifesto called for a thoroughgoing commitment to science in clinical psychology, there is little consensus on *what science is* across various schools of therapy as we shall see within the field of behavior therapies. In his Manifesto, McFall (1991) famously stated as the “cardinal principle”: “Scientific clinical psychology is the only legitimate and acceptable form of clinical psychology (p. 76).” McFall further stated,

This first principle seems clear and straightforward to me—at least as an ideal to be pursued without compromise. After all, what is the alternative? *Unscientific* clinical psychology? Would anyone openly argue that unscientific clinical psychology is a desirable goal that should be considered seriously as an alternative to scientific clinical psychology? (pp. 76–77)

However, understanding the specifics on what constitutes science has not been so easy. For example, O'Donohue and Halsey (1997) argued that Sigmund Freud, Carl Rogers, B. F. Skinner and Albert Ellis all thought their work ought to be considered scientific, but that they each held very different conceptions of what science is. Additionally, even within the field of behavior therapy, O'Donohue and Houts (1985) found that the first two waves of behavior therapy constituted two distinct scientific disciplines. That is, while the first wave or applied behavior analysis relied mainly on single subject experimental designs, researchers within the second wave of behavior therapy (i.e., cognitive therapy) relied on group experimental designs.

Furthermore, we shall also see that the meta-scientific influences have varied drastically to the point of little or no overlap between the three waves of behavior therapy. For example, B. F. Skinner (1938), who influenced many first wave behavior therapists, was known to be influenced by the positivist Ernst Mach; Albert Ellis, one of the major founders of second wave movement, by the Stoics and eventually a neo-Popperian, W. W. Bartley (1984); and third wave behavior therapies by a rather obscure philosopher of aesthetics, Stephen Pepper (1942) and to a significant extent Buddhism. In the following sections, we are going to present an analysis of the meta-scientific commitments of each wave.

First Wave: Skinner, Behavior Therapy, and Applied Behavior Analysis

It is admittedly somewhat arbitrary to settle on a date for the beginning of behavior therapy. However, one reasonable candidate for this date would be when the phrase “behavior therapy” occurred in a journal article. That would be in the early 1950s, when B. F. Skinner and a few of his graduate students (Lindsley, 1956) took the operant conditioning principles that Skinner had discovered from experimental studies largely with pigeons and rats and applied these to patients in a state mental health hospital who suffered from what we would now call serious mental illness. For example, in one study these researchers used differential reinforcement to shape the behavior of talking in a woman diagnosed with schizophrenia who was electively mute for a number of decades (Lindsley, 1956).

It is important to note that even in its birth behavior therapy was not monolithic. In 1938, a learning researcher and a colleague at the University of Illinois, O.H. Mowrer (Mowrer & Mowrer, 1938) published a report of the successful treatment of nocturnal enuresis with institutionalized children with a urine alarm. The treatment approach was not based on medical intervention, such as surgery, nor did it utilize psychoanalytic principles which viewed enuresis as weeping through the bladder. Rather, the treatment was based on classical conditioning principles, although it is fair to say that at the time, the specific mechanisms of changes in that treatment were not particularly clear or well-established.

Yet another major early behavior therapy stream occurred in 1958 when Joseph Wolpe (1958), a South African psychiatrist who was influenced by the learning theory of Clark Hull, published *Psychotherapy by Reciprocal Inhibition*. More specifically, this volume presented three specific treatments for three types of neuroses; (a) systematic desensitization for phobias, (b) assertive training for problems involving self-assertion, and (c) sexual training for sexual inhibitions.

In sum, even at its inception behavior therapy was a summary term for a broad array of treatments all with some commonalities in that learning principles formed its basis. In this chapter and our discussion of first wave behavior therapy, we will focus on the Skinnerian approach as it has been arguably the most influential and

prolific of the first wave behavior therapies. At first this approach was often called “behavior modification” but today it is generally called applied behavior analysis (see Morris, chapter “[What Is First-Wave Behavior Therapy?](#)”, this volume).

B. F. Skinner's Views of Science

B. F. Skinner (1904–1990) had several major intellectual influences. Within psychology which is broadly defined, he was influenced both by the work of Ivan Pavlov (1849–1936) on classical conditioning and by Edward Thorndike's (1874–1949) work on the law of effect. Within philosophy Skinner stated that he was influenced by Bertrand Russell² (1872–1970), but his scientific beliefs drew particular influence from the seventeenth century British scholar Francis Bacon (1561–1626) and the nineteenth century physicist and philosopher Ernst Mach (1838–1916).

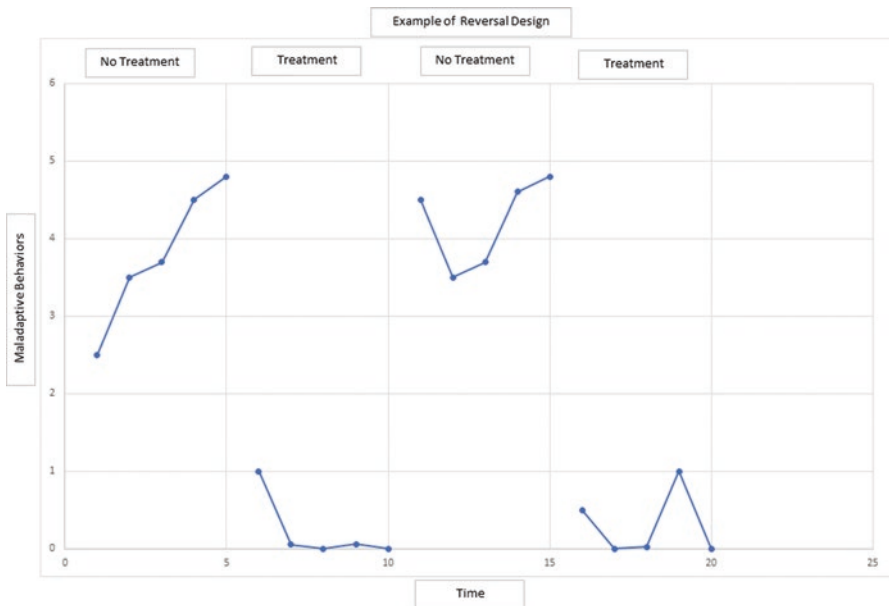
Francis Bacon Francis Bacon was an early advocate of science and advanced several proposals about what constituted proper scientific method. Bacon warned against what he called certain “idols” that he thought were commonplace but would lead to erroneous beliefs. One such an example was the *idola fori* (idol of the marketplace). *Idola fori* are logical fallacies that occur due to an “ill and unfit choice of words” (Bacon, 1854, p. 49) found in everyday vernacular that functions to sidetrack the potential knower. Thus for Bacon, science must often revise and refine constructs found in common language (e.g., the vernacular term “reward” and the scientific construct “reinforcement” are not identical).

Additionally, Bacon (1854) was an inductivist, stating that “the intellect is not fit to judge except by induction” (p. 23). Importantly Bacon was also both an experimentalist as well as someone who advocated for a utilitarian view of science, in which science should be commanded for the uses of humans. Bacon (1854) stated, “nature must be forced out of her natural state squeezed and molded (p. 25)” as “the nature of things betrays itself more readily under the vexations of art [experiments] than in its natural freedom” (p. 25). Bacon's instrumentalism can be found in probably his most famous his quote “Nature to be commanded must be obeyed.” Bacon (1854) thought science ought to be involved in the “production of effects” in which the scientist is involved in “shaping nature as if on an anvil” (p. 413). Thus, through Bacon, we can see Skinner's emphasis on induction (which diametrically opposes the second wave's adoption of a neo-Popperian deductive logic of research), experimentalism, revisions of the vernacular language, as well as an instrumentalism in which a goal of science is to produce effects for the benefits of humans.

Ernst Mach Mach (1883) also shared Bacon's notion of the practical/instrumental value of science. Mach stated, “the ways even of science lead to the mouth” (p. 23).

²Skinner attributed first hearing the term “behaviorism” in an article by Russell.

Mach, again similar to Bacon, was also an inductivist, experimentalist, and also thought that it was important to purge constructs of what he regarded as their pre-scientific meanings. Mach, for example, did exactly this with the scientific construct of causation. Mach responded to Hume’s concern about causation as not being directly observable—all one can see is ‘constant conjunction’—i.e., the observation that one event reliably follows another event. Other conceptions of cause for Mach went beyond observables and thus for him were “metaphysical.” Mach stated that the construct of cause is demonstrated in functional relationships. A mathematically functional relationship can be seen by the formula $y = f(x)$ and graphically as:



The basic idea is that y —the dependent variable—consistently changes (i.e., concomitant variation) with the introduction or the withdrawal of x —the independent variable. The first section of the graph shows the baseline of y when x is absent—it is at a relatively stable level. The second section of the graph shows the introduction of x (an experimental manipulation), and sure enough because (as it turns out) y is indeed a function of x , the value of y immediately changes. Then x is withdrawn (an experimental manipulation) and y returns to baseline levels. Then in the final sect. x is again re-introduced (a replication of the experimental manipulation) and y changes as a result. These steps in the language of behavior analysis are called reversals. In principle, one can keep doing this to make sure x and y continue to covary in this pattern. For Mach and Skinner then this functional relationship shows that x causes y .

Finally, both Mach and Skinner rejected the notion of science as hypothesis testing. For them, science ought to be a “bottom up” approach where there are no prior

hypotheses to test. This is critical in that the other two waves of behavior therapy are much more sanguine about the view of science as hypothesis testing. Mach advocated staying close to observations in order to produce the most economical descriptions of data. He stated, "Economy of communication and apprehension is of the very essence of science" (1883/1942, p. 7). We can also see these positions coming together in a description of science that Skinner (1938) stated in his first book, *The Behavior of Organisms*:

So far as scientific method is concerned, the system set up in the preceding chapter may be characterized as follows. It is positivistic. It confines itself to description rather than explanation. Its concepts are defined in terms of immediate observations... Terms of this sort are used merely to bring together groups of observations, to state uniformities, and to express properties of behavior which transcend single instances. They are not hypotheses, in the sense of things to be proved or disproved, but convenient representations of things already known (p. 44).

Skinner and Logical Positivism It is important to note that Skinner was sometimes seen as a logical positivist, a philosopher who was concerned with eliminating metaphysical statements by the use of a verificationist theory of meaning. However, Skinner was not a logical positivist nor influenced by logical positivism, although some of his detractors have made this claim to impugn him (see for example Mahoney, 1989). Logical positivism is the debunked philosophical view that originated largely in Vienna in the early twentieth century that attempted to reject metaphysical claims given its verifiability criterion of "if one cannot confirm a statement empirically, it is meaningless." On a side note, logical positivism collapsed when it could not find a version of the verifiability criterion that was not self-contradictory.

In *Behaviorism and Logical Positivism: A Reassessment of the Alliance*, Laurence D. Smith (1986) has pointed out that Skinner did have significant contact with proponents of logical positivism. However, according to Smith, Skinner's sympathies with logical positivism were quite limited and were restricted to those few aspects of positivism which they had already arrived at independently, such as a careful analysis of constructs and a heavy reliance on induction. Furthermore, the methods which Skinner alleged to have imported from logical positivism were actually derived from his own psychological indigenous conceptions of knowledge and science. Finally, according to Smith, Skinner developed and embraced a behavioral epistemology which, far from resting on logical positivist arguments, actually conflicted squarely with the anti-psychologism that was a part of logical positivism.

Skinner developed an indigenous, psychological analysis of epistemology and psychology, in which knowledge was the result of conditioning processes producing what he called "effective" behavior (see O'Donohue, 2013). Skinner never viewed his work as subordinate to philosophical work or arguments. An anecdote is very revealing of Skinner's priorities: When the young Skinner was told by the philosopher Alfred North Whitehead (1861–1947) that a psychologist should closely follow developments in philosophy, Skinner replied, "it is quite the other way around—we need a psychological epistemology" (Skinner, 2002). It was Skinner who eventually produced such a psychological epistemology.

Skinner's Philosophy of Science and Evolutionary Epistemology

Skinner developed his own philosophy of science. More specifically, Skinner's (1956) epistemic views are illustrated in the following passage from his paper, entitled *A Case History in Scientific Method*:

But it is a mistake to identify scientific practice with the formalized constructions of statistics and scientific method. These disciplines have their place, but it does not coincide with the place of scientific research. They offer *a* method of science, but not- as is so often implied- *the* method. As formal disciplines, they arose very late in the history of science, and most of the facts of science have been discovered without their aid. It takes a great deal of skill to fit Faraday with his wires and magnets into the picture which statistics gives us of scientific thinking. And most current scientific practice would be equally refractory, especially in the important initial stages. It is no wonder that the laboratory scientist is puzzled and often dismayed when he discovers how his behavior has been reconstructed in the formal analyses of scientific method. He is likely to protest that this is not at all a fair representation of what he does (p. 221).

And further, Skinner (1982) stated that:

If we are interested in perpetuating the practices responsible for the present corpus of scientific knowledge, we must keep in mind that some very important parts of the scientific process do not lend themselves to mathematical, logical, or any other formal treatment. We do not know enough about human behavior to know how scientists do what they do (p. 97)... science does not progress by carefully designed steps called "experiments," each of which has a well-defined beginning and end. Science is continuous and often a disorderly and accidental process...The subjects we study reinforce our behavior much more effectively than we reinforce them (p.97)... I believe that my behavior is as orderly as that of the organisms I study and that my rats and pigeons have taught me far more than I have taught them (p. 97, Skinner, 1982).

Skinner (1956) then provides his principles of successful scientific behavior:

- "When you run onto something interesting, drop everything else and study it.
- Some ways of doing research are easier than others.
- Some people are lucky.
- Apparatuses sometimes break down.
- *Serendipity* happens—the art of finding one thing while looking for something else." Skinner also argued that there was too much of what he came to call "premature physiologizing"(Skinner, 1938)—that the Zeitgeist of psychology of his time thought it was imperative in any discussion of perception, and that learning must be cashed out in terms of the physiology of the nervous system (we may be seeing the resurrection of this ideology with the emphasis on neuroscience; see Satel & Lilienfeld, 2013).

Skinner (1956) then noted that at Harvard he found a mentor W.J. Crozier who "resented the nervous system" (p. 223) and talked of behavior-behavior or environment-behavior relations without going inside the skin to explain behavior. Subsequently, his mission became to find order in "the organism as a whole" and found important clues from Pavlov's study of classical conditioning, namely, "control your conditions and you will see order" (p. 223). Skinner began to tinker (he

was a first-rate tinkerer) to develop new experimental apparatus that could be used to study environment-behavior relationships in the hopes of uncovering such order. He then noted that his early efforts were all failures (note here that even the scientist may make proposals to the environment to see what the environment selects—evolutionary epistemology).

Skinner's Indigenous Evolutionary Epistemology

According to Skinner, natural selection gives the organism the ability to know (Skinner, 1990). In a sense, millennia of natural selection provide the physiological equipment to emit certain response topographies. An opposable thumb, for example, enables humans to manipulate objects with fine motor control. Most importantly for human organisms, “when our vocal musculature came under operant control in the production of speech sounds,” our species proceeded to soar with all its “distinctive achievements” (e.g., art, science, literature; Skinner, 1986).

Through natural selection, the environment selected those physical characteristics and behaviors that promote the survival and reproduction of species (Skinner, 1990). For example, those individuals with sensitive autonomic nervous systems (ANS) were presumably selected by the environment because they were able to react more quickly in response to danger. The fight-or-flight mechanism, the sympathetic branch of the ANS, enabled earlier humans to quickly move out of harm's way when a predator was about to attack. Those individuals with a poorly developed ANS simply became some other creature's meal.

Selection by Consequences According to Skinner, the environment selects behavior both in the life of the species as well as in the life of the individual (Skinner, 1990). He stated:

All types of variation and selection have certain faults, and one of them is especially critical for natural selection: Classical conditioning prepares a species only for a future that resembles the selecting past. Species behavior is only effective in a world that fairly closely resembles the world in which the species evolved. If we were to wait for natural selection to fashion a relatively simple behavioral repertoire, this would take millions of years spanning countless generations, as selection is contingent on genetic variation. That fault was corrected by the evolution of a second type of variation and selection, operant conditioning, through which variations in the behavior of the individuals are selected by features of the environment that are not stable enough to play any part in evolution (p. 1206).

While natural selection concerns the physical embodiment of the species, selection by consequence concerns the individual—more specifically what the individual is likely to do (Skinner, 1981). An operant is a response that “operates” on the individual's immediate environment to produce certain consequences (Skinner, 1953). It is through this mechanism of selection that an organism readily adjusts its behavior to rapidly changing environmental circumstances. So-called “reinforcers” (e.g., food, sexual contact) increase the likelihood of the behavior that preceded them.

While operant conditioning better coordinated human behavior with a capricious environment, a single repertoire is extremely limited outside of social influence. Within a single individual's lifetime, the individual would not have learned that cooking food destroys harmful bacteria, storing food is advantageous in the event of a drought, or that hunting big game as a group is more energy efficient than hunting rodents alone. This limitation of operant conditioning was therefore corrected by cultural selection, when humans began sharing each other's repertoires by way of imitation (Skinner, 1990).

Cultural Selection: Social Contingencies Human beings are inherently social animals, as this tendency itself has obvious reproductive and survivalist advantages. For millennia, humans have coexisted under mutual protection, reared young collaboratively, and so on. Within these collectives, cultural practices could be transmitted via imitation. Imitation, of course, is not distinctly human. Japanese macaque monkeys, for instance, have been shown to imitate unorthodox behaviors demonstrated by other members of the collective (e.g., sweet potato washing and wheat-washing). The direct benefit of imitation is that it brings individuals into contact with reinforcers that are relatively remote; the more immediate contingencies of reinforcement take over the control of the behavior afterwards (O'Donohue & Ferguson, 2001).

Comparable to the preceding levels of selection, the environment also selects cultural practices in which populations and their offspring have a higher probability of survival. "A culture which raises the question of collateral or deferred effects is most likely to discover and adopt practices which will survive or, as conditions change, will lead to modifications which in turn will survive" (Skinner, 1961). For example, cultures that promote the practice "safe sex" are in a better position to control the spread of lethal sexually transmitted diseases. Cultures that do not adopt these practices are more likely to contract such diseases and ultimately pass them to offspring. The offspring, of course, usually die before they are able to reproduce.

The Second Wave: The Stoics and Neo-Popperians

There are many streams of cognitive therapy (O'Donohue & Fisher, 2009). For example, there is a stream associated with Albert Ellis's (1977) Rational Emotive Therapy (RET), a stream associated with Aaron T. Beck's (1984) cognitive therapy, and a stream more associated with experimental cognitive psychology perhaps best exemplified in the work of Steven Hollon (2011). The stream we will focus on in this chapter will be the one of Albert Ellis (1977), which he originally called RET, but later called Rational Emotive Behavior Therapy (REBT). Ellis will be the focus of this chapter because historically he was the most influential during the so-called initial era of cognitive revolution that created the second wave, and because at times, his philosophical influences shared similarities to subsequent cognitive therapists, such as Aaron T. Beck. For example, Both Ellis (1994) and Beck (1984) stated that

they were influenced by the Stoics. Finally, we discuss the philosophical position of second wave through Ellis's because he was one of the clearest regarding his philosophical influences.

The Stoics

Ellis was influenced by the Stoics. In his *Reason and Emotion in Psychotherapy*, Ellis (1994) stated,

I inducted this principle of the ABC's of emotional disturbance from working with hundreds of clients from 1943 to 1955. But I also took it over from many philosophers I studied from 1929 (when I was 16) onwards clearest of all amongst the ancients were the Greek and Roman Stoics especially Zeno of Citium (the founder of the school) Chrysippus, Panaetius of Rhodes, (who introduced Stoicism into Rome) Cicero, Seneca, Epictetus, and Marcus Aurelius (p. 64).

Stoicism, initially developed by Zeno of Citium (336–264 BCE), and later modified by the Roman philosopher Epictetus (60–120 CE), is among the better known of the ancient Greek philosophies. We begin our review of Stoicism with two exemplary quotes from Epictetus (numbers refer to numbered paragraphs in the Enchiridion):

Men are disturbed not by things, but by the views which they take of things. Thus death is nothing terrible, else it would have appeared so to Socrates. But the terror consists in our notion of death, that it is terrible (5).

and

Demand not that events should happen as you wish; but wish them to happen as they do happen, and your life will be serene (8).

Thus, Stoicism is a philosophy emphasizing rationality in the control of both thought and emotion. The Stoic account of virtue is one based on control over one's emotions. This control is so radical as to include the caveat "Friendship may be fine, but be careful that you do not become so close that the misfortunes of your friends affect your own peace of mind". This injunction applies also to one's duties toward others and society. The Stoic model of the emotions (passions) is a basic combination of positive and negative feelings organized according to time orientation:

	Present	Future
Positive	Joy, Delight, and Pleasure	Hope and Desire
Negative	Pain, Grief, and Sadness	Fear and Dread

Notice that the past is not included in this schema. According to the Stoics, it would be irrational, after all, to worry about things in the past. Nothing can be done: the past is simply what it is.

The basic principles of Stoicism reveal an interesting parallel to the events of Epictetus' life. Born a slave in a region now found in modern day Turkey, Epictetus was a picture of Stoic detachment. According to his legend, one day while Epictetus worked in the fields, his master decided to tighten the shackles on his legs despite the fact that Epictetus told him that doing so was unnecessary, as he had no plans of escaping. This resulted in a broken leg for Epictetus. Despite the pain he did not complain. When his master asked him why he did not complain, Epictetus responded that complaining would be pointless because his leg was already irreversibly broken, and no amount of complaining would undo this fact. The master was so impressed, or perhaps felt guilty, with Epictetus' composure, that he awarded him his freedom. The Stoic virtues are intended to free humans from our passions.

At this point it is important to note that Ellis is not initially influenced by a philosopher of science (as Stoicism predates the rise of science), but rather by what might be called a pragmatic philosophy regarding the proper conduct of life. However, next we will turn to an examination of the neo-Popperian (Bartley, 1984) who did influence Ellis' concept of both rational belief formation and science.

Popper and the Neo-Popperians

Ellis (1977) stated,

I abandoned even more elements of logical positivism when I later read Bartley (1962), Mahoney (1976), and Popper (1963), all of whom hold that to be scientific a hypothesis had better be falsifiable. In recent years I adopted Bartley's more open-ended position, which states that no hypothesis can be completely proven (or disproven) by empirical "evidence" (p. 20).

What follows is an explanation of Bartley's Pan-Critical Rationalism.

Bartley's Pan-Critical Rationalism

Bartley (1984), a student of Popper's, criticized what may be called *justificational* or *foundational* accounts of rationality (note that Popper also expressed similar criticisms). A justificational or foundational account of knowledge attempts to distinguish rational beliefs or actions from irrational beliefs or actions by the degree to which the former is supported, confirmed, warranted, or in some way justified by appeals to some reason or evidence. Thus, according to this view, it is rational for me to believe that "All copper conducts electricity" because this claim is (hopefully consistently) verified (or "supported," "confirmed," "warranted", etc.) by some (hopefully large and representative) set of prior empirical observations.

Bartley (1984) proposed an alternative epistemic approach to rationalism that he called “pan-critical rationality” or “comprehensive critical rationality”. Bartley’s account explicitly denies that justification must be given for some candidate belief to be considered rational. According to Bartley, there is no such state of affairs as a “justified” belief. Pan-critical rationalism states that all beliefs are open to criticism, including this proposition itself (i.e., “All beliefs are open to criticism.”) --therefore escaping the self-referential inconsistency problem of justificationism. The key epistemic questions in this account become, “What would count against my belief?”, “Are there alternative beliefs that better survive criticism?”, and, “How can one maximize criticism of my beliefs so I might discover any error contained in these?” That is, according to Bartley (1984) how can we, “... arrange our lives and institutions to expose our positions, actions, opinions, beliefs, aims, conjectures, decisions, standards, frameworks, ways of life, policies, traditional practices, etc. to optimum examination, in order to counteract and eliminate as much error as possible?” (Bartley, 1988, p. 213).

For Bartley and Popper, a belief is rational to the extent that it has been subjected to and has survived criticism, especially severe criticism. Criticism is admittedly infinite in that one can criticize indefinitely. But this is not a logical regress since one is not seeking a final, definitive proof or infallible foundation for one’s beliefs. No such infallible final position is sought: inquiry and criticism are open-ended processes. For example, in science, the Einsteinian revolution shows how Newton’s theory, which was once an accepted set of beliefs that had survived much criticism (i.e., experimentation), eventually succumbed to a certain type of criticism.

Bartley (1984) also has pointed out that it is important to note that not only do we learn where our errors are, we also learn how to learn, i.e., we learn how to better criticize and eliminate error more efficiently. We can do this both as a species, as best seen perhaps in developments of scientific methods, but also as individuals in which we adopt better meta-strategies to identify error. This is an important reason why, for Bartley, glib comments about “the scientific method” are so problematic. Scientific method is not ossified. As the philosopher of science Harold Brown (1988) has stated, “Modern studies of the history of science indicate that science is not just a process of learning about the world, it is also a process of learning how to learn about the world” (p. 7).

As Radnitzky (1988) has stated, “Fallibilism entails the perennial willingness to re-examine any position when, and if (but *only* if) there are good reasons for problematizing it” (1988, p. 292). Radnitzky (1988) also nicely contrasts the justificational and the pan-critical accounts of rationality:

The justificationist asks: When is it rational to accept a particular theory [or belief]?; and he suggests and answers on the lines: When it has been verified or probabilified to a sufficient degree. In the critical context the key question is: When is it *rational* (fallible) to prefer a particular position (statement, view, standard, etc.) over its rival(s)? The answer suggested is along the lines: ‘It is *rational* (fallible) to prefer a position over its rivals if and only if it has so far withstood criticism—the criticism relevant for the sort of position at stake—better than did its rivals’. (p. 288)

An important part of fallibilism is that alternatives to some set of beliefs also receive a fair hearing and all competitors are considered on their own merits without consideration of factors such as previous psychological attachment to the position. The critical fallibilist is particularly critical of any move that attempts to immunize a position against criticism.

Thus, statements such as, “There is an undetectable God whose existence shall not be questioned” can be seen as an attempt to minimize criticism and therefore are problematic as there is little opportunity for error correction. Similar problems are encountered in any attempt to dogmatize (i.e., insulate from criticism) any belief or practice. For a fallibilist, questionable research practices can be a particular concern because these may give the false impression that the research put the hypothesis or theory at risk of falsification when actually this did not happen (see O’Donohue et al., 2022).

Pan-Critical Rationality and Evolution

Similar to Skinner, Bartley (1984) sees his epistemology as part of a larger evolutionary epistemology. However, as we shall see, some of the details differ in important ways. As we have established in Skinner’s evolutionary approach to epistemology, Darwinian biology is used to explain both the ability of organisms to know as well as the process of knowing itself. Popper (1979) has pointed out,

Animals and even plants are problem-solvers, finding solutions by method of competitive tentative solutions and the elimination of error. The tentative solutions which animals and plants incorporate into their anatomy and their behavior are biological analogues of theories and vice versa: theories correspond to endosomatic organs and their ways of functioning, as do many exosomatic products such as honeycombs, as well as especially exosomatic tools, such as spiders’ webs. Just like theories, organs and their functions are tentative adaptations to the world we live in. (p. 145)

The characteristics of external objects that contain nutrients necessary for an organism’s survival pose problems that the human species has come to know how to solve. This knowledge, for example, becomes literally embodied in the structure, variety, and placement of teeth, and by the glands that secrete special but effective chemicals that lead to catabolic processes, and by a critical length of intestinal tract, and by a myriad other related physiological structures and mechanisms. In the long evolutionary history of our species, past environments have criticized (i.e., selected against) certain other competing problem-solving attempts. Relatively “good” attempts have survived, but their survival does not indicate that there are not better possible solutions or that these solutions are absolutely “justified” (i.e., better solutions may be available). These solutions may in fact contain a great deal of error, as undigested nutrients, dental cavities, and ulcers indicate.

Random variation and selective retention have not only produced embodied knowledge in the species, but these mechanisms have also allowed the acquisition of fallible and unjustified knowledge in the lifetime of the organism, knowledge that can hopefully continue to respond to further criticism. According to Popper (1979),

the major difference between the problem solving of subhuman animals and humans is that for animals, death and considerable suffering constitute the major feedback for error elimination, but because of past selection of intelligence, humans can advance theories and arrange experiments (error-eliminating attempts) so that our mistaken theories and beliefs can “die in our stead”.

This evolutionary epistemological context of pan-critical rationalism has a number of implications for Ellis' REBT and for second wave cognitive therapy in general. First, evolutionary epistemology provides a larger context for an account of rationality and therefore can provide answers to meta-questions of rationality (e.g., “What is rationality?”, “Why is rationality good?”, and, “How did rationality come to exist?”). Second, evolutionary epistemology may be seen as using the best source of knowledge—science—to answer an important epistemic question. Thus, this account of rationality is seen as consistent with, and in fact, an implication of, contemporary biology (O'Donohue, 2013).

Pan-Critical Rationality and Rational Emotive Therapy

O'Donohue and Vass (1996) have argued that the extent to which Ellis has faithfully followed this epistemic account is another question entirely. For example, Ellis, at least in the majority of his writings describing his account of rationality, holds an explicitly justificational account. For example, Ellis stated rational beliefs, “...can be supported by empirical data...” (Ellis, 1973, p. 57). This again is puzzling given that he has stated that he follows the views of Bartley and may be indicative of problematic exegesis on the part of Ellis.

However, many of these strategies and methods implied by a pan-critical account of rationality would be similar to those of existing REBT. For example, both conventionally practiced RET and a pan-critical approach would emphasize the importance of identifying relevant irrational beliefs and increasing the client's awareness of these beliefs (however, one would concentrate on the history and quality of past critical tests, as well as the severity of these tests). Thus, both would highlight associated therapeutic techniques such as the therapist probing and identifying these beliefs. Both would stress the *B-C* connection in the RET's A-B-C-D-E (Activating Event-Belief-Consequence-Disputation-Effects) paradigm as an important point of intervention and would emphasize rationality as the relevant critical dimension.

However, the pan-critical account of rationality would also have implications for modifying the current practice of REBT. In a pan-critical-based cognitive therapy, the purpose of therapy would be to teach clients how to be appropriately critical of their beliefs. Thus, a major goal of therapy would be to teach criticism skills—as well as the willingness to criticize one's own beliefs. In this view, currently practiced REBT does some of this (through modeling effects and other implicit mechanisms) and teaches this for circumscribed beliefs and situations, but may not do this with optimum generality or with the explicitness that would tend to increase the transfer of such skills to other beliefs and acts (O'Donohue & Vass, 1996). In

addition, it is fair to say that the pan-critical approach would also be critical of the central tenets of REBT such as its reliance on empirical confirmation and other inductivist approaches, while the conventional approach would not.

The pan-critical rational–emotive therapist also would be more systematic and specific about the criticism process. Promoting a particular attitude toward error on the part of the client would be of primary importance. Popper (1965, p. 281) has stated, “The wrong view of science betrays itself in the craving to be right.” The same holds for rationality in general and thus an attempt would be made in therapy to understand that an uncritical attitude towards one’s own beliefs is itself problematic because we are often wrong and such an uncritical outlook does not identify erroneous beliefs nor does it produce error-eliminating attempts. Thus, a key value of criticism is that it can help us to identify and eliminate error and successively improve our attempts at avoiding the negative consequences of our mistaken beliefs (for example, think of the continual quality improvement efforts of companies, such as Toyota). The “craving to be right” of a justificational account is transformed to “craving to identify our errors and replace these.”

The pan-critical approach would emphasize new sets of techniques and therapy goals. For example, the pan-critical approach would emphasize the importance of judging when and which beliefs should be problematized. This may not be a straightforward matter but would require a fair amount of judgment and discrimination. Thus, another level of criticism becomes important: a meta-level of identifying which object level judgements ought to be priorities for criticism as well as what are efficient, severe tests for these (see O’Donohue et al., 2022). Finally, of utmost importance, the pan-critical approach would stress imparting skills regarding how to construct new and telling (i.e., potentially falsifying) tests of relevant beliefs. In this approach, the therapist should not ask clients to support their beliefs and practices, but rather to invent and conduct tests that would efficiently criticize these.

Again, this problem can have important negative implications for clinical practice. If a goal of RET is to help clients to become independently rational, then it would seem countertherapeutic for clients to be unable to accurately apply criteria to evaluate the rationality of particular beliefs. To the extent that this procedure is poorly defined, a quasi-mysterious process, an authoritarian process (“My therapist says so,”) or a seemingly arbitrary process, then it is likely clients would have difficulty in making these key judgments in the future.

The Third Wave: Post-Modernism and Contextualism

The so-called “third wave” of cognitive behavior therapy began over 15 years ago (Hayes, 2004), and like traditional CBT, it includes a variety of streams and distinct interventions. Though these interventions that fall under the third-wave are arguably disparate from one another in form (e.g., Acceptance and Commitment Therapy, Dialectical Behavior Therapy, Functional Analytic Psychotherapy, Mindfulness Based Cognitive Therapy), they have common elements. These common elements

include the rejection of mechanistic philosophical assumptions in favor of more post-modern assumptions as well as the usage of therapeutic techniques tied to these assumptions (e.g., mindfulness, acceptance, values; see McCracken, chapter “[What Is Third Wave Behavior Therapy?](#)”, in this volume). A mechanistic assumption, a philosophical framework introduced by Pepper (1942), may be defined as pre-analytic beliefs that phenomena (in this case, behavior) can be explained in purely physical or deterministic terms (e.g., Hayes, 2004; Herbert et al., 2013). Though it is incorrect to say that the entirety of work that preceded the third-wave was inherently mechanistic, it is arguably true that mechanism exists at some level within both the first- and second-waves. For example, Thorndike's (1898) work on stimulus-response theory posits a lawful, orderly relationship between stimulus and response that is strengthened by the nature and frequency of S-R pairings.

In the present day, the distinctions between the third wave and its progenitors are somewhat ambiguous (Hayes & Hofmann, 2017). For example, the techniques originally borne from third-wave therapies (e.g., mindfulness, acceptance) have been incorporated into some mainstream cognitive-behavioral therapies. In practice, the difference between waves may even be somewhat arbitrary. Formally, third-wave clinicians are said to utilize more mindfulness and acceptance techniques while second-wave clinicians incorporate more cognitive restructuring. However, technical eclecticism of both second- and third-wave techniques among clinicians appears to be rather common (Brown et al., 2011). Thus, the demarcation used to distinguish third-wave CBTs from traditional CBTs is somewhat blurry.

Nonetheless, from an Pepperian account, the basic philosophical assumptions of three waves of CBTs are relatively distinct (Hayes, 2004; Hayes et al., 1993). For the purposes of this chapter, we will examine functional contextualism, the philosophical standpoint of ACT, in large part due to the explicit links between the ACT model and the philosophical assumptions of functional contextualism (e.g., Hayes et al., 1988; Chin & Hayes, 2015). Though the specific assumptions used in ACT do not necessarily represent those used in other third-wave approaches, they do constitute an example of the general post-modernist assumptions and rebuttal of mechanism (also called elemental realism) that is native to second-wave CBT. By post-modernist, we refer primarily to “the assumption that there is no common denominator—in ‘nature’ or ‘truth’ or ‘God’ or ‘the future’—that guarantees either the One-ness of the world or the possibility of neutral or objective thought” (Ermarth, 1998).

Functional Contextualism

In essence, mainstream psychology holds the view that the world exists independently from our sensation of it, and that the goal of science is to build increasingly accurate models that describe this world, as well as how the constituent pieces of the world interact with one another (Hayes et al., 1988). Statements about the world are justified, valid, true, or rational if they correspond to this underlying world. This

mechanistic assumption can be seen inside of traditional second-wave approaches, such as Ellis' discussed above, where clients are encouraged to engage in behavioral experiments to test the accuracy of their assumptions and beliefs and to discard those thoughts that are irrational or "false". Extended further, identifying where the distinction between the natural pieces/kinds lie and "carving nature at its joints" is an important function of science from this perspective (i.e., DSM diagnostic criteria and psychiatric nosology more broadly). For example, diagnoses are useful because they demarcate discrete entities that draw a distinction between adaptive and maladaptive functioning, and the extent to which they successfully do so reinforces the validity of the disorder in the natural world (e.g., Kendler & Gardner, 1998).

In contrast, informed by the framework of Pepper (1942), ACT is built on a pragmatic philosophy of science called *functional contextualism* (Hayes, 1993; Hayes et al., 1988). From this perspective, truth and scientific validity are rooted in the pragmatic questions of what successfully works in a given context to accomplish a stated goal (successful working, workability; Barnes-Holmes, 2000). Unlike mechanism (elemental realism), defined as the assumption that "one can know the true nature of reality, and objectively discover the elements of which it is composed" (Ciarrochi et al., 2016), the contextualist philosophy refrains from making such ontological claims, i.e., claims about the kinds of categories of entities that exist. Because truthfulness is determined by workability with respect to pre-analytic goals (that is, an arbitrarily chosen *metric* as a foundation on which analyses can be developed, rather than the *result* of such analyses), contextualists can sidestep the question of the nature of reality instead of mapping the veracity of statements onto a reality. This does not mean that functional contextualism is anti-ontological (e.g., stating that there is no reality, or that reality is subjective), but rather, that functional contextualism is a-ontological (Barnes-Holmes, 2005).

Clarity of one's goals is critical within functional contextualism; otherwise, any consequence-shaped behavior would be considered successful, even behaviors that are generally considered to not be so (e.g., suicide, throwing tantrums, polluting the environment; Hayes, 1993). Within functional contextualism, the goal of science is "to predict-and-influence, with precision, scope, and depth, whole organisms interacting in and with a context considered historically and situationally" (Hayes et al., 2012, p. 4). In contrast to mechanism (i.e., elemental realism), which emphasizes the ways in which individual components interact with one another to produce the whole, the primary unit of analysis in contextualism is the whole event and the parts are abstracted when it is useful.

In functional contextualism, *precision* refers to a limited number of analytic concepts [e.g., derived relational responding, mutual and combinatorial entailment in Relational Frame Theory (RFT); Hayes et al., 2001] being relevant for a given case. *Scope* refers to the capacity of an analytic concept to be applicable to multiple cases. Finally, *depth* refers to the degree to which analytic concepts cohere across levels of analysis (that is, principles that apply at the level of the individual should also be applicable to groups of individuals) and across established fields of study (e.g., psychological findings should also cohere with principles in other sciences, particularly evolution science and anthropology). As such, from an essentialist perspective,

disorders represent distinct demarcations between function and dysfunction (cf. Lilienfeld & Marino, 1999); however, a contextualist might generally abandon the notions of specific disorders and instead search for a set of principles that are broadly applicable, and not limited to a specific diagnostic category.

As mentioned above, functional contextualism as a philosophical perspective has its origins in the writings of Stephen Pepper (1942), who argued that scientific-philosophical systems can be delineated into four distinct models, or “world hypotheses,” derived from common sense conceptualizations (or “root metaphors”, in Pepper’s language). Pepper further describes the root metaphor of contextualism as “the real historic event, the event in its actuality... It is not an act conceived as alone or cut off that we mean; it is an act in and with its setting, an act in its context” (p. 232). Pepper himself did not distinguish at what point an analysis ends, which may partially account for the differentiation of *functional* contextualism from other kinds of contextualism (Hayes, 1993). Within functional contextualism, context is included to the extent that it meaningfully improves the ability to predict-and-influence human behavior.

The key insight tying Pepper’s writings to third-wave behavioral therapy was that Skinner’s radical behaviorism is in essence a contextualistic system (Hayes et al., 1988). Thus, in some ways, third-wave approaches share a philosophical system with radical behaviorism. For example, Skinner’s (1938) concept of the operant requires the understanding of the relationship between a given behavior and the stimulus events surrounding the behavior within the environment. Thus, any given behavior is devoid of meaning from a behavior analytic standpoint without also including the historical, as well as the current environmental context in which the behavior is emitted—the so-called “act-in-context”. These behavior-environment relations are critical in determining the functional class of the behavior itself, as “the consequences define the properties with respect to which responses are called similar” (Skinner, 1953).

There are notable advantages of clarifying Skinner’s philosophical assumptions, and interpreting them through the lens of functional contextualism. First, from a standpoint of Pepperian classification, Skinner was not always clear on his philosophical stance as it pertains to radical behaviorism (e.g., Gifford & Hayes, 1999; Parrott, 1983). This has led to inconsistencies about his philosophy of science within the behavior-analytic community. For example, while Skinner outright rejected biological reductionism early on (e.g., Skinner, 1938), he appealed to future physiologists providing more adequate explanations for behavior (see Zilio, 2013, for a review). For this reason, Hayes et al. (2001) argued that adopting contextualist assumptions within behavior analysis more firmly ties it to the pragmatist wing of psychology (e.g., James, Dewey, Pierce), emphasizing the prediction and influence of scientific claims over an ontological truth. The explication of functional contextualism as one’s own philosophical position also necessitates that a scientist states the goal of their analyses antecedently (Hayes, 1993). This is particularly important in behavior analysis given Skinner’s argument that a proposition is ‘true’ to the extent that with its help the listener responds effectively to the situation it describes (1974). Without a pre-existing goal statement to further clarify what an “effective

response” might be, any reinforced behavior would be definitionally “true” (Vilardaga et al., 2009).

Evolutionary Epistemology

Another important implication of a functional contextualistic behavior science (and also of Skinner’s radical behaviorism) is that the analyses must also be applicable to knowledge claims made by the scientist (e.g., Day, 2005). Thus, any epistemological claims made from within a functional contextual perspective should not be judged based upon correspondence to the world as it exists. This epistemological position of functional contextualism is in sharp contrast with that of other worldviews in the Pepperian classification, including mechanism. That is, scientific progress is often said to be only possible if theories are developed, which *refer* to the world (Laudan, 1977). Put in a different way, scientific theories that are drawn from other philosophical worldviews, such as mechanism, classify and divide the world ontogenetically. However, the functional contextualist would argue that, although these divisions may be *useful*, an effective theory is not *defined* by these divisions that are purported to pre-exist in the natural world.

For many scientists and philosophers, this epistemological position of functional contextualism does present an important limitation, however (Barnes-Holmes, 2000). This is because, from a functional contextualist perspective, scientific endeavors are a product of the behavioral history of the scientist. This means that, as a result of the scientist not being able to claim ontological truths, a different behavioral history may have produced a different “truth” (Barnes-Holmes, 2000), which is not a conventional account of what the truth is for many scientists and philosophers. This notion of referential truth is similar to evolutionary epistemology, in which Darwinian principles are applied to verbal behavior and cognition (see Radnitzky & Bartley, 1987).

Previous evolutionary epistemologists have tried to adhere to correspondence-based truths by claiming “no effort is made to justify ‘my own’ knowledge processes” (Campbell, 1959, p. 157), therefore excluding the scientist from the analytic account. However, functional contextualism takes a different approach. That is, the account must also include an analysis of the contingencies involved in scientific knowing itself. Rather than struggling with whether scientific theories truly refer to and correspond to the world, the analysis also focuses on the *functions* of language and cognition, rendering correspondence a moot point.

Basic and Applied Science: A Reticulated Model

Taken together, these functional contextualistic philosophical assumptions can be utilized to form a scientific approach that explicitly lays out a coherent strategy for knowledge development, called contextual behavioral science (CBS; Hayes et al., 2012). CBS is defined by Hayes and colleagues as:

a principle-focused, communitarian strategy of reticulated scientific and practical development. Grounded in contextualistic philosophical assumptions, and nested within multi-dimensional, multi-level evolution science as a contextual view of life, it seeks the development of basic and applied scientific concepts and methods that are useful in predicting-and-influencing the contextually embedded actions of whole organisms, individually and in groups, with precision, scope, and depth; and extends that approach into knowledge development itself. (p. 2)

A key strategy utilized within CBS is a reticulated (that is, web-like) model in which basic (i.e., principle- and theory-based science) and applied science are kept tightly linked to, and mutually influence one another. The well-known Duhem-Quine thesis (Quine, 1951) demonstrates that scientific hypotheses are impossible to test in isolation, as any observational test requires a further set of auxiliary assumptions. As argued by Meehl (1978), these auxiliary propositions are often blamed for failures in theories within psychology, preventing falsification and leading to the “slow progress of soft psychology.” However, from a functional contextual perspective, behaviors and their contextual functions are treated as legitimate analytical concepts of themselves, not as proxies for inferred variables (Hayes et al., 2012). Thus, for example, an individual’s social withdrawal and reticence around peers is not a symptom of “introversion” or “shyness”; rather the specific behaviors themselves are the targets of analysis and intervention.

This analytic strategy requires the conditions in which concepts are studied to be defined specifically, and contextually-bound, such that there is little room to blame auxiliaries when a concept is not supported. Though such an approach does not entirely invalidate the Duhem-Quine problem, in conjunction with other good scientific practices (e.g., O’Donohue et al., 2017), it may address the limited progress within the field. A further advantage of behaviors as targets of analysis is that these can be relatively easily studied in a basic, principle-driven sense, given the existing work in the field of behavior analysis, and these basic principles can be scaled to applied contexts. For example, rather than targeting the content of cognitions as the focus of intervention (i.e., cognitive restructuring), ACT explicitly addresses the functions of cognitions as they relate to the individual’s environment, as well as the individual’s relationship with said cognitions. However, the functional-contextual approach also allows for advances in applied domains (i.e., the “act-in-context”), with the caveat that basic principles be developed to explain, predict, and influence these findings (Hayes et al., 2012; see also Barnes-Holmes et al., 2016). An example of the fundamental basic science most relevant to third wave interventions, such as ACT, is RFT (see Hayes et al., 2001).

Middle-Level Terms and Constructs

As discussed extensively above, the development strategy of having an applied theory of psychotherapy tied to a basic, behavioral account of complex human behavior seen in CBS is sensible from a philosophy of science perspective. That is, the

entire package is internally consistent (e.g., mechanisms of change in ACT are derived from RFT-based principles), theoretically coherent (human suffering is cast in terms of problems that arise from relational framing), and largely self-sufficient (outside of basic behavioral principles, the ACT perspective is not reliant upon other theories in order to be useful).

The same strategy presents a pragmatic concern for treatment delivery, however. More specifically, it is unrealistic for all clinicians and practitioners to be well-trained in basic behavioral principles, to the point that they can apply them in novel clinical situations. Thus, as a dissemination strategy, ACT training deliberately utilizes so-called “middle-level terms”—practically useful concepts and abstractions designed to orient the clinician toward features and processes that may lead to better outcomes (Hayes et al., 2012). The ACT literature incorporates several of these middle-level terms, including the six fundamental processes (acceptance, diffusion, flexible attention to the present, self-as-context, values, and committed action) within the psychological flexibility model (which itself could be considered a middle-level term). These processes lack the precision, scope, and depth typical of behavioral principles, and therefore should not themselves be confused with principles.

However, a significant risk of the use of middle-level terms is that they can become reified (Vilardaga et al., 2009), and this risk may be particularly significant for those practitioners for whom middle-level terms were designed; that is, practitioners without extensive training in basic behavioral principles. For example, the term “attention” in behavior analysis refers to a functional class of reinforcers that can tend to maintain many different behaviors. However, laypeople and even clinicians may be tempted to attribute negative behaviors to attention itself (i.e., a child acting out for attention), without attending to how reinforcement works to bring about those negative behaviors. Absent the behavioral principles of reinforcement, knowing that a behavior is maintained by attention does little to address the problem behavior in question.

Indeed, there is some concern even within the functional contextual wing that these terms are problematic, and veer dangerously close to hypothetical constructs, which may be defined as a *non-observable* variable that is used to explain behavior (e.g., Barnes-Holmes et al., 2016). In order to remain philosophically consistent with functional contextualism, theoretical constructs are only useful to the extent that they orient the clinician toward problematic, manipulable behaviors. For example, mindfulness is a middle-level term that addresses the degree to which an individual exhibits problematic attentional rigidity toward the past (e.g., rumination) or future (e.g., excessive worry). It should not be considered a skill to be trained up indiscriminately, but rather a tool to address deficits in flexible attentional focus. It may be worth careful consideration whether the risks and problems associated with the usage of middle-level terms within ACT are beneficial and philosophically consistent with the functional contextualist strategy. Nevertheless, as Dixon et al. (2018) pointed out, ACT may be the most resoundingly successful application of the broad research program on derived stimulus relations, and that “although ACT is complex, it incorporates a non-technical language that the general population can understand and that, arguably has helped to fuel its societal acceptance” (p. 251).

In sum, broadly speaking, the theories that comprise the third-wave of behavior therapy can be characterized by their eschewal of mechanistic assumptions in favor of post-modernist interpretations, rejecting the notion of a neutral, objective perspective from which one can analyze the world. These assumptions have important implications in how therapy is conducted, distinguish third-wave interventions from the previous waves. Rather than training clients to be more rational and to identify irrational thoughts and beliefs, clients are asked to evaluate the utility of their behaviors with respect to a pre-existing target outcome (Vilardaga et al., 2009). As such, the role of the clinician is to help clients develop more effective ways of interacting with their environments.

Additionally, these third-wave assumptions are as applicable to scientific behaviors as they are to problems that arise in clinical contexts. In order to develop a more progressive approach to science that seeks to develop successively useful models and theories, a philosophically coherent strategy termed CBS has been developed. This approach emphasizes identifying directly manipulable causal variables rather than constructs (Hayes & Brownstein, 1986), with contextual factors being defined precisely to limit the degree to which the Duhem-Quine problem can be invoked. Though this approach has led to a productive empirical basis (e.g., nearly 350 randomized controlled trials of ACT having been conducted to date; see bit.ly/ACTRCTs), there have been some criticisms regarding the research program (e.g., O'Donohue et al., 2016).

Conclusions

We have seen that the three waves of behavior therapy have been influenced by, and have adopted, three distinct sets of meta-scientific beliefs. We have argued that in the first wave, B. F. Skinner was influenced primarily by the positivism of the physicist Ernst Mach as well as the inductive philosopher of science, Francis Bacon, and came to develop an indigenous philosophy of science (which he called radical behaviorism) that eventuated in a naturalized, evolutionary epistemology—which, in turn, was advanced by neither Mach or Bacon. Evolutionary epistemology looks at the ways a natural process, evolution, studied by science, has influenced humans to be knowledgeable—both as a species as well as individuals. Evolutionary epistemologists point out that epistemology then is seen as a scientific matter, not a philosopher one.

On the other hand, in the second wave, Albert Ellis was influenced by the pre-Socratic philosophers known as the Stoics, who emphasized that one's beliefs have more influence on one's happiness more than events themselves, as well as by the neo-Popperian, W.W. Bartley's pan-critical rationalism, which emphasizes maximizing criticism to identify and root out error. Bartley's basic idea is that clients have erroneous beliefs as well as nonideal belief generating processes that can be improved by adopting a more critical stance (including the stance of criticizing one's criticizing—hence the notion that this approach is “comprehensively

critical”). However, O’Donohue and Vass (1996) have argued that Ellis was not actually faithful to Bartley’s epistemology. Finally, the third wave, particularly ACT, was most influenced by a rather obscure philosopher, Stephen Pepper, who mainly concentrated on aesthetics during his career but emphasized non-mechanistic, root metaphors. His obscurity can be partly depicted that in The Philosopher’s Index a database of citations (in February 2021) for philosophy books and articles, his total citations were 190 while Popper’s during the same time period were 3023.

It is beyond the scope of this chapter to provide a detailed evaluation of the quality of these meta-scientific commitments as well as the degree to which each of the waves actually has been faithful to the commitments associated with their particular wave. These are certainly important questions. It is clear that each of the waves currently face significant challenges and it will be important to see whether the waves can draw on the insights of these meta-scientific commitments to increase their problem-solving effectiveness. All are faced with the general challenge of developing new therapy principles, more valid assessments, as well as more efficient and effective therapies.

However, it can also be said that each also faces unique challenges. The third wave has developed quickly in the last few decades, a time period which it seems fair to say the first wave has failed to develop new learning principles or new advancements in the effectiveness of their therapies. It also seems fair to say in recent decades that perhaps a lot of time and attention has been spent by those in the first wave of developing a profession to meet the practical needs of delivering many interventions to many individuals suffering from autism. In the last few decades, it also seems fair to say that the second wave also has made few recent breakthroughs in the varieties of cognitive therapy. Perhaps a renewed look at bringing more implications of Bartley’s epistemology to second wave therapies would be useful. Is Popper’s concept of severe testing (see O’Donohue, 2021) something that ought also to be taught to clients? How much criticism is ideal—what does it practically mean to maximize criticism? How much judgement is involved in what to problematize a particular belief or subset of beliefs in a client’s web of belief?

The third wave has faced significant problems, e.g., with measurement—ACT emphasizes functional relationships but its outcome measures by in large have not been functional analyses but self-report questionnaires, such as the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011), which has had significant validity problems (Wolgast, 2014). This of course raises serious concerns about what can be concluded from the outcome studies of ACT that utilize such problematic questionnaires. In addition, there are concerns about whether ACT researchers have appropriately controlled for therapeutic allegiance or even whether it has been oversold and relied too heavily on questionable research practice (see O’Donohue et al., 2016).

A practical question involves how does a clinician or client currently rationally choose among these three waves of behavior therapy? Does evidence-based practice mean a careful look needs to be made problem by problem, where one can find better evidence for one wave for problem a, but better evidence for another wave from problem b? Or is one wave so generally superior that, at least at this point in time,

one can argue that wave x is generally superior and thus ought to be adopted on a fairly widespread basis? It seems that practitioners and researchers are adopting both approaches. However, it also seems fair to say that some seem to be adopting their wave based on unclear sets of criteria and arguments—some seem to just have a preference, perhaps akin to a preference to a sports team or to a political party—often a strong one—for one wave or another. Perhaps further work on the quality and fidelity to these meta-scientific commitments can help make these choices more rational. However, the first step is identifying these commitments, which was the task of the present chapter.

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What Is First-Wave Behavior Therapy?



Edward K. Morris

In 2004, Steven C. Hayes published an article in *Behavior Therapy* titled, “Acceptance and Commitment Therapy, Relational Frame Theory, and the Third Wave of Behavioral and Cognitive Therapies” (Hayes, 2004). It was based on his 1988 presidential address – “Human Suffering” (Hayes, 1998) – at the meeting of the Association for Advancement of Behavior Therapy (AABT) (Steven C. Hayes, personal communication, September 20, 2020).¹ In it, he wrote: “Behavior therapy can be roughly categorized into three waves or generations...a ‘wave’ is a set or formulation of dominant assumptions, methods, and goals, some implicit, that help organize research, theory, and practice” (p. 640).² According to Hayes (2004, pp. 640–645), the three waves were (as they are today) behavior therapy (ca. 1950–present), cognitive-behavior therapy (ca. 1970–present), and clinical behavior analysis (ca. 1990–present).³ In addition to calling the first wave *behavior therapy*,

¹In 2005, AABT was renamed the Association for Behavioral and Cognitive Therapies. *Behavior Therapy* (est. 1970) remains its flagship journal.

²Waves and generations are different, of course. A wave is prototypic: a change in behavior therapy’s assumptions (e.g., philosophies), methods (e.g., research), and goals (e.g., in science and practice). A generation is demographic: a cohort of behavior therapy’s founders (e.g., the Greatest Generation, b. 1901–1927). More than one generation can participate in a wave; more than one wave can appear in a generation.

³Hayes (2004) was not the first to use a “waves” or “generations” historiography. Some behavior therapists have used two waves or generations; others have used three waves or generations (e.g., O’Donohue, 1998b; Plaud & Vogeltanz, 1997); and still others have used more (e.g., O’Donohue et al., 2001; O’Donohue & Krasner, 1995a). Most uses of the first, second, and third waves and generations, though, are the same, but not always (e.g., Hayes was a “second generation behavior therapist”; Plaud & Vogeltanz, 1997, p. 406).

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Hayes also used the term for “the entire range of behavioral and cognitive therapies” (p. 640). These uses are respected here: *behavior therapy* for the first wave, *Behavior Therapy* for a range of the waves.

This chapter describes the foundations of behavior therapy, that is, the assumptions, methods, and goals manifest in its research, theory, and practice (hereafter, in its systems, sciences, and practices). The first section offers a representative view of behavior therapy – Hayes (2004) – along with some clarifications. The second section addresses behavior therapy’s foundations, organized by its long past (ca. 500 B.C.E.–1900), short history (ca. 1900–1950), recent origins (ca. 1950–1960), and institutional founding (ca. 1960–1970).⁴ The third section considers behavior therapy yesterday and today, describing its differences with the clinical traditions, within its own streams, and with the other waves of Behavior Therapy. Some of the differences are complementary, some paradigmatic, and some contingent.

A Representative View of Behavior Therapy

In his article, Hayes (2004) described the clinical traditions in psychotherapy during the 1940s and 1950s and then the emergence of behavior therapy as an alternative to them. The clinical traditions were the psychoanalytic and humanistic theories and therapies (and psychiatric theories and therapies more than a century earlier). They were criticized for having “a very poor link to scientifically established principles, vague specification of interventions, and weak scientific evidence in support of the impact of the interventions” (p. 640). Hayes continued: “Early behavior therapists believed that theories should be built upon a bedrock of scientifically well-established basic principles, and that applied technologies should be well-specified and rigorously tested” (p. 640). As for the basic principles: “Behavior therapy is an orientation to understanding and ameliorating human suffering, through behavior change, that is influenced by principles derived from experimental psychology, particularly learning research” (O’Donohue et al., 2001, p. xii). Although the bedrock was not always the same bedrock, the principles of learning were fundamental:

...learning is experience that results in relatively enduring changes in behavior. This focus precisely addresses the general question involved in the enterprise of psychotherapy: How can therapists structure experience so that relatively enduring changes occur in the client’s behavior. (O’Donohue, 1998a, p. 6)

After this, Hayes (2004) described two major streams in behavior therapy – neobehaviorism and behavior analysis (p. 641) – noting that they were united in their

⁴The distinction between behavior therapy’s long past and short history is borrowed from Hermann Ebbinghaus (1850–1909), who wrote: “Psychology has a long past, yet its real history is short” (Ebbinghaus, 1908, p. 3). E. G. Boring (1886–1968) made the distinction famous as: “Psychology has a long past, but only a short history” (Boring, 1929, p. vii).

criticisms of the clinical traditions and united in having scientific bases, but that they were different, too. They have also been conflated, as clarified below.

Neobehaviorism

Hayes (2004) aligned neobehaviorism with associationism: “In the late 1960s, neobehaviorists began to abandon simple associative concepts of learning in favor of more flexible mediational principles and mechanistic computer metaphors” (p. 642). Actually, neobehaviorists began to abandon some of behaviorism’s associationism in the late 1920s, specifically, the stimulus-response (S-R) associationism of John B. Watson’s (1878–1958) classical behaviorism. In its place, most neobehaviorists favored a behaviorism that included mediational constructs (e.g., attention, motivation, representations) within the organism (O) to explain the relations between stimuli (Ss) and responses (Rs) in S-O-R mediational behaviorism, for instance, the drives, habits, and inhibitors in Clark L. Hull’s (1884–1952) theory of learning. Although complex, the mediational constructs were still often associative and were implicitly mentalistic. What the neobehaviorists abandoned in the late 1960s was the surface structure of these constructs in favor of the explicitly mentalistic, computational constructs in information processing (e.g., encoding, memory, retrieval). The deep structures of mediational behaviorism and cognitivism, though, were largely the same: their logic of explanation (Leahey, 1992).

Behavior Analysis

As for behavior analysis, Hayes (2004) aligned it with B. F. Skinner’s (1904–1990) article, “The Operational Analysis of Psychological Terms” (Skinner, 1945), and his book, *Verbal Behavior* (Skinner, 1957). Actually, behavior analysis was also a neobehaviorism, but not a mediational behaviorism, whose paradigm was different. It abandoned Watson’s associative Ss and Rs, too, not in favor of mediational constructs, but in favor of classes of Ss and Rs and their functional relations (Skinner, 1938). As for the philosophy of his science, Skinner (1945) called it *radical behaviorism*, where radical meant basis or root: Behavior was the basis or root of psychology (Schneider & Morris, 1987). This was a metaphysical behaviorism in which psychological terms denoted descriptive concepts for behavior to be explained (e.g., feeling, thinking), not explanatory constructs that putatively explained behavior (e.g., feelings, thoughts). In his radical behaviorism, Skinner included private events as more behavior to be explained (e.g., covert responses). This, Hayes (2004) averred, “overthrew the Watsonian restriction against the direct scientific analysis of thoughts, feelings, and other private events” (p. 642). Actually, Watson’s restriction was ultimately against them as explanatory constructs, not as descriptive concepts, which is described later.

Hayes (2004, pp. 646, 659) also aligned behavior analysis with the worldview of contextualism, that is, with John Dewey's (1859–1952) pragmatism. He had done this before. In a retrospective review of Stephen C. Pepper's (1891–1972) *World Hypotheses* (Pepper, 1942), he co-wrote: "Behavior analysis is a contextualistic system" (Hayes et al., 1988, p. 110; see Morris, 1988). In particular, he aligned behavior analysis with the functional contextualism of his contextual behavioral science (see Hayes et al., 2012):

The core analytic unit of functional contextualism is the "ongoing act in context." The core components of functional contextualism are (a) focus on the whole event, (b) sensitivity to the role of context in understanding the nature and function of an event, (c) emphasis on a pragmatic truth criterion ["prediction and influence," p. 647], and (d) specific scientific goals against which to apply that truth criterion. (Hayes, 2004, p. 646)

In passing, Hayes (2004, p. 644) also aligned behavior analysis with mechanism (Pepper, 1942, pp. 186–221). This may have been due (a) to variations in behavior analysis regarding reductionism and causation (Hayes et al., 1988, pp. 104–105) or (b) to functional contextualism's interest in controlling behavior (Hayes et al., 1988, p. 101), but this warrants further analysis.

Criticisms Hayes (2004) then criticized behavior analysis, some of it warranted, some of it not, depending on variations within behavior analysis (and across behavior analysts). For instance, although Skinner (1945, 1957) included private events, Hayes demurred:

...Skinner's analysis of language and cognition led him to conclude that while a scientifically valid study of thoughts and feelings was possible, it was not needed to understand overt behavior. Language and cognition was [sic] conceived of as simple operant behavior and as such added nothing fundamentally new to the contingency stream surrounding other behavior. (p. 642)

Whether Skinner's analysis of language and cognition added nothing fundamentally new to Behavior Therapy is arguable. Each wave of Behavior Therapy added something fundamentally new. In the 1990s, clinical behavior analysis added a putatively new principle of behavior from relational frame theory (RFT): the transformation of stimulus functions (Hayes et al., 2001, pp. 31–33). In the 1970s, cognitive-behavior therapy added new cognitive constructs (e.g., attributions; see Mahoney, 1974; Meichenbaum, 1977), but not everything new was useful. In the late 1950s, behavior analysis added a new system (i.e., radical behaviorism) and a new science (i.e., of operant behavior; see Skinner, 1938, 1945). Afterward, it added other things, some of them also described later.

Hayes's (2004) foregoing distinction between (a) language and cognition and (b) behavior is a category mistake (Ryle, 1949). The former are behavior: a function of behavior's natural science and natural history. Behavior's natural science is the principles of behavior: a subject matter in the experimental psychologies of learning and behavior (e.g., classical conditioning, reinforcement). They are presumably universal, general, or nomothetic. Behavior's natural history is its biological, individual, and cultural history whose products are the subject matter of other experimental psychologies (e.g., language, cognition). Its "principles," though, are not principles

of learning and behavior, but instead, are historically situated, normative, or idiographic (e.g., predictable differences and regularities within and across behavior; Gergen, 1973). Behavior therapy requires both natural science and natural history for understanding behavioral disorders and developing interventions for them. They are complementary.

As for neobehaviorism's therapies, Hayes (2004) noted that mediational behaviorism and behavior analysis were similar, but again different. They were similar in focusing "directly on problematic behavior and emotion" (p. 641), that is, on "'first order' change" (p. 643), using "didactic" and "eliminative" (pp. 658–659) interventions, as opposed to second-order or constructional interventions (i.e., changes in behavior's functions, not just forms; e.g., repertoires, reinforcers), but this arguable, too (see, e.g., Ferster, 1973; Goldiamond, 1974). As for their differences, mediational behaviorism focused on emotions that caused problem behavior, using "neobehavioral principles" to modify them (e.g., "anxiety was to be replaced by relaxation," Hayes, 2004, p. 643), while behavior analysis focused on behavior caused by the environment, using "conditioning principles" (Hayes, 2004, p. 641) to modify it (e.g., eating, hoarding, isolate behavior, psychotic talk, stuttering, tantrums, wearing glasses). The distinction between emotion and behavior is another category mistake.

Conclusion

This representative view of behavior therapy is accurate, except for occasional oversights, but this is understandable. Its purpose was to advance RFT and ACT in third-wave Behavior Therapy. In contrast, the purpose of this chapter is to describe behavior therapy's foundations – the assumptions, methods, and goals manifest in its systems, sciences, and practices – from a more historicist perspective.

Foundations of Behavior Therapy

As noted above, the foundations of behavior therapy may be organized by its long past, short history, recent origins, and institutional founding. The foundations are so complex, nuanced, and diverse, though, that the chapter must be selective in its descriptions, even though a substantial literature supports them. This includes Agras et al. (1979), Boakes (1984), Catania (2013), Cooper et al. (2007), Erwin (1978), Kalish (1981), Kanfer and Phillips (1970), Kantor (1966, 1969), Kazdin (1978), Krasner (1980, 1982, 1990), Krasner and Ullmann (1965), Leahey (2013), Madden (2013), Malone (1990), Moore (2008), O'Donnell (1985), O'Donohue (1998b), O'Donohue et al. (2001), O'Donohue and Krasner (1995b), Plaud and Eifert (1988), Rachman (2015), Rutherford (2009), Skinner (1938, 1953, 1957, 1974), Smith (1986), Ullmann and Krasner (1965, 1969), Ulrich et al. (1966), and Wolpe et al.

(1974). Where pertinent, this literature is cited, but it is also a bibliography, albeit of mainly secondary sources. It does not include primary sources, which challenges the chapter's historiography. The foundations begin with the long past of behavior therapy.

Long Past: 500 B.C.E.–1900 C.E.

Ancient Greece (500 B.C.E.–400 C.E.) Behavior therapy's long past lies in Greek philosophy circa 500 B.C.E. (Kantor, 1966; Leahey, 2013). When the Greek city-states became physically, economically, and socially secure – a cultural opening – they fostered philosophies that were among behavior therapy's ontologies. Thales (ca. 624–546 B.C.E.) proposed a monism that comprised the material world – materialism (i.e., physicalism). Heraclitus (535–475 B.C.E.) advanced becoming over being, as captured in his aphorism: “No one ever steps in the same river twice” – contextualism. Aristotle (384–322 B.C.E.) maintained that the world, including the subject matter of psychology, consisted only of natural things, events, and their relations – naturalism. Ontologies are not essentially true, though. They are “true” because they work. These ontologies worked in the short history and recent origins of behavior therapy.

Middle Ages (400 B.C.E.–1300 C.E.) When Greece succumbed to interstitial wars and assimilation by the Roman Empire, life became less safe, secure, and stable (100 B.C.E.–400 C.E.), which fostered opposing ontologies (e.g., immaterialism, supernaturalism). When Rome fell, natural philosophy waned for a millennium – a cultural closing. In these Middle Ages, the Roman Empire devolved into kingdoms of feudal societies and economies, while the Church offered physical and metaphysical havens. No foundations of behavior therapy emerged at the time, mainly contrasts. Scholasticism (1100–1500), for instance, averred that true knowledge of nature lay in the Church's interpretations of Aristotle, not in his actual philosophy and science.

The Renaissance (1300–1600) Europe's recovery from the Middle Ages was the Renaissance, an intellectual and artistic reopening of culture and philosophy. In it, the Scientific Revolution (1600–1800) offered a new epistemology for knowing nature. Francis Bacon (1561–1626), in particular, advanced empirical-inductive methods in technology and science. The goal was to predict and control nature to improve the human condition (see Smith, 1986). A later outcome was Isaac Newton's (1642–1727) deductive, deterministic, mechanistic physics. These philosophies would be integral to one or more major streams in behavior therapy.

Modern History (1500–1900) In early-Modern history (1500–1800), Rene Descartes (1596–1650) proposed a philosophical construct of mind in mind-body dualism. Mind was immaterial and independent of the body; some of its content was

innate (e.g., language). This was a rationalist philosophy of mind. In late-Modern history (1600–1900), British philosophy advanced a psychological construct of mind based in experience. John Locke (1632–1704) conceived of the mind as a blank slate. David Hume (1711–1776) later proposed that simple ideas came from experience, while complex ideas were based in their associations. This empiricist philosophy of mind is found among behavior therapy’s major streams.

Modern Science (1600–1900) As for the body, Descartes viewed it as a machine, which was consistent with the materialism, determinism, and empiricism in physics. Scientists thus began studying the body in these terms, too. Claude Bernard (1813–1878) founded experimental physiology using empirical-inductive and within-subject methods. Charles Darwin (1809–1882) founded an evolutionary biology based in natural selection. When these were extended to mind and behavior, the result was comparative psychology and the psychology of adaptation (Boakes, 1984). In the latter, Ivan P. Pavlov (1849–1936) conducted the first systematic analyses of reflex behavior (e.g., salivation in dogs), which he explained reductionistically (i.e., neurologically), while Edward L. Thorndike (1875–1949) conducted the first systematic analyses of instrumental behavior (e.g., cats escaping from boxes), which he explained mentalistically (e.g., the satisfactions it produced). These presaged, in part, behavior therapy’s bases in learning.

Conclusion

Although not nuanced, this historiography of behavior therapy’s long past describes assumptions (e.g., materialism, naturalism), methods (e.g., empirical, inductive) and goals (e.g., prediction, control) at the start of behavior therapy’s short history. Some of them, though, conflicted with others (e.g., monism vs. dualism, induction vs. deduction), but sometimes unnecessarily so, as described later, too.

Short History: 1900–1950

In the 1870s, Wilhelm Wundt (1832–1920) founded experimental psychology in Germany (Kantor, 1969; Leahey, 2013). Its methods were objective (e.g., psychophysical), its independent variables were material (e.g., stimuli), but its subject matter was not behavior. It was consciousness – experience – inferred through verbal and nonverbal measures. In America, Edward B. Titchener (1867–1927) made Wundt’s science into psychology’s first system: Structuralism. Its subject matter was the structure of consciousness – its elements: sensations, feelings, and images – observed introspectively. Behavior was not its subject matter either.

American psychology was more interested in the function of consciousness – mental adaptation – than its structure. This became psychology’s second system:

Functionalism. Its subject matter was not conscious content (e.g., feelings, sensations), but conscious processes (e.g., feeling, sensing), still not behavior. As the construct of consciousness was increasingly questioned, psychology was drawn more to the function of behavior – behavioral adaptation. This was psychology’s third system: behaviorism in many varieties (Malone, 1990; O’Donohue & Kitchener, 1998; O’Donohue & Krasner, 1995b). It was supported by the turn-of-the-century American culture, for example, urbanization and Social Progressivism (1880–1920) (O’Donnell, 1985). In contrast to America’s familiar, rural folk psychology, urbanization favored a psychology that fostered effectiveness in impersonal urban settings. Social Progressivism favored a psychology that advanced efficiency in business, industry, and daily life. Behavior therapy was not an accident, but then, neither was it predestined. America’s deep-seated belief in mind and agency worked against natural philosophy, sciences of behavior, and their applications – and still works against them.

Russian Neuroscience Based on advances in nineteenth century European physiology, Russian neuroscience was behavior therapy’s first major scientific stream, although not its first major systematic stream. As noted above, its system was reductionistic, which behavior therapy was not (and is not), even as it included (and includes) biological participation in all behavior and biological independent variables (e.g., genetic, hormonal, neural).⁵ In critiquing Structuralism, Ivan M. Sechenov (1829–1905), the father of Russian physiology, contended that cerebral reflexes accounted for behavior better than consciousness did and that physiology offered more objective methods than introspection did. Independent of reductionism, Pavlov’s research was the basis of the first natural science of behavior – an empirical-inductive science of reflex behavior (and a 1904 Nobel prize) – which he used in behavioral interpretations of language and psychopathology. Vladimir M. Bekhterev (1857–1927) conducted related research on motor reflexes (e.g., leg flexion in dogs), critiqued psychoanalysis, and offered behavioral interpretations of typical and atypical human behavior (e.g., personality).

As a science, Russian neuroscience’s unit of analysis was a two-term relation between unconditional responses (i.e., reflexes; R_R ’s) and their unconditional antecedents (i.e., eliciting stimuli; S^E ’s) (see Pavlov, 1927). The S^E - R_R relations were the basic principles and processes of unconditional reflexes (e.g., habituation, potentiation) and explained, in part, rudimentary emotion (e.g., feelings) and cognition (e.g., awareness). When other stimuli entered the unit, new principles and processes – conditional ones (e.g., conditioning, discrimination, extinction, generalization) – and functions emerged (i.e., or were derived; e.g., conditional responses and stimuli), while still others were derived from them (e.g., blocking, inhibition). These explained, in part, more emotion and cognition (e.g., fear, anxiety). In addition,

⁵The past tense (e.g., “was not”) indicates behavior analysis in the history of behavior therapy. The present tense (e.g., “is not”) indicates behavior analysis today. This past-present distinction holds for other characteristics of behavior analysis and in other streams in behavior therapy, but will be assumed, not made, except as summary prompts (e.g., “includes”).

contextual variables affected the functional relations (e.g., conditioning history, occasion-setting), accounting for still more emotion (e.g., anticipation) and cognition (e.g., memory) (see Bouton & Nelson, 1998).

The precursors of behavior therapy in Russian neuroscience included (and include) naturalism, as opposed to supernaturalism; rigorous within-subject research methods; an empirical-inductive science and theory of reflex behavior; new basic and derived behavioral principles, processes, and functions; interpretations of language, personality, and psychopathology; syntheses and analyses of emotional disorders in nonhumans (e.g., neuroses in dogs); and applications that became desensitization for human anxiety (see Franks, 1969).

Classical Behaviorism The first systematic and second scientific stream in behavior therapy's short history was Watson's (1930) classical behaviorism. Its goal was to make psychology and its applications objective. As a system, it was initially a form of methodological behaviorism: Consciousness existed, but was unobserved in practice or was unobservable in principle and, thus, set aside (Watson, 1913b). Although this view of classical behaviorism remains common, Watson soon rejected it for a metaphysical behaviorism in which only biology, environment, and behavior existed (Watson, 1913a). Consciousness did not – not as an explanatory construct. However, Watson included “implicit” behavior: behavior unobserved by others, for instance, subvocal verbal behavior and private emotional reactions (e.g., fear, rage, love). In this, consciousness was a descriptive concept.

As a science, Watson's behaviorism included Pavlov's two-term S-R relations, but from a then-molecular perspective: Every R had an S and every S had an R. By 1930, though, this science began to falter. It could not account for variability in the putatively essentialist S-R relations. Thus, although classical behaviorism was the first systematic stream in behavior therapy's short history, it was not also a scientific stream. Nevertheless, it included (and includes) precursors of behavior therapy: objectivity, as opposed to subjectivity; S-R interpretations of psychopathology; analyses and syntheses of emotional behavior, albeit sometimes flawed (Harris, 1979); practical applications for children's fears, for instance, systematic desensitization (e.g., Jones, 1924); and applications for adult behavior, among them, negative practice for stuttering, aversion therapy for alcoholism, and assertiveness training for social phobias (Kazdin, 1978).

When classical behaviorism's science faltered, neobehaviorism emerged in two varieties, which were behavior therapy's next major systematic and scientific streams. They sought to account for variability in the S-R relations that Watson's science could not. One was mediational behaviorism, the other was operant behaviorism, both introduced earlier.

Mediational Behaviorism In contrast to Watson's methodological behaviorism, mediational behaviorism did not set unobservable constructs aside. It incorporated them. At the time, philosophers were formalizing science as a hypothetical-deductive method of theory construction in which the meaning of terms was paramount (Leahey, 2013). In logical positivism, psychological terms denoted operationally,

but narrowly defined descriptive concepts that needed to be explained (e.g., thinking as merely subvocal speech). In the logical empiricism that followed, the terms denoted operationally-defined constructs within the organism (O) that explained the S-R relations in S-O-R psychology (e.g., thought explained thinking; Moore, 2008). This was another form of methodological behaviorism: Behavior was still what psychology studied, but was not its subject matter. Its subject matter was the explanatory constructs, for instance, cognition and emotion. The goal was to predict behavior based on hypotheses deduced from theories about the constructs. The truth of the theories was their correspondence with the behavior they predicted. This constituted, in part, explanation.

The precursors of behavior therapy in mediational behaviorism included (and include) rigorous between-subject research methods (e.g., prediction, but not within-subject control); operationally-defined explanatory constructs (an implicit mentalism); hypothetical-deductive theories of the constructs (not of behavioral concepts established empirically); interpretations of psychoanalytic theory and therapy (e.g., Dollard & Miller, 1950); and applications that became behavior therapy (e.g., for reducing nocturnal enuresis; Mowrer & Mowrer, 1938).

Operant Behaviorism The other major stream of neobehaviorism was Skinner's system and science of behavior (1930-present), which he differentiated from methodological behaviorism, logical positivism, and logical empiricism (Skinner, 1945,1953; see Moore, 2008; Smith, 1986). First, he adopted Charles S. Peirce's (1839–1914) pragmatism whose criterion of truth was successful working (Moxley, 2001). The most common but least rigorous form of successful working was coherence in descriptions of behavior and the variables that putatively controlled it (e.g., behavioral interpretations). A less common but more rigorous form was correspondence in predictions of behavior based on variables that putatively controlled it (e.g., correlations in between-subjects research). The least common but most rigorous form was the experimental control of behavior based on variables that demonstrably controlled it (e.g., in within-subject research). The truth of description was correspondence: the prediction of behavior. The truth of prediction was control: the experimental control of behavior. Experimental control was the goal of operant behaviorism. It constituted, in part, explanation.

Second, Skinner (1947) included theory: "...behavior can only be satisfactorily understood by going beyond the facts themselves. What is needed is a theory of behavior" (p. 301; see Moore, 2008; O'Donohue & Krasner, 1995c). Theory was the organization and integration of behavior's descriptions (e.g., behavioral interpretations), predictions (e.g., of the operant, everyday behavior), and control (e.g., behavioral principles, by the everyday environment). In turn, it generated hypotheses about as-yet unanalyzed descriptions, predictions, and control. It was a theory of behavior, not a theory of explanatory constructs (Skinner, 1956).

Third, Skinner (1945) behavioralized the meaning of psychological terms: Meaning was a function of the variables that controlled the verbal behavior of speakers and listeners. As such, the terms denoted concepts that described behavior.

Personality, for instance, was behavior extended in time and space, not a construct that explained it. This is illustrated by the analogy: The climate is to the weather as personality is to behavior. Thus, operant behaviorism did not exclude personality or other psychological concepts, such as cognition, emotion, intelligence, language, memory, motivation, perception, or thought, nor did it exclude clinical concepts, such as attributions, awareness, expectancies, learned helplessness, observational learning, and self-control. These terms denoted the products of behavior's natural history (e.g., self-efficacy) that needed to be explained (e.g., behaving efficaciously), not constructs that explained them (e.g., self-efficacy). That would be circular (see Biglan, 1987).

In Skinner's (1938) science, his research with rats pressing bars distinguished instrumental or operant behavior from reflex or respondent behavior. It was a then-molar account of behavior as lawful, orderly functional relations between classes of responses and classes of stimuli, not instances of them. In it, variability in behavior was explained by analyzing the conditions that controlled it, not by positing explanatory constructs (Sidman, 1960). This was a second natural science of behavior – a fundamentally new science – but it did not make behavioral science post-Pavlovian. It included both sciences. They were complementary.

The science's unit of analysis was a two-term functional relation between emitted operant responses (R_O) and their unconditioned consequences (i.e., reinforcers, punishers; e.g., S^R s; see Skinner, 1938). This included the basic principles and processes of operant behavior (e.g., reinforcement, extinction, schedules of reinforcement) and explained, in part, rudimentary purpose and motivation. When other stimuli and contingencies entered the unit, new principles, processes, and functions emerged (i.e., or were derived), among them, conditioned reinforcers and discriminative stimuli (S^D s). The former expanded the operant account of purpose (e.g., conditioned) and motivation (e.g., social). The latter was a fundamentally new principle: It made the two-term contingency a three-term contingency – S^D - R_O - S^R . It accounted for even more purpose and motivation (e.g., conditional purposes), as well as cognition (e.g., attention, perception; Nevin & Reynolds, 1973).

Contextual variables also affected these relations (Balsam & Tomie, 1985). In the early 1930s, Skinner called them *third variables*, the first and second variables being responses and stimuli. The third variables were *conditioning* (i.e., behavioral history), *drive* (i.e., motivating operations), and *emotion* (i.e., emotional operations), but also biology (e.g., typical and atypical neurophysiology). They were part of Skinner's science, but controlled for in the three-term contingency, except when they were analyzed, for instance, in research on deprivation, anxiety, and inheritance (e.g., Estes & Skinner, 1941; Heron & Skinner, 1939). The three-term contingency and its contextual variables were an integrated whole: Each constituent was a function of the others and understandable only in relation to each other in a system or field.

The precursors of behavior therapy in Skinner's operant behaviorism included (and include) naturalism and objectivity; rigorous within-subject research methods; an empirical-inductive science and theory of operant behavior; new basic and derived behavioral principles, processes, and functions; operant interpretations of

thinking and verbal behavior; the synthesis and analysis of nonhuman behavior (e.g., emotion, superstition); conditioned human behavior (e.g., in comatose patients); applications with nonhumans (e.g., animal training); and myriad suggestions for individual, social, and cultural applications (Morris et al., 2005).

Conclusion Although the preceding historiography omitted relevant behaviorisms (e.g., interbehaviorism; Kantor, 1959; see Delprato, 1995) and pioneering applications (e.g., Burnham, 1917; Mateer, 1918), it described the major streams in behavior therapy's short history (see Krasner, 1982, 1990). The first two were Russian neuroscience and classical behaviorism. They opposed consciousness as a construct and promoted objectivity. When classical behaviorism's science faltered, neobehaviorism emerged in two other streams: mediational behaviorism and operant behaviorism. In its recent origins, then, behavior therapy comprised Russian neuroscience, mediational behaviorism, and operant behaviorism.

Recent Origins: 1950–1960

Just as the emergence of Greek naturalism and American behaviorism were culturally influenced, so too were the recent origins of behavior therapy. After the Second World War, America embraced science and technology, among them, clinical psychology (Leahey, 2013). In this, behavior therapy had destructive and constructive programs (Krasner, 1980; O'Donohue & Krasner, 1995b). As noted earlier, the former criticized the clinical traditions for being unscientific. When it also critiqued the medical model of psychopathology, the program became broader. Another criticism came from the experimental psychologist's, Hans J. Eysenck's (1916–1997), research on psychotherapy's effectiveness: It was not as effective as hoped for or claimed (Eysenck, 1952). This led to advances in outcome research and then to evidence-based practices – behavior therapies (e.g., Paul, 1966; see Strumey & Hersen, 2012).

The constructive programs was applications of behavior therapy's three major streams, but this was complicated. Although the first two streams – Russian neuroscience and mediational behaviorism – remained distinct as systems (Malone, 1990), their sciences were often combined as learning theory. The third stream was Skinner's behavior theory, which included learning. With the first two major streams integrated into one, learning theory and then behavior theory became the two major clinical streams in behavior therapy's recent origins.

Learning Theory The first stream emerged in South Africa and England in the early 1950s (Kazdin, 1978). Dissatisfied with psychoanalysis for treating “war neuroses” (i.e., post-traumatic stress disorders), the South African psychiatrist, Joseph Wolpe (1915–1997), turned to Pavlov, Hull, and Hull's colleague, Kenneth W. Spence (1907–1967). He extended the research on the synthesis of neuroses in cats and formulated the principle of reciprocal inhibition: Anxiety produced by inhibitory stimuli (e.g., shock) could be reduced by exposure to excitatory stimuli

(e.g., food). With this, he treated cats' neuroses. In treating military personnel, this became systematic desensitization: muscle relaxation in the presence of an ascending hierarchy of anxiety-inducing situations (or of imagining them). The emphasis on neuroses was principled. Neuroses were central to psychoanalytic theory and therapy. As an alternative, behavior therapy had to address neuroses, too. Wolpe (1958) did this in research on the effectiveness of systematic desensitization, its comparative effectiveness, and the effectiveness of its components. As a military psychiatrist, Wolpe made the neuroses of soldiers the initial provenance of behavior therapy. However, the provenance – its methods and clients – was historically contingent, not necessary, yet it became an identity.

At the Institute of Psychiatry at Maudsley Hospital in London, Eysenck was establishing a clinical training program, pursuing his outcome research, and, with the clinical psychologist, Monte B. Shapiro (1912–2000), extending psychology from testing to include adult psychotherapy. In their research, Eysenck elaborated on learning theory accounts of neurosis, while Shapiro conducted clinical case studies. In this, Eysenck was the first to use the term *behavior therapy* (Rutherford, 2003). When Stanley Rachman (1934–2021) brought systematic desensitization to Maudsley from South Africa in 1959, Maudsley incorporated it in interventions for phobias, while continuing its own clinical programs (e.g., assertiveness training). Again, adult psychotherapy was historically contingent, not necessary, in behavior therapy.

Arnold Lazarus (1932–2013) brought South African and British behavior therapy to America where it took hold. It was consistent with America's practical culture and the varieties of behaviorism, as well as with the emerging scientist-practitioner model of clinical psychology (see Hilgard et al., 1947).

Behavior Theory In the early 1950s, Skinner's behavior theory was not among the recent origins of behavior therapy. It was still part of behavior therapy's short history. Over the decade, this changed due to advances in Skinner's behavioral interpretations and science of behavior.

In his interpretations, Skinner elaborated on private events and offered accounts of consciousness, self-control, and constructive thinking (Skinner, 1953, 1957; see Keller & Schoenfeld, 1950). Private events were not just covert responses, but covert respondents and operants, which included their controlling variables. Consciousness involved describing one's public and private respondents and operants. However, teaching people to describe and explain the private events was problematic. It could not be systematically contingent on the events because they could not be observed by others (e.g., parents, teachers, therapists). Only public events could be observed: (a) public behavior (e.g., crying, lethargy) that was putatively collateral with private events (e.g., pain, boredom) and (b) public accompaniments (i.e., a death in the family) of putative private events (e.g., feeling depressed). The poor correspondence made reports of private events less reliable than reports of public events, and, thus, more subjective. In self-control, public or private controlling responses (e.g., counting to ten, physical exercise) controlled related responses

that were specifiable in advance – controlled responses (e.g., managing anger, reducing depression). In constructive thinking, public or private controlling responses (e.g., deciding, problem-solving) controlled related responses that were not specifiable in advance – also controlled responses (e.g., divorcing, changing jobs). Self-control and thinking were complex behavior in which the controlling responses were something fundamentally new in the contingencies that controlled the controlled responses.

In Skinner's science, behavior theorists were expanding research on the basic behavioral principles and processes with nonhumans (e.g., chaining, conditioned reinforcement, escape-avoidance, punishment, schedules or reinforcement, stimulus control; Keller & Schoenfeld, 1950; see Honig, 1966). By the mid-1950s, they were extending the science in translational research to behavior increasingly relevant to application (Kazdin, 1978; Rutherford, 2009). Some of them replicated the basic behavioral principles and processes in humans, for instance, in children with and without developmental disabilities (e.g., autism) and adult psychiatric patients. In the latter, Ogden R. Lindsley (1922–2004) and Skinner first used the term *behavior therapy* in print (Rutherford, 2003). Others demonstrated that adult verbal behavior could be reinforced socially, leading to its use in understanding psychotherapy (see Cautilli et al., 2005). Still others experimentally analyzed and synthesized socially important human behavior, for instance, cooperation, motor tics, stuttering, and thumb sucking, but did not intervene on it.

By the late 1950s, behavior theory became the second major clinical stream in the origins of behavior therapy as its research was variously consistent with what would be the seven dimensions of applied behavior analysis (see Baer et al., 1968). The research was *behavioral*: behavior was defined precisely and reliably; *analytic*: experimental control was demonstrated within subjects; *technological*: methods were sufficiently described for replication; and *conceptually systematic*: interventions were based in behavioral principles and processes. When the research was also *applied* (i.e., socially important) and *effective* (i.e., socially significant), applied behavior analysis was founded. Identifying the founding publication, though, depends on its consistency with the dimensions and which ones, which varied. As a result, several publications were plausibly founding (e.g., Ayllon & Michael, 1959; Williams, 1959; see Morris et al., 2013). As for the founding research programs, they were likely Teodoro Ayllon's (1929-present) work with psychiatric patients at Saskatchewan Hospital in Weyburn, Saskatchewan, Canada (1958–1961) and Montrose M. Wolf's (1935–2004) work with children with and without disabilities at the University of Washington and the Rainier State School in Washington (1962–1964; see Altus et al., 2021).

As in South Africa and England, behavior therapy's provenance in America was also contingent. Behavior theorists were experimental psychologists who could create therapeutic environments, not psychiatrists or clinical psychologists trained in systematic desensitization. Their provenance was also historically contingent in its methods (e.g., discrete trial training) and clients (e.g., children with autism), yet it, too, became an identity, although not a necessary one.

Conclusion The foregoing historiography of behavior therapy's recent origins omitted other relevant behaviorisms (e.g., social or paradigmatic behaviorism; see Staats, 1975) and elided the diversity and complexity of behavior therapy's founding (see O'Donohue & Krasner, 1995a). Nonetheless, it described behavior therapy's major clinical streams at the time. One was based in Russian neuroscience and American mediational behaviorism, whose sciences were combined as learning theory. Its application was often called *behavior therapy* (and sometimes *behavior modification*). The other major clinical stream was based in Skinner's behavior theory, which included learning. Its application was often called *behavior modification* (and sometimes *behavior therapy*), but later, *applied behavior analysis*. In the 1960s, the two streams together were often called *behavior therapy*. This was also when behavior therapy was founded institutionally.

Institutional Founding (1960–1970)

The institutional founding of behavior therapy included professional organizations, among them, the American Psychological Association's Division 25 for the Experimental Analysis of Behavior (1964), the Association for Advancement of Behavior Therapy (1966), the Behavior Therapy and Research Society (1970), and the Midwest Association for Behavior Analysis (1974), now the Association for Behavior Analysis International (ABAI; ca. 2003).⁶ It included journals for publishing peer-refereed research, among them, *Behaviour Research and Therapy* (1963), the *Journal of Applied Behavior Analysis* (1968), the *Journal of Behavior Therapy and Experimental Psychiatry* (1970), and *Behavior Therapy* (1970). And, it included seminal works: texts, chapters, articles, reports, and presentations (see Krasner & Ullmann, 1965; Ullman & Krasner, 1965; Ulrich et al., 1966). By the late 1960s, behavior therapy was not only a professional practice. It was also a cultural practice (Rutherford, 2009).

Yesterday and Today

The chapter's preceding section described the assumptions, methods, and goals of behavior therapy manifest in its systems, sciences, and practices, and organized by its long past, short history, recent origins, and institutional founding. This was

⁶On November 21, 2021, I emailed ABA International (mail@abainternational.org) asking about the year ABA became ABAI International. The ABAI Team replied: "When MABA changed to ABA, it was technically changed to 'Association for Behavior Analysis: An International Organization.' However, the first use of 'ABAI' is in the *Inside Behavior Analysis* newsletter, volume 26, issue 2, which was First [sic] printed in the fall of 2003. Use of 'ABAI' vs 'ABA [sic]' is a little inconsistent for a few years after that" (Personal communication, November 24, 2021).

behavior therapy yesterday – and Behavior Therapy yesterday. Afterward, its foundations developed and evolved internally in its systems, sciences, and practices and externally in relation to the next two waves. This is behavior therapy today – but not Behavior Therapy today. This section addresses the yesterday and today of behavior therapy by considering its differences with the earlier clinical traditions (e.g., revolution or evolution); within its own systems, sciences, and practices (e.g., explanations); and across the other waves – cognitive-behavior therapy and clinical behavior analysis.

Yesterday

Founded in the 1950s, behavior therapy was not distinguished as a wave until it was differentiated from cognitive-behavior therapy in the 1970s or, again when it was differentiated from clinical behavior analysis in the 1990s (or when the differentiations were constructed). At its founding, it was distinguished only from the clinical traditions in psychoanalysis and humanism, but it was not a wave in those traditions. It was, though, a tsunami in psychotherapy. Whether it was revolutionary or a new paradigm depends on context and definition.

Context Although the three major streams in behavior therapy’s short history – Russian neuroscience, mediational behaviorism, and behavior theory – varied in their systems, sciences, and practices, they bore family resemblances (O’Donohue et al., 2001). As noted earlier, they opposed the clinical traditions for their “poor link to scientifically established principles, vague specification of interventions, and weak scientific evidence” (Hayes, 2004, p. 640). And, they developed therapies “built upon a bedrock of scientifically well-established basic principles, and that applied technologies [that were] well-specified and rigorously tested” (Hayes, 2004, p. 640). In this context, behavior therapy was revolutionary in psychotherapy. In psychology, it was not. It was part of psychology’s evolution as a science (Leahey, 1992).

Definition The resemblances notwithstanding, the major streams within behavior therapy differed (Kazdin, 1978). For instance, Russian neuroscience was physiologically reductionistic, mediational behaviorism tended toward it, but operant behaviorism opposed it. Also, Russian neuroscience and operant behaviorism were naturalistic and monistic, while mediational behaviorism tended toward mentalism and dualism. These differences worked against behavior therapy being a revolution. First, the conflicting foundations made it, in part, conceptually confused. It was not coherent, which is required of worldviews (Pepper, 1942). Second, the conflicting foundations prevented it from being paradigmatic. It was not a new “normal” science that replaced old “normal” traditions, which is required of revolutions in science (Kuhn, 1962).

The foregoing criteria for and against paradigms and revolutions are, of course, debatable. Some may be too broad, some too narrow, and some too idiosyncratic. Further historiography is required. Nonetheless, behavior therapy was a tsunami in psychotherapy and an undercurrent that became a sea change in clinical psychology – Behavior Therapy.

Today

As behavior therapy was distinguishing itself from the clinical traditions, it was the beginning of the sea change. Although it was the first wave of Behavior Therapy, it is not behavior therapy today. After its founding, it developed and evolved, as its major systematic, scientific, and clinical streams developed and evolved, but not always seamlessly.

Russian Neuroscience Russian neuroscience has remained a major scientific and clinical stream in behavior therapy (and Behavior Therapy). As a system, it is still reductionistic in the Pavlovian tradition, but now also incorporates mediational and cognitivist constructs. Independent of these systems, its science continues to advance research on unconditional and conditional stimuli and responses (Kehoe & Macrae, 1998; Lattal, 2013), even as its account of conditioning has evolved. It is increasingly based in molar S-S contingencies rather than molecular S-S contiguities (Rescorla, 1988). In its translational and applied research, Russian neuroscience continues to address the basic science's role in understanding emotional behavior and developing interventions for its disorders (e.g., avoidance, fear, obsessive-compulsivity), as well as programs for preventing them (see O'Donohue, 1998b, pp. 36–145; Plaud & Eifert, 1998). However, clinical training in its basic behavioral principles and processes has sometimes been displaced by training in the interventions as but a technology. The interventions are thus less easily understood in terms of the basic principles and processes on which they were founded and, thus, less easily amended or adapted when they are wanting (O'Donohue, 1998a). In the process, the inclusion of its science and practice in behavior therapy (and Behavior Therapy) has become somewhat routinized, structural, and standardized than remaining individualized, functional, and adaptive. Independent of behavior therapy, of course, Russian neuroscience has burgeoned as a science unto itself, especially in behavioral neuroscience. There, it describes how the nervous system participates in learning and behavior (e.g., in conditioning and extinction; i.e., in memory; see Kandel et al., 2012) and, presumably, how it participates in behavior therapy, but the latter warrants further integrative programs of research (see Corwin & O'Donohue, 1998; Jokić-Begić, 2010).

Mediational Behaviorism Mediational behaviorism and its cognitive and emotional constructs remained a major clinical stream in behavior therapy in the 1960s, but receded as they merged with cognitive-behavior therapy in the 1970s and

became one of its two major clinical streams. Here, the mediational constructs became ascendant as the *cognitive* in cognitive-behavior therapy, as might be expected in a culture that prizes mind and free will. The emotional constructs were also incorporated in this clinical stream, but not differentiated as “emotion-behavior therapy.”

Russian neuroscience and operant behaviorism were retained as the *behavior* in cognitive-behavior therapy – its second major clinical stream. In comparison to the cognitive stream, though, the behavioral stream has been the lesser stream, even as Russian neuroscience and operant behaviorism continued to develop and evolve. First, both have been recast, in part, in cognitive and teleological terms (see Mahoney, 1974), for instance, “the client perceives...” as opposed to the client’s behavior is under discriminative control or “the client’s purpose is...” as opposed to behavioral control by the client’s history of reinforcement. Given this cognitivism, the basic behavioral principles and processes seem inapplicable to understanding behavioral disorders and developing interventions for them. Second, as in Russian neuroscience, clinical training in the basic behavioral principles and processes has sometimes been displaced by training in the interventions as but a technology. Thus, as noted above, the interventions are less easily understood in terms of the basic principles and processes on which they were founded and less easily amended or adapted when they are wanting (O’Donohue, 1998a). As a result, the inclusion of *behavior* in cognitive-behavior therapy has also become more routinized, structural, and standardized than individualized, functional, and adaptive.

As manifest in Russian neuroscience and behavior analysis, however, the naturalization of psychology remained a source of tension in cognitive-behavior therapy. Thus, when a component analysis of cognitive-behavior therapy for depression revealed that the cognitive component added little to its effectiveness, some behavior therapists turned to the behavioral component alone (see Jacobson et al., 2001). Where this involved assessments of relative rates of reinforcement and punishment, the interventions were referred to as *behavioral activation* – the activation of non-depressed behavior. Although this was practiced earlier in behavior therapy (Ferster, 1973; Goldiamond, 1974), it has become subsumed under clinical behavior analysis (see Layng et al., 2022).

Behavior Analysis Behavior theory grew markedly in the 1960s as a major systematic, scientific, and clinical stream in behavior therapy, and even more so as a field unto itself (Rutherford, 2009). However, it has not always been well-integrated with behavior therapy (and Behavior Therapy). First, after behavior theory became *behavior analysis* in the 1970s, a plethora of behavior-analytic organizations and journals were founded (e.g., ABAI’s special interest groups; *Behavior Modification*, est. 1977; Cambridge Center for Behavioral Studies, est. 1981; *Behavior Analysis: Research and Practice*, est. 1999). Many of them were seemingly independent of behavior therapy. The term was not used in their titles or, seemingly, was it with in their purview, and ABAI had no special interest groups for behavior therapy. Second, the emergence of cognitive-behavior therapy in the 1970s made Behavior Therapy appear inhospitable to behavior analysis. Although behavior analysis was a major

systematic, scientific, and clinical stream in behavior therapy and, in part, in cognitive-behavior therapy, its development and evolution were sometimes isolated from them and vice-versa. Third, as in Russian neuroscience and cognitive-behavior therapy, clinical training in the basic behavioral principles and processes was sometimes displaced by training in the interventions as technology. Thus, again, the interventions have been less easily understood in terms of the principles and processes on which they were founded and less easily amended or adapted when the interventions are wanting. As a result, again, the inclusion of behavior analysis in behavior therapy (and Behavior Therapy) has become more routinized, structural, and standardized than individualized, functional, and adaptive (O'Donohue, 1998b). This can be corrected, though, by integrating the advances in its system, science, and practice over the past 60 years, for example, as follows. For the literature, see *Behavior Analysis in Practice*, *The Behavior Analyst* (now *Perspectives in Behavior Science*), the *Journal for the Experimental Analysis of Behavior*, and the *Journal of Applied Behavior Analysis*.

As a system, behavior analysis continued (and continues) to develop and evolve, both internally and externally (Morris, 1992). This has included integrating selection-by-consequences in behavior (e.g., reinforcement) with natural selection in biology and cultural selection in the life sciences (e.g., evolutionary biology, cultural anthropology); advancing the concepts and values of humanism, freedom, and dignity in behavior analysis (e.g., without incorporating them as explanatory constructs); describing its relations with other philosophical systems (e.g., Dewey's pragmatism in contextualism, Ryle's conceptual analysis, Wittgenstein's ordinary-language philosophy) and philosophies of science (e.g., Giere's scientific perspectivism, Laudan's analysis of scientific progress); examining the complementarities between behavior analysis and neuroscience (e.g., neural networks) and developmental systems theory (e.g., nature is the product of the process of nurture; see also neural Darwinism, probabilistic epigenesis); clarifying the affinities between behavior analysis and psychological theories of direct action (e.g., nonmediational ecological approaches to cognition, memory, perception); pursuing cultural analyses (e.g., macro- and meta-contingencies); and addressing myriad topics in diversity, equity, and inclusion (e.g., advocacy, colonialism, cultural humility, feminism, multiculturalism, racism, sexism).

As a science and practice, behavior analysis also continued (and continues) to develop and evolve, especially outside the three-term contingency (see O'Donohue, 1998b). Among these areas in basic and translational research are adjunctive behavior (a third type of behavior; e.g., schedule-induced aggression), automatic reinforcement and punishment (as oppose to socially mediated reinforcement and punishment), behavioral economics (e.g., non-rational, but lawful decision-making; e.g., delay discounting), the response-deprivation hypothesis (i.e., a motivating operation superseding the Premack Principle), the matching law (e.g., multiple schedules, concurrent operants), and motivating operations (i.e., a fourth term for variables controlling the effectiveness of reinforcers and punishers).

Because of their relation to cognitive-behavior therapy and clinical behavior analysis, two other areas of basic and translational research warrant special mention (see Guinther & Dougher, 2013). One is rule-governed behavior (see Hayes, 1989). Prior to the 1960s, behavior-analytic theory and research in nonhuman and human behavior primarily addressed contingency-shaped and maintained behavior. By mid-decade, though, Skinner (1950) was distinguishing between contingency-shaped and rule-governed behavior. At the same time, research with verbally-competent children and adults was finding that the rates and patterns of behavior on schedules of reinforcement differed from those with nonhumans and nonverbal humans. Behavior was more variable across individuals and more susceptible to experimenter instructions across and within them, that is, to rules regarding the contingencies. Rule-governed behavior, though, was operant behavior, subject to reinforcement and stimulus control, but at the same time rules were also function-altering contingency-specifying stimuli – something new in behavior analysis (Schlinger & Blakely, 1987). This was a forerunner of the transformation of stimulus functions in relational frame theory (Hayes et al., 2001).

The other area of research was stimulus equivalence. Beginning in the 1960s, matching-to-sample research demonstrated that arbitrary stimuli could enter the formal and functional relations of transitivity, symmetry, and equivalence with other arbitrary stimuli without being taught directly and that the conditional discriminative stimuli controlling these relations were another fourth term in the three-term contingency (see Sidman, 1994). These were applied in teaching language and reading to children and adults with intellectual disabilities. Relational frame theory then expanded the research preparation to include other physical (e.g., different, more-less) and functional relations (e.g., reinforcing, fear) and their transformation without direct instruction (Hayes et al., 2001). These account for more emotion and cognition and have been the bases for interventions with children with developmental disabilities (Rehfeldt & Barnes-Holmes, 2009) and in Acceptance and Commitment Therapy in adult psychotherapy (see Zettle et al., 2016). Given these advances, Behavior Therapy is continuous in its upward and downward continuity between its first and third waves, that is, between behavior therapy and Clinical Behavior Analysis.

Both advances are also, in part, contingent. Interventions for children with autism and other developmental disabilities have been dependent on the confluence of behavior therapists who can provide the interventions and insurance coverage (and to a lesser extent on APA certified clinical child psychologists who cannot provide the interventions). In turn, interventions for adults with psychiatric disorders have been dependent on the confluence of APA certified adult clinical behavior analysts who can provide the interventions and insurance coverage (and to a lesser extent on behavior therapists who are not APA certified to provide the interventions). The waves of behavior therapy are not defined by their clients, the behavior therapists who serve them, and insurance coverage. These are orthogonal to systems, sciences, and practices that define behavior therapy, even if identified with them.

Conclusion

This chapter has addressed the foundations of the first wave of Behavior Therapy – behavior therapy – by describing the assumptions, methods, and goals manifest in its systems, sciences, and practices. It was organized, first, by a representative view of behavior therapy. This was a contemporary view, along with some clarifications. Second, it was organized historically by behavior therapy’s long past (ca. 500 B.C.E.–1900), short history (ca. 1900–1950), recent origins (ca. 1950–1960), and institutional founding (ca. 1960–1970). This included philosophy, science, psychology, behaviorism, applications, and success. Third, its success was organized by the development and evolution of behavior therapy in relation to the clinical traditions in psychoanalysis and humanism yesterday, where it was revolutionary, and in relation to the two other waves of behavior therapy today, where its influence continues.

However, behavior therapy (and Behavior Therapy) have not achieved their full potential due to some mutual isolation among its systems, sciences, and practices, especially in clinical training. Behavior therapists (and Behavior Therapists) should not be blamed for this. They and their waves were – like organisms – always right. That is, their behavior is lawful, given their natural science and natural history, even if not always correct. Various factors have worked against their success, some external, some internal. The former include cultural practices (e.g., mind, agency), openings and closings (e.g., social influences and needs), and contingency. The latter include mutual isolation across the waves (e.g., in paradigms), within its waves (e.g., training programs), and in its practices (e.g., first- and second-order change).

Thus, behavior therapy may falter, but if its system, science, and practice are possible, it will not die. The emergence of behavior activation from cognitive-behavior therapy suggests that effectiveness and efficiency remain powerful consequences for behavior therapy as a cultural practice. Whether behavior therapy should be called *behavior therapy*, though, may be a vanity. More important is its success in improving the human condition. This will be behavior therapy (and may be Behavior Therapy) tomorrow — a tsunami.

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What Is Second Wave Behavior Therapy?



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Cognitive therapy (CT) and cognitive behavioral therapy (CBT) are the treatments that make up what has been called the second wave of behavior therapy. These interventions are among the most well-supported and widely practiced psychosocial interventions available today (Hollon & Beck, 2013). The major distinction between these forms of therapy and first-wave behavioral approaches is their emphasis on cognitive processes, particularly the content of conscious cognitions. The distinction between CT and CBT is one of emphasis, with CT more strongly emphasizing a conceptualization that focuses on the importance of cognition in the etiology and maintenance of psychological disorders and identifying cognitive change as a primary therapeutic target. However, both CT and CBT include cognitive and behavioral strategies. Perhaps because the distinction was not ultimately believed to be important enough to justify the difference in names, in recent years organizations and researchers with expertise in CT have been using the term CBT to refer to both CT and CBT (Beck Institute, 2021). In this chapter, we provide an overview of CBT, highlighting its historical development and theoretical basis as well as the specific therapeutic procedures used in these therapies. We also briefly comment on the empirical status of these treatments and their larger impact on mental health problems.

Essentials of CBT

What makes a treatment CBT? CBT involves the use of therapeutic interventions intended to elicit cognitive and behavioral changes that in turn reduce psychopathology. In more cognitively oriented variations of CBT there is a greater emphasis

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on the meaning of conscious thoughts and their contribution to mental health problems. A central idea in CBT is that how people interpret a situation (and its implications) determines their emotional responses and any efforts they make to cope with that situation (Hollon, 2021). Cognitively oriented forms of CBT often include an emphasis on testing the truth or accuracy of thoughts and beliefs. In these treatments, a substantial portion of the behavioral procedures take the form of efforts to test the clients' beliefs. More behaviorally oriented forms of CBT place a greater emphasis on behavioral learning theories and conceptualize change in terms of instrumental or classical conditioning. Thus, both more cognitively oriented and more behaviorally oriented variations of CBT use cognitive and behavioral interventions. The key difference is in the conceptualization of the mechanisms of change of these treatments.

The Origins of CBT

Sigmund Freud's psychoanalysis was the dominant mode of treatment for psychological problems for a substantial portion of the twentieth century (Wolitzky, 2011). Both of the most widely recognized seminal figures in the origin of CBT, Dr. Albert Ellis and Dr. Aaron Beck, had psychoanalytic training. The development of their approaches can be understood partly as a reaction to psychoanalytic ideas.

Ellis (a clinical psychologist) founded rationale emotive behavior therapy (REBT), initially called Rational Psychotherapy, in 1950s (Ellis, 1995). In his first book on this therapy, Ellis (1962) described difficulties treating patients with classical psychoanalysis despite extensive training and experience in its clinical practice. He observed that many patients resisted or struggled to grasp psychoanalytic methods. Even among responders, Ellis found that treatment was often lengthy, taking many months to years, and inadequate in achieving symptom remission. As a result, he grew skeptical of psychoanalytic principles such as the reliance on insight and unconscious processes.

In the 1960s, Beck (a psychiatrist) introduced another form of CBT, which he called CT. Beck's early work included efforts to test Freud's anger turned inward model of depression (DeRubeis et al., 2019). Initially, he considered psychoanalysis to have promise and sought to validate the model through empirical research. He conducted studies aimed at testing the psychoanalytic theory of depression, which posited that depression was characterized by retroflected hostility. The idea of retroflected hostility was that symptoms of depression resulted from anger turned inward and those with depression would therefore be expected to exhibit self-punishing characteristics. Despite some efforts to validate this model, he found the evidence unsatisfying and ultimately grew dissatisfied with the approach. He focused instead on the content of the conscious thinking among those with depression.

Although Beck and Ellis were each trained in psychoanalysis and were reacting to what they believed were problems with that approach, there were a number of other important influences on their work. Ellis was influenced by Karen Horney,

who had described the “tyranny of the should,” an idea closely related to Ellis’ own ideas about rigidly held, dogmatic beliefs including “musts” and “shoulds” (Dryden et al., 2019). Alfred Adler (1958) appears to have had an important influence on both Ellis and Beck. Adler suggested that a person’s behavior is influenced by their ideas (i.e., their own conscious experiences). His ideas of self-perceived inferiority to others have similarities to the negative self-views that both Beck and Ellis discussed (in somewhat different ways). He even introduced a cognitive-persuasive form of therapy.

Another important influence was George Kelly, who developed personal construct therapy (Kelly, 1955). Although quite non-directive compared to CBT, this therapy focused on working to identify the clients’ beliefs or personal constructs. Part of the approach included approaching the world based on assumptions not consistent with one’s usual beliefs (having some similarity to what today is often called a behavioral experiment).

Both Beck and Ellis also acknowledged important philosophical traditions that influenced them. There is a particularly strong connection to some of the ideas of the Stoic philosophers, who held that emotions arise from false judgements. Epictetus wrote in *The Enchiridion*: “Men are disturbed not by things but by the views which they take of them” (Epictetus & Higginson, 1955). Both Ellis and Beck made the re-evaluation of one’s views a central task in their respective therapies. Although both pursued very similar goals using similar methods, Ellis emphasized reasoning in bringing about cognitive change, whereas Beck tended to place more emphasis on empirical evidence (Hollon, 2021). Ellis (1962) suggested that a goal of REBT therapists is to ensure patients leave therapy with a rational “philosophy of life” and Beck suggested that a goal of CT is to help clients to be their own therapists.

Overcoming the Limits of First Wave Behavior Therapy

While Beck and Ellis framed their therapeutic approaches as reactions to psychoanalysis, they were also well aware of the work of behaviorists, who advocated for focusing on publicly observable behaviors and avoiding what they regarded as unscientific explanations that appealed to cognitive processes. Nonetheless, Beck et al. (1979) acknowledged a substantial contribution of behavior therapy to the development of cognitive therapy partly reflected by their shared emphasis on goal setting and achievement. Dozois et al. (2019) noted that the emergence of behavioral therapy bolstered acceptance of REBT, which was originally scrutinized for deviating so strongly from traditional (i.e., psychoanalytic) psychotherapy, but shared commonalities with the behavioral approach.

Part of the motivation to develop CBT appears to have come from an assessment of the limitations of a strict behavioral approach. Learning theory, with its focus on observable behaviors, was seen as too simplistic to account for all human behavior. Particularly, the strict behaviorism first articulated by John B. Watson (1914) was criticized for ignoring *internal* processes (Eysenck, 1970). Behavioral therapists

generally focused on addressing observable behaviors, such as exaggerated fear responses, but not all psychological problems manifest externally. Those problems not expressed as overt behaviors, such as uncontrollable worry, were arguably being inadequately treated by behavioral therapies (Dozois et al., 2019). Critics argued that behavioral therapy was limited in the scope of the problems it could adequately address and required an extension to capture the full scope of psychological problems.

Watson (1914) and Skinner (1957) argued for a non-mediational approach to human behavior (i.e., making no inferences about internal experiences). Over time, such an approach was increasingly seen as inadequate (Mahoney, 1974). For example, Breger and McGaugh (1965) asserted that behaviorists were having to rely on the mediating role of cognition to explain behavior, as the stimulus-response relationship was simply inadequate. Moreover, the evidence for behavior therapy was often seen as less than compelling. Much of the early evidence consisted of uncontrolled studies not conducted with clinical populations. Ferster (1973) had proposed a model of depression as characterized by reductions in the frequency of positively reinforced activities, which highlighted the ways in which avoidance might serve to perpetuate depression. Nonetheless, clinical trials testing such approaches would not be conducted until many years later, after Neil Jacobson et al.'s (1996) study investigating the components of Beck's CT renewed enthusiasm for purely behavioral approaches.

The 1950s was also the time of the cognitive revolution, which involved psychology as well as several other disciplines redefining themselves in such a way that the study of cognition was seen as more scientifically respectable and important (Miller, 2003). Researchers began to work to understand thinking processes in a new way, with a focus on what was called information processing psychology or cognitive science. These changes led to a greater interest in integrating cognitive and behavioral interventions in psychotherapy (Mahoney, 1977). Treatment developers varied in the degree of emphasis they placed on each, but interventions that offered some integration of cognitive and behavioral approaches became influential. A number of cognitive behavioral treatment developers were more directly influenced by behavioral therapy, as they were originally trained in behavior modification procedures. They included: Donald Meichenbaum, Marvin Goldfried, and Michael Mahoney (Dozois et al., 2019).

One important way that interventions differed was in their approach to cognition. Meichenbaum (1972) developed cognitive-behavioral modification, a form of CBT in which thoughts are treated more as behaviors. In contrast, REBT called for the therapists to focus on the meaning of thoughts and make inferences about patients' thinking errors, staying a "step ahead" of the patient. Beck's CT called for an evaluation of the meaning of thoughts but approached these meaning systems as highly individualized and therefore requiring careful examination with the patient. Clients were regarded as the experts on their experiences, including their thoughts and their meaning.

REBT and CT

Albert Ellis' Rational Emotive Behavior Therapy

Albert Ellis introduced what came to be called rational emotive behavior therapy (REBT). He was the first to articulate a cognitive behavioral treatment approach that is still practiced today. In the 1950s, he began teaching his approach to others and founded the Institute for Rational Living in New York City. In the 1960s, he began what became a long running weekly public demonstration of his treatment. He outlined the theory and application of his treatment in his first major book, *Reason and Emotion in Psychotherapy* (1962). By rational, Ellis meant that which is true, logical, or aids people in achieving their goals. REBT takes the view that people are rational in satisfying some short-term goals, but can better achieve their basic goals when they adopt a philosophy of “long-range hedonism”. REBT is based on Ellis’ view that emotional disturbances are caused by irrational belief systems. These beliefs are often dogmatic and absolutistic (e.g., using words such as must or should). The tendency for people to hold rigid evaluative beliefs is a major target of REBT. Ellis devised the highly influential “ABC” model, which posits that activating events (A) lead to beliefs (B) which cause emotional and behavioral consequences (C). This framework provides a very important basis for clinical interventions in REBT. Ellis also acknowledged more complex relationships, such as reciprocal effects of action and emotions on one’s beliefs. Finally, Ellis identified a list of cognitive distortions, which he posited are derived from rigid beliefs.

In practice, REBT relies heavily on the use of Socratic questioning as well as “disputes” between therapist and patient on the validity and usefulness of irrational beliefs (Ellis & MacLaren, 1998). Compared to others forms of CBT, REBT can involve the therapists using a more confrontational style. Cognitive (e.g., reframing, thought monitoring), behavioral (e.g., skill training, in vivo desensitization), and emotive (e.g., humor, role playing) techniques are all part of REBT (Ellis & MacLaren, 1998).

There have been a number of different forms of CBT developed (Hollon & Beck, 2013). REBT has the distinction of having the longest history of any of these treatments. REBT remains a well-respected form of therapy that is promoted by ongoing training efforts (The Albert Ellis Institute, 2021). Although there have been clinical trials evaluating REBT, Ellis appears to have been less successful in encouraging empirical evaluation of his approach than Beck was in encouraging research on CT (Hollon, 2021).

Aaron Beck's Cognitive Behavior Therapy

Cognitive therapy (now also called CBT) was developed by Aaron Beck in the 1960s. Beck had observed in his early work with patients with depression that they often reported negative thoughts (Beck, 1967). He proposed that those with depression tended to have distorted information processing that led them to hold overly negative views of themselves, the world, and the future (the cognitive triad). Beck used the term “automatic thoughts” to describe the reasonably easily accessed conscious cognitions that patients can (or can be trained to) report. Beck suggested that even emotional experiences that seem mysterious or difficult to explain can be understood when one considers the thoughts one is having at the time. Although the specific thoughts and beliefs patients reported varied considerably, Beck’s model proposed that those with depression tend to report overly negative, inaccurate views that served to perpetuate their depressive symptoms. Moreover, although much of his early work focused on depression, his conceptualization was quite transdiagnostic (Beck, 1979).

Beck and his colleagues worked to apply a similar cognitive approach to other conditions. Cognitive models have now been developed for all major forms of psychopathology, with cognitive models of these disorders specifying the nature of the inaccuracies in thoughts and beliefs that patients with these conditions tend to report (Hofman et al., 2012; Wenzel, 2021). This understanding has informed the selection of various intervention strategies intended to bring about cognitive changes that are posited to reduce the symptoms of various psychological disorders. As an initial step, patients are encouraged to identify their thoughts and see them as hypotheses or statements that may or may be true (called distancing; Beck & Dozois, 2011). Therapists and clients work together to evaluate the accuracy of these thoughts. As described more fully below, a thought record can be used to organize the process of carefully considering the accuracy of one’s thoughts and beliefs.

An overarching goal of Beck’s CT is to identify thoughts and beliefs, subject them to careful evaluation, and correct the biases or inaccuracies that are identified (Beck & Dozois, 2011). A primary way this is achieved is through cognitive techniques, such as Socratic questioning to facilitate skepticism about one’s own negative views and an openness to considering alternatives. A key tool in CT is the thought record, which helps patients identify negative cognitions and systematically evaluate their accuracy. Beck’s treatment has always incorporated behavioral techniques as well. Given the emphasis on cognition in his treatment, behavioral interventions are often conceptualized as a method of producing cognitive change, with this conceptualization informing the use of these strategies as much as possible (Beck et al., 1979). For example, in the treatment of depression, therapists are to look for opportunities to use behavioral strategies as a method for testing patients’ negative views rather than simply encouraging activities to promote positive moods.

Drawing the idea of schemas (i.e., basic cognitive structures that organize information about our environment) from cognitive psychology, Beck proposed that these schemas also play a key role in the emotional disorders. When combined with

congruent life stressors, such as negative thinking patterns (schemas) are thought to contribute to the development of emotional disorders (Beck, 1979, 2008). Negative thoughts and beliefs are maintained through faulty information processing, such as the overgeneralization of negative information and the minimization of positive information that might otherwise disconfirm one's belief (Beck et al., 1979). Therapists also help patients identify underlying assumptions or beliefs associated with their experience of negative emotions. By recognizing and working to modify these negative views, therapists can work to help clients achieve even greater, presumably deeper forms of cognitive change.

Beck's work has had a truly transformative impact on the treatment of psychological disorders (Hollon, 2021). Following the introduction of CT, Beck worked with Augustus John Rush to conduct the first clinical trial testing CT versus antidepressant medication (Rush et al., 1977). As Beck moved on to other clinical problems, researchers including Steve Hollon (Hollon et al., 2020) and Rob DeRubeis (DeRubeis et al., 2020) further evaluated CT for depression. Even today, Beck's CT of depression remains among the most effective treatments available and is the most thoroughly studied of all psychosocial treatments for depression (Cuijpers et al., 2013). Through a series of extended visits in the late 1970s (Hollon, 2021), Beck also had a strong influence on psychologists at Oxford University, including John Teasdale (Teasdale et al., 2001), David Clark (1986, 2001), and Paul Salkovskis (1985). These researchers went on to develop cognitive models and treatments for panic disorder, health anxiety, social anxiety, obsessive-compulsive disorder, and posttraumatic stress disorder (the last of these with Anke Ehlers; Ehlers & Clark, 2000). Chris Fairburn (Fairburn et al., 1993) developed a form of CBT for eating disorders that was strongly influenced by Beck's work. In recent years, Beck has conducted impressive work on the treatment of patients at high risk of suicide (Brown et al., 2005) and those with schizophrenia (Grant et al., 2012). Forms of CBT that Beck developed or helped to inspire feature prominently on lists of empirically supported psychosocial treatments (APA Division 12, 2021). Organizations around the world are increasingly taking steps to make these treatments more readily available (Layard & Clark, 2014).

The Relationship Between Second and Third Wave Therapies

As discussed earlier, CBT or second wave treatments can be understood more fully by appreciating the historical influences on its developers. CBT itself had a central influence on third wave therapies. Unlike second wave CBT, third wave treatments generally do not try to bring about therapeutic change by eliciting changes in the content of one's thinking. Although second and third wave treatments share a willingness to engage with conscious cognition, their interventions approaches differ considerably. Third wave treatments place a strong emphasis on function over form (Hayes et al., 2006). Rather than re-evaluating the validity of one's thoughts, they promote distancing from one's negative views without re-evaluation. An ACT

patient might be taught to use cognitive defusion to recognize a thought as just a thought, recognizing that it has no inherent meaning. The theory underlying ACT is called relational frame theory (Hayes et al., 2001). According to this theory, the goal of ACT is to promote psychological flexibility to allow patients live a valued life in spite of their symptoms.

Rather than relying on change strategies exclusively, third wave treatments tend to emphasize acceptance of one's experience for what it is. As such, mindfulness is also an important goal of many third wave treatments. Kabat-Zinn (1990) defined mindfulness as "paying attention in a particular way: on purpose, in the present moment, nonjudgmentally" (p. 4). Mindfulness based cognitive therapy (MBCT; Segal et al., 2018) is a third wave intervention that integrates cognitive strategies from CBT with mindfulness training experiences. Dialectical behavior therapy (DBT), another third wave treatment, incorporates a wide range of acceptance and change strategies and has emerged as a first-line treatment for borderline personality disorder (Robins et al., 2010). There have been only a limited number of comparisons of second and third wave treatments. Basic questions about the differences between second and third wave treatments have been raised, including whether referring the term third wave is well-suited (Hofmann, 2008). There has been some controversy about the evidence supporting these treatments, with some suggesting that the quality of the research lags that of second wave treatments (Öst, 2008). There have been a limited number of adequately powered comparisons, but the available evidence does not suggest that third wave treatments are more effective than second wave treatments (Arch et al., 2012; Craske et al., 2014a, b; Forman et al., 2007, 2012; Herbert et al., 2018). Even if the evidence does not suggest third wave treatments are more effective and should supersede CBT, they have certainly highlighted a wider variety of therapeutic approaches. A more informed understanding of the utility of different strategies for different patients in different contexts may allow us to draw on this wider variety of intervention options to provide more personalized and therefore more effective intervention options (Cheavens et al., 2012; Cohen & DeRubeis, 2018; Hofmann & Hayes, 2019).

CBT Strategies

Ellis and Beck were key figures in the development of CBT, but obviously a large number of researchers and clinicians have played important roles in its development and success. CBT includes a number of different treatments, those developed by Ellis and Beck as well as a number of other clinical innovators. With the considerable variability in conceptualization as well as in the specific interventions used in these treatments (Barlow, 2021), the overall description of these interventions we have provided may seem a bit abstract. To illustrate the kinds of strategies used in CBT, in this section we highlight some cognitive and behavioral strategies, drawing primarily from strategies in the Beckian tradition. We then discuss what it is that patients are thought to gain from the use of these strategies. Although various

possibilities have been explored, basic questions about what patients learn in CBT have yet to be answered fully.

Different forms of CBT all share a reliance on cognitive behavioral models of the clinical problems they treat. Prior to describing specific intervention strategies, it is important to consider other key features of the approaches commonly taken in CBT. Different forms of CBT can vary from one another considerably. Nevertheless, in all forms of CBT, therapists are to be attentive to providing basic therapeutic elements, such as warmth and empathy (Beck et al., 1979; Beck, 2020). CBT is to be practiced in a collaborative style, with therapist and client working together closely. The therapist is the expert on the treatment model; the client is the expert on his or her experience. To help clients foster new perspectives, therapists can make use of Socratic questioning to encourage clients to consider alternative views and try out new behaviors (Newman, 2013).

One important dimension on which CBT protocols differ is the extent to which the treatment is provided in a highly structured manner or in a much more individualized manner as informed by a case conceptualization (Kendall, 2021). More flexible versions of CBT appear to be more frequently practiced outside of research contexts (Gibbons et al., 2010). In using these more flexible approaches, therapists and patients work together to plan the focus of sessions and treatment is focused on the specific treatment goals they identify (Beck, 2020). Sessions can begin with a brief review of the client's current symptoms (aided by the use of appropriate measures) and a mood check (Beck, 2020). To allow for adequate discussion of key topics, an agenda is set collaboratively at the beginning of each session. The agenda provides a plan for how session time will be spent. To facilitate learning, sessions include a review of previous homework as well as the planning for new homework assignments (Beck, 2020). In such individualized approaches to CBT, conceptualization plays a more pivotal role in helping to select specific interventions (Kuyken et al., 2011). CBT therapists generally focus on the client's current problems, although therapists can attend to past events or the therapeutic relationship when indicated (Hollon & Beck, 2013).

Behavioral Strategies A variety of behavioral strategies are used in different forms of CBT. One of the most common behavioral strategies is self-monitoring (Barlow, 2021). Self-monitoring involves regularly recording one's activities and experiences, typically capturing experiences relevant to the goals of treatment. For example, in the treatment of depression, patients may be asked to record their activities each hour, along with a rating of their mood (DeRubeis et al., 2019). They may also be asked to note occasions when they feel a sense of accomplishment or pleasure. Data gathered from self-monitoring provide a rich source of information to inform the selection of behavioral interventions. For example, a review of self-monitoring data can bolster the case for leveraging certain activities to boost one's mood and engaging less in unnecessary activities that are not as helpful in this regard. Self-monitoring can also be used to help patients test beliefs they hold, such as that there are no activities that they would enjoy (Beck et al., 1979). Furthermore, the client and therapist can collaboratively schedule activities for the patient to

engage in to increase the patient's sense of pleasure and mastery or otherwise aid them in reaching their treatment goals (Beck et al., 1979).

CBT developers vary in the extent to which they view behavioral strategies as drivers of cognitive or behavioral change (Dozois et al., 2019; Hollon & Beck, 2013). In cognitively oriented treatments, it is not uncommon for patients to indicate that they know that their negative beliefs are inaccurate when they think about it carefully, but those beliefs still "feel true." Therapists can respond to this by working with clients to plan ways that they can gather experiential evidence to corroborate their new view (Beck et al., 1979; Beck, 2020). For example, patients might predict that others will reject them if they invite them to socialize. Rather than merely reviewing past evidence, clients might plan to take the risk of inviting others on a series of occasions and obtaining evidence that might serve to bolster their new view.

Exposure interventions are another important behavioral strategy (Abramowitz et al., 2019). There are different models of the learning that takes place during exposure, with some emphasizing basic learning mechanisms (i.e., exposure to inhibit old learning and form new associations) and others taking a more cognitive approach (i.e., exposure to test beliefs). As an example of the latter, Adrian Wells, David Clark, and their colleagues (Clark, 1999; Wells et al., 1995) found that those with social anxiety often engage in safety behaviors (i.e., behaviors used to prevent or minimize an undesirable outcome). For example, a patient may avoid eye contact to avoid unwanted social evaluation. With these behaviors in mind, Clark developed a safety behavior experiment, which involves patients engaging in an activity with and without safety behaviors and then reviewing the outcome of the experiment with the aid of a video recording allowing them to compare their predictions of what would occur with and without safety behaviors to what actually occurs. Remarkably, Clark found that the overwhelming majority of patients with social anxiety predict a more positive outcome will occur with safety behaviors, but after the experiment they conclude that the outcomes were actually more positive without these behaviors (Clark, 2001). Although the framework of belief testing appears to be quite useful in some contexts, Craske and colleagues (2014a, b) have provided some compelling illustrations of ways in which an inhibitory learning approach might better guide the use of exposure to maximize the learning achieved through these activities. Drawing from learning models emphasizing the importance of surprise (i.e., a difference between what is predicted and what occurs; Rescorla & Wagner, 1972), Craske et al. (2014a, b) describe a number of ways that exposure exercises might be informed by this understanding to increase their impact. For example, they propose continuing exposure until one's expectation of a negative outcome is very low rather than until their anxiety is reduced. They suggest that re-evaluation of one's view of the probability of an anticipated aversive outcome prior to exposure may have the undesirable effect of reducing the expectancy violation involved in exposure and therefore the learning that takes place. In addition, they suggest the use of occasional reinforced extinction (e.g., social rejection following some exposures for social anxiety). These experiences are thought to help the patient achieve learning that will be more resilient in the event of negative outcomes in the future. Their

work highlights the importance of developing an accurate account of the learning that takes place during exposure, even though there are also ways that different accounts (e.g., belief disconfirmation vs. expectancy violation) suggest similar intervention strategies.

Cognitive Strategies Cognitive strategies involve efforts to identify, evaluate, and respond to negative thoughts and beliefs (Strunk et al., 2017). In working with their clients, cognitive behavioral therapists start with explaining the role of cognitive factors in maintaining relevant clinical problems and illustrate the process of identifying and reevaluating one's thoughts. A common starting point is to identify a recent occasion when one experienced negative emotion (Beck, 2020). Clients are taught to identify their automatic thoughts by asking themselves, "What is going through my mind right now?" when they experience a negative shift in their mood. Perhaps a patient with depression reports feeling particularly sad when he checked his social media feed earlier in the day. He noticed that some of his friends have more followers than he does (situation) and has the thought, "I'm a loser" (automatic thought). He reports feeling sad (emotion) and decides not to go out as he had planned earlier (compensatory behavior).

The cognitive behavioral therapist would help the client to appreciate the connection between these experiences, particularly how his emotional experiences make sense in light of his thought that he is a loser. To help this patient consider the accuracy of his thought, the therapist may use Socratic questioning (Beck et al., 1979; Beck, 2020) to collaboratively consider the evidence for and against his thought. For example, the patient might be prompted to consider whether the number of followers one has on social media is a reasonable indicator of one's worth. He might consider how such information would influence his evaluation of a friend and whether he would take a more limited number of followers as a clear indication that his friend is a loser. The patient might be further prompted to try to identify any evidence that might be inconsistent with the idea that he is a loser. Together, the therapist and client might work to develop a specific list of evidence relevant to the clients' worth. The therapist might work with the client to develop a rational response that summarizes the alternative views they considered. Identifying such alternative views is intended to help undercut the clients' negative emotions and any maladaptive compensatory behaviors.

A key tool for helping patients to master these cognitive strategies is the thought record (Beck, 2020; Greenberger & Padesky, 2015). Although various versions of these records exist, the basic elements include three columns, one each for recording the "situation," "emotions," and "automatic thoughts." Following the first three columns, two additional columns are labeled "alternative responses" and "Outcomes." Then, through cognitive restructuring (Strunk et al., 2017), the client learns to evaluate automatic thoughts to determine whether they are accurate. Several questions are useful in guiding clients through this process:

1. What is the evidence that the automatic thought is true? What is the evidence that it is not true?

2. Are there alternative explanations for that event, or alternative ways to view the situation?
3. What are the implications if the thought is true? What is most upsetting about it? What is the most realistic view? What can I do about it?
4. What would I tell a friend in this situation?

In working with clients to answer such questions, the therapist and client work toward developing an alternative, more accurate response that is recorded in the alternative response column. In the outcome column, clients reevaluate the intensity of their emotions following consideration of the alternative responses. Although there are variations in the thought records used, some version of a thought record is an important part of the cognitive strategies of a number of CBT protocols.

Another approach to reevaluating one's automatic thoughts is to identify cognitive errors (DeRubeis et al., 2019). These errors characterize faulty information processing that leads clients to think in ways that are "extreme, negative, categorical, absolute, and judgmental" (Beck et al., 1979, p. 14). Two examples of cognitive errors are all-or-none thinking and overgeneralizing (Beck et al., 1979). All-or-none thinking is an error that involves classifying something as being one extreme or another (e.g., either I am perfect or I am a failure) without recognizing the intermediate positions between these extremes. Overgeneralizing involves drawing conclusions based on isolated incidents and applying these conclusions to unrelated situations (Beck et al., 1979).

Following some practice with thought records, CBT may shift focus to patterns in a clients' thinking, working to identify clients' schemas or core beliefs (Beck, 2020). A client's schema or core beliefs represent basic maladaptive views the client holds that influence the specific thoughts he or she experiences. Life experiences sometimes as early as childhood are thought to shape these belief systems. To help clients identify core beliefs, therapists can begin by exploring the personal meaning of one's thoughts (also referred to as the downward-arrow technique), an approach that involves asking questions such as, "If that thought is true, what does that mean about you?" For example, a patient's concerns about social media, friendships, and romantic relationships may revolve around the core belief "I am not likable." Early experiences with being excluded as a child might be cited as factors that could have played a role in the development of this belief. Evidence for or against this core belief can be considered more fully as part of the effort to evaluate its accuracy.

Core beliefs are believed to be more resistant to change than automatic thoughts (Beck, 2020). Considerable evidence and experiential learning may be required to help a patient move from a maladaptive core belief to a more adaptive belief. Aaron Beck's daughter Judith Beck (2020) has made suggestions for working with such beliefs, including the use of a Core Belief Worksheet, which summarizes evidence relevant to the evaluation of a core belief. The client in our example might be encouraged to utilize behavioral experiments to test the validity of his core belief on a series of occasions. As the patient identifies core beliefs and continues to collect evidence against their validity, those become weaker, and may be replaced by more adaptive views.

What Do Patients Learn in CBT?

What distinguishes the second wave from the first wave is its focus on cognition, particularly efforts to understand and modify conscious thoughts and beliefs as a means to alleviate psychopathology. The development of CBT largely coincided with the introduction of treatment manuals and the use of randomized clinical trials to evaluate the therapeutic benefits of psychosocial treatments (Wilson, 1996). These methods allow us to be quite confident about the benefits of CBT as compared with alternative treatments (Hofman et al., 2012). However, they have left important questions unanswered about what patients learn in CBT and whether these treatments work through the mechanisms that treatment developers suggested.

In our view, the evidence is largely consistent with the possibility that at least some forms of CBT for some clinical problems achieve their effects in a manner consistent with cognitive change playing an important role (Lorenzo-Luaces et al., 2015). In our own research on CT of depression, we have found evidence consistent with the view that cognitive change procedures may produce cognitive change (see Stone & Strunk, 2020) and that cognitive change predicts symptom change (Schmidt et al., 2019).

Nonetheless, it is important to acknowledge that there is disagreement in the field, with some experts suggesting the evidence indicates cognitive change does not play an important role (Kazdin, 2007; Longmore & Worrell, 2007). Some have taken the evidence of comparable levels of cognitive change in behavioral and cognitive behavioral treatments for depression to suggest that cognitive change is likely a consequence of another mechanism, such as behavioral activation or the therapeutic alliance, operating in both purely behavioral as well as cognitive behavioral treatments (Jacobson et al., 1996; Dimidjian et al., 2006). Furthermore, it is possible that the role of cognitive change in bringing about symptom reductions varies across treatments or that cognitive change is a mechanism even in treatments that do not explicitly target cognitive change (Lorenzo-Luaces et al., 2016).

Our understanding of the role of cognitive change has been limited by multiple factors. One factor is that clinical trials have tended to focus on evaluating the relative benefits of different treatment approaches, with questions about the mechanisms of treatment being only a secondary consideration (Cuijpers et al., 2019). In this context, researchers have struggled to conduct investigations that use the kinds of careful research methods that are likely to be most informative (Pfeifer & Strunk, 2015). In addition, the role of cognitive change may depend on other contextual factors, perhaps including the clinical problem, the treatment used, and various patient characteristics (Fitzpatrick et al., 2020). This is an area where additional research is needed.

Conclusion

In summary, cognitive behavioral treatments for various forms of psychopathology emerged in reaction to the psychodynamic and behavioral traditions. The developers of CBT drew from several important historical and contemporaneous influences in generating cognitive behavioral models of psychological disorders. The hallmark characteristics of these treatments are their integration of cognitive and behavioral clinical strategies. Different forms of CBT vary with regard to the emphasis they place on cognitive versus behavioral strategies. As a group, CBT researchers led the way in the careful evaluation of their treatment packages using randomized clinical trials. The resulting evidence base has established cognitive behavioral therapies as among the most well studied and effective psychosocial interventions available. Questions remain about the mechanisms of these treatments and whether they might be made more effective when personalized through an improved understanding how and in what contexts they work best. These questions may prove particularly important to efforts to develop more effective psychosocial interventions. Given the state of knowledge, many researchers today are focusing on how to facilitate CBT more effectively reaching those who could benefit from it.

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What Is Third Wave Behavior Therapy?



Lance M. McCracken

The term “third wave” has been used surprisingly often, such as to describe feminism, music, democracy, and even coffee (https://en.wikipedia.org/wiki/Third_wave). It has also been used to name a group of approaches within the cognitive and behavioral therapies. Like any named difference, however, it can both help and hurt to call something a “third wave.” Without going too deeply into the metaphor, it appears undeniable that that “third” comes after first and second. To “come after,” or follow, can mean newer or better or a replacement. Although, these are not intrinsic to the meaning of “third wave”—this is supplemental meaning that one can attach to the term. What is the “third wave” of behavior therapy? Is it after, newer, better, a replacement, or even different than the first or second wave, and how? The focus of this chapter is to discuss whether it is any of these things.

Third Wave Behavior Therapies

The term “third *generation* behavior therapy” clearly appeared sometime around or before 1998. One of the things it connoted at that time was an appeal for therapy to maintain a link with basic science, particularly a kind of science focused on learning, use of single subject methodology, and on practically important outcomes (O’Donohue, 1998). It appears that the specific term “third *wave*” was first applied to the behavioral and cognitive therapies, in published form and in English, in an article by Steve Hayes (2004a) based on a presidential address to the Association for Advancement of Behavior Therapy (AABT). In this article he named a number of therapy approaches that “do not fit easily into traditional

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categories within the field” (p. 639). These included Acceptance and Commitment Therapy (ACT; Hayes et al., 1999), Behavioral Activation (BA; Martell et al., 2001), Cognitive Behavioral Analysis System of Psychotherapy (CBASP; McCullough, 2000), Dialectical Behavior Therapy (DBT; Linehan, 1993), Functional Analytic Psychotherapy, (FAP; Kohlenberg & Tsai, 1991), Integrative Behavioral Couples Therapy (IBCT; Jacobson & Christensen, 1996), Mindfulness-Based Cognitive Therapy (MBCT; Segal et al., 2002), and other similar approaches specially applied to addictive behavior (Marlatt, 2002) and generalized anxiety disorder (Borkovec & Roemer, 1994; Roemer & Orsillo, 2002). When these therapies were first categorized this way it was said that “no one factor unites these new methods,” (p. 640, Hayes, 2004a) except that each of these has reached into psychological territory not ordinarily addressed within the cognitive behavioral therapies. This includes such matters as acceptance, compassion, mindfulness, relationship, self, spirituality, validation, values, and others. The point being that it is both, a failure to fit into the traditional confines of the more established cognitive and behavior therapies and a kind of similar bold embrace of psychological processes regarded as deep in human experience, and challenging to reach, that distinguish the third wave (Hayes, 2004a, b).

In the years since 2004 some confusion has surrounded the “third wave” including questions regarding which therapies are a part of this wave and which are not. Twelve years after the term was introduced a review was published that examined how the term was being used (Dimidjian et al., 2016). At that time a search of PsychINFO and PubMed using the terms “third wave AND therapy” yielded 239 published articles. After selecting only those articles addressing cognitive and behavioral therapies and excluding those clearly addressing something else, 140 unique articles were identified published between 2003 and 2015. For about a third of the articles reviewed ($n = 47$), there was no specific therapy approach directly identified as third wave but only a more general discussion of the term. For the remainder of the articles ($n = 93$), a therapy approach was clearly identified as third wave, and a total of 17 approaches were defined as such. ACT was most frequently identified third wave therapy (66 times), followed by DBT (22 times), MBCT (20 times), FAP (15 times), and BA (11 times). A total of eight other approaches were named as third wave between two and nine times, including mindfulness, metacognitive therapy (Wells, 2009), schema therapy (Young et al., 2003), mode deactivation therapy (Apsche & Ward, 2002), IBCT, compassionate mind training (Gilbert & Procter, 2006), mindfulness-based stress reduction, and CBASP (McCullough, 2000). And four approaches were mentioned just once as third wave, including “mindfulness-based training group,” positive psychotherapy (Seligman et al., 2006), unified protocol (Barlow et al., 2011), and compassion focused therapy (Gilbert, 2010). It was concluded that there is both consensus on inclusion of some therapy types within the third wave and inconsistent views on others (Dimidjian et al., 2016).

History

If there is a third wave of behavior therapy, it is only reasonable to assume that it must sit in relation to a first and second wave. In previous chapters of this volume these other waves will have been defined and described. The first two waves will be discussed briefly here to provide a context for understanding the third.

Before there was a wave metaphor, perhaps the most appropriate metaphor for the behavioral therapies would have been to refer to them as a network of many roots and branches. Some of the oldest or deepest roots were the conditioning principles of Pavlov, Skinner, Hull, and others, but mainly these. Over time these differing roots gave rise to differing therapy approaches, or the different branches, within behavior therapy. Essentially these had several important characteristics in common, characteristics that distinguished them from approaches that came before them. These first wave behavior therapies were each (a) based on conditioning principles derived from laboratory research, (b) devoted to scientific methods as a source of knowledge, (c) committed to links between basic and applied science, (d) defined behavior change as outcome, and (e) looked generally to the manipulation of environmental contingencies as the means to produce this change. The “branches,” as we say, may have emphasized different processes of change and favored differing specific techniques. At the same time, they were essentially grounded in the same overarching principles.

Behavior therapy in its earliest forms as described here was born in the 1950s and developed in the 1960s. In 1963 the first journal for behavior therapy appeared. It was the journal *Behaviour Research and Therapy* founded by Hans Eysenck. AABT was founded shortly after that, in 1966. Already at that time the seeds were sown for new growth, and new branches were appearing, or, if you will, ripples of the second wave were forming. Cognitive therapy soon appeared and began what would become a dramatic reshaping of behavior therapy into something else (e.g., Beck, 1970).

Those studying clinical psychology during the 1970s and later may have learned slightly different accounts of the origin of the C being added to BT. Many, however, would have learned that what is now regarded as the second wave, was an amalgamation of behavior therapy added to mainly of the work of Albert Ellis (1962), Aaron Beck (1976), and Donald Meichenbaum (1977). Their approaches were called Rational Emotive Therapy, Cognitive Therapy, and Stress Inoculation Training, respectively, among other terms. There are similarities and differences between these three and they are not each equally well known today, the cognitive therapy approach from Beck, arguably, having produced the most applications, research, and evidence (e.g., Cuijpers et al., 2020; See also Beck, 2019 and Dryden, 2011 for personal accounts). What unifies these three is a dissatisfaction with the then current behavior therapy, and its neglect of cognitive processes (see Davison, chapter “[Personal Perspectives on the Development of Behavior Therapy and Cognitive Behavior Therapy](#)”, this volume). Their response to this was, to say it

simply, to emphasize the role of individual distorted or maladaptive thoughts, beliefs, and attitudes in relation to emotional and behavior problems.

The essence of the cognitive approach was clear in its defined mechanism of change, "... a crucial mechanism in the psychotherapeutic chain is a modification or shift in the patient's ideational system. As his irrational concept that he is paralyzed (hysteria), helpless and hopeless (depression), in danger (anxiety or phobia), persecuted (paranoid state), or superhuman (mania) becomes deactivated, the abnormal clinical picture recedes" (p. 197, Beck, 1970). Looking back over the "60-year evolution of cognitive theory and therapy" the emphasis remained on identifying and modifying negative automatic thoughts and on "...working to rewire maladaptive beliefs and biases into more adaptive ones" (p. 19, Beck, 2019). An interesting feature was the tendency to regard different forms of psychopathology as characterized by unique cognitive distortions or attitudes.

Notably, many of those involved at the start of what is now regarded as the second wave maintained an affinity for first wave behavior therapy and were meaning to simply broaden its focus while staying true to some of its primary tenets. Even Beck called cognitive therapy "congruent with many of the assumptions of behavior therapy" (p. 198, Beck, 1970) while at the same time regarding cognitive therapy as broader, and providing "a greater range of concepts for explaining psychopathology as well as the mode of action of therapy" (p. 198). What was literally proposed was a kind of expansion and integration, an addition of cognitive concepts and techniques to the current behavioral ones. It must be said, however, that cognitive processes and methods were really very much more the headline of the cognitive approaches, and the message of synthesis and expansion appeared at best a secondary concern. In fact, another agenda was hinted at some of the time, such as when it was asked, "Can a fledgling psychotherapy challenge the giants in the field – psychoanalysis and behavior therapy?" (p. 333, Beck, 1976). So, it is possible to detect two different narratives around the rise of cognitive approaches, an integration agenda that was there for some but less so for others, and a fight to win agenda, which was certainly in the experience of many.

Worth mentioning is that around the same time as primary variants of the cognitive approach were showing up on the scene other allied approaches were also emerging. One of these was social learning theory (Bandura, 1977a) later called social cognitive theory (Bandura, 1986). From within this approach comes the extremely well-known self-efficacy theory, proposed at the time as a "unifying theory of behavior change" (Bandura, 1977b). What seemed apparent from the early days of cognitive therapy was that methods and mechanisms of acquisition and change in human behavior could be formulated in terms of cognitive processes, such as cognitive restructuring or reappraisal, OR in terms of environmental manipulations and overt behavioral performance, such as in exposure therapy or skills rehearsal. Bandura therefore proposed a solution to this problem of two sets of methods and mechanisms in the form of a process that unified them, namely self-efficacy. This he defined essentially as the strength of a person's conviction regarding their own effectiveness, their expectation for whether they can successfully execute the behavior required to produce an intended outcome (Bandura, 1977b).

For Bandura this was a key factor in the acquisition, regulation, and motivation of behavior, although he continued to see a role of skills building, competency, as well as incentives. He saw self-efficacy as potentially arising from successful performance, vicarious learning, verbal persuasion, and emotional experiences. In a nutshell, he said, “people process, weigh, and integrate diverse sources of information concerning their capability, and they regulate their choice behavior and effort expenditure accordingly” (p. 212, Bandura, 1977b). It is worth noting that self-efficacy is a rather transdiagnostic concept, not linked to one particular disorder or another. It has been particularly influential in clinical health psychology and behavioral medicine, where it continues to be frequently applied in both clinic settings and research (e.g., Franks et al., 2009; Náfrádi et al., 2017).

So when did the therapies now called third wave first appear? The answer is almost certainly that first small studies appeared in the 1980s and the first full book length descriptions in the 1990s, now about 30 years ago. The first treatment study of what is now called ACT was a study of what was then called “comprehensive distancing” for depression (Zettle & Hayes, 1986). The first published book length description of ACT did not appear until 13 years later (Hayes et al., 1999). To take another possible member of the wave, mindfulness based approaches, sometime called a “fellow traveler” with the third wave, early treatment studies appeared in the 1980s (Kabat-Zinn et al., 1985) but again at least one example of a popularly applied, full length description, in the form of a book, appeared some years later (Kabat-Zinn, 1990). The timeline is more or less the same for other third wave approaches, with books for FAP (Kohlenberg & Tsai, 1991) and DBT (Linehan, 1993) first appearing in the early 1990s, and BA, at least in a more modern form, shortly after that (Martell et al., 2001), and also MBCT (Segal et al., 2002).

“Anomalies” in the Context of the Second Wave

Nothing ought to stay the same in the behavioral therapies – certainly no approach has ever claimed, or should claim, to have solved the problem of human suffering. Research continues, showing us both what we know and what we don’t know. Accordingly, the cognitive model was never going to be the last word. What Ellis, Beck, Meichenbaum and others added to behavior therapy was an emphasis on the role of cognition, on irrational beliefs, negative automatic thoughts, and information processing biases in psychological problems. From their cognitive models, therapy adopted a focus on the detection and correction of these through such methods as thought records, self-statement analysis, cognitive restructuring and behavioral experiments (e.g., Beck, 1976; Ellis, 1962; Meichenbaum, 1977; see also Longmore & Worrell, 2007). Simply stated, with the advent of the second wave, a focus on changing particularly the content of pathological thoughts and beliefs became important for achieving improvements in the participant’s problems in therapy. At the start of the so-called cognitive revolution in CBT the assumption was that cognitive methods were uniquely suited to creating this type of cognitive change and this

change was necessary for improvement to appear in therapy. This was, as some will remember, fiercely debated from both sides of the arguments (Mahoney, 1977; Wolpe, 1978). Only much later did results emerge that directly address these assumptions, and with evidence came inconsistency and contradiction.

One of the earlier studies that addressed the theory of cognitive change in CBT was a treatment component analysis of CBT for depression (Jacobson et al., 1996). In this study 150 participants with major depression were randomly assigned to behavioral activation (BA), BA plus methods addressing negative automatic thoughts, or a full package of CBT. The full package here included BA, plus both methods to address automatic thoughts and to modify core depressogenic schema. These researchers found high adherence to treatment protocols, high allegiance of therapists to the full package approach, and high competence in the delivery of this. At the same time they found no evidence that the full package was more effective than the smaller component treatments, including the single component of BA, both immediately after treatment and at a 6-month follow-up. It was also found that BA alone appeared equally effective to the full CBT package at altering negative thinking and dysfunctional attributional styles. These findings were regarded as calling into question both the theory of therapeutic change proposed by Beck and others, and the necessity of methods that explicitly aim to produce cognitive change (Jacobson et al., 1996). In fact, it was proposed that perhaps “exposure to naturally reinforcing contingencies produces change in thinking more effectively than the explicitly cognitive interventions do” (p. 303, Jacobson et al., 1996).

Subsequent to the treatment component study by Jacobsen and colleagues further studies in a similar vein appeared. Results from these studies could be seen to further undermine the assumption that methods for cognitive change are necessary to produce improvements. One of these studies showed that BA was as effective as antidepressant medications, and better than cognitive therapy, for the treatment of moderate to severe depression (Dimidjian et al., 2006). Yet another study, based in the same trial, showed that there was a group of patient who showed “a pattern of extreme nonresponse” to cognitive therapy (Coffman et al., 2007). These people had severe depression, were highly functionally impaired, and had low social support. People with the same problems did not show the same pattern of nonresponse in BA, suggesting that a less complex treatment focused only on behavioral engagement might be a better, more effective, choice for these people.

With the new millennium, after 30 or 40 years of relative domination of the cognitive model and methods in the behavioral therapies, research findings that appeared to contradict the cognitive model continued to accumulate, again, seemingly calling into question the fundamental role of cognitive change and methods. One of these was led by David Burns (Burns & Spangler, 2001), a psychiatrist and earlier student of Beck, who greatly popularized cognitive therapy with his books for non-professional non-specialist audiences, including the bestselling *Feeling Good: The New Mood Therapy* published in 1980. In his research he posed the question of whether change in dysfunctional attitudes act as mediators of change in CBT for depression and anxiety (Burns & Spangler, 2001). In a study of 521 people participating in CBT for 12-weeks, conducted in an actual practice setting, data included

multiple measures of depression, anxiety, and dysfunctional attitudes related to perfectionism and dependency. Using structural equation modelling, he and his coauthor found that changes in dysfunctional attitudes indeed were correlated with changes in depression and anxiety across time. They did not find, however, that these changes in dysfunctional attitudes were likely to have causal effects on the changes in outcomes. The authors commented that the failure may have been because they did not assess the right dysfunctional attitudes or that perhaps it was not the level of dysfunctional attitudes but their impact on mood, an aspect not assessed, that was responsible for improvement (Burns & Spangler, 2001).

In 2004 a new book appeared. It was called *Mindfulness and Acceptance: Expanding the Cognitive Behavioral Tradition* (Hayes et al., 2004a). This is essentially a book about the third wave, arguably the first book, including chapters on ACT, DBT, MBCT, FAP, BA, and specific mindfulness and acceptance approaches to trauma, generalized anxiety disorder, eating disorder, alcohol and drug use problems, and couples problems. In chapter “[The Three Waves of Cognitive Behavior Therapy: Scientific Aspirations and Scientific Status](#)” of this volume it was proposed that a particularly fertile context for the new generation of behavior therapy was present. Part of this was a failure to reconcile several empirical anomalies in the field. Two of these we have just addressed: that explicitly cognitive treatment methods do not appear to provide an added benefit to behavior methods, and that changes in presumed cognitive mediators do not appear to explain the impact of CBT, and one more not yet mentioned, that improvement in CBT seems to happen before the presumed core cognitive methods have been implemented (Hayes, 2004a).

Shortly after the book on “expanding the cognitive behavior tradition” appeared it was followed by a critical review of the evidence with regard to the three points it raised. The title included the question, “Do we need to challenge thoughts in cognitive behavior therapy?” (Longmore & Worrell, 2007). One approach taken in this review was to examine component analysis studies for depression and anxiety disorders. For depression there were 13 of these, including the study by Jacobson et al. (1996) already discussed. For anxiety disorders there were similarly at least twelve of these, including generalized anxiety disorder, PTSD, social phobia, and OCD. Based on a review of these studies the authors concluded that in the depression studies behavioral activation alone appeared as effective as behavioral activation plus cognitive methods. From the anxiety disorders studies they concluded that exposure-based methods appeared as effective as methods aimed at thoughts (Longmore & Worrell, 2007).

The phenomenon of rapid early change in therapy has been interpreted supportively by both those claiming the importance of cognitive change and those denying it. Those claiming it proves cognitive change in unimportant argued that this type of change, apparently occurring before the main cognitive methods were introduced, essentially shows those methods are not necessary. Those who support the model of cognitive change, on the other hand, attribute the observed therapy impact to cognitive change from the initial elements of therapy rationale and other early skills training. In the end it was concluded that findings in the area are equivocal, neither supporting nor refuting the cognitive model (Longmore & Worrell, 2007).

The important question raised in “expanding the tradition” and examined in the review is the question of cognitive mediation in CBT. Briefly, in reviewing the results of at least seven empirical studies, one of these the study by Burns & Spangler (2001), Longmore and Worrell (2007) found that cognitive change is no more a feature of CBT than alternative treatments, and there was limited and inconsistent evidence for the causal role of cognitive change in relation to improvements observed in CBT. They referred to their findings as revealing “a worrying lack of empirical support for some of the fundamental tenets of CBT” (p. 185, Longmore & Worrell, 2007).

It is perhaps no surprise that the dramatic conclusions reached regarding the necessity of cognitive change in CBT would provoke a response, which they did (Hofmann, 2008), and this in turn provoked a rebuttal (Worrell & Longmore, 2008). Authors of both of these pieces essentially claimed errors, misconceptions, and incorrect interpretations on the part of their opponent and that the other has essentially missed the point. There is also some careless misspelling of names, accusations of wanting to be trendy, and advice to be open minded. Yet in their own way, they agree that the fundamental question of cognitive mediation is not answered and needs more research done with appropriate methods.

Change in Content Versus Change in Context

One point being made is that the first and second waves overlapped in some respects as to assumptions, principles, and even methods. One point on which they appear to hold clearly opposing views on the centrality and necessity of change in the content of thoughts and beliefs in relation to relief from psychopathological conditions. The respective positions on whether feelings need to change is more equivocal. Probably both of these early waves include methods aimed to reduce unwanted emotions or feelings, such as fear or sadness, as a way to improve behavioral performance or as a key outcome of therapy, although their processes and methods for doing this differed. It is clear in any case that the early waves differed in the realm of content change in psychological events. This then gives rise to a defining feature of the third wave. The stance of the third wave is explicit in embracing both, a focus on content change or not, and is thus a point of integration and “expansion,” as the book title says. In fact, the stance of the third wave therapies on this point, generally speaking does not oppose the stance held by either the first or second wave – it includes them both (Hayes, 2004a).

The Role of Differing Assumptions

It might be worth a short discussion of the context around content changes and the arguments waged for and against these as causes of the problems people experience. For years the clearest division in all of behavior therapy rested on this one issue,

essentially, whether thoughts cause behavior. The two sides basically named the other as the “cognitivists” and the “behaviorists,” the former proposing a key role of cognition as underlying cause in human behavior problems (e.g., Bandura, 1986) and the latter claiming with no uncertainty that they are not (e.g., Lee, 1992). Thankfully, many people completing their training very recently may not remember these battles, essentially between participants in the first wave of behavior therapy, mostly behavior analytically oriented researchers and clinicians, on the one hand, and participants in the second wave, mostly cognitive theory and therapy proponents, on the other. As often happens both sides were correct. Perhaps a better way to say this is that both sides represent entirely legitimate approaches to understanding behavior. And at the same time neither side was destined to win the argument, at least not on empirical nor theoretical grounds.

Often missed by those who fought over the causal status of cognition was that their disagreement actually rested on fundamental differences in the nature of their dependent variables, the nature of causation, and what constitutes knowledge, and the goals of science. Hidden behind their disagreements the rivals were, often unknowingly, holding differing world views and applying different scientific frameworks (Dougher, 1995; Hayes & Hayes, 1992). Following Pepper’s (1942) notion of root metaphors, these world views are sometimes referred to as mechanistic, or more recently and kindly, elemental realist, on the cognitivist side, and contextual, on the behaviorist side. Quite simply, those working within a mechanistic approach have as their assumptions to (a) define the action alone as the subject matter, to (b) analyze the parts, including present psychological events and action, as a way to understand the whole, to (c) treat the parts as potential true causes of the other parts, and to (d) allow prediction or correspondence as a basis for an adequate explanation. Here a scientific statement is true to the extent that it matches or predicts observed events. For the contextual approach each of these assumptions is a different matter. They (a) define their subject matter as the act in context, (b) see the act in context as an essential whole where a change in any of the elements changes the subject under study, (c) regard only contextual elements outside of the act in context as potential “causes,” and regard the term “cause” here to be a way of speaking that may help reach a goal, and not true in an ontological sense, and (d) seek the joint objectives of prediction and influence, as requirements for an adequate explanation. Here, an explanation must include manipulable elements and, ideally, demonstrate goal achievement as the mark of what is “true.”

For proponents of the cognitive model and cognitive therapy methods, an irrational thought is a perfectly acceptable explanation for a failed performance, if the two are consistently correlated, and this matches a cognitive formulation of the problem. For their rivals in the behavioral wing this is not adequate because they regard irrational thoughts as inaccessible to direct manipulation, being that another person intending to help create change can only ever operate on elements in the context around the thought and performance (see O’Donohue). This distinction is not helped by the fact that cognitive therapists will probably regard cognitive restructuring as a method to directly manipulate thoughts. The behaviorist, for their part, will call this manipulating the verbal and social context around the thought, or the context around

the link between the thought and performance. Such is the difficulty in getting the two sides to see eye to eye.

While for some, all of this has been heard before, and for others it all seems a little complicated or beside the point, the main point is the same. Early divisions in the behavioral therapies were not in fact battles to rightfully claim the souls of behavior therapists. They were based in a misunderstanding, on differing background assumptions regarding subject matter, causality, and knowledge, both equally respectable and legitimate, both choices. And, these choices that cannot themselves be proven in evidence or theory, cannot be justified, and need no justification (Dougher, 1995).

There is just one more point to understand in the debate over cognition as cause, because, although this debate has shifted it has not gone away. Do remember that those participating in the first wave of behavior therapy were diverse to a degree in their theory, key variables, and methods, although they all shared a kind of pre-cognitive view of behavior. At least some of them however were behavior analysts, and for them, not only were thoughts and other private psychological experiences out of scope for being non-manipulable, but they were also regarded as unnecessary to the goals of their analyses. It is regarded by some as a mistake Skinner made that while he admitted thoughts and feelings as a subject of study for psychology, he rejected them as necessary for understanding patterns of behavior (Hayes & Hayes, 1992). For Skinnerians, all that one needed to predict and influence behavior, including the behavior of thinking and feeling and following what one thinks and feels, was to be found in prevailing environmental contingencies.

Enter the third wave in the battle over thoughts as cause and something different becomes possible. In a true sense it is an expansion or synthesis of the cognitive behavioral tradition (Hayes et al., 2004a). It is acceptance, mindfulness, and spirituality meet exposure, behavioral activation, contingency management, and cognitive restructuring. To the repertoire of ignore the thoughts or change the thoughts is added observe the thought, experience the thought as just a thought, open up and allow the thought, act in ways that are literally inconsistent with the thought, and so on. With the third wave thoughts are important and can be addressed at the level of change in content, their form or what they say, and can be addressed at a level of change in context and function, how they interact with relevant behavior patterns of influence. Perhaps particularly from the mindfulness side it becomes common to say that in order to change behavior one can change what they think or how they experience what they think. Even more than that, while the first and second waves both took a more or less predominant focus on control over psychological events, the third wave included as a distinct possibility the notion that “control is the problem.” This means that for some human behavior problem the root of it is not simply the presence of sadness, fear, pain, or distressing or misleading thoughts, but it is the application of attempts to change these that creates the difficulties that creates interference and failures. Here thoughts and feelings become a space for acceptance or change, and “change” becomes an attitude perhaps better directly applied to behavior rather than to thoughts and feelings (Hayes et al., 2011).

Treatment Methods

As to what methods characterize the third wave behavior therapies, it is quite unambiguously a theme of expansion once again. Nothing is taken off the table, although some methods may be used less than they were, or used in a more discriminated fashion. An interesting development, however, is that the third wave appears to embolden therapists, to empower the use of some traditional behavior therapy methods that perhaps were not implemented as widely as they could have been.

A rather ironic, and at the same time entirely understandable, phenomenon is the occurrence of what is called “therapist drift” (Waller, 2009). Evidence clearly demonstrates that behavior change in CBT comes from application of such methods as behavioral activation, skills training, and exposure, among other methods. The observation is made, however, that therapists often make mistakes in therapy, and do not implement these when they could and should. They delay doing so, conclude that is it not the right moment, or the right participant. They regard these methods as too stressful or distressing, they “protect” the participant, and turn away from delivering them, and instead they shift from doing to talking (Waller, 2009). Therapists fail to deliver treatment as needed, and may make problems worse, the argument says, as a result of therapist fear, influence of unhelpful thinking, and avoidance, on the part of the therapist. Discovery of this phenomenon cannot be attributed to the third wave particularly, however, the third wave therapies appear well placed to embrace it, particularly with their explicit focus on therapist stance, in ACT (Vilardaga & Hayes, 2009), relationship and validation, in DBT (Carson-Wong et al., 2018), and even courage and love, in FAP (Maitland et al., 2017). For example, in ACT the therapeutic stance can be “whatever works,” based on a common set of values and goals defined by the treatment provider and recipient, and will necessarily include building the treatment recipients psychological flexibility from a context of provider psychological flexibility (Vilardaga & Hayes, 2009). These aspects in particular ought to function to lessen the impact of experiences that can lead to drift, such as in the impact of misleading thoughts or feeling that coordinate therapist avoidance.

One way to understand the methods of the third wave and to see if they have indeed expanded the tradition or to see if they might address therapist drift, is to ask what self-identified third wave therapist use. An internet survey published in 2011 included 55 second wave and 33 third wave therapists, all self-identified as such and as licensed and practicing (Brown et al., 2011). The survey examined treatment techniques and approaches used as well as a number of attitudinal issues relevant to clinical practice. The results were just as one might expect after having followed the discussion of this chapter so far. The two groups were remarkably the same in background and attitude, both reported the same attitudes toward evidence-based practice, for example. The two groups did differ significantly, however, in treatment techniques used. No surprise, the third wave therapists reported greater use of acceptance and mindfulness techniques. Similarly, second wave therapist reported greater use of cognitive restructuring and relaxation. On the other hand, third wave

therapist reported greater use of exposure, and a greater number of total techniques. All of the difference here reflected effect sizes that were medium to large (Brown et al., 2011). In a similar survey that we completed in 2015, except focusing only on therapists working in the area of chronic pain we essentially replicated all of the findings (N = 68; Scott et al., 2017). There were no background or attitudinal differences between self-identified second and third wave therapists, but the second wave therapists reported greater use of cognitive restructuring and relaxation, and the third wave therapists reported greater use of mindfulness, cognitive defusion, values clarification, metaphor, experiential methods, and a wider range of methods overall.

Acceptance as Key Process

One of the terms that seems to clearly mark a difference carried in the third wave is the focus on acceptance. It is certainly a fundamental idea at the heart of the third wave. And, at the same time, it is remarkably prone to misunderstanding. It might begin to sound commonplace these days to speak about acceptance, but a small number of people in the UK will recall a conference paper session on the topic around 2001 and the chair of the session, a prominent, international, senior clinical psychologist and researcher in CBT and behavioral medicine referred to the topic as “where angels fear to tread.” Such was the fluffiness and perceived inaccessibility to research the concept reflected at that time, 50 years into the development of behavior therapy and 20 years ago. So what does acceptance mean, how is it validly measured, and how is it implemented as a method in treatment?

Possibly the first publication of a measure and data addressing acceptance as it has come to be understood within the third wave was based in a study of chronic pain (McCracken, 1998). It was remarkably difficult at that time for researchers and therapists from the predominant second wave to see acceptance as something other than a belief, most particularly a belief that the experiences one wrestles with will not change and that one should stop wrestling with them. On the surface that almost sounds technically correct, but it is certainly not, at least is it not true to the spirit of the third wave understanding of this term, coming mainly from ACT.

As a typical example of a kind of contextually conceived process, acceptance is a quality of behavior in context. In a context of experiences that are undesirable or unwanted and that can in some situations coordinate avoidance or struggling, or attempts to limit contact, acceptance is an act of engagement, without resistance, without attempts to eliminate or limit contact. It is simply engaging with potentially avoidance promoting experiences and doing so openly or willingly. For example we have come to refer to acceptance of pain as engaging with pain and refraining from attempts to reduce the pain. Importantly, acceptance is not a cause of engagement or a reducer of avoidance. It cannot be separated out as an event that can play that kind of role, at least not from the typical perspective within the third wave. It is also a process that is explicitly to support action toward goals and values – it is not in

explicit purpose a way to reduce distress or discomfort. Outside of a context of goals and values, acceptance is not a thing to do, so to speak.

Acceptance is clearly one of the most studied processes within the third wave and its establishment within the cognitive and behavioral therapies as an evidence-based process is surely one of the significant achievements of this wave. Its contribution sits clearly as an extension of a predominant focus on the control, reframing, or reduction, of unwanted or misleading thoughts and feelings within behavior therapy. In experimental studies of responses to experiences of emotional distress, acceptance versus cognitive reappraisal appear mainly similar in their usefulness (e.g., Wolgast et al., 2011). In meta-analyses of 30 experimental studies of acceptance versus other emotional regulation strategies small to medium effect sizes favored acceptance for “pain tolerance,” which typically means voluntary exposure time, while there were no differences with respect to pain intensity or negative affect (Kohl et al., 2012).

What ought to be clear to any therapist, or anyone considering the matter pragmatically, and is clear in research evidence (Ford et al., 2018), is that acceptance is not meant to be an exclusive strategy. It is not meant to be a response applied to all unwanted events in all situations, as a replacement for ever intending to control anything. Acceptance is meant to be a companion for control. Acceptance is for responding to thoughts and feelings when these cannot be controlled, cannot be usefully controlled, or cannot be controlled in a way that succeeds with respect to what a person wants to achieve. After all, sometimes attempts to control our thoughts and feelings does harm or subverts our goals. On the other hand, there is nothing healthy in accepting unwanted situations that can be readily changed, when there is no purpose or goal to achieve, and no use facing pain and distress when these can be stopped effectively and efficiently without creating any further difficulty, and in a way that keeps a person on track with their goals.

Finally, it is worth mentioning that measuring acceptance has been a significant challenge. Of course the same could be said for other variables that fit within the third wave, including the wider facets of psychological flexibility. In the wider acceptance literature the best known measure is the seven-item Acceptance and Action Questionnaire-II (AAQ-II, Bond et al., 2011). The AAQ-II itself was a response to criticisms of earlier versions of the same measure on the basis of low reliability, unstable factor structure, and difficulties with item complexity and comprehension (Bond et al., 2011). The AAQ-II is also clearly an imperfect instrument. Certainly it does not measure acceptance as its name might suggest. At best it measures the opposite of acceptance, experiential avoidance, or psychological inflexibility. As such, studies have found a lack of discriminant validity, that the items of the AAQ-II appear more strongly related to items intended to measure psychological distress than to measures of acceptance or avoidance per se (Ong et al., 2020; Rochefort et al., 2018; Wolgast, 2014). The end result is that the AAQ-II seems too strongly correlated with measures of distress and insufficiently differentiated from these. The other problem with the AAQ-II in the context of ACT is that the item content is insufficient to capture the full set of therapeutic processes included in the model. Recent efforts to produce multidimensional models of psychological

flexibility have remedied this and seem to have partly addressed the earlier problem of inadequate discriminant validity (e.g., Rogge et al., 2019; Rolffs et al., 2018).

Evidence

Since even before the term third wave appeared in a published paper, the evidence for the “new behavior therapy technologies,” particularly DBT, ACT, and FAP were being questioned, and debated (Hayes et al., 2004b). In a review, 42 studies, including nearly 550 participants, were included that “evaluated the impact of ACT, FAP, or DBT interventions” (Hayes et al., 2004b). Studies that addressed only such questions as assessment, acceptability, cost-effectiveness, or processes of change were excluded to keep the focus on clinical outcomes only. The studies included seven RCTs of DBT and eight RCTs of ACT, and the others were quasi-experimental or case studies. It was concluded at this early stage, essentially concurrent with the launch of the term third wave itself, that data supported the efficacy of DBT and ACT. It was also concluded that these data were remarkable for showing benefit in conditions, such as in people diagnosed with psychosis, borderline personality disorder, or long term chronic conditions, seen as difficult and typically unresponsive to treatment. Even if the data were preliminary or incomplete, based on the number and range of studies found, these approaches were regarded as undeniably empirical in orientation, particularly given their recent appearance (Hayes et al., 2004b).

The first systematic review and meta-analysis specifically focused on the efficacy of third wave behavioral therapies was done by Öst (2008). In it he found 29 RCTs, including 13 for ACT and 13 for DBT, one is CBASP, and two in IBCT. Briefly, his conclusion was that the research methods used in the third wave trials were less stringent than those typically used in CBT, mean effect sizes were moderate for ACT and DBT, and that none of the third wave therapies were regarded as empirically supported as conventionally defined (Öst, 2008).

One of the methods used in the Öst (2008) review was to “match” each of the third wave therapy trials with a trial of traditional CBT selected from the same or a similar journal at around the same publication date. This was done to see if the level or methodological rigor applied was similar or different between the two approaches. This comparison was the basis for the conclusion that the studies of third wave therapies were weaker in the rigor of their methods. In a subsequent response to the Öst review it was pointed out that a questionable assumption had been made, that third wave and CBT studies published around the same time and in the same journals ought to have the same level or rigor. Several confounds were noted with regard to the comparison, confounds likely to boost the apparent performance of the traditional CBT trials relative to the third wave (Gaudiano, 2009). The main points were that the third wave studies (a) represented an earlier stage of development compared to traditional CBT, (b) had less grant funding, (c) included more difficult to treat diagnoses, such as psychosis, chronic medical conditions, and addiction, than the CBT trials, which all included mainly anxiety or stress disorders, and (d) were

mainly pilot studies of newly designed and never tried treatments (Gaudiano, 2009). In this response to the review, constructive criticism for the developing third wave therapies was repeatedly welcomed, and readers were reminded that these criticisms themselves need to be held to a high standard of evidence.

Some 6 years later Öst (2014) again produced a systematic review and meta-analysis, this time focused just on ACT. This time 60 RCTs were found, including 4234 participants, with psychiatric or somatic disorders, and work-related stress. In this review it was concluded that ACT was not a well-established evidence based treatment for any disorder, that it was probably efficacious for chronic pain and tinnitus, possibly efficacious for depression, psychosis, OCD, anxiety, drug abuse, and stress at work.

A systematic review of meta-analyses of third wave therapies was conducted for the time frame between January 2004 and September 2015 (Dimidjian et al., 2016). Results from eight meta-analyses for ACT, five for DBT, six for MBCT, and seven for BA were narratively synthesized. ACT was deemed to have addressed a remarkably diverse range of problems and populations. Results were evenly split on whether effect sizes for ACT demonstrate superiority to traditional CBT, other behavior therapies, or established treatments more generally. While it was noted that DBT too has found application to an increasing range of problems (see Fitzgerald and Rivza this volume), some not yet included in meta-analyses, the research literature includes a relatively small number of RCTs. In general the conclusion offered was that DBT has not yet demonstrated “incremental benefit over first or second wave cognitive behavioral therapies” (p. 895, Dimidjian et al., 2016). On the positive side, evidence for MBCT was regarded as showing reduced risk of relapse in formerly depressed people of between 35% and 50%. Less clear was the evidence for the application of MBCT in acutely depressed people. It seems to perform better than psychoeducation and similarly to CBT, but predominantly in trials underpowered to detect a difference. Finally, for BA, consistent conclusions from repeated meta-analyses of RCTs described large effects of BA for depressive symptom severity in comparison to control conditions in general, and small effects in comparison to cognitive therapy or CBT, sometimes significant and sometimes not, depending on the particular trials reviewed. Overall these four approaches to treatment, based on this review of meta-analyses, are said to have “amassed a substantial and compelling evidence base” (p. 901, Dimidjian et al., 2016).

Shortly after the review of meta-analyses of third wave therapies a response to Öst (2014) was published. It came in the form of an extensive examination of the methods and data used and essentially asked that the Öst review be ignored from that point forward with respect to evidence for ACT (Atkins et al., 2017). There are many interesting lessons to learn in the results of this reexamination. Without going into too great a detail, 91 factual or interpretive errors were found by Atkins and colleagues. These included 80 of the studies reviewed. Öst’s quality ratings of the ACT studies were found by independent checking to be unreliable, and where mistakes were made they were consistently against ACT. The authors recommended that in future reviews and meta-analyses probably should be done by teams of academics and not by individuals, to avoid biased result such as those produced by Öst.

Further recommendations included placing greater value on studies that apply a transdiagnostic approach, and that demonstrate evidence for theoretically consistent mediating processes. Finally, based on an updated review of evidence, including nine meta-analyses, since the time of the Öst review, an accumulation of at least 171 RCTs of ACT, and nearly 50 mediational studies, ACT achieved better outcomes than waitlists or treatment as usual, and at least as good as CBT or other evidence-based treatments, for chronic pain, substance abuse, and anxiety disorders (Atkins et al., 2017).

In passing it seems worth mentioning that third wave behavior therapies have also been the subject of a systematic review of health economic outcomes (Feliu-Soler et al., 2018). Eleven RCTs were included in this review, including MBCT, MBSR, ACT, DBT, and BA. In summary, ACT appeared more cost effective than applied relaxation or recommended pharmacotherapy, MBCT for depressive relapse was not more cost effective than maintenance antidepressant medication but other findings relating to it were inconsistent. DBT was more cost effective than usual care in the management of self-harm, and BA was more cost effective than CBT for adults with depression. The straightforward conclusion was that “there is economic data supporting some of the interventions usually labelled as ‘third wave’ CBT” (p. 144, Feliu-Soler et al., 2018).

Finally, it would be potentially misleading to not acknowledge that some of the therapies in the third wave have generated great enthusiasm, and that belief in their benefits can exceed the evidence. People will see and say what they want to believe. For example, mental health care providers greatly overestimate the proportion of their service users who benefit from their treatment and greatly underestimate the number who worsen. In one study nearly two out of three therapists surveyed reported believing that 80% or more of their cases improve in their care, when the actual rate is probably something more like 40% or less (Walfish et al., 2012). Something very much like this can happen in the narrative around third wave therapies – this is human nature. Presentations of evidence for ACT have met criticism for potentially “overselling,” claiming effectiveness when more modest statements were appropriate (e.g., O’Donohue et al., 2016; Rosen & Lilienfeld, 2016). Without picking sides, this criticism is right, and should be welcomed, and lessons should be taken from it.

Contextual CBT

Third wave therapies have always appeared to have something in common and this something has been difficult to characterize – few particular features characterize them all. What has been suggested however is that the behavioral therapies have changed during the time of the third wave, adopting a greater focus on processes of therapeutic change, and, it is argued, it is here that some of these therapies share considerable common ground (Hayes et al., 2011). In a review of evidence for outcomes, moderators, processes of change, and components, what was found is as

follows: “acceptance, mindfulness, and decentering or defusion mediate or at least correlate with outcomes in mindfulness-based methods, DBT, ACT, and IBCT. Values and commitment ... are known to be important in ACT, BA, and MI [motivational interviewing]. Component analyses have shown that flexible attention to the present is important in mindfulness-based methods, MCT, and ACT. These are all contextual variables that can have an impact even without and change in cognitive or emotional content,” (pp. 158–159, Hayes et al. 2011) and can be summarized as “open, aware, and engaged.” It was proposed in this review that the integration of forms of behavior therapy around these processes constitute the heart of what could be called “Contextual CBT.” This class of approaches is presented as a distinguishable, coherent, entity with the behavioral therapies, synonymous with, and perhaps a preferred term to, “third wave,” labelled in a way that might invite less resistance (Hayes et al., 2011).

Third Wave and the Rise of Process Based Treatment

With some hindsight one thing that seems to have come with the third wave of behavior therapy is a focus on processes of change. This is reflected in a focus not just on treatment packages but on component analyses, moderators, and mediators of treatment impact (Hayes et al., 2011). And, it is not just a focus on processes of change in general. It appears that there has also been some integration of approaches around a particular set of processes of interest, as just considered, in the form of behavior that is open, aware, and engaged. It is also argued in this context that these processes represent a focus, not on symptom reduction, but on broadly-applicable, flexible, positive behavioral repertoires.

Possibly the appearance of the third wave will reshape the entire field of behavioral and cognitive therapies, and psychotherapy in general, essentially as happened with the second wave. Except that this time separate camps, schools of thought, or particular brands of therapy may no longer make very much sense (Hayes & Hofmann, 2017). In their place a couple of changes may happen. One is a focus on human psychological prosperity and thriving rather than the elimination of psychopathology, and the other is a turn toward process-based therapy (PBT). PBT includes a focus on discovering and refining our understanding of evidence-based processes of change, linked to evidence based treatment procedures, based on testable theories, all focused around the alleviation of human problems and the promotion of human flourishing (Hayes & Hofmann, 2017). Perhaps the easiest way to understand PBT is to see it as the repeated asking and answering in therapy what is referred to as the “fundamental PBT question”... “What core biopsychosocial processes should be targeted with this client give this goal in this situation, and how can they most efficiently and effectively be changed?” (p. 47, Hofmann & Hayes, 2019).

If the third wave of behavior therapy led to the emergence of PBT as a next phase in the development of behavior therapy, this has not been the end of it. With PBT has come new conversations, renewed interests in such important topics as the “role

of the individual” and ideographic methods in the science of treatment development (Hayes et al., 2019), the need to adopt new approaches to mediation analyses (Hofmann et al., 2020), and the emergence of the notion of a “multidimensional, multi-level extended evolutionary meta-model” to reconcile and integrate the processes needed as the foundation to PBT (Hayes et al., 2020). What is being imagined is a return to functional analysis, the use of ideographic methods for identifying change processes, the use of intensive longitudinal data gathering, employing measures of socially valid outcomes, analyzed with the latest methods for examining within-person change, and including methods for dynamically tracking change over time. The expectation is that individual analyses of process of change based on this dynamic network approach will feed a kind of periodic table of general empirically validated processes of change that can in turn guide treatment for individuals (Hayes et al., 2019).

It is worth mentioning that a recent focus on mediation and processes of change has already informed the field and built on existing knowledge. For example evidence shows that cognitive defusion, a process conceived within the psychological flexibility model, the model underlying ACT, changes significantly in both traditional CBT and ACT for anxiety disorders, and significantly mediates post treatment worry, quality of life, behavioral avoidance, and depression in both CBT and ACT (Arch et al., 2012). In this way a third wave process of change is informing our understanding of a second wave therapy, and pointing to potentially integrating processes of change. Similar but perhaps more limited findings with regard to other processes of change have been shown in other studies of ACT and exposure with response prevention for OCD (Towhig et al., 2018) and in CBT for chronic pain (Åkerblom et al., 2016, 2020).

Summary

Behavior therapy is approaching 60 years old if the birth date is taken as the publication of the first journal devoted to the subject in 1963. The history of what has been called behavior therapy is an extremely varied one in some respects. The few things that have remained constant for more than 60 years include a commitment to research evidence and science, to trying new things, to addressing an increasing range of human behavior problems, and to doing a better job in doing this. In doing these things behavior therapy has evolved and very likely, if we are fortunate, will continue to do so.

This chapter is meant to define the third wave of behavior therapy. This is a difficult task as it can only be done coherently by laying out at the same time what were the first and second waves – no easy task in itself. It is also difficult because there is, in a sense, no such thing as the third wave. There are many constituent therapies, each unique and different from the others in key ways, and to speak of them all as a whole will never be uniformly true of them all. One is left off where we began, more or less, the third wave is the expansion of CBT into historically neglected

psychological processes applied to an increasing diverse and often complex set of human behavior problems, including a focus on acceptance, mindfulness, spirituality, intimacy, values, emotional depth, and the like.

With six decades of perspective on behavior therapy, and if one drops some of the particular therapy types, there is some order to it. One could look at the evolution of behavior therapy as a path through the first behavior therapy, then CBT, Contextual CBT, and now possibly the cusp of what comes next, perhaps PBT. What one sees here up to the current day is truly an “expansion of the cognitive behavioral tradition,” and an expansion with an important opportunity built into it, that being the opportunity for integration, particularly around processes of change, and perhaps away from divisive specific therapy types. The start to this seems to be found in how selected approaches within the third wave produce the outcome they do, largely by adopting a focus on establishing greater psychological openness, attention and awareness skills, and motivation, behavior change, and engagement.

The third wave therapies have followed the earlier waves. In evidence they generally do not appear better but their appearance has achieved new things, incorporated new processes, taken a focus on processes of change, on contextual change, and they may be ushering in a return to a greater focus on the individual. Because they seem to have called greater attention to mediation and mechanism they may have spawned PBT.

Someone has said that new waves do not wash away the previous waves but they incorporate them, and waves are generally not done when one has come – there are always more. The inevitable effect of waves is that the shoreline is never the same again. One could say that as the waves do this they make progress – certainly the landscape changes. Even with some positive connotations of waves the problem with waves is that there is typically one prominent one at a time and it passes and a next one comes. If you align yourself with a wave there is a sense of being separate from people aligned to the other waves. For this feature, it might be better to adopt some more unifying kind of metaphor.

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Part II
Assessment and Case Conceptualization

Second Wave Assessment and Case Formulation



Gary P. Brown

Any account of how assessment and formulation within behavioral therapy evolved into a “second wave” of cognitive behavioral therapy is likely to focus on the period during which the two perspectives diverged. Within the conventional narrative echoed in hundreds of papers, Mahoney’s (1974) invocation of a cognitive revolution is portrayed as a discrete inflection point. However, a satisfactory understanding of how assessment and formulation evolved requires moving beyond this simplified introductory textbook account. Psychotherapy, in line with psychology as a whole, had long been trending away from strict behaviorism by this point, and Mahoney’s own writings at the time describe more of an evolution than a revolution. The approach he promoted continued along the lines of Albert Bandura’s efforts (e.g., Bandura et al., 1966) in seeking to preserve the functional framework of behaviorism but extending it to take in inferred, non-observable (at least intersubjectively) mediators of observable contingencies. The focus of behaviorism was on the contingencies between environmental events and their behavioral consequences, and so it seemed to those working from this viewpoint to be a small concession for a relatively large gain in explanatory scope to permit consideration of *perceived* contingencies. If Mahoney had hoped these ideas would gain currency among Skinnerians, he was disabused of this by B.F. Skinner himself. As he recounted, “My interest in beliefs, imagery, ‘perceived’ contingencies” and other ‘inner person processes’ ...was deemed ‘misguided’ by Skinner, who insisted that there was no evidence whatsoever to support the ‘mentalistic speculations’ of cognitive psychology (Mahoney, 1985, p. 5). Mahoney persisted in advocating for an orderly extension of behaviorism into the cognitive domain, maintaining that cognitivism was separable from “mentalistic speculation” and that cognitive behavior modification (the name itself, perhaps, reflecting a desire for harmonious co-evolution) preserved

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the basic procedures of behavioral therapy, differing only in emphasizing an inferred change in cognition as a target (Mahoney & Kazdin, 1979).

In contrast, the emergence of A.T. Beck's approach, which has come to be most closely identified with "second wave" cognitive therapy, signaled a conscious and definitive break from orthodox behaviorism. In the inaugural issue of the journal, *Behavior Therapy*, Beck (1970) unapologetically placed introspection at the center of the therapy he and his collaborators had been developing: "Study and analysis of the introspective data suggest that the cognitive organization, far from being a mere link in the stimulus response chain, is a quasiautonomous system in its own right. Although this system generally interacts with the environment to a large extent, it may at other times be relatively independent of the environment... Data suggest that cognitive organizations are highly active and are much more than a simple conduit between stimulus and response" (p. 194).

Notably, Beck's own name for the therapy he helped originate was "cognitive therapy," a term free of any implied shared credit with behaviorism. Beck is forthright in his claims; however, although he uses scientific terminology, it is evident that he is actually describing clinical rather than scientific investigation. The data he cites was gained through clinical observation, the analysis was clinical formulation, and the structures and organization were based on clinical inferences drawn from this material. Beck's position and scientific framing reflected confidence that empirical validation of these clinically derived conclusions would inevitably follow in due course. This was premised on a wager on progress in the science behind the cognitive revolution within the emerging information processing paradigm and that this knowledge could be drawn upon to explain phenomenal experience. Much of what would unfold over the next several decades turned on whether cognitive therapy could make good on this wager.

Schwartz (1982) reviewed the points of contention between the interlocking positions from these mid-twentieth century debates centered around different views of the status of cognitions. The typical behaviorist position would be to regard cognitions as private behaviors that are subject to the same general behavioral laws (such as reinforcement) as overt behaviors. In contrast, from the standpoint of social learning theorists such as Bandura, cognitions mediate between antecedent stimuli and overt responses and can have effects on learning and behavior that cannot be explained strictly according to standard behavioral principles, although they can still be largely accommodated within the same functional framework. The cognitivist view differed from both of the preceding positions, as reflected in Beck's stance that cognitions are distinct phenomena organized in a manner that is different from how behaviors are organized and that are governed by their own set of scientific laws. As such, distinguishing cognitivism from mediational behaviorism critically depended on establishing knowledge of these distinct laws.

Schwartz also draws on a distinction discussed by Eysenck (1972) between methodological and analytic behaviorism. The latter of these would include Skinner's radical behaviorism, which, on grounds of parsimony, objected to affording special status to private events out of concern that the unneeded postulation of such hypothetical entities represented a conceptual slippery slope (as reflected in

Skinner's response to Mahoney's ideas). However, the main behavioral critiques were made by methodological behaviorists, who were less embedded in a philosophy of science than the analytic behaviorists, but condemned research approaches that did not exercise sound experimental control. Macleod (1993) put this starkly: "...developing an acceptable formal science of cognitivism requires adherence to rigorous methodological constraints that are at least as severe as those imposed by behaviorism. Conversely, the endorsement of the self-report data, yielded by introspection, as an acceptable source of information concerning mental processes, must place our discipline clearly out with the boundaries of legitimate science" (p. 170). MacLeod could be counted as one of a group of critics who might be called "cognitive denialists" who argued that the cognitive revolution was not yet proven (See O'Donohue et al., 2003). They were notably unimpressed with the idea that a new paradigm was taking shape before their eyes. In keeping with idea that the terms used to designate the therapies being compared were revealing, one such critique (Beidel & Turner, 1986) suggested that the name of the approach should be hyphenated as "cognitive-behavioral therapy" given the not-yet-proven status of the cognitive approach meant that it did not warrant a full-fledged adjective, having not made good on the wager that the theoretical slippage of opening the door to introspective phenomena was justified by commensurate scientific gains.

Two Levels of Assessment

Elaborating further in his 1970 *Behavior Therapy* paper on what he viewed to be the subject matter of the emerging scientific basis of cognitive therapy, Beck wrote, "Introspective data indicate the existence of complex organizations of cognitive structures involved in the processes of screening external stimuli, interpreting experiences, storing and selectively recalling memories, and setting goal and plans... (p. 194)". Here, Beck echoes the four processes Bandura had set out as being involved in social learning (attention, retention, reproduction, and motivation) but makes a notable addition: interpretation of experiences. While the other four aspects listed are important for anchoring the cognitive approach within the emerging information processing paradigm and play a role in various theoretical constructions, the interpretation of experiences, through identification and analysis of the thoughts arising in reaction to environmental events, so called automatic thoughts, was the central focus of cognitive therapy and the main target of early formal assessment efforts that grew directly from therapy practices.

The emphasis of initial cognitive therapy sessions was on helping the client to identify the reasoning errors and biases that were viewed as underpinning emotional distress. Tools such as the Daily Record of Dysfunctional Thoughts (DRDT; Beck et al., 1979) came into use to aid recording and discussing these thoughts, and early scales of depressive cognition such as the Automatic Thoughts Questionnaire (ATQ, Hollon & Kendall, 1980) can be seen as a straightforward extension of therapy-based data gathering, albeit in a more standardized form that would potentially

permit systematic study. Scores on scales like the ATQ afforded a summary score of depressogenic cognition that offered the potential to compare individuals on these dimensions and to quantify change in response to treatment as therapists raised awareness of negative thought content and helped correct logical errors.

In working clinically with automatic thoughts, it became evident to Beck and his colleagues that these transient appraisals of ongoing experience (e.g., “no one at this party likes me”) were markers of more enduring, thematically relevant underlying beliefs (e.g., “if you don’t impress people with your personality, they won’t like you”). Beck et al., (1979) observed that the same beliefs seemed to recur over successive symptomatic episodes and so likely persisted in some form, representing a vulnerability for future depression (Kwon & Oei, 1994). The expression of such beliefs was taken to reflect the operation of schemas, the central mechanisms guiding information processing built up over the individual’s learning history. Similar to the schema concept in Piagetian theory (Hollon & Kriss, 1984), these served to store previously encoded knowledge, but, importantly, to also play a role in processing new information, helping to determine which information would be attended to and which would be ignored, how much importance to attach to stimuli, and how to structure information (Hollon & Kriss, 1984, p. 37). Information congruent with schematic processing would be preferentially processed relative to schema irrelevant information, whereas schema incongruent material would be ignored or at least minimized (Beck, 1987; Clark et al., 1999).

Therapy typically progressed from initial focus on challenging automatic thoughts to efforts later in therapy to bring to awareness the ongoing beliefs that appeared to give rise to these thoughts. As a counterpart to scales such as the ATQ, Weissman (Weissman, 1979; Weissman & Beck, 1978) constructed the Dysfunctional Attitude Scale (DAS) to capture the corresponding level of enduring beliefs. DAS items were written so that the operation of the sort of arbitrarily negative reasoning patterns that Beck had identified as being at the core of depression were embedded in the logic of the stated conditional beliefs (e.g., the item “If a person is indifferent to me, it means he does not like me” reflecting an arbitrary inference). Endorsement of the maladaptive beliefs were assumed to indicate a disposition to apply comparable logic when the respondent encountered similar situations in the course of their own experiences. Weissman’s stated aim was to compile a set of items that “cover most of the essential dimensions of depressogenic cognitions, even if these were confounded, overlapping, or otherwise not as clear-cut as later research might help to make them.” (pp. 63–64).

Publication of Beck’s (1976) *Cognitive Therapy and the Emotional Disorders* crystallized the theory first set out with reference to depression and laid the groundwork for the extension of both the psychotherapy and the accompanying research methods and instruments to the broad spectrum of clinical psychology phenomena. In this book, Beck maintained that cognitive content could provide an essential basis for distinguishing between diagnostic categories, a view formalized as the cognitive content specificity hypothesis (Beck et al., 1987a; Clark et al., 1989; Baranoff & Oei, 2015). The content specificity hypothesis provided the seeds for thinking systematically about other disorders with the same approach that had been

applied to depression, and, accordingly, self-statement questionnaires similar to the ATQ but encompassing the distinctive expressed cognitive content of other disorders would soon follow (e.g., the Agoraphobic Cognitions Questionnaire; Chambless et al., 1984). Likewise, scales measuring more enduring constructs also tracked the extension of CBT to different disorders, with the DAS joined, for example, by the Anxiety Sensitivity Index (Reiss et al., 1986) for panic disorder and, somewhat later, the Obsessive Beliefs Questionnaire (OBQ; Obsessive Compulsive Cognitions Working Group, 2003) for obsessive-compulsive disorder. Items found on scales in this category typically reflect beliefs concerning experiences salient to the disorder and so often adopt an if-then (*if* a salient trigger occurs, *then* an expected consequence will follow) format, as shown in the ASI item, “When my chest feels tight, I get scared that I won’t be able to breathe properly” (indicative items from the DAS and OBQ include “If I fail at my work, then I am a failure as a person” and “If I do not control my thoughts, I will be punished,” respectively), harkening back to Mahoney’s category of self-perceived contingencies.

Targets of Self Report Assessment

The disagreement between the different behavioral and cognitive positions over the admissibility of self report related to what evidence such reports were understood to provide. Self-report and introspection were never categorically proscribed, and none of the theoretical stances would take issue with the idea that a contemporaneous report of subjective thought was likely a report of something that seemed real to the person providing it. Indeed, it would be mistaken to assume that self-report was absent from behavioral approaches. This was duly noted as seemingly hypocritical by various commentators as at odds with the professed distrust of self report among self-identified behaviorists. For example, Bergin (1970) remarked, “It is difficult...to imagine how desensitization can be considered to be a ‘behavioral’ procedure in any definitive sense. In employing the technique, the initial diagnostic evaluation relies chiefly upon introspective reports in interviews and personality inventories or fear surveys” (Bergin, 1970, p. 206; see also Breger & McGaugh, 1965). Behaviorists would likely fail to perceive any inconsistency as long as the verbalization was not regarded as offering proof of any particular internal phenomenon. Those working more from a social learning perspective would also have considered themselves behaviorists at that time but defined their approach to assessment mainly in contrast to the more traditional structural approaches based on personality types and including the psychodynamic tradition. Accordingly, Goldfried and Kent’s (1972) account of behavioral assessment echoed Mischel’s arguments for the centrality of the situational context rather than structural fixed traits as determinants of behavior (e.g., Mischel, 1973), “The techniques associated with behavioral assessment include the observation of individuals in naturalistic situations, the creation of an experimental analogue of real-life situations via role playing, and the utilization of the individual’s self-reported responses to given situations” (p. 412).

They go on to draw on Goodenough's (1949) distinction between signs and samples as targets of assessment: "The sign approach assumes that the response may best be construed as an indirect manifestation of some underlying personality characteristic. The sample approach, on the other hand, assumes that the test behavior constitutes a subset of the actual behaviors of interest. Whereas traditional personality tests have typically taken the sign approach to interpretation, behavioral procedures approach test interpretation with the sample orientation" (p. 413).

The shift from the social learning position, consistent with Mahoney's "self-perceived contingencies," to the "cognitivist" position, as stipulated in Schwartz's analysis, is a subtle one. It is reflected in the move from self-perceived contingencies—that is, the subjective association of particular events with particular contextual factors—to framing beliefs as reflective of reasoning processes, and explainable in terms of information processing concepts instead of merely contingent co-occurrence. This subtle shift is discernible in the wording of items, which go from referring to the contexts within which thoughts and behaviors occur ("when my heart races, I think I will have a heart attack") to reflecting a particular understanding of the world ("if my heart is racing, it's a sign of a heart attack"). Concerns about what these scales could be understood to be capturing relative to actual thought processes can be found in the literature, although this is fairly rare relative to the burgeoning amount of research these scales would enable. Though seldom articulated in the literature, there are indirect indications that the salience of concerns about the veridicality of self report was heightened by the publication of Nisbett and Wilson's (1977) "Telling More Than We Can Know: Verbal Reports on Mental Processes," which documented in detail potential pitfalls of taking first-hand verbal accounts of thinking at face value. Writing some years later, rather than viewing these reports as samples as Goldfried and Kent (1972) had argued, Dobson and Segal (1992) stated that "self report assessment procedures are commonly interpreted as signs of behavior or other responses; that is, although they do not directly enable observation of real-life processes, they approximate these processes (p. 279)." Likewise, with regard to the resemblance of questionnaire items to the targeted mental processes, Glass and Arnkoff (1982) noted that "it is unlikely that people have precisely the thoughts that they endorse on a questionnaire, because actual thought processes are probably highly idiosyncratic, automatic, not in the form of complete sentences, and heavily based in imagery and not just language (pp. 51–52)." Finally, Glass and Arnkoff (1997) echo Nisbett and Wilson's concerns in considering how to construe the thought frequency estimates often required on self-report scales, suggesting that respondents might more realistically be (1) gauging the impact, salience, or importance of the thought and on this basis inferring that a particularly pertinent thought must have occurred frequently; (2) translating from idiosyncratic or fragmented actual thoughts to the grammatically complete sentences on the inventories; (3) translating affective experience into a language-based self-statement format; or (4) conveying that the item on the questionnaire matches their self-concept, indicating 'that's like me' by endorsing the item. This general understanding of what respondents are conveying in answering self report questions is

broadly in line with the conclusions of formal research into the cognitive underpinning of questionnaire and survey responses (e.g., Schwarz, 1999).

Bolstering justification for the use of self-reports, Ericsson and Simon (1980), in their paper “Verbal reports as data,” had offered a counterpoint to Nisbett and Wilson and outlined the circumstances under which verbal reports could be considered more or less reliable. They contended that verbal reports are more reliable where they are direct accounts of what can be attended to in short term memory and less reliable the more respondents are required to attend to and report on information that would not otherwise be attended to. The predominant endorsement format mainly used in self report scales, which requires respondents to endorse preset items with a fixed response format, often calling upon respondents to retrospect or to construct hypotheticals, is clearly open to criticism from the standpoint of these criteria. In contrast, production methods, such the Articulated Thoughts in Simulated Situations paradigm (ATSS; Davison et al., 1983), which, would provide respondents with a general prompt (e.g., a hypothetical social predicament) and ask the respondent to think aloud, fare better relative to the Ericsson and Simon framework. Material from such methods were encouraging to the extent that they produced similar content to what was included on endorsement format questionnaires. Less encouraging was the lack of concordance between production and endorsement methods (e.g., Heimberg et al., 1990), aside from the greater practical challenges of employing production methods compared to endorsement methods in routine practice and research.

However, predominantly, everyday use of self report largely took for granted that reports of subjective processes, broadly speaking, were largely veridical. Indeed, beyond the question of whether behaviorists themselves practiced what they preached when it came to self-report, cognitivists regarded the proscription against self report as counterproductive and an inhibitor of progress: “Where cognition has not been demonstrated to be important, it has often not been researched. This may be part of our behavioristic legacy. By defining cognitions as irrelevant, they have remained unexamined (Mahoney, 1977, p. 11).” The subsequent exponential growth in use of self-report was a testament to the resonance of this sentiment. Lawyer and Smitherman (2004), using Lang’s (1979) three response systems framework for anxiety (i.e., behavior, subjective report, and physiology) as a frame of reference, traced a discernible change in assessment approach, with the appearance of studies assessing more than one response system reaching a peak in the late 1970s and then declining steadily, overtaken by an increase in single-system assessment with an exclusive focus on self-report methodology. These mono-method self report studies had always predominated, but by 2002 they represented 97.8% of research reports of anxiety disorders, compared to 85.5% during the 1970s, a trend tracking the rise of CBT for anxiety (e.g., Beck et al., 1985). A comprehensive review taking in the previous two decades by a prominent researcher in the area by the late 1990s stated that assessment had lagged behind progress in other areas and noted with concern the nearly exclusive reliance on retrospective self report endorsement based scales (D.A. Clark, 1997).

Theoretical Critiques

For their part, with the proliferation of research centered on self-report, Skinnerians may have felt vindicated in their warnings of the slippery slope that would be set in motion by opening the door to theories relying on hypothetical mental entities (e.g., Hayes & Brownstein, 1986). Moreover, the fact that most of these studies assessed only self-report and no other response modes bore out the more fundamental concern that empirical findings of this sort were highly susceptible to tautological inferences in the absence of corroborating or validating information ascertained through separate response systems, emboldening claims that the cognitive revolution was a hollow victory (e.g., Beidel & Turner, 1986; MacLeod, 1993). Whether fairly or not, the numerical dominance of self-report research made it possible for critics to largely overlook the more modest but steady growth of a body of experimental findings using both new paradigms and also energetically adapting advances in experimental cognitive psychology and social cognition. By 1988, enough experimental evidence had accumulated to underpin an influential volume (Williams et al., 1988) that summarized the body of evidence of laboratory research into the cognitive approach to emotional disorders and advanced a theory synthesizing this evidence with regard to depression and anxiety.

If the main limitation of the first wave was allegiance to an elegant but restrictive theory with limited applicability to the problems that needed to be solved, the second wave faced the opposite criticism, that is, that there was an abundance of applicability but a lagging theoretical basis. Efforts to redress this imbalance took the form of conceptual frameworks that sought to bridge the large body of self-report findings with the more gradually accumulating knowledge base of experimental data to signpost where the field was heading in anticipation of an expected convergence of the two streams. Hollon and Bemis (1981) drew a parallel between the two types of self-report constructs (automatic thoughts and enduring beliefs) and the distinction drawn within the information processing paradigm between surface and deep cognition. Hollon and Kriss (1984) then proposed a taxonomy of cognitive structures, products, and processes. Products are the thoughts, images, self-statements or internal dialogue that represent output from the information processing system, and cognitive propositions that are the content of underlying beliefs or schemas. Previously encoded enduring beliefs are considered to be reflections of schema structure in propositional form. In contrast, cognitive products are the conscious outputs of the information processing system, and include momentary cognitions (e.g., automatic thoughts). Enduring beliefs when they have been retrieved and are in a person's awareness are also considered to be cognitive products (as such, Ingram and Kendall (1986) distinguish between stored and accessed beliefs in their similar taxonomy).

Disagreements between cognitive and behavioral positions had settled into well-worn avenues. When Coyne and colleagues (Coyne, 1982; Coyne & Gotlib, 1983) ultimately succeeded in shifting the discourse in a landmark series of critiques, not being identified with either of the established positions was likely an advantage.

Coyne (1982) began by expressing a fundamental skepticism of the possibility of parsing psychological phenomena into discrete elements. In common with behavioral critiques, Coyne went on to find fault with arbitrarily taking cognition to be the initiating factor among mutually interacting elements of behavior, cognition, emotions, and the environment: "We do not need to construct linear theoretical sequences to understand the role of cognition in behavior. Rather, we should recognize the arbitrariness of any punctuation of what is basically a circular sequence, and we should reject questions about whether cognition ultimately causes affect and behavior as the product of conceptual confusion (p. 8)." Coyne and Gotlib (1983) then went on to review the relevant literature for cognitive models of depression, finding the results commonly assumed to support the model deficient for substantiating the strong causal claims that had been set forth. This prompted an exchange with Segal and Shaw (1986; Coyne & Gotlib, 1986) covering a wide range of topics, but of particular relevance to the present focus, aside from questioning the implied primacy of cognition, was the argument on Coyne's part that correlations between depression symptom scales and scales of putative depressive cognitions which had been taken as validity evidence regarding causality amounted instead to repeated sampling from the same pool of negative utterances among respondents who could have found themselves in such a position due to a complex combination of mutually dependent psychological and environmental factors unfolding over time.

It was against this background that Segal (1988) undertook an exhaustive review of the schema concept in cognitive therapy and its operationalization in terms of self-report, particularly with the DAS. Echoing Coyne and colleagues and several notable behaviorist critiques, he acknowledged that "the strategy of relying on negative self-reports to validate a construct whose operation is intended to explain these self-reports becomes increasingly circular unless additional external referents can be provided to demonstrate schematic processing" (p. 147). With reference to the cognitive conceptual frameworks described above, Segal argued that self-report scales like the DAS can only represent content, whereas structural concepts such as schemas require a means of capturing functional relations that is not possible solely with reference to content. Totaling scores on scales such as the DAS can only reflect the degree to which the beliefs of interest are present. How schemas are defined in the literature

emphasizes the functional aspects of the interrelation among self-descriptors, whereas questionnaire data are capable, at most, of providing evidence for a descriptive definition of schema. Such evidence is usually in the form of endorsement patterns for clusters of attitudes and beliefs. Using the DAS to argue for the existence of an organized self-structure involves assuming function on the basis of a description of interrelated attitudes and beliefs. Although it is possible that this interrelation may reflect a type of structure or personal organization in a broader sense, it cannot be accepted in support of the functional linkage between elements in a self-structure. (p. 153)

Segal's (1988) review is a reasonable candidate for marking the end of the initial developmental arc of the second wave. The general tenor of where things stood is probably best gleaned from the views expressed by prominent scholars who were

not strongly identified with either the behavioral or cognitive camps. In this connection, Bellack (1992) wrote:

The literature is filled with cognitive-sounding terms, such as attributions, schemata, and self-efficacy, but the theoretical and empirical underpinnings of these concepts are tenuous, at best. Moreover, in the rush to develop clinical models and techniques, basic research and theory on information processing and cognition have all too frequently been ignored. (Bellack, 1992, p. 384)

Similarly, Foa and Kozak (1997) would note that the central concepts of the model were still largely underpinned by clinical data:

Interestingly, while cognitive therapy embraced some of the terms of cognitive psychology (e.g., schemas), the theory that informed the practice of cognitive therapy was derived primarily from clinical observations, not experimental psychology or research in psychopathology. Indeed, the fundamental theoretical constructs of cognitive therapy, such as self-efficacy, cognitive distortions, and automatic thoughts, are based mainly on clients' introspections. (p. 606)

It would appear from these assessments that, at least for the time being, the wager on a separate theoretical structure for knowledge derived from introspections had not been fulfilled.

Second Wave Formulation

Cognitive therapy as it developed in the late 1970s and 1980s, compared to behavioral therapy, which was largely headquartered in academic departments, became much more aligned with the general mental health research and funding system largely defined by psychiatry (see, e.g., Barlow & Carl, 2010). This promoted an emphasis on diagnosis specific manualized treatments for putatively discrete problems geared toward conclusive testing of efficacy through large scale randomized controlled trials (see Hallam, 2013). In parallel with theoretical critiques such as Coyne's (1982; Coyne & Gotlib, 1983, 1986), doubts about this strategic direction began to be articulated, which, in retrospect, can be seen to be the seeds of what grew into the third wave. Jacobson (1997) argued that the field had borne a cost in distancing itself from smaller scale research that was amenable to testing functional relations between variables of interest in favor of a structural approach where a problem such as depression was viewed as being characterized by particular features (e.g., depressogenic schemas) that are universal across people who fall into the category defined by the problem:

Even defining the problem as 'depression' which unites behaviors by their topography rather than their function, is to be guilty of formal or structural – as opposed to functional – thinking. (p. 438)

Jacobson's argument reiterated a frequently stated behavioral criticism of essentialist accounts of phenomena like depression while also strongly echoing Coyne's earlier analysis (Coyne, 1982): "attention to the presumptive cognitive structures

that presumably cause depression redirects our attention away from those things we can see, hear, and influence directly: the social context of the depressed individual (p. 440).” In Jacobson’s portrayal, CBT’s emphasis on manualization came at a substantial cost, as it meant that it was mainly rule (i.e., technique) based rather than circumstance based, necessitating an abrupt shift from rules to contingencies once therapy ends if any gains are to be sustained once the client is left to continue on their own within their normal life context.

And yet, Jacobson’s own analysis might be viewed as too categorical. While not at the forefront of the diagnosis based manualized approaches of the time, the functional elements of cognitive therapy treatment packages became more discernible once the therapy model was no longer centered solely on depression, which, arguably, lends itself less to functional analysis compared to anxiety disorders, where manifest behavior contingencies are more salient aspects of the typical presenting problem. For example, in D. M. Clark’s (1986) catastrophic misinterpretation model of panic, the misinterpretation serves the function of establishing a vicious cycle that escalates the expectancy of an imminent catastrophe; the precise content of the misinterpretation is secondary and is not assumed to be universal to those with the relevant diagnosis. The therapy based on this panic model and similar models of social anxiety and PTSD call for the identification of maladaptive coping behaviors (avoidance, safety-seeking behaviors) that are reinforcing in the short term but preclude needed changes in beliefs. Here, again, it is the function of the behaviors rather than their specific content that is the critical aspect. It is important to note that the central role of functional elements of these models was not simply fortuitous, but rather reflects the tradition of single case functional analysis promoted by Monte Shapiro (e.g., Shapiro, 1957) at the Institute of Psychiatry in London, where much of this work originated or can be traced back to (see Hallam, 2013, pp. 69–70).

At the same time, it is prudent to avoid presuming, counterfactually, that the same or better progress would have been assured without the conceptual scaffolding provided by the diagnostic approach had purely behavioral approaches held sway. Indeed, it stands to reason that with non-mutually exclusive diagnostic groups, evidence for cross-category transdiagnostic mechanisms, if present, will likely emerge over the course of time. Accordingly, transdiagnostic frameworks built on the gradually accumulating experimental evidence (Harvey et al., 2004) and based on psychometric approaches (Brown et al., 1998) began to appear, confirming, extending, and complementing the theories underlying the single disorder treatment models. These included both structural and functional constructs, for example, with respect to anxiety, overestimation of the likelihood of occurrence of negative events (biased expectancy reasoning; Butler & Mathews, 1983; MacLeod et al., 1997; Rachman & Hodgson, 1980), emotion-driven safety-seeking behaviors (Ferster, 1973; Salkovskis et al., 1996), and avoidance of feared and risky stimuli (Barlow et al., 2002). Bergin had anticipated and promoted such an approach: “There is no magic in either the terms ‘behavior therapy’ or ‘cognitive therapy,’ but there is progress in dimensionalizing given psychological phenomena of interest and designing interventions which have relatively unique relevance to them” (Bergin, 1970, p. 207). The idea that research involving non-mutually exclusive categories will naturally evolve to take

in transdiagnostic concepts is supported by the fact that psychiatry, without the benefit of a particularly prominent behavioral tradition or reliance on functional analysis, has adopted the Research Domain Criteria (RDoC; Insel et al., 2010) framework, moving away from its longstanding emphasis on disorder-based organization of knowledge of psychological problems toward understanding basic empirical constructs conceived of as dimensions rather than categories.

Still, despite increasingly prominent elements of functional concepts within mainstream second wave cognitive therapy, it should be acknowledged that this has not been pursued consciously and is mainly discernible in retrospect. A more strategic balance between functional and structural perspectives in training of the models is likely to be beneficial—specifically, in areas in which the structural approach has proven itself to be nonoptimal. One such area is case formulation. There is no doubt that formulation, often called case conceptualization in cognitive therapy, is regarded as being of central importance: “When one asks a novice cognitive therapist how they would handle a specific clinical problem [...] they usually can give a variety of techniques [...]. Rarely does the novice address the most important step – conceptualization” (Beck et al., 1985, p. 181). However, it is, perhaps, telling that formulation is not included in the Cognitive Therapy Scale (Blackburn et al., 2001), commonly used to assess treatment fidelity in both routine practice and in clinical trials of cognitive therapy. There is a paradox at the heart of this state of affairs stemming from the contradiction between the desire for faithfulness to a pre-stipulated evidence based therapy approach as set against the need to adapt such broadly defined approaches to individual circumstances, particularly where, as is more often than not the case, an individual presenting for therapy does not resemble the prototype implied by the manualized version of the therapy or does not belong to the demographic of the corresponding trial sample.

The latest notable efforts to approach formulation systematically in second wave behavior therapy recognize the need to grapple with this central conundrum. However, deference is still by default given to the standardized protocol: “if theory and research about a specific disorder map onto a client’s presenting issues, the disorder-specific model has primacy due to its empirical support. Only by taking the time to describe the presenting issues and develop simpler explanatory models of the main presenting issues can the therapist establish which disorder specific models fit” (Kuyken et al., 2011, p. 214). In other words, for a given problem, variation from the normative model in the form of added complexity needs to be, in effect, partialled out so as to enable discerning the signal within the noise that corresponds to the embedded specific model. With regard to the complexity posed by multiple concurrent problems, “it is not always obvious which protocol to select for those clients with comorbid presentations or for those presentations that do not fit a particular model. How does a cognitive therapist choose from this vast array of choices? Case conceptualization helps the therapist select, focus, and sequence interventions” (Kuyken et al., 2011, p. 7). Here, separate disorders are regarded as being discrete, an idealized picture that does not correspond to comorbidity as more typically encountered, and there is no mention of the potential of formulation identifying common threads running between problems.

Persons, who has a had a longstanding focus on case formulation (Persons & Bertagnolli, 1999; Persons, 2008), described a similar set of assumptions with respect to predefined treatment packages designed for different diagnostic categories. Persons explicitly distinguished the approach she recommends from others that are based on functional assessment (Persons & Davidson, 2010, p. 173). Rather, in Persons' account, formulating is a process of informed pattern matching. The drawbacks of the broad assumptions that underlie fixed diagnoses are acknowledged but are seen to be outweighed by the benefits of matching to published protocols, which bring with them evidence based sets of techniques and connect the presenting problem to the entirety of empirical literature. Persons and Davidson then continue:

Whenever possible, the case formulation is based on an empirically supported 'nomothetic,' or general formulation. The therapist's task is to translate from nomothetic knowledge to idiographic practice, where an 'idiographic' formulation and treatment plan describe the causes of symptoms or disorders and the plan for treating them in a particular individual. (p. 175)

Skill in formulation equates to the ability, based on knowledge of the literature, to particularize the relevant nomothetic knowledge of etiological mechanisms so as to craft an individualized plan. This can also include categorization based on theory rather than solely on diagnosis. Persons offers a vignette of a client who is provided a more fitting therapy plan when it is discovered she "holds" a "subjugation schema" in the context of Young and colleagues' schema therapy approach (Young et al., 2003), in doing so applying the sort of fixed trait approach Goldfried and Kent (1972) had argued behavior therapy was moving past.

It is instructive that when research is carried out on formulation from the mainstream CBT approach, a common practice is to benchmark against a group of experts (Kendjelic & Eells, 2007) or a specific expert (e.g., Judy Beck in the case Kuyken et al., 2005). This can be seen as a resort to personifying authority as a proxy for the authority otherwise conferred by implementing an evidence based model. However, research into the reliability of formulations based on expertise is uneven at best (Bieling & Kuyken, 2003). If, as previously argued, substantial elements of particular treatments are underpinned by functional mechanisms, many of the experimental findings incorporate the logic of functional analysis, and, as Jacobson (1997) has pointed out, functional analysis principles are often drawn upon in preparing a client for autonomously applying knowledge gained in therapy within their individual living context, the case for making functional analytic principles salient within formulation seems self-evident and, in fact, should arguably be a priority. Toward this end, Hallam has recently proposed a comprehensive approach to implementing functional analysis within individual case formulation using a diagrammatic approach (Hallam, 2013).

Implications for the Third Wave

In this chapter, I have aimed to convey an alternative to the introductory psychology textbook template in offering a retrospective account of the how of the first wave of behavior therapy passed into the second wave, as a counterpoint to the familiar narrative according to which the shiny new innovation sweeps away hidebound and blinkered old ways of doing things, what the late Scott Lilienfeld called “breakthrough-ism” (Lilienfeld, 2017).

The crosscurrents between the first and second waves are complex, with issues of assessment and formulation prominent in the mix. From one perspective, there is a basis for arguing that the behaviorist forebodings of unfettered proliferation of hypothetical constructs and tautological reasoning have, to a certain extent, been borne out, and this has led to obscurity rather than clarification. The counterargument to this boils down to an insistence that it was important to try, as it did not appear to be that better solutions were possible within the strictures of the behaviorist position, and human suffering was at stake. A final quote from Mahoney (1977) conveys this sentiment:

[O]ne can argue that the cognitive theorist has been obsessed with cognition. Virtually nothing has escaped the speculation of possible cognitive influence. It may be the case that the cognitive theorist has overgeneralized. We will not know, however, until we have looked. (p. 11)

Having looked, we now have an idea of the terrain, and rather than a sharp boundary between the knowable and the unknowable, the literature instead appears to form of a gradient, marked by discernible indicators of what helps and what hinders useful inferences. The phase of diagnosis based manualized therapy and efficacy tests, which has not yet ended by any means, but is being supplemented by idiographic methods, was part of an overall zeitgeist in the field. If the arguments reviewed here have merit, the importance of identifying functional relations has been reinforced and can be drawn upon with a renewed sense of determination to revisit some of the gaps in the knowledge base, most obviously with regard to case formulation.

What is the introductory psychology textbook narrative taking shape for describing how the second wave is passing into the third? As was the case with the notion of the cognitive revolution, cited thousands of times, there is tacit agreement on a script that can be routinely resorted to for manuscript introductions. It portrays second wave therapies as tied up in logical disputation, whereas, in contrast, the third wave is inherently metacognitive and offers mindful respite to clients weary of being harangued by endless debate. Those identified with the second wave might, with considerable justification (e.g., Bernstein et al., 2015) point out that distancing and decentering as alternatives to disputation have always been a part of cognitive therapy and that metacognition is a logical extension to garden variety cognitive therapy. Teasdale (1999, p. 146) made a valid distinction between metacognitive knowledge (knowing that thoughts are not necessarily always accurate) and the metacognitive insight gained through mindfulness (experiencing thoughts as events in the field of awareness, rather than as direct readouts on reality). However, this

would be a rather subtle distinction on which to base a claim that a qualitative shift has taken place.

Each wave has been called upon to substantiate this sort of theoretical claim or be susceptible to the judgment that such distinctions are merely rhetorical devices useful, at best, as therapeutic heuristics. We have seen that self-report is a main focus of contention. Assessment methods and psychometrics have been key elements of the relevant academic debates, and the track record of third wave approaches in this regard has been problematic (e.g., Doorley et al., 2020). In light of this and of the fact that the third wave has arguably been with us for the better part of two decades during which justification for the proliferation of concepts could have been justified with evidence, it is not too late to take account of why perfectly reasonable and well understood scales of metacognition, such as the Thought Action Fusion Scale (Shafran et al., 1996), Metacognitions Questionnaire (Wells & Cartwright-Hatton, 2004), and Thought Control Questionnaire (Wells & Davies, 1994), should not be a starting point for assessment efforts and either incorporated or expressly improved upon. A similar argument can be made with regard to the second main tenet of acceptance and commitment therapy (ACT; Hayes, 2004), valued living. Firstly, it is not clear what relationship the construct of values within ACT has to the study of values within psychology more broadly (e.g., Schwartz, 2012). In addition, although Schwartz argues that values are not just reducible to beliefs, it is prudent to at least consider whether established second wave scales already tap into similar conceptual ground. In a recent reanalysis of the dimensionality of the Dysfunctional Attitude Scale, Brown, et al. (in preparation) reported factors reflecting the dimensions of high standards, worthiness, importance of being accepted, and imperatives (deontological morality), which would be difficult to argue are any less rooted in values than the newer third wave scales designed to operationalize committed action.

The progression through the waves can be viewed through different lenses, one of the most important ones being the relationship of therapy to theory. As noted, when ambitious claims are made about the scientific basis of a therapeutic approach, critics, in the absence of undeniable evidence to the contrary, will assert that the claims are merely rhetorical (O'Donohue et al., 2003) and not scientifically verified. Assessment methods are direct expressions of the mission of a therapeutic approach and so are the natural focus of potential critics. The proliferation of self report based research was initially regarded as a sign of the vibrancy and generativity of the second wave but was soon subject to critical examination from both adherents and detractors. In this regard, critics of ACT (e.g., O'Donohue et al., 2015) have noted that the failure to conclusively demonstrate efficacy through direct tests of theoretical mechanism creates a temptation to resort to a score keeping approach, in which theoretical validity is claimed on the basis of the sheer number of putatively supportive results. Third wave advocates lay claim to Skinner's mantle, and so would do well to heed his admonitions against rapidly proliferating research:

That a theory generates research does not prove its value unless the research is valuable. Much useless experimentation results from theories, and much energy and skill are absorbed by them. Most theories are eventually overthrown, and the greater part of the associated research is discarded. (Skinner, 1950, p. 71, as quoted in Chiesa, 1992)

Summary and Conclusion

The role of subjective experience is larger than what can be accommodated by any one theoretical position. The second wave made grappling with this conundrum central to its mission. In the short run, the prevailing judgment has been that its ambitious goal has not been realized. However, the effort has generated a large body of evidence that may yet bear fruit over the longer term.

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Dialectical Behavior Therapy: Assessment and Case Conceptualization



Skye Fitzpatrick and Shireen L. Rizvi

Dialectical Behavior Therapy (DBT) was developed by Marsha Linehan throughout the 1970s and 1980s originally as a treatment for chronically suicidal and self-harming adults with borderline personality disorder (BPD). Since its conception, DBT and DBT-informed interventions have been developed for a number of populations, including forensic groups such as individuals in state prisons (Shelton et al., 2009), suicidal adolescents (McCauley et al., 2018), and people who have substance use problems (e.g., Linehan et al., 1999, 2002), major depressive disorder (e.g., Lynch et al., 2003), bipolar disorder (Van Dijk et al., 2013), attention deficit and hyperactivity disorder (Fleming et al., 2015), and eating disorders (e.g., Safer et al., 2010; Telch et al., 2001). DBT is predicated upon three core tenets: radical behaviorism as a technology of change, Zen Buddhism as a technology of acceptance, and dialectical philosophy as an underlying framework that unites and influences the two.

The Development of DBT

Early prototypes of DBT involved applying radical behaviorist principles (e.g., contingency management, skills training) to the treatment of suicidal behavior. However, as detailed in Linehan and Wilks (2018), such a “change-heavy” intervention proved difficult to tolerate for individuals with BPD, possibly due to their high levels of sensitivity, emotional reactivity, and their extensive histories of invalidation by

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caregivers and other clinical providers (e.g., Austin et al., 2007; Bennett et al., 2019; Staebler et al., 2011). Consequently, Dr. Linehan radically re-oriented DBT development through the creation of an intervention derived from Zen Buddhism and the principles of acceptance and mindfulness (Linehan & Wilks, 2018). Although acceptance and empathy were germane to this new approach, it too produced sub-optimal outcomes, as clients expressed frustration at the clinician's lack of attempts to help them solve their problems in meaningful ways (Linehan & Wilks, 2018). Based on these initial attempts, it was clear that Dr. Linehan's clients required change, derived from radical behavioral interventions, and acceptance, derived from Zen Buddhism. This realization led Linehan to dialectical philosophy, espoused by philosopher Georg Wilhelm Friedrich Hegel, as a way to unite these two apparently opposing polarities (Linehan & Wilks, 2018).

Within dialectical philosophy, reality is reflected by two seemingly oppositional polarities, both of which contain truth or wisdom. A "synthesis", then, reflects the unity of these two polarities—holding both sides as true—which allows individuals to progress with a new, multifaceted understanding (Linehan, 1993). Hence, DBT: wherein the fundamental dialectic underpinning therapy is that clients need to simultaneously change (i.e., behavioral interventions) *and* accept themselves and reality as it is (i.e., Zen Buddhist-informed interventions; Linehan, 1993) in order to build a life worth living.

The Biosocial Model

DBT is predicated on an overarching theory of BPD etiology and maintenance (Linehan, 1993; Crowell et al., 2009). The Biosocial Model (Linehan, 1993; Crowell et al., 2009) posits that the core deficit in BPD is one of emotion dysregulation. Accordingly, all diagnostic criteria contained in the DSM-5 (American Psychiatric Association, 2013) for BPD are theorized to be direct consequences of, or maladaptive attempts to cope with, emotion dysregulation. As implied by the model name, the origin of emotion dysregulation itself entails "Bio" and "Social" elements. Individuals with BPD are theorized to have a biological vulnerability to emotion dysregulation, which involves heightened emotional sensitivity (i.e., a reduced threshold for responding to emotional stimuli), emotional reactivity (i.e., a larger increase in emotion from baseline once provoked), and a slow return to baseline (i.e., prolonged emotional responses following termination of an emotional stimuli), coupled with difficulties modulating those processes (i.e., emotion regulation deficits; Linehan, 1993). Emotion dysregulation is theorized to develop from a transaction between this biological vulnerability and an early invalidating social environment (Linehan, 1993). Invalidating environments are defined as ones that punish emotional displays (e.g., a parent telling a child to "stop making such a fuss" or "don't be sad"), intermittently reinforce emotional escalations (e.g., meeting a child's needs only in response to a tantrum and not in response to lower intensity communications), and/or oversimplify the ease of problem solving (e.g., "Nobody

else has trouble with this. It's not that hard – just do it!"). Such invalidation is proposed to be provoked by, and further provokes, the intense, reactive, and prolonged emotional responses that individuals with BPD experience, transacting over time to eventually culminate in emotion dysregulation (Crowell et al., 2009; Linehan, 1993). Although there are no published longitudinal studies that study this transactional relationship exactly as specified in this model, longitudinal research suggests that interactions between temperamental characteristics (e.g., fearful, shyness) in adolescence and potentially invalidating parenting (i.e., maternal overprotection) predict BPD risk over a 5 year time course (Arens et al., 2011). Consequently, DBT assumes that a central skill deficit for those with BPD involves regulating and tolerating painful emotional states (Linehan, 1993).

The DBT Treatment Structure

The development of the underlying treatment philosophy substantively advanced Linehan's efforts of producing an efficacious treatment for chronically suicidal and self-harming people with BPD. However, the high levels of chaos, multiple problems, and ongoing crises that this client population presented with required consideration of which problems to treat and when. The DBT treatment frame was developed in order to provide such structure and guidance, and holds that DBT has five treatment phases (pre-treatment, then Stages 1–4). Pre-treatment is typically 1–4 sessions long and involves collaboration between the therapist and client to identify therapy goals, gauge their motivation to work together, and obtain and strengthen the client's commitment to pursue DBT and develop a life worth living. The vast majority of applications and research has been conducted with Stage 1 DBT and thus we describe it below in more detail.

Stage 1 Stage 1 is focused on a goal of achieving behavioral stability. DBT clients often present to therapy with high levels of chaos, changing clinical presentations, low motivation, and the emergence of new and ongoing crises. DBT in Stage 1 therefore has the following functions: (1) enhance capabilities (i.e., teach the client skills to more effectively regulate emotions, tolerate distress, navigate interpersonal interactions, and increase mindful awareness, among other skills necessary to learn new effective behaviors) (2) increase motivation in clients (to practice such skills, engage in effective patterns of behavior, refrain from ineffective patterns of behavior, and structure their lives more effectively) while also helping to remove barriers to effective behavior; (3) generalize skills to the client's natural environments (i.e., not just the therapy office); and (4) structure the client's environment to promote new, effective learning. An example of such an environmental structure could be helping the client find stable housing and employment, or teaching how to effectively end destructive relationships and make more supportive ones. DBT clinicians, in turn, often experienced high levels of burn out and emotion, and low levels of motivation, all of which interfered with their capacity to effectively administer DBT

(Linehan, 1993). Clinicians thus (5) require a way to maintain their own capabilities, efficacy, and motivation. Standard DBT consequently has four components which address one or more of these five functions. *Individual therapy* is designed to increase client motivation to and enhance capabilities in whichever capabilities are required to help clients achieve their goals (e.g., emotion regulation, distress tolerance, structuring their environment). Clients also attend weekly *DBT skills training sessions*, usually in group format, which are predominantly designed to enhance capabilities by providing didactic education on DBT skills in four key areas: emotion regulation, distress tolerance, interpersonal effectiveness, and mindfulness. For example, topics covered include what “essential ingredients” comprise mindfulness and how to practice it (mindfulness skills), skills for decreasing painful emotions (emotion regulation), skills for accepting and tolerating emotions (distress tolerance), and skills to have effective interpersonal interactions (interpersonal effectiveness). In order to ensure that skills generalize to clients’ natural environments, standard DBT involves *phone consultation from clinicians outside of sessions*, wherein individual therapists coach clients to use skills in their daily lives, manage emerging crises, and work with clients to repair the therapeutic relationship (if ruptured). Finally, DBT therapists operate on a team in which they meet regularly (i.e., *DBT consultation team*). DBT consultation team involves the application of DBT strategies to hold clinicians within the treatment frame and promote their capabilities, effectiveness, and motivation.

Clinical Targets The complex, multi-problem nature of the client population in DBT required a method of determining which clinical targets should be prioritized within the DBT treatment modes. In the individual therapy mode, clinical targets are hierarchically organized, and the first priority in treatment is the elimination of life-threatening behavior such as suicidal and self-harming behaviour (Linehan, 1993). Thus, in Stage 1, if clients exhibit life-threatening behavior, then targeting and intervening on these behaviors is the top priority of the treatment session. The second-highest priority in Stage 1 involves targeting and intervening upon behaviors of the client or therapist that interfere with the functioning of therapy (i.e., therapy-interfering behavior), including nonattendance, low adherence to the treatment tasks, and behaviors that promote burnout in therapists (e.g., yelling at therapists, calling too frequently). If neither life-threatening nor therapy-interfering behaviors are present, then the remaining targets of Stage 1 are behaviors that generally interfere with the client having a reasonable quality of life. These “quality of life-interfering behaviors” can include other psychological problems (e.g., depression, anxiety), vocational issues, or other social or economic stressors (e.g., repairing relationships, acquiring work, going back to school). This target hierarchy differs within DBT skills training, where the predominant targets are to teach new skills and to decrease group-destroying behavior (i.e., behavior that would destroy the functioning of the group, such as threatening other group members). Unlike in individual therapy, lower level therapy-interfering behaviors that emerge in group are not prioritized over skills training and may instead be addressed within individual therapy.

Stages 2–4 Clients transition from Stage 1 to Stage 2 following the achievement of behavioral control and stability (Linehan, 1993). However, DBT research has heavily focused on Stage 1 of treatment, and thus interventions for Stages 2–4 are less clearly articulated and documented. Theoretically, the primary target of Stage 2 is to treat what Linehan (1993) termed “quiet desperation.” Comorbid disorders of moderate severity, particularly posttraumatic stress disorder, are targeted in this stage. Other evidence-based treatments for these disorders may be incorporated during this stage, and recent adaptations of DBT that blend Stage 1 DBT with evidence-based PTSD treatments have been developed (e.g., Bohus & Pirebe, 2018; Harned et al., 2012). Ultimately, clinicians strive to help clients experience emotions in the absence of profound anguish within Stage 2. Stage 3 is focused on “ordinary happiness”, wherein typical problems in living are addressed. This stage may involve the application of other treatments to mild comorbid disorders, as well as problem solving general vocational or psychosocial stressors. Finally, Stage 4 is focused on building joy and freedom, wherein spiritual fulfillment, decreased emptiness, and a lack of fulfillment are targeted (Koons, 2021; Linehan, 1993).

Research Evidence

Several randomized controlled trials examining the efficacy of DBT have been conducted across several independent research groups in both adolescent and adult samples (e.g., Carter et al., 2010; Clarkin et al., 2007; Goldstein et al., 2015; Linehan et al., 1991, 1993, 1999, 2002, 2006, 2008, 2015; McCauley et al., 2018; McMMain et al., 2009; Mehlum et al., 2014, 2016; van den Bosch et al., 2002; Verheul et al., 2003), with a handful of effectiveness trials (e.g., Barnicot et al., 2014; Feigenbaum et al., 2012; Goodman et al., 2016; Koons et al., 2001; Pistorello et al., 2012). The most common outcome studied in DBT trials is the reduction of suicidal and self-harming behavior. Extensive research suggests that DBT results in significant reductions in suicidal and non-suicidal self-injury compared to treatment as usual (e.g., Pistorello et al., 2012; Verheul et al., 2003), and active control conditions such as community treatment by experts (Linehan et al., 2006), individual and group supportive therapy (McCauley et al., 2018), and enhanced usual care (Mehlum et al., 2016). Effectiveness studies also suggest that DBT outperforms treatment as usual in reducing suicidal behavior or non-suicidal self-injury (e.g., Priebe et al., 2012). However, it is notable that some trials suggest that DBT results in comparable reductions in suicidal behavior or non-suicidal self-injury compared to control conditions including general psychiatric management (McMMain et al., 2009) and treatment as usual (Carter et al., 2010).

Evidence for DBT also has been culminated in multiple meta-analyses, the most recent of which examined the efficacy of DBT in reducing suicidal behavior and non-suicidal self-injury compared to control conditions across 18 controlled trials. This meta-analysis revealed a small effect sized difference for suicidal behavior and non-suicidal self-injury ($d = -.324$) and use of crisis services ($d = -.379$) between

DBT and control conditions in favor of DBT. However, this meta-analysis also indicated that DBT did not outperform control conditions in reducing suicidal ideation, suggesting that DBT could be refined to improve its capacity to target this variable (DeCou et al., 2019).

Researchers have also examined the efficacy of DBT skills training alone for a range of populations (e.g., Lynch et al., 2003; McMain et al., 2017; Neacsiu et al., 2014; Soler et al., 2009; Telch et al., 2001). McMain et al. (2017) compared 20 weeks of DBT skills training for those with BPD to a waitlist control and showed that the individuals who received skills training exhibited greater reductions in suicidal and self-harming behaviors than those on the waitlist. Similarly, Soler et al. (2009) compared 12 weeks of DBT skills training or standard group therapy for people with BPD. Suicidal and non-suicidal self-injury outcomes were not measured in this trial, but DBT skills training outperformed the control condition in terms of drop out, anger depression, anxiety, and emotional instability. Studies have also examined the efficacy of DBT skills training for non-BPD populations. One study compared DBT skills groups alone for individuals who had an anxiety or depression disorder with high emotion dysregulation (but not BPD) to an activities-based support group. DBT skills training outperformed the activities-based support group in reducing emotion dysregulation and anxiety, but not depression (Neacsiu et al., 2014). These studies suggest that DBT skills training alone may be an efficacious intervention for BPD and related problems.

In a landmark dismantling trial, Linehan et al. (2015) randomized suicidal or self-injuring people with BPD to either standard DBT, individual DBT without DBT skills training but with an activities group (DBT-I), or DBT skills training without individual therapy but with individual case management (DBT-S). Conditions were comparable in the extent to which they decreased suicide attempts, suicidal ideation, and the use of crisis services. However, individuals who engaged in non-suicidal self-injury exhibited lower frequencies of non-suicidal self-injury in standard DBT and DBT-S than in DBT-I during the treatment year, but not at the x month follow-up period. These findings suggest that DBT skills training may be a particularly “active ingredient” of DBT interventions, and that pairing it with other types of individual therapy/case management may be efficacious. However, future research in this area is needed in order to replicate and extend these findings.

The Role of Assessment in DBT

As a primarily behavioral treatment, assessment plays a critical and constant role in the delivery of DBT (Linehan, 1993). The behavioral stance encourages the therapist to regularly engage in rigorous assessment, rather than rely on inferences, and to avoid pejorative descriptions of clients and their behavior such as “manipulative” or “attention-seeking”. The guiding principle of “assess, don’t assume” begins in the first pre-treatment session and remains just as relevant as treatment progresses. It is important to note that self-report and physiological assessments of BPD are

frequently discrepant (e.g., Rosenthal et al., 2008), and evidence suggests that there is low agreement between individuals with BPD and informant reporters on BPD symptoms (Balsis et al., 2018). Inclusion of informant reports may therefore generally enhance the comprehensiveness of assessment.

In the first session (or even before the first session in an intake process or over the phone), goodness of fit between the individual client and the treatment needs to be determined through careful assessment. Since DBT was originally developed as a treatment for BPD (and has the most supportive evidence for this disorder), determining whether the person meets DSM criteria (APA, 2013) for BPD may be indicated. However, as has been noted elsewhere (e.g., Biskin & Paris, 2012; Kopala-Sibley et al., 2012), BPD is a highly heterogenous disorder. Case in point: there are 256 different ways to meet criteria for BPD (Biskin & Paris, 2012). Moreover, since a person need meet only five of the nine DSM criteria, it is possible for two people with a BPD diagnosis to only overlap on one diagnostic criterion. Ultimately, then, a diagnosis of BPD may provide less information about goodness of fit than a more careful assessment of areas of dysregulation within the client that DBT can address. A reconceptualization of the BPD criteria initially proposed by Linehan (1993) highlights that the DSM criteria for BPD can be summarized into five categories, and this reorganization may be a more useful tool for assessment with individuals presenting to treatment:

1. **Emotion Dysregulation:** individuals with BPD typically experience intense emotions, have difficulty regulating emotions when they occur, and experience emotions as lasting a long time (i.e., have slow return to baseline). **Questions to assess emotion dysregulation domain:** What changes in your body, thoughts, and behavior do you notice when you're experiencing strong emotions? Do your emotions feel more intense than other people you know? What emotions cause the most problems for you? How long do your emotions seem to last? How frequently do these emotional changes occur?
2. **Interpersonal Dysregulation:** individuals with BPD tend to have intense and chaotic relationships with others (Bouchard et al., 2009; Hill et al., 2011). These relationships can be romantic, friendships, and/or familial. While not every single relationship is necessarily problematic, individuals frequently experience their relationships as unstable and fragile, and thus never feel completely comfortable with the status of their relationships. **Questions to assess interpersonal dysregulation domain:** What are your close relationships like? How often do you experience conflict in your close relationships? What happens when you have conflict with loved ones? What kinds of things do you do when you feel that relationships are under threat or are vulnerable?
3. **Behavioral Dysregulation:** individuals with BPD typically engage in a range of impulsive behaviors (which frequently function to reduce intense emotions) that cause problems for them, including self-injury and suicidal behavior, but also substance use, sexual behavior, binge eating, etc. **Questions to assess behavioral dysregulation domain:** Do you engage in any behaviors that cause

- problems for you when you experience intense emotions? Do you ever intentionally hurt yourself? Have you ever attempted to kill yourself? How many times?
4. Cognitive Dysregulation: many times, individuals with BPD have experiences with thought dysregulation, including transient paranoia, dissociation, and depersonalization. **Questions to assess cognitive dysregulation domain:** Do you ever feel especially “spacey” or “checked out” when you’re under a great deal of stress? Do you ever think people are out to get you? Does this specifically happen in response to stress or intense emotions, or does it occur more generally? Are you sober when these things are occurring?
 5. Self Dysregulation: finally, individuals with BPD frequently report not knowing who they are as people, confusion about their identity, and chronic feelings of emptiness. **Questions to assess self dysregulation domain:** Have your thoughts about who you are as a person changed a lot over time? Do you have a sense of who you are as a person? Do you find that you act very different in one situation versus another? Have others noticed this? Do you ever feel a sense of emptiness? How often?

Identifying which domains of dysregulation are problematic in BPD may yield early foundations of a case formulation that indicates which areas may require greatest clinical attention. For example, individuals who exhibit problems in emotion and behavioral dysregulation domains may be especially likely to benefit from learning skills to tolerate distress, survive crises without making them worse, and regulate emotions. On the other hand, those who suffer extensively from interpersonal dysregulation may require greater emphasis on skills designed to promote communication, healthy relationships, and decrease isolation. However, it is important to note that such domains are not mutually exclusive. For example, careful assessment and case formulation may indicate that interpersonal dysregulation occurs as a result of emotion dysregulation (e.g., intense emotions accompanied by sense of loss of control prompts an individual to engage in behaviors that threaten the integrity of their relationships such as yelling, attacking, or withdrawing). In such a circumstance, enhancing emotion regulation skills will be essential to improving interpersonal dysregulation. Thus, as we discuss below, further assessment beyond the domains of dysregulation to what maintains them is imperative.

In addition to the five areas of dysregulation, it is critical at the start of, and throughout, treatment to conduct a careful assessment of life-threatening behaviors, including nonsuicidal self-injury. Individuals who meet criteria for BPD are at heightened risk for suicide, with studies reporting 8–10% dying by suicide (American Psychiatric Association, 2013; Leichsenring et al., 2011). In addition, many clients who are referred for DBT have a history of engaging in self-injury even if they don’t meet criteria for BPD. A history of non-suicidal self-injury is a strong risk factor for eventual suicide (Franklin et al., 2017). Thus, understanding the client’s risk factors for suicide, as well as protective factors, is necessary in order to fulfill the first goal of DBT treatment – keeping the client alive (in order to help them develop a life worth living).

The Linehan Risk Assessment and Management Protocol (L-RAMP; Linehan et al., 2012) is a commonly used tool in DBT to assess suicide risk. The L-RAMP includes assessment of acute risk and protective factors for suicide as well as strategies for the assessor or clinician to use based on risk level. When confronted with a suicide risk situation, it is easy for a clinician to be overwhelmed or frightened and therefore forget to assess critical information. The measure then can serve as an important tool that reminds the clinician to assess important domains (e.g., access to lethal means, intoxication, insomnia) and also guide decision making. In DBT, therapists are instructed to have access to the L-RAMP at all times whether it be paper copies in one's office or online versions so that they can use it throughout treatment as needed. However, beyond knowing the risk factors, it is important to develop a case conceptualization that indicates *why* these behaviors are occurring in the first place. In this way, case conceptualization, and the treatment plan that follows from it, form a critical backbone of DBT.

Case Conceptualization in DBT

The information provided by chain analyses (described below), along with other forms of assessment, lead to a precise case conceptualization in DBT. This assessment-driven approach to case formulation begins in the first pre-treatment session and continues throughout therapy wherein the case formulation constantly evolves in response to new information. Given the complex clinical presentations of individuals in DBT, it is imperative that therapists have a roadmap for assessment. Rizvi and Sayrs (2020) have described this case formulation approach at length and provided such a roadmap; it is summarized here.

The first step is to determine the stage of treatment the client is to be provided. As previously discussed, the marker of Stage 1 DBT is behavioral dyscontrol and most clients who are referred to DBT initially engage in out-of-control behaviors, such as suicide attempts, non-suicidal self-injury, substance use, risky sexual behaviors, etc. However, if it is not clear to the therapist, an assessment of the problems that brought the client to therapy as well as the behaviors that they wish to change, or that cause problems for them, is necessary. The second step is to assess the client's goals: both for treatment (i.e., what she hopes to achieve by the end of treatment) and for life (i.e., "life worth living goals"). Understanding these goals is important for many reasons, not least of which is to develop a better awareness of the client's experiences and hopes. However, knowing the client's goals becomes an important tool for the therapist as they begin to link treatment activities to these goals. For example, a DBT therapist might (irreverently) say "the way you're going to find someone with whom you want to settle down and have children is to first stop trying to kill yourself. You can't have that relationship if you're dead."

The third step in case formulation, which is frequently an iterative process that develops over many sessions, is to create a preliminary target hierarchy. As described above, in Stage 1 DBT, the target hierarchy is to: (1) decrease (eliminate)

life-threatening behaviors, (2) decrease therapy-interfering behaviors, and (3) decrease quality-of-life interfering behaviors. The DBT therapist must assess the presence of behaviors in each of these domains and, in the first few sessions of DBT, begin to organize them hierarchically. For example, if a client engages in both non-suicidal self-injury and substance use, the DBT therapist would know (and describe back to the client) that non-suicidal self-injury would be conceptualized as the most important target of treatment. This hierarchy does not mean that substance use would be completely ignored- it is often the case that the therapist can make strides on multiple behaviors at the same time, especially if they are functionally linked. However, the therapist is clear that non-suicidal self-injury takes priority as a behavior to be changed and organizes sessions and treatment tasks accordingly.

Organizing such a treatment hierarchy is somewhat clear when a client exhibits behavior that fall discretely into the categories of life-threatening behaviors and therapy-interfering behaviors. It becomes less clear, however, when the client's engages in multiple quality-of-life interfering target behaviors. Which target is the therapist to prioritize, for example, when the client exhibits binge eating, problematic alcohol use, and shop lifting, but does not exhibit life-threatening behaviors or therapy-interfering behaviors? To this end, Persons (2008) has delineated several key factors to consider when determining target priorities including whether some problems interfere with solving others (e.g., substance use, housing instability), and which problems clients are most motivated to change. Such considerations may be useful when therapists find themselves in the fortunate circumstances of having no life-threatening behaviors or therapy-interfering behaviors to target.

Once developed, the target hierarchy may change as new information is gathered or new behavior occurs. For example, a therapist and client may be working systematically on reducing non-suicidal self-injury when the client suddenly reports a significant increase in urges to kill herself. This suicide risk then takes precedence and needs to be addressed. Alternatively, the therapist may have developed a target hierarchy based on careful assessment in the first couple of sessions but, as therapy progresses, a number of therapy interfering behaviors may appear (e.g., chronic lateness to session, not doing assigned tasks) that weren't known at the beginning of treatment. The therapist then reformulates her target hierarchy to incorporate this new information.

Once the target hierarchy is established, the next step in the case formulation plan is to assess and treat the highest-order target. Assessment is done via one or many chain analyses of instances of the target behavior in order to identify controlling variables (described more below) and identify points of intervention (i.e., solutions).

Chain Analysis The primary method of assessment in DBT is the chain analysis. Chain analysis is a form of behavioral analysis that zeroes in on one specific instance of behavior and assesses all the variables (internal and external) immediately leading up to the behavior as well as the consequences (Koerner, 2012; Linehan, 1993; Rizvi & Ritschel, 2014; Rizvi, 2019). Figure 1 shows an example of a chain analysis of a suicide attempt. As a behavior therapy, DBT focuses on understanding a

behavior with precision in order to be able to change it effectively. Accordingly, a chain analysis – which focuses on what often seems like an excruciating level of detail to the client – allows for the therapist to understand the controlling variables, develop an accurate case formulation, and then be more likely to propose and implement solutions that will actually work.

Chain analysis is described in detail elsewhere (Rizvi, 2019). However, in short: chain analysis involves a moment-by-moment examination of the variables that led to and followed a problem behavior, and groups them into five categories. The *target behavior* is, as it sounds, the behavior being analyzed. Once the target behavior has been established, therapists work to identify its *prompting event*, which is the event that precipitates the target behavior. In other words, had the prompting event not occurred, the target behavior would likely not have occurred. Prompting events provide essential information regarding what variables control target behaviors and need to be addressed in therapy. In Fig. 1, the prompting event is a critical comment from the client’s mother. *Links* in the chain include the events, emotions, thoughts, and actions that link the prompting event to the target behavior. Establishing links is critical because it provides the therapist with information regarding what clients could do at various points to “get off the chain” that leads to a target behavior, and onto a new chain of behaviors that is more aligned with their goals. *Vulnerability factors* are variables that are more distal from the target behavior, and “give the prompting event power” by increasing client’s vulnerability to be adversely impacted by it. Lack of sleep, substance use, hunger, a conflictual history with another individual, and already having a “bad day” are common vulnerability factors reported by clients in DBT. Finally, *consequences* provide key information regarding whether target behaviors may be reinforced or maintained through operant conditioning principles in some way (Rizvi, 2019). In Fig. 1, a client’s suicide attempt may be negatively reinforced by the decreased shame and anger, as well as positively reinforced by the increase in care from her mother, that followed after it.

Based on the backbone of case formulation provided through detailed chain analyses, the solution analysis that follows involves clients and therapists discussing potential solutions to various components of the chain that, if implemented in the future, could prevent a similar chain of behaviors from occurring. For example, in Fig. 1, potential solutions could occur early in the chain by reducing vulnerability factors (e.g., sleeping earlier, having regular meals), and using DBT skills designed to modify unhelpful cognitions (e.g., working to alter unhelpful cognitions such as “she thinks I’m a waste of space”). If the client did not implement these solutions, or they were ineffective, they may intervene at later points including using a range of emotion regulation skills to down-regulate shame or avoid acting on anger-related urges (e.g., preventing throwing a mug into the sink). Another solution may involve the client using interpersonal effectiveness skills to communicate with her mother in a way that is more effective than throwing a mug into the sink which elicited subsequent escalations. Finally, additional solutions may be relevant to points in the chain that are quite proximal to the target behavior, such as calling one’s therapist or using crisis survival skills to resist suicide urges or decrease emotional intensity

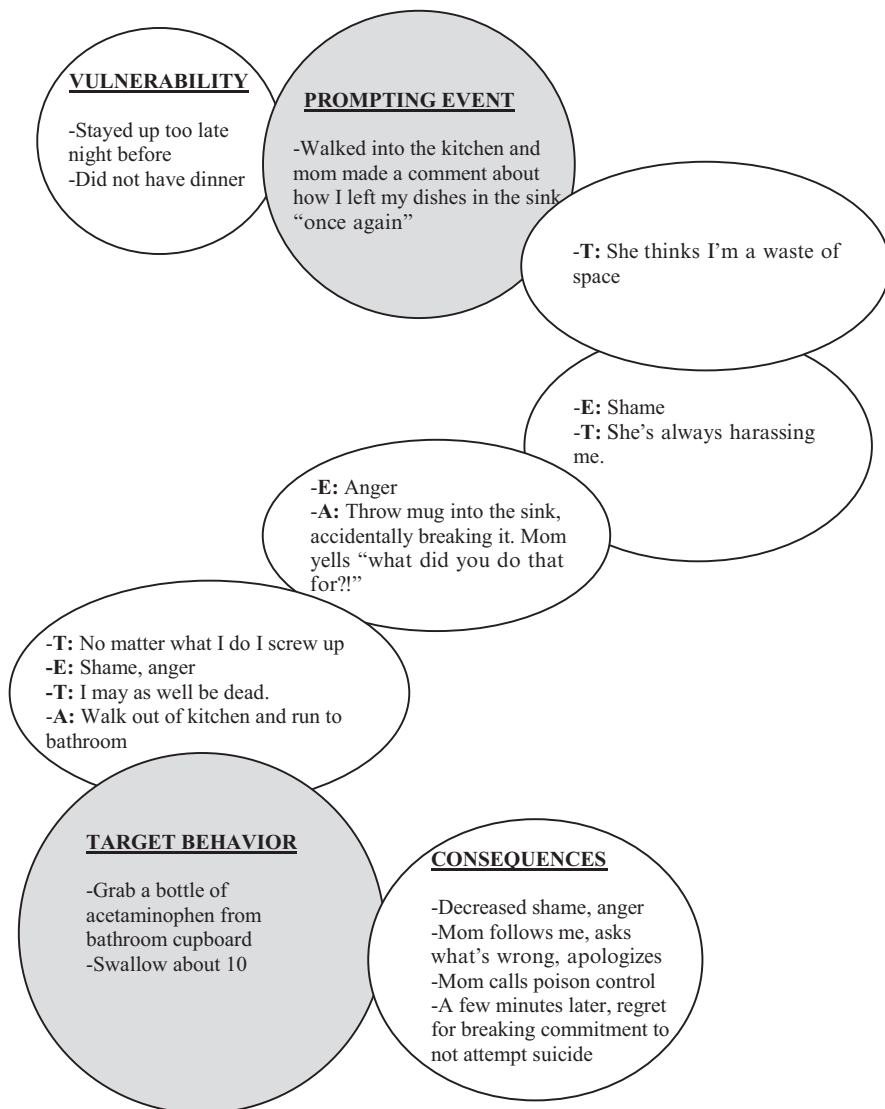


Fig. 1 Example chain analysis of a suicide attempt

(e.g., splashing cold water on one's face, intense exercise, paced breathing). This solution analysis informs the crux of the DBT therapist's broader treatment plan. For example, based on their chain analysis, the therapist of the client whose chain is displayed in Fig. 1 now knows that emotion regulation skills training, crisis survival skills training, and targeting negative cognitions that follow from other's criticism may be essential to treating suicidal behavior.

Once solutions are identified, assessment continues by monitoring outcomes (did the solution work?) and making adjustments as needed. If a solution based on a chain analysis does not have the intended effect, then the therapist assesses what went wrong. The solution may have been based on an incomplete assessment and therefore the therapist needs to look for what was missing from his initial assessment. This careful re-examination can represent the “dialectical assessment” strategy in DBT which is the practice of looking for “what is being left out” of our conceptualization that contributes to lack of understanding of the problem. Following resolution of the target behavior, chain analyses and solution implementation steps are repeated for the next target behavior. In this way, DBT reflects an ongoing cycle of assessment, formulation, solution generation, solution implementation, and solution evaluation.

The same focus on careful assessment also extends to other target behaviors beyond life-threatening behaviors. Chain analyses is used throughout treatment to assess target behaviors until a thorough understanding is achieved (Rizvi, 2019) and solutions based on assessment are effective at changing the behavior. For example, a chain analysis might be used to address lateness to session, an episode of risky sexual behavior, or substance use. Chain analysis is not a tool used to assess life-threatening behaviors per se but rather a method of generating a particularly precise behavioral case formulation to inform an equally precise treatment plan. Thus, chain analysis strategies are virtually unchanged regardless of the topography of the behavior being analyzed and whether it is life-threatening in nature or not.

Similarities and Differences Between DBT and Other Therapies

Similarities DBT is drawn from the long and rich tradition of behavior therapy. As such, it owes many of its core features to the earlier forms of behavioral therapy from which it came. All “change-focused” strategies in DBT are derived from what are now termed “first” and “second wave” behavior therapy interventions. Problem assessment derived from older behavior therapy traditions (e.g., Kanfer & Saslow, 1965), such as macro-level behavioral assessments (e.g., examining antecedents, behaviors, and consequences), are frequently used in DBT to guide case formulation and subsequent intervention efforts. DBT expands on these behavioral assessment approaches with chain analyses to provide more granular levels of detail regarding the controlling variables of client behavior (see description of chain analysis, above).

One of the most pertinent pieces of information gleaned from behavioral or chain analyses is identification of the controlling variables influencing problematic behaviors. Four types of controlling variables are theorized to be potentially involved in clients’ problem behaviors: skills deficits, problematic conditioned emotional reactions, problematic cognitions, or problematic contingencies (see Koerner, 2012).

All of these controlling variables can be targeted using standard technologies provided by first and second waves of behavior therapies. Skills deficits are frequently addressed by training clients in the skills that they are deficient in through an iterative process of skills acquisition, strengthening, and generalization. Problematic conditioned emotional responses may be targeted through the use of exposure to extinguish relationships between unconditioned and conditioned stimuli. For example, clients who have developed a problematic response of shame whenever they hear a particular song because it reminds them of a highly critical parent who played it may listen to the song repeatedly in therapy in order to extinguish the relationship between the song, the abusive parent, and the associated shame response. Such an approach is highly consistent with those evident in contemporary exposure-based therapies (e.g., Abramowitz et al., 2019). Furthermore, problematic cognitions may be targeted through cognitive intervention approaches derived from second wave behavior therapies such as Beck's Cognitive Behavioral Therapy and Ellis' Rational Emotive Behavior Therapy (Beck et al., 1979; Ellis, 1962, 1973).

DBT also draws heavily on contingency management approaches to target problematic contingencies, including the use of reinforcement, extinction, and, where appropriate, punishment. Adaptive, desirable behaviors are reinforced, while maladaptive, problematic behaviors are extinguished or punished. Clinicians are also vigilant for signs that they are reinforcing problematic behaviors and adjust their own behavior accordingly. For example, a behavioral analysis might reveal that a client's yelling behavior is prompted by the clinician raising an uncomfortable subject, such as an ongoing pattern of disordered eating. The clinician may inadvertently reinforce the yelling behavior by withdrawing the aversive stimulus (i.e., the discussion of disordered eating) in response to it. Given such a formulation, a DBT clinician might therefore work to hold the aversive cue in response to the yelling behavior (i.e., continue to discuss disordered eating), perhaps only removing it when the client engages in alternative and adaptive behaviors (i.e., discussing the issue calmly). Such an approach is directly aligned with contingency management interventions.

Akin to some behavioral approaches (i.e., Functional Analytic Therapy, FAP; Kohlenberg & Tsai, 1991), DBT emphasizes that behavioral principles such as contingency management and observational learning shape and inform the therapeutic relationship. Thus, just as the therapist's behaviors can reinforce or punish the client's, the client's behaviors can reinforce or punish that of the therapist's. DBT clinicians are thus attentive to psychotherapy process through a behavioral lens, and are advised to elicit and reinforce target adaptive behaviors and avoid reinforcing target maladaptive behaviors (Kohlenberg & Tsai, 1991). For example, when the same client exhibits a willingness to discuss disordered eating without yelling, a clinician may respond with natural reinforcers such as leaning forward, increasing warmth, and sharing expressions of caring. This emphasis on behavioral principles within the therapy process itself aligns DBT with Functional Analytic Approaches (Kohlenberg & Tsai, 1991), and distinguishes it from other behavioral approaches (e.g., exposure; Abramowitz et al., 2019), where it is relatively de-emphasized.

Differences Although DBT arguably has more points of overlap than divergence with other behavior therapies, there are some key differences.

Dialectics: Integration of Acceptance and Change Most notably, the integration of Zen Buddhism (Masuda & O’Donohue, 2017) into behavioral therapy is a substantive point of departure between DBT and other forms of behavior therapy that have been called “first” and “second” wave interventions (Hayes et al., 2004). Indeed, the integration of acceptance-based approaches was fomented by Linehan’s failed initial attempts at the application of standard behavior therapy to individuals with BPD.

It is notable that other modalities – often grouped under the heading of “third wave approaches” – have similarly integrated mindfulness and acceptance into behavioral therapy interventions (e.g., Acceptance and Commitment Therapy; Hayes, 2004; Hayes et al., 2004). DBT is therefore not entirely unique in the synthesis of acceptance and change. Where DBT is unique, however, is its use of dialectical philosophy to unite and underpin the two. The dialectical philosophy underpins virtually every element of DBT, because DBT is premised upon a dialectical worldview which assumes that reality is always changing, in transaction, and responding to itself. According to the dialectical worldview, all things are interrelated and in polarity with one another, and the interplay of these polarities and consequent syntheses that arise from them allow truth to evolve in a continually changing fashion. For example, a client may acknowledge both grief and relief at the death of an abusive parent. From a dialectical perspective, the client may need to recognize the inherent truth and validity at both ends of such a dialectic to allow their understanding to evolve and give way to a new series of dialectical polarizations.

The dialectical philosophy permeates DBT in a number of tangible ways. First, any specific strategy applied by a DBT clinician in a particular moment in time is informed by a dialectical approach that seeks to balance acceptance with change. Clinicians thus regularly interrogate whether they have become overly committed to change (e.g., pushing a client to stop self-harming, resulting in increasing refusal from the client (polarization)) or acceptance (e.g., giving up pursuing the client’s self-harm behavior). Second, clinicians, clients, and DBT teams are prompted to search for “what is missing” from their understanding in order to ensure that their perception of reality has not become rigidly attached to one end of a polarity or another. Third, clinicians also help their clients to alter their thinking from non-dialectical, mutually exclusive absolutes (e.g., “You say you care for me but you’re telling me you won’t talk to me on the phone tonight”) to ones that are dialectical in nature (e.g., “You care for me *and* you won’t talk to me on the phone tonight”). Indeed, even DBT consultation teams attend to potential such polarizations within themselves and their teams and encourage each other to search for what is missing in order to illuminate more dialectical truths.

Principles Versus Protocols Another key difference between DBT and other behavioral therapies reflects the use of treatment protocols. Several cognitive and

cognitive behavioral therapies involve the administration of fixed protocols that progress in a pre-specified order (e.g., Barlow et al., 2011; Hope et al., 2019; Resick et al., 2016). Administration of such fixed protocols are challenging in the context of BPD because high levels of chaos, multiple problems, and rapidly changing clinical presentations associated demand rapidly changing interventions and can quickly derail a protocol. Rather than a protocol-based therapy, DBT contains protocols (e.g., for managing suicidal, crisis, or therapy-interfering behaviors) which are flexibly utilized based on a set of *principles* that inform what protocols and DBT strategies to draw on and when. The target hierarchy in Stage 1 of DBT is an example of one such principle. Similarly, the use of chain analysis is used to build a case formulation, which guides the selection and implementation of DBT strategies throughout the treatment, is another such example. Accordingly, the strategies observed within an “adherent” DBT session may vary widely across clients and sessions.

DBT Assumptions Finally, working with suicidal or self-harming people with BPD can be frightening, frustrating, and exhausting for clinicians. When burned out, clinicians run the risk of becoming rigid, judgmental, or interpreting client behaviors in unhelpful or therapy-interfering ways (e.g., assuming clients are “seeking attention” or “do not want” to get better). In order to avoid this and maintain an effective, compassionate, and non-judgmental stance, DBT clinicians agree to hold to specific “assumptions” about their clients and the therapy itself. For example, DBT clients are assumed to be doing the best they can and that they want to change. However, dialectically, an additional assumption is that they “need to do better, try harder, and be more motivated to change” (pp. 106, Linehan, 1993). These assumptions are part of the foundation of DBT and are in place to guide case formulations and clinical decision-making throughout treatment. In this way, the DBT assumptions may serve as something of a “lighthouse,” guiding clinicians away from judgments and conjecture and back to clarity and openness to new information. These assumptions are unique to DBT and capture its individual “ethos.”

Training and Certification in DBT

As has been made clear in this chapter, DBT is a complex treatment for a complex population. Learning to conduct DBT according to all the principles and using all the strategies can take significant training, especially if one comes to DBT from a non-behavioral background. Currently the “gold standard” approach to learning DBT is to participate in an “intensive” training sequence with a team of fellow clinicians (that transitions to form a consultation team). An intensive training can take different forms; a common version involves two 5-day trainings spaced about 6 months apart. During the months between the two trainings, therapists are expected to do a number of homework assignments and begin implementing DBT with individual and skills group clients. Increasingly, DBT training programs have been established in graduate training clinics in psychology and social work (see Lungu

et al., 2012; Rizvi et al., 2017) thus creating more opportunities to learn the treatment earlier in one's developmental training.

In 2014, Linehan established the DBT- Linehan Board of Certification (DBT-LBC; dbt-lbc.org). The board certification process in DBT was developed in order to identify clinicians and programs that reliably offered DBT in a manner that conforms to the evidence-based research for the treatment. The prerequisites for certification include, among others, a minimum of 40 h of didactic training, 12-months of participation on a DBT consultation team, at least three clients treated through Stage 1 of DBT, experience teaching all the skills, and a regular ongoing mindfulness practice. Although this process may appear arduous to the aspiring DBT clinician, we proffer that the impact this treatment can make in client's lives is well worth the effort.

Conclusion

DBT is built on a rich foundation of behavior therapy traditions and, through its innovative blend of dialectical philosophy, Zen Buddhism, and radical behaviorism, extends and enriches these foundations. Ultimately, DBT is a therapy that rests heavily on precise case formulation and the treatment plans that follow from it. Such case formulations are developed through the rigorous assessment procedures that were developed by radical behaviorists throughout the history of behavioral therapy. Similarly, many of the interventions that follow from these formulations have been developed and refined by many behavioral predecessors of DBT. For DBT clinicians, it is behavioral precision, devotion to assessing rather than inferring, and a commitment to precisely targeting controlling variables, paired with acceptance principles espoused by Zen Buddhism, that helps clients build lives worth living. Although DBT may differ from other behavioral therapies in its integration of acceptance-based philosophies, principles over protocols, and a range of assumptions that are central to the treatment, the underpinning emphasis on precision in formulating and targeting behaviors is a shared feature that lives in the "DNA" of DBT, along with its behavioral therapy family members.

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Radically Open Dialectical Behavior Therapy: Theory, Assessment and Case Conceptualization



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Radically Open Dialectical Behavior Therapy (RO DBT; Lynch 2018a, b) is a transdiagnostic psychosocial treatment that emerged from the third-wave behavior therapy, Dialectical Behavior Therapy (DBT; Linehan, 1993). ‘Standard’ DBT focuses on treating emotion dysregulation, impulsivity and interpersonal dysfunction that characterizes psychiatric disorders of ‘undercontrol,’ while RO DBT is a transdiagnostic third-wave behavior therapy that directly targets the opposite end of the spectrum: maladaptive overcontrol (Lynch, 2018a).

Overcontrol Defined

Self-control deficits are associated with various forms of emotional and behavioral difficulties, and thus, a straightforward linear relationship between self-control and psychological health is often presumed (e.g., Moffitt et al., 2011; Wiese et al., 2018). Although too little self-control is the focus of many psychological treatments (including above mentioned DBT, see below for comparison with RO DBT), there purportedly is a ceiling of adaptive self-control, such that once reached, an excess of self-control is associated with dysfunction (e.g., Carter et al., 2016; Grant & Schwartz, 2011). Thus, the relationship between self-control and well-being might be better characterized as non-linear (i.e., an inverted-U shape), with too little or too much self-control being problematic. When too much self-control becomes problematic, this is overcontrol. Overcontrol is a constellation of characteristics,

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including rigid behavioral repertoires, perfectionism, low emotional expression, high detail focused processing, and poor social functioning (Lynch, 2018a).

Theory on overcontrol is rooted in temperament and personality (Block & Block, 1980; Eisenberg, Spinrad & Eggum, 2010) and these tendencies have repeatedly demonstrated to cluster together into an overcontrolled phenotype (Robins et al., 1996; Specht et al., 2014). Overcontrol tends to show stability across the lifespan from early childhood through adulthood (Asendorpf & van Aken, 1999). Multiple characteristics of overcontrol, including high self-control, perfectionism, high moral certitude, and low emotional displays are heuristically viewed as adaptive in Western societies, and thus these features are often overlooked as problematic in therapy and neglected in psychological treatments. However, overcontrol is associated with a host of maladaptive outcomes, including social isolation and social functioning deficits (Eisenberg et al., 2010; Lynch, 2018a) and poor treatment-response in anxiety (Massion et al., 2002). It is also evident in difficult-to-treat mental illness, such as anorexia nervosa (Isaksson et al., 2021a), obsessive compulsive disorder (OCD) and obsessive compulsive personality disorder (OCPD; Pinto et al., 2015), and treatment-resistant depression (Lynch et al., 2003). This body of evidence pointed to the need for a psychotherapeutic intervention that directly targets this transdiagnostic mechanism. As such, RO DBT was the result.

Development of RO DBT: Similarities and Differences from ‘Standard’ DBT

RO DBT was originally developed by Thomas Lynch for treatment-refractory depression in the mid 1990s. Initially, Dr. Lynch began the work of developing RO DBT by applying standard DBT (Linehan, 1993) to treatment resistant and chronic forms of depression in middle-aged and older adults. He soon realized that although standard DBT had clear protocols for improving self-control, it offered less clarity about what might be needed for individuals characterized by excessive self-control, high tolerance of distress and interpersonal aloofness that often characterized the treatment-resistant clients he was treating. Indeed, the most common personality disorders among individuals with depression include cluster A (paranoid personality disorders) and cluster C (obsessive compulsive and avoidant personality disorders, e.g., see Hsu et al., 2021), which happen to also respond poorly to treatment (Candrian et al., 2008; Fournier et al., 2009).

The above-mentioned personality disorders are commonly characterized by overcontrolled coping. In other words, Dr. Lynch quickly recognized that his adaptations were targeting individuals who were essentially the dialectical opposite of the population that standard DBT had originally been designed to treat (i.e., borderline personality disorder). Dr. Lynch then spent the next twenty plus years conceptualizing the overcontrolled presentation and adapting DBT principles to psychiatric disorders and personality disorders characterized by overcontrol. RO DBT is now

conceptualized as a transdiagnostic treatment that shares many structural similarities with standard DBT, while the content of the treatment and treatment targets make it drastically different.

Similarities to DBT Given RO DBT emerged from standard DBT, the two share many similarities, including both being based in behaviorism and dialectics (although the dialectic of acceptance and change is not central to RO DBT, the two dialectics of nonmoving centeredness and acquiescent letting go as well as playful irreverence and compassionate gravity are principal) and both treatments are built upon general guiding principles rather than structured treatment protocols. Standard DBT and RO DBT also highlight the importance of mindfulness and the therapeutic relationship in treatment (though, see more on differences and distinct aspects of RO DBT in these areas below). The overall treatment structure also is parallel between standard DBT and RO DBT: they both consist of weekly outpatient individual therapy and skills class/group, phone coaching, and team consultation (of note, phone coaching and team consultation are not required in RO DBT, but highly encouraged) over the course of 30 weeks.

Standard DBT and RO DBT also share similar treatment structures within the individual therapy session: both use a treatment target hierarchy to prioritize what to focus on in session, both employ weekly diary cards to track emotions and problematic behaviors and both incorporate the treatment target hierarchy and diary cards in session to conduct chain analyses (for detailed explanation of chain analyses, see previous chapter on standard DBT). Of note though, as detailed below, what is targeted in therapy, tracked on diary cards, and what behaviors are chained in session are all quite different in RO DBT.

Differences from DBT As hinted at in the above-mentioned similarities, although the framework and structure of RO DBT is similar to standard DBT, the content of the treatment is widely different (which is expected given standard DBT treats disorders of undercontrol while RO DBT treats the opposite end of the spectrum: disorders of overcontrol). Differences range from the content of skills taught in skills class as well as the behaviors targeted in individual therapy. These vast differences stem from RO DBT's stance on the core problem being targeted in therapy. Specifically, DBT focuses on targeting emotion dysregulation, impulsivity, and tumultuous relationships by teaching emotion regulation, distress tolerance and interpersonal effectiveness, respectively. Conversely, RO DBT defines the core problem of overcontrol to be emotional loneliness, resulting primarily from low openness and social-signaling deficits. A social signal is any overt behavior done in front of another person (ranging from a yawn, an eye-roll, a tone of voice, to walking out of the room mid-conversation; Lynch, 2018a). According to the theory posited by Lynch (2018a), overcontrolled individuals perceive social, new and unfamiliar situations as potentially dangerous (rather than rewarding), and as a consequence, this impairs their capacity to signal prosocial intentions to others. As such, this inability to signal prosocially, or, stated otherwise, their maladaptive social signaling, is a core mechanistic target of treatment in RO DBT. Enhancing

social signaling results in increased trust from others, which thereby lends itself to enhanced social connectedness.

Therefore, the focus of RO DBT is to help clients rejoin ‘the tribe’ (a phrase used in RO DBT to emphasize humans tribal nature and to emphasize we are inherently social beings) and become socially connected with others. Unlike standard DBT, that teaches individuals how to regulate emotions or tolerate distress, the central mechanism of change in RO DBT is to improve context-appropriate and open expression of emotion via social signaling (see below for detail on social-signaling).

Yet another key difference between standard DBT and RO DBT emerges from a similarity: a focus on mindfulness. Standard DBT incorporates Zen Buddhism practices (see Masuda & O’Donohue, 2017), such as increasing awareness and acceptance of reality, while RO DBT integrates Malâmati Sufism. Malâmati Sufism practices emphasize self-observation and healthy self-criticism to learn one’s true motivations for power, recognition, or self-aggrandizement (Toussulis, 2012). Sufism also emphasizes how our perceptual and regulatory biases influence our perceptions of reality, and thus, rather than simply being awake and accepting to a present reality (e.g., in standard DBT, radical acceptance), individuals are encouraged to foster a sense of openness to question their perceptions of reality and to lean into the things one wants to actively avoid as a way to learn.

Cultivating openness and flexibility in overcontrolled individuals is a second theorized primary mechanism of change. Indeed, the term “Radical Openness,” which is the namesake of the treatment, represents the confluence of three overlapping elements or capacities: openness, flexibility and social-connectedness, which together, are the premise for emotional well-being in RO DBT. Radical openness represents a core skill in RO DBT that challenges our perceptions of reality, posits that we are unable to see things as they are, but instead we see things as *we* are, and this openness is emphasized in a novel and central component of RO DBT, namely self-enquiry (detailed below).

Biosocial Model of RO DBT

Although both DBT and RO DBT ground the development of problematic tendencies in a biosocial model, again, the content of the ‘bio,’ the ‘social,’ and the resulting coping styles are individual to each treatment. In the RO DBT framework, overcontrolled individuals have biological temperamental dispositions that include high threat sensitivity, high detail-focused processing, high inhibitory control and low sensitivity to rewards (Lynch, 2018a). Stated otherwise, overcontrolled individuals have a biologically-based lower threshold for perceiving a stimulus as threatening. They also notice the details and miss the big picture, they have high degrees of self-control, and they have a higher threshold for detecting reward (i.e., stimuli must be very exciting for them to notice or appreciate it). A pattern of

maladaptive overcontrolled coping may emerge when these predispositions transact with certain environments that value performance and achievement, emphasize that emotional displays signal weakness, and teach that one should “always be prepared,” or that “mistakes are intolerable.” When a threat-sensitive, detail-focused individual who can tolerate high amounts of distress (biological predisposition) interacts with an upbringing that reinforces perfection and ‘keeping it together,’ (social environment) maladaptive overcontrolled coping can follow. This resulting coping may include behavioral responses such as masking feelings, compulsive striving, or little to no risk taking (e.g., being highly scheduled and never trying anything new). These behavioral responses may result in rigid patterns of responding in the face of changing environmental conditions (i.e., low flexibility), being closed to learning from new experiences (i.e., low openness) and difficulty forming intimate psychological connections with others (i.e., low social connectedness); the opposite of psychological health from an RO DBT perspective (Lynch, 2018a).

Distinct Aspects of RO DBT Treatment

Although there is overlap of RO DBT with standard DBT in structure, guiding principles and a biosocial theory, there are distinguishing aspects of RO DBT that should be noted. The first is focusing on overt social signaling behaviors as a central treatment target rather than emphasizing internal experiences of emotion and thoughts. The second is self-enquiry, a core practice of RO DBT that increases openness to new learning via a form of questioning.

Social Signaling as Clinical Target A central way RO DBT distinguishes itself from other third-wave behavior therapies is its focus on social signaling as a main treatment target. As mentioned previously, a social signal is any behavior done in front of another person, regardless of intent or conscious awareness (i.e., a yawn is a social signal and could occur without awareness or any intent, yet if done while another person is talking about their day, could communicate boredom; Lynch, 2018a). Overcontrolled individuals often demonstrate indirect, masked or constrained social signals, and RO DBT posits that maladaptive social signaling is a primary source of overcontrolled individuals emotional loneliness. As such, targeting social signaling is posited to be a main mechanism of change in RO DBT and its’ goal is to help the client ‘re-join the tribe.’

The use of the word ‘tribe’ is intentional in RO DBT, and it is used to denote having a strong social connection with at least one other person. This notion of tribe refers to the fact that as humans, we are a social species, and evolutionarily, we need human connection and human bonds. This is supported by a large body of research demonstrating a lack of social connection is associated with poor mental and physical health outcomes, including mortality (Donovan et al., 2017; Holt-Lunstad et al., 2015). As such, a main goal of RO DBT is to help lonely and isolated individuals, who often feel like ‘outsiders,’ develop meaningful social connection and become

part of a tribe. A central way to do this is to target how one communicates with other members of the tribe, or in other words, how one socially signals.

Targeting social signaling is a main focus and priority in treatment. This differs from many other therapies that focus on internal experiences, such as targeting thoughts in cognitive restructuring, or targeting emotions in emotion regulation therapies (and standard DBT). This de-emphasis on internal experience directly reflects RO DBT's stance that what a person feels or thinks privately is considered less important to how one communicates with others in close relationships. As such, there is little attempt to change the content of thoughts or a client's relationship to their thoughts. Instead, the internal mantra of the RO DBT therapist is "How might the clients' social signaling impact their social connectedness?" RO DBT is one of the first treatments to prioritize social signaling and hypothesize that social signaling changes are a primary mechanism of change (Codd III & Craighead, 2018).

Self-Enquiry RO DBT assumes that we all bring perceptual and regulatory biases into every moment (e.g., Adolphs, 2008; Berridge & Winkelman, 2003; Davis et al., 2011; Williams et al., 2004, 2006) that interfere with our ability to be open and learn from new or disconfirming information. From this perspective, "we don't know what we don't know," things are constantly changing, and there is a great deal of experience occurring outside of our conscious awareness.

RO DBT teaches a unique practice designed to increase openness and receptivity to novel information, and this practice is entitled "self-enquiry." More specifically, self-enquiry encourages the development of a pervasive, yet healthy sense of self-doubt (Lynch, 2018a). This healthy self-doubt is integral in first recognizing that one is closed, and that one cannot pursue openness unless one first recognizes that one is closed. This is challenging for most people and is particularly difficult for maladaptively overcontrolled individuals who like structure, familiarity, and perfection (Lynch, 2018a).

From a RO DBT perspective, self-enquiry is warranted when clients recognize triggers of closed-mindedness, including (a) when their central beliefs about the world are challenged, (b) when they encounter novel circumstances, or (c) when they are given critical feedback (Lynch, 2018a). Once one of the above cues suggest they might be closed, they are encouraged to psychologically approach the experience and ask themselves "*is there something here for me to learn?*" This vital question allows the individual to 'lean into,' and be more open to the experience (Lynch, 2018a). For example, when a feeling of frustration or anger arises for 'always having to do the vacuuming in the house,' the person could lean into this frustration and ask if there is something to learn--- maybe that they have never *asked* their partner to vacuum, while all the while *expecting* them to do it, or that they *assume* it is their responsibility and therefore will play the martyr of always having to vacuum.

An essential part of this practice is blocking any attempts at emotional or cognitive regulation, as that is not the goal. The goal, rather, is learning, and it is common to experience distress when approaching areas where growth may be needed. Indeed, clients are encouraged to pursue their "edge" as they reflect on the questions that come up (Lynch, 2018a). An edge may involve the presence of certain (often

distressing) emotions and is best characterized as the internal experience that occurs when one's worldview bumps up against the world.

During self-inquiry practice, maladaptive overcontrolled clients are asked (or they ask themselves) "*are you at your edge?*" and "*if you haven't reached your edge or you have moved away from it, what do you need to do to get to/back to your edge?*" (Lynch, 2018a). Self-enquiry practices are intentionally kept brief (roughly 5 min or less) because they tend to over-approach problems and want to 'fix' everything immediately. The goal of self-enquiry is not to arrive at a correct answer, but rather a good question. Thus, self-enquiry practice terminates with the specification of a new question that brought them closest to their edge (e.g., in the above example, "*what is it about having to ask my partner to vacuum that brings me to my edge?*"). Additional goals of the practice are to build a habit of self-doubt, block automatic regulation, orient toward places of growth and ultimately facilitate more effective and flexible responding. Though the practice may be performed on an individual basis (via a self-enquiry journal), public practice is encouraged. There is therapeutic value in "outing oneself" to another person as other people can help us see our blind spots (Lynch, 2018a).

Research Evidence

Compared with standard DBT, which was developed in the 1970s and 1980s, RO DBT is a relatively new treatment. However, as presented by Gilbert and colleagues (2020c), the growing research base for RO DBT is promising.

Treatment Resistant Depression

As RO DBT was originally designed for treatment resistant depression, much of the current findings support treatment of this psychiatric presentation. Initial pilot studies with older adults with treatment resistant depression demonstrated comparable decreases in depression between RO DBT and standard medication at post-treatment (Lynch et al., 2003). Worth noting is the finding that at a six-month follow up, individuals receiving RO DBT demonstrated significantly lower depression compared to those in the medication treatment condition, demonstrating longer-term impact.

Some of the subsequently conducted RCTs with chronically depressed older adults showed similar patterns of findings. More specifically, RO DBT plus medication demonstrated no significant differences in depression compared to medication alone immediately following treatment, but demonstrated significantly higher remission rates at a six-month follow-up (Lynch et al., 2007). In another RCT with older adults with comorbid treatment resistant depression and personality disorders (who also underwent an 8-week medication trial before starting RO DBT or continuing with continued medication management), there were no significant

differences in depression between the RO DBT plus medication and medication only conditions at post-treatment or at a six-month follow-up (Lynch et al., 2007). However, the RO DBT plus medication group demonstrated decreases in interpersonal sensitivity and aggression at post-treatment and a six-month follow-up compared with medication only (Lynch et al., 2007).

These pilot studies provided the initial building blocks for a meticulous investigation of RO DBT. Specifically, a multi-site RCT (Lynch et al., 2020; project RefraMED) examined RO DBT versus treatment as usual (TAU) in adults with treatment refractory depression who had experienced at least two previous episodes of depression *and* did not respond to at least 6 weeks of antidepressant medications (Lynch et al., 2015). Participants in the study also demonstrated high comorbidities as 96% met criteria for at least one other psychiatric disorder and 78% of those disorders were personality disorders.

The RefraMED project demonstrated significantly greater reductions in depressive symptoms post-treatment in the RO DBT group in comparison to TAU with a large effect size (Cohens $d = 1.03$; Lynch et al., 2020). Of note, this effect size is currently the most robust reported in any published trial for refractory depression: meta-analyses of treatments for chronic depression have reported Cohen's d effect sizes between .23 and .34 (Cuijpers et al., 2010; Negt et al., 2016), and a meta-analysis of treatments for *non*-chronic depression reports an effect size of $d = .90$ (Cuijpers et al., 2010). Although the significant difference in depressive symptoms was not maintained at a four-month follow-up, it trended in the same direction. Furthermore, there were long-lasting effects in hypothesized mechanisms of change. Specifically, participants in the RO DBT condition achieved significantly better psychological flexibility than those in TAU at post-treatment (approximately 7 months), and at 12- and 18-month follow-ups as well as statistically significant better emotional coping and expressiveness post-treatment (7 months), with the difference increasing at the 12- and 18-month follow-ups. These latter findings suggest that clients who received RO DBT continued to use and improve their RO DBT skills after the end of treatment.

The stringency that this multi-site RCT followed should be noted. Specifically, it purposely accounted for or addressed nearly all 34 pitfalls outlined by O'Donohue (2018) that purportedly characterize pseudoscientific treatments. For example, not only did the RefraMED research team use an Independent Clinical Trials Unit with no vested interest in the treatment to manage and analyze all data, but the trial protocol and planned analyses were published prior to the publication of results (Lynch et al., 2015, 2020). This provided a form of trial 'pre-registration' to avoid p -hacking, multiple secondary analyses, and so independent investigators could compare planned analyses with published results. Second, the treatment developer did not contribute to the treatment delivery. Third, research therapists (23 across three sites) were naïve about RO DBT and initially skeptical about it when trained for the RCT, providing little bias towards the therapy (and demonstrating that long-term therapist experience was not a factor). Fourth, the TAU condition was more rigorous than what is often available in many countries (like the USA) as it involved access to any treatment available in the National Health Service including evidenced-based

psychotherapy and medication. Finally, the American Psychological Association (APA) has reviewed RO DBT as a treatment for depression and concluded that it meets the criteria for “probably efficacious” or “modest” evidence, based on the Chambless and Hollon (1998) empirically supported treatment evaluation standards.

Anorexia Nervosa

Although originally developed for individuals with treatment resistant depression, RO DBT has also been tested for individuals with anorexia nervosa (AN). As discussed extensively elsewhere, AN is known to exhibit the highest mortality rate of any psychiatric disorder (Arcelus et al., 2011), and currently there is no one superior or empirically proven treatment for AN (Watson & Bulik, 2013). AN is also known to be a highly treatment-resistant, chronic and pernicious disorder that has recently been conceptualized as a prototypical disorder of overcontrol (Hempel et al., 2018).

An initial feasibility study demonstrated that RO DBT can be conducted in inpatient settings for anorexia, with high completion rates (i.e., 72%). For completers, participation in RO DBT led to significant increases in BMI (Cohen’s $d = 1.91$), significant decreases in eating disorder symptoms, significant improvements in quality of life and significant decreases in psychological distress (Lynch et al., 2013).

In an outpatient eating disorder clinic uncontrolled case series pilot study, participants with eating disorders who received RO DBT demonstrated decreased eating disorder symptoms and behaviors as well as decreased associated medical problems (Chen et al., 2015). Additionally, in this study significant increases in BMI found post-treatment continued at six- and twelve-month follow-ups, while 55% of the sample regained regular menses by 12 months. Furthermore, study participants also demonstrated decreased presentation of comorbid psychiatric presentations, including social anxiety, suicide attempts, and personality disorder presentations such as obsessive-compulsive personality disorder and avoidant personality disorder.

In an uncontrolled study (i.e., case-series study), adolescents with restrictive eating disorders (mostly AN) were enrolled in a 13-week intensive outpatient treatment and participated in RO DBT skills class as well as other cognitive behavioral and cognitive remediation treatments (Baudinet et al., 2020). Following treatment, adolescents exhibited significantly increased BMI and decreased eating disorder and depressive symptoms. Although it is unclear whether RO DBT or other aspects of the intensive outpatient treatment impacted these outcomes, it should be noted that there were significant increases in emotional expression and reward responsiveness and decreases in cognitive inflexibility, social isolation, social withdrawal, and discomfort in social relationships, all of which are characteristics of overcontrol and are directly targeted in RO DBT. Lastly, in a qualitative study, female clients with AN reported that RO DBT provided a holistic view of eating and psychiatric problems that allowed them not only to decrease eating disorder symptoms, but also

modify maladaptive overcontrol by increasing sharing, connecting with others and living by one's values (Isaksson et al., 2021b).

Autism Spectrum Disorder

A psychiatric disorder that has high comorbidity and shares many similarities with anorexia (Zucker et al., 2007) is autism spectrum disorder (ASD), which may exhibit the most extreme version of overcontrol (Lynch, 2018a). A recent investigation examined RO DBT within an adult outpatient program and identified 23 individuals who met criteria for ASD in a sample of 48 participants (Cornwall et al., 2021). Findings indicated that across all participants, there was a decrease in global distress, and participants with an ASD diagnosis had significantly better outcomes than those without the diagnosis, demonstrating preliminary support of RO DBT for ASD.

Transdiagnostic Psychiatric Conditions

Although most previous work has examined RO DBT within specific psychiatric diagnoses, RO DBT has been conceptualized as a transdiagnostic treatment targeting the overcontrolled presentation that spans across psychiatric disorders. From this conceptual and applied perspective, an initial and growing body of research on RO DBT has focused on heterogeneous overcontrolled populations. For instance, RO DBT skills classes have been adapted to a clinically heterogeneous psychiatric outpatient sample that consisted of adults scoring high on overcontrol with diagnoses of depression, OCD, eating disorders, anxiety disorders, post-traumatic stress disorder and bipolar disorder (Keogh et al., 2016). Findings demonstrated that when compared with TAU, RO DBT participants experienced significantly greater decreases in overall psychopathology. Moreover, RO DBT participants reported significantly less need for structure and significant increases in coping skills and perceptions of safety in social situations.

A case series study of transdiagnostic overcontrolled adolescents (86% of which exhibited two or more diagnoses) who received RO DBT for adolescents demonstrated significant decreases in symptoms of depression, eating disorders and self-harm tendencies, as well as significant improvements in cognitive flexibility, risk aversion, reward processing and emotional suppression (Baudinet et al., 2021). Additionally, case studies exemplify that RO DBT can address perfectionism in the overcontrolled phenotype (i.e., cognitive inflexibility, perfectionism; Little & Codd, 2020). As the body of literature is just emerging, future work will need to continue building this evidence base in larger and more stringent RCTs, and test hypothesized mechanisms of change.

Assessment in RO DBT

Overcontrol is a dimensional phenotype rooted in personality that, with undercontrol on the opposite end of the spectrum, varies across the population. As such, overcontrol is not always maladaptive and this should be kept in mind for all assessment procedures. When assessing for overcontrol and whether RO DBT would be a good fit, the clinician needs to first consider whether any front-line treatments have already been tried for specific disorders (e.g., Exposure and Response Prevention for OCD; Hezel & Simpson, 2019). If not, in most cases these front-line treatments should be given priority given their effectiveness and given RO DBT was designed for treatment-resistant populations. Second, clinicians need to consider whether overcontrol exhibited is maladaptive and appears to be a core feature of the evidencing psychiatric illness.

When assessing whether overcontrol should be targeted in treatment, four core deficits should be considered: (1) low receptivity/openness to experience, (2) low flexibility, (3) high emotional suppression/inhibition and (4) low social connectedness (Lynch, 2018a). These deficits manifest as avoiding uncertainty, new experiences, and disconfirming feedback (low openness) and being high in perfectionism, compulsive striving for order, strong moral convictions and maladaptive levels of approach coping (i.e., maladaptive desire to immediately ‘fix’ and problem solve) (low flexibility). Overcontrolled individuals also suppress negative (and positive) emotions and display incongruent emotional expression (i.e., smiling when angry, inhibited emotional expression) and they often experience loneliness, feeling different from others, and have few intimate relationships (low social connectedness). These four core deficits are all key to be on the look out for when assessing overcontrol, and can be identified in the four-session orientation.

Four Session Orientation

The orientation and commitment phase of RO DBT is comprised of four individual sessions that were carefully designed to optimize treatment engagement (Lynch, 2018a). This was accomplished by taking overcontrolled temperamental biases into consideration when devising the content, objectives, and means of delivery of each session.

The first two sessions have five primary aims (Lynch, 2018a). The first is to assist the client in recognizing that they are overcontrolled and joining with the client to agree that their overcontrolled coping is problematic and that they are committed to working on it in therapy. Achieving this goal is essential because treating a maladaptively overcontrolled client is virtually impossible in the absence of their acknowledging this is the core problem. This is accomplished through the delivery of a carefully constructed script designed to take into account overcontrolled

temperamental biases (see p. 106 in Lynch, 2018a for an example of one of the scripts used in the RO DBT orientation).

The next objective is to secure the client's commitment to discuss any desire to discontinue therapy in person prior to their dropping out of care. This is meant to preemptively block the common overcontrolled interpersonal strategy of abandoning relationships when they are conflictual or deemed to no longer be of importance. It also takes advantage of their tendency to rigidly adhere to rules such as, "*I must never go against my word. I promised to discuss this in person before I drop out.*"

A third objective is to secure their commitment to refrain from self-injury and suicidal behaviors without first getting in touch with a mental health professional. A fourth aim is to collaborate with the client to start identifying their values and how the client can start living more in line with these values (i.e., valued goals), that will serve as an underlying driver in treatment. This discussion continues over the third and fourth sessions as well. Finally, the fifth objective is to orient the client to the overall structure of treatment.

On a related note, it is important to highlight that two objectives of the third and fourth sessions entail teaching the client the biosocial theory for overcontrol and teaching the key mechanism of change, both of which are accomplished through the delivery of thoughtfully constructed scripts (see p. 128–129 and 131–132 in Lynch, 2018a for scripts). When the goals of these two sessions are achieved, clients understand that establishing close social bonds is important for their psychological well-being and that their social signaling plays an important role in their ability to develop close relationships. Lastly, another major objective in this phase of treatment is to orient clients to the RO DBT diary card and to initiate their monitoring of important targets.

This four-session orientation is the most structured part of RO DBT and training on how to deliver this initial aspect of treatment is part of the larger training in becoming an RO DBT therapist. Although expanded upon elsewhere (e.g., Gilbert et al., 2020c), RO DBT therapists must undergo an intensive training to deliver RO DBT to clients, currently offered either via two in-person weeklong trainings or an online Blended Learning Programme where they complete online modules and work with a supervisor in virtual meetings. Beyond the initial intensive training, RO DBT therapists are highly encouraged to pursue ongoing expert supervision. Supervision in RO DBT consists of micro-analytic supervision of videotaped sessions, which is vital in noticing patient as well as therapist in-session social signaling, use of dialectical strategies, alliance ruptures and repairs and the like.

Subtypes of Overcontrol

There are two theorized overcontrolled social signaling subtypes that are assessed and taken into consideration in RO DBT treatment: the *Overly agreeable* and *overly disagreeable* (Lynch, 2018a). They are primarily distinguished by the individual's desired persona or how they prefer to be perceived by others. The overly

disagreeable subtype prefers to be seen as competent but not compliant. They are willing to sacrifice relationships to achieve various objectives, such as preferring to be seen as “right/correct” more than being liked. In contrast, the overly agreeable subtype is motivated to be seen as both competent and socially acceptable. Thus, they prioritize being liked over achieving other objectives such as being “right.”

Because the social signals characteristic of each subtype differ, the factors responsible for keeping these individuals out of the tribe differ. For instance, overly disagreeable individuals often present with flat emotional expression or correct others (i.e., to be right) in a condescending way, while overly agreeable individuals often present with disingenuous ‘fake smiling’ emotional expression or agree with others even if inside they are seething. Hence, accurate assessment and classification of a client’s overcontrolled subtype enhances treatment targeting. Currently, these subtype conceptualizations are grounded in theory, yet the research supporting the theory and expanding it to various developmental and sociocultural backgrounds is lacking, making this a ripe area for future investigation.

Validated Questionnaires

The best way to assess overcontrol is via a clinician-administered interview and discussion in the four-session orientation. However, the ongoing development of questionnaires provides a complementary and quick tool to utilize in research and clinical practice. Although not validated, the Word Pairs Checklist (WPC; Lynch, 2018a) and the Brief Overcontrol Scale (BOS; Seretis, 2017) provide simple self-report questionnaires to gauge general tendencies towards overcontrol versus undercontrol. However, the scores of the WPC or BOS do not distinguish whether these tendencies are adaptive or maladaptive. Similarly, preliminary work in adolescents demonstrates the Youth Over- and Under-Control (YOU-C; Lenz et al., 2021) assesses dimensional tendencies towards overcontrol versus undercontrol. Once again, the scores of the YOU-C do not differentiate adaptive versus maladaptive control. Therefore, the clinician or researcher needs to also use judgment to assess whether the overcontrol is maladaptive. It is important to note that, given these concerns, there has been extensive ongoing research validating novel adult measures that will include clinical cut-offs to assess maladaptive overcontrol.

Lastly, the Overcontrol in Youth Checklist (OCYC; Gilbert et al., 2020b) is a parent-report measure assessing the earliest manifestations of overcontrol in children aged 4–7 years old. Although the OCYC also does not yet have set cut-points, higher scores have been associated with maladaptive child outcomes, including cognitive impairment, anxiety disorders, elevated internalizing and externalizing psychiatric symptoms and aberrant neural processing of errors (Gilbert et al., 2020a, 2020b). Although these screeners provide initial measures to quickly assess overcontrolled tendencies across the lifespan, future work would benefit from continued investigation and the addition of clinical cut-offs.

Case Conceptualization

Treatment Hierarchy

Similar to standard DBT, RO DBT uses a treatment hierarchy to organize individual therapy treatment targets (Lynch, 2018a). That is, the individual therapist first prioritizes life-threatening behaviors, followed by repairing of alliance ruptures between the client and the therapist and finally the remediation of social signaling deficits that are tied to common patterns of behavior seen in maladaptively overcontrolled individuals. The necessity of placing life-threatening behavior at the top of the treatment hierarchy is axiomatic and thus does not require further discussion.

RO DBT Suicidal Behavioral Protocol

At the top of the treatment hierarchy are life-threatening behaviors, which occur at disproportionately high rates in disorders of overcontrol (e.g., Keel et al., 2003). Consequently, if these thoughts or behaviors are identified, they are given utmost priority. The unique temperamental biases of individuals with maladaptive overcontrol have important implications for the assessment and management of their suicidal behavior. For example, relative to other treatment populations, overcontrolled client suicidal behavior tends to be better planned (because of superior capacities for planning) and conceived over time; rule-governed rather than mood-independent; and precipitated for different reasons (e.g., as a way of punishing others).

Another way overcontrolled suicidal behavior differs from the same behavior in other clinical populations is that it tends to be concealed to a greater degree (Lynch, 2018a). One reason for this is that overcontrolled clients do not typically emit large, attention-capturing signals that indicate distress, and they tend to vocally understate the magnitude of their emotional pain (Lynch, 2018a). An additional reason is that most overcontrolled clients work hard to maintain the appearance of competence and perceive the reporting of suicidal symptoms as undermining this preferred persona (Lynch, 2018a). Further compromising the identification of suicidal thoughts and behaviors in overcontrolled clients, many overcontrolled individuals are skillful at inconspicuously guiding conversations away from this (and other undesirable) subject matter (Lynch, 2018a). Therefore, overcontrolled clients are unlikely to report suicidal symptoms without direct prompting from a clinician, and even then, will tend to minimize their severity (Lynch, 2018a). To optimize assessment, the RO DBT clinician must negotiate these temperamentally based barriers with direct and frequent questions about the presence of suicidal symptoms, and they must block overcontrolled avoidant responses that emerge during these assessment interactions. This provides one example of the RO DBT approach to intervening on self-injurious behavior in overcontrolled clinical populations (see RO DBT Crisis-Management Protocol for full procedure, Lynch, 2018a).

Therapeutic Alliance: Ruptures and Repair

Directly beneath imminent and severe life-threatening behaviors falls alliance ruptures on the treatment hierarchy. Although therapeutic alliance is key to many psychotherapies (including standard DBT), alliance ruptures are a distinct and central focus of RO DBT that differs from standard DBT (Luoma et al., 2018; Lynch, 2018a). In RO DBT, the therapist acts as a ‘tribal ambassador’ who helps the client rejoin the tribe and form strong social bonds by modeling kindness, cooperation and playfulness.

Building therapeutic alliance is central to RO DBT, yet RO DBT also considers alliance ruptures central to a strong working alliance (Lynch, 2018a). This is because expressing conflict and disagreement is crucial to any working relationship. Thus, alliance ruptures are building grounds for learning, are intimacy enhancing, and are essential for overcontrolled individuals who struggle to reveal inner experiences. For this reason, if several alliance ruptures have not occurred by the fourteenth session, the therapeutic alliance is considered superficial (Lynch, 2018a).

Alliance ruptures can occur for any reason, but in RO DBT, they often occur when a client feels misunderstood by the therapist or when they perceive the treatment as irrelevant to their concerns. This miscommunication between the therapist and client often results in a rift or change by the client in session, although the overcontrolled client will rarely state the issue overtly with the therapist. For this reason, repairing these ruptures falls solely on the therapist, and involves first noticing that a rupture is occurring (which can be difficult given overcontrolled individuals communicate indirectly). Once a rupture is noticed, the therapist should focus on attempting to understand the client and repairing the relationship. A protocol is immediately used in the moment to slow down the pace of the interaction, notice a change or shift that could be a result of the rupture, and check-in with the client by providing space for the client to reveal what is happening in that moment. As overcontrolled individuals mask inner feelings, avoid conflict, or quickly end relationships when conflict does occur, alliance ruptures and repairs teach clients that resolving social conflict can be a productive means of enhancing psychological connection with others. This is also important because high treatment dropout rates are common in overcontrolled populations (Lynch, 2018a), and allocating attention to ruptures and their repair improves treatment retention.

Five Behavioral Themes of Social Signaling

Following suicidal behaviors and therapeutic alliance ruptures, next in the treatment hierarchy is the targeting of social signals. To enhance the identification of social signaling targets, five overcontrolled social signaling behavioral themes can be used for guidance (Lynch, 2018a). After the four-session orientation, the therapist usually has a few social signaling targets to track on a diary card and chain, yet

treatment targeting is a continual process in RO DBT. This ensures that the focus of targeting is relevant to the core maladaptive issues the client is experiencing and to ensure the therapist has an encompassing understanding of all areas the client may be impaired. The five behavioral themes are individually introduced in a weekly fashion starting in the fifth session and help provide a theme that serves as a jumping off point for discussion between the therapist and client. Indeed, the themes are not social signaling targets themselves, but allow for guided discussion with the client of relevant individual targets.

The first theme is the prototypical and easily identifiable overcontrolled presentation of *‘inhibited and disingenuous emotional expression,’* that can include both emotional inhibition (e.g., flat or blank facial expressions, lack of eye contact) and disingenuous emotional expression (e.g., smiling when angry or nervous or “I’m fine” when not). The second theme (although of note, these do not necessarily need to be introduced in this order) is *“overly cautious and hypervigilant behavior”* that evidences as planning and rehearsing compulsively prior to an event/interaction, avoiding new behaviors, and repeated checking behaviors. The third theme is *“rigid and rule governed behavior,”* and can exhibit as rigidity (e.g., perfectionism and need for structure) and rule-governed behavior, such as personal rules of “always plan ahead and work hard” or moral certitude and self-sacrifice (e.g., “my kids always take priority over my own needs”). The fourth theme is *“aloof and distant relationships,”* which is exhibited by rarely expressing desire for intimacy, low vulnerable self-disclosure, low trust in others, and walking away and abandoning relationships rather than dealing with conflict. The fifth and final theme is *“high social comparisons with envy and bitterness,”* that manifests as high social comparisons, harshly gossiping about rivals, sarcasm, and bitterness related to cynicism.

These themes are used to identify specific behaviors the client may exhibit that could be targeted. It is important for the therapist to assess the relevance of each theme to the client, as not all themes will apply equally. For those themes that seem most impactful, there are additional RO DBT principals that can be applied, homework assigned, and therapeutic stances to help address prominent themes with the individual client. These themes aid in refining case conceptualization and treatment focus, and importantly, provide the therapist and client with potentially unexplored opportunities to identify maladaptive social signaling that is getting in the way of the client connecting with others and being part of the ‘tribe’.

Chain Analysis

In RO DBT the variables that control target behavior are identified through a functional assessment procedure referred to as a chain analysis (Lynch, 2018a). The theoretical underpinnings and execution of these analyses are like the functional assessment procedures seen in most behavior therapies, and parallel chain analyses in DBT. That is, any behavior deemed important can be the subject of analysis and

the primary goal is to identify important environmental events, thoughts, and emotions that influence the behavior of interest.

However, chain analyses in RO DBT also differ from chains used in other behavior therapies in several ways. First, these are primarily used to analyze social signaling behavior, the primary theorized mechanism of change. Second, these are rarely used as part of an aversive contingency with problem behavior. This is because use of this sort might evoke more “serious” behavior from the client, a class of behavior that is generally overabundant and in need of deceleration in overcontrolled clients. Third, though these must be meticulous to be effective, they are kept to 20 min or less, with 7–12 min being ideal (Lynch, 2018a). In addition to practical reasons (e.g., allowing sufficient time to address other agenda items) these are kept brief to provide opportunity for client self-enquiry and to block over approach-focused problem solving and ‘fixing.’

Chain analyses facilitate both therapist and client understanding of target behavior and are comprised of six steps (Lynch, 2018a). The first step is to generate a clear behavioral definition of the social-signal being targeted and its’ context (was the relationship it was done in an important one for treatment?), intensity and duration. This formulation is frequently optimized by asking clients to demonstrate the behavior in session, as verbal descriptions of the social-signal are often inadequate for capturing the important nuances of client social signaling. The next step is to identify vulnerability factors that increased the probability of the problem social signaling behavior’s occurrence. The third step is to identify the proximal antecedents that evoked the problem behavior or the ‘prompting event.’ For example, the client might be asked “What was the event that started this?” or “What got you on this path?” A detailed description of events, including a depiction of their overt and private behavior and their sequence of interactions, encompasses the next step in the chain. This step is particularly comprehensive and involves the identification of their actions, thoughts, feelings and sensations, and is accomplished by repeatedly asking “what next?” until all relevant details have been captured. In the fifth step, the focus shifts to the identification of post-cedents or positive and negative consequences of the social-signaling behavior. The goal of this step is to identify maintaining consequences, to assist the client in examining the impact of their behavior socially, and to evaluate whether it is congruent with their valued goals.

The final step is to conduct a solution analysis. This involves generating a manageable number of solutions to not using the same maladaptive social-signaling style in a similar context. These solutions often include the use of RO DBT skills and matching individual skills to problematic links in the chain such that they would alter the occurrence of the problem behavior in the future. Behavioral rehearsal of solutions in session is encouraged and the impact of identified solutions on target behavior monitored through the client’s diary card data.

Conclusion

Treatments for clinical populations characterized by maladaptive overcontrol have not been sufficiently emphasized in behavior therapy theorizing or research. This may be because this client population tends to be understated in their reporting of psychological distress and their social signaling, thus escaping the attention of clinicians and researchers. In contrast, undercontrolled clinical populations emit more pronounced signals and thus they are eye catching. A severely emotionally dysregulated client who publicly self-mutilates is difficult to ignore whereas a client who barely emotes is difficult to notice.

In this chapter, we illustrated some of the overlapping components of RO DBT compared with standard DBT as well as the defining and distinctive features of RO DBT (Lynch, 2018a). RO DBT pulls from earlier waves of behavior therapy, such as by closely resembling the first wave with its shared emphasis on operant and respondent learning, yet it also shares many third wave components including a biosocial model, dialectics and mindfulness built into the treatment. RO DBT is distinct from most all therapies though with its focus on treating emotional loneliness via social signaling and openness as core mechanisms of therapeutic change.

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Part III
Comparative Issues and Controversies

The Advantages of First Wave Behavior Therapy and Problems with the Others



Peter Sturmey

Behavioral approaches to psychotherapy have a very long and honorable history (Dollard & Miller, 1950; Kazdin, 1978; Guercio, 2018, 2020a, b; Skinner, 1953). Founded on basic research in learning, especially the work of Pavlov in classical conditioning and of Skinner in operant conditioning, a number of *ad hoc* behavioral therapies were developed in the first part of the twentieth century. For example, Salter (1949, pp. 105–106) successfully treated a case of blushing by instructing his client to practice blushing as often as possible. He described the rationale as being based on Pavlov's work (!) These approaches were systematized and expanded by researchers such as Wolpe et al. (1964) in therapy for neuroses and by Skinner's students (e.g., Lindsley, 1956) in therapy for a wide range of conditions and have been incorporated into behavioral case formulation methods (Sturmey, 2008). The so-called cognitive revolution (O'Donohue et al., 2003) ushered in new models of psychopathology and new treatments referred to as cognitive behavior therapy and more recently a third wave of behavior therapies (Kohlenberg et al., 1993; Linehan, 1993) emerged based on Skinner's (1957) *Verbal behavior* and research stimulus equivalence. This chapter provides an overview of this history and concludes that a return to basic learning theory as the basis of behavior therapy would provide a reliable compass and make for plain sailing.

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Before the First Wave

There are many historical and cultural practices and observations that appear to reflect behavioral conceptions of the control of behavior and behavioral technology (Kazdin, 1978). Predating Skinner's (1968) *The technology of teaching* by a few centuries, Maimonides, the twelfth century Jewish philosopher, described how recalcitrant students could be encouraged to study Torah first with edible and tangible reinforcers; and as those reinforcers lose their potency, with money; and, as wise people become indifferent to money, they too can be encouraged to study by conditioned reinforcers such as obtaining esteem of their peers and job titles reflecting professional and personal eminence and sagacity (Leshtz & Stemmer, 2006). More recently in the eighteenth and nineteenth century there were precursors to the token economy, good behavior game, peer-to-peer instruction, and pyramidal training in school settings (Kazdin & Pulaski, 1977; Stiliz, 2009). Finally, Jarius and Wildemann (2017) described a number of informal and amusing descriptions of classical conditioning throughout literature dating back to the seventeenth century. Thus, many behavioral cultural practices, observations and specific forms of behavioral technology were developed before the science of behavior analysis as a kind of folk technology and wisdom.

The First Wave

First Ripples

Before there was psychology or even physiology, scientific ideas and functionalist ideas developed in the eighteenth and nineteenth century. Gentlemen scientists *in embryo* and technocrats assembled libraries, collected cabinets of curios, conducted experiments in their homes, and met together to learn from one another, solve business problems using scientific methods. They addressed the problems of mining, surveying, constructing canals, making better pottery and belt buckles, breeding better animals and crops, and finding better cures for illnesses. In so doing they developed what were to become engineering, geology, physics, chemistry, biology, physiology and scientific medicine (Uglow, 2002). They also learned the value of careful, systematic, reliable and public observation and manipulation of the environment to produce a body of public knowledge which could be skeptically evaluated independent of any specific person; be systematically applied to new problems; and integrated into a meaningful, consistent world view (Uglow, 2002). In so doing, they also removed the need for God and various kinds of animisms to explain natural phenomena and devalued authoritarian claims for expert status as the basis of knowledge.

Charles Darwin was such a gentleman scholar who was related to generations of similar people including the Wedgwoods; his own grandfather, Erasmus Darwin,

had written a preliminary version of biological evolution in a poem. Charles Darwin was also familiar with breeding of animals for food production, and as a hobby, and was familiar with crop breeding and agriculture. Thus, he was exposed to rational approaches to understanding; that: the earth had a very long history; that many organisms produced large numbers of offspring, few of which survived to be fertile; the physical and behavioral animal traits could be selected by people and nature; and that the animals and plants were adapted to function well and efficiently in a particular environment. His three main works *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (1858), *The Descent of Man* (1874), and *The Expression of the Emotions in Man and Animals* all presented a functionalist view of morphology and behavior in which the organism's structure and behavior both served a purpose, namely they contributed to the survival of the species. Alfred Wallace also proposed this view around the same time; Darwin and Wallace knew each other's work and corresponded perhaps influencing one another (McKinney, 1966). (Note that more contemporary evolutionary biology views the unit of selection to be the gene rather than the species and thus we can think about the function of the organism's structure and behavior to be to ensure the survival of the genes the organism carries, rather than the survival of the species (Dawkins, 1976)). Thus, the scientific study of humans required the scientist to ask the questions: What is that organ there for? Why does the animal do that? What advantage is there to the organism to behavior in that way?

A Russian Wave

The continuing expansion of biological science lead to the discovery of classical conditioning which is often attributed to Ivan Pavlov (1994b), although it seems possible that other earlier Russian physiologists were familiar and had already studied this phenomenon systematically (Jarius & Wildemann, 2017). Thus, many introductory psychology textbooks give the traditional account of classical conditioning which states that while studying the physiology of digestion, Ivan Pavlov serendipitously noticed that dogs secreted digestive juices and salivated at the sight of food before it was placed in their stomach or mouth and also salivated at the presence of the person who had fed them in the past. He also observed that the quantity and consistency of salivation depended on the stimulus properties of the items placed in the dog's mouth in a manner that appeared to facilitate formation of the food bolus, swallowing, and digestion.

Subsequently, Pavlov systematically demonstrated that an arbitrary stimulus – originally a metronome set at a certain speed – when paired with food could come to elicit salivation alone. The effect depended on the number of pairings, and temporal relationships between the metronome and food during pairings. In addition, when the metronome was set at other speeds, it would also come to elicit salivation even though this specific sound had not been paired with the food. This effect that was most clear when the speed was most similar to the metronome's original speed.

He referred to the initial situation as an Unconditioned stimulus (US) eliciting an Unconditioned response (UR) and after pairings, a conditional stimulus (CR) eliciting an Unconditioned Response (UR). (Today we conventionally use the mistranslation *conditional* stimulus from the original Russian) The effect of other speeds of the metronome on salivation was called generalization. Following the development of animal models of classical conditioning, Pavlov became interested in psychiatry. For example, as early as 1915, Pavlov (1915/1994a) published a paper, *Experimental Psychology and Psychopathology in Animals* which drew parallels between the apparently neurotic behavior of dogs and humans.

Pavlov's work became known in the English-speaking world by the 1910's. Thus, a few years later, Watson and Rayner (1920) demonstrated that in a human infant an arbitrary stimulus paired with a loud noise which elicited a startle response, also eventually came to elicit both startle-like behavior such as crying and fearful behavior and avoidance of those stimuli such as turning away. Here the loud noise was an US and the startle was an UR. The paired stimuli, such as a Santa clause mask, were CRs, and the fearful behavior was now a CR. This study suggested that some human fears were caused by classical conditioning.

Pavlov also developed another experimental model of neurosis this was done by giving the dogs an easy discrimination between a circle and ellipse and progressively making the discrimination more difficult by flattening the ellipse to be closer and closer to a circle. Following this procedure, the dogs not only failed to make the discrimination but their behavior became erratic and agitated, urinated and defecated in the cage and they attempted to avoid the experimental cage. Attempts to reinstate the discrimination by returning to very easy discrimination were difficult or unsuccessful (Gantt, 1944).

Pavlov began observations of psychiatric patients as early as 1918 (Pavlov, 1994b, p. 418) and in the 1930's, Pavlov attended psychiatric clinics for humans on a weekly to observe patients, discuss them with psychiatrists and attempt to analyze human psychiatric problems in terms of his work on respondent conditioning, individual differences in susceptibility to classical conditioning, and environmental factors making use of freewheeling parallels between dogs and people (Todes, 2014). He also attended a clinic for nervous dogs. He feigned amateur status in human psychiatry, while making numerous psychiatric diagnoses – human and canine –, such as depth phobia in dogs. For humans, he recommended rest and sleep, if necessary induced by bromides. He investigated a then popular but potentially lethal Cloetta Mixture for humans. Treatment of neuroses in dogs included similar treatments and castration (Todes, 2014). Pavlov's methods in psychiatry were speculative and included unsystematic data collection rather than true experiments on animals and thus were loose and unscientific but promulgated the idea that classical conditioning might be an important model for the acquisition and treatment of psychopathology.

Russian work on classical conditioning was very active throughout the first half of the twentieth century and much of it was not immediately readily accessible to the West, although it did eventually permeate behaviorism through Russian-born and native Russian-speaking researchers such as Gregory Razran, who periodically

reported back from his visits to the USSR and with Pavlov and Pavlov's students and colleagues (e. g., Razran, 1935). Razran went on to set up training in behavior analysis at Colombia University and then Queens College, New York¹ (Razran, 1971).

There were early several applications of classical conditioning to clinical problems during the 1920's and 1930's. One such example was the work of Mary Cover Jones (1924), who demonstrated the effectiveness of behavioral methods with childhood fears and phobias in a case series using methods including modeling, verbal instruction etc. The demonstration that is most commonly acknowledged was "By the method of direct conditioning we associated the fear-object with a craving-object, and replaced fear with a positive response" (p. 390). That is a Conditioned Emotional Reaction (CER) (fear) could be abolished by pairing the CS which elicited the CER with another stimuli that appeared to elicit incompatible behavior and by gradually introducing the CS in very small steps closer and closer to the child contingent upon the current distance in the presence of the craving-object, the former CS no longer elicited the CER. Next, the work of Edmund Jacobson (1934) should be noted. He developed progressive muscle relaxation training, conducted basic research on its effects on reflexes, developed protocols to train people to relax and applied to a wide range of anxiety and psychophysiological disorders. A third important study framed by classical conditioning was that by learning researchers Mowrer and Mowrer (1938) who evaluated the effect of an alarm to wake up children with nocturnal incontinence. They based this on what they called a "habit model" in which prior to training the full bladder elicited the emptying reflex. The bell was set off by initial urination and interrupted urination and the child was required to go void in the bathroom immediately. In so doing, they suggested, the bell through pairing came to elicit urination. They reported that they had applied this to nocturnal incontinence in 30 children aged 3–13 years and had eliminated nocturnal incontinence in *all* children within 2 months. They reported relapse in some children in homes with emotional problems and in other children the effects were maintained for up to two and half years, the end of their follow-ups. Similar results were reported by several independent researchers (e.g., Davidson & Douglass, 1950) and commercial urine alarms were marketed. Predating Wolpe's work, psychoanalyst Herzberg (1941) eschewed verbal therapy for an action-based approach to neuroses involving graded tasks that resemble graduated in vivo exposure focused on symptom reduction. He wrote "Of 100 cases of neuroses and perversions, 48 were cured or very much improved, 47 broke off treatment early (3–39 interviews) with improvement evident for 12, while for 5 cases treatment appeared ineffective and was terminated by the therapist after 24–68 interviews" (p. 19). During World War II, several military physicians noted the similarity of many war neuroses to CRs, both in terms of presentation and acquisition, although Gillespie (1945) did not outline or report any examples of treatment based on respondent

¹I teach classes on behavior analysis in the Razran Building, Queens College, New York. At one point we have a poem, since mysteriously disappeared, hanging on the wall of our faculty meeting room written by Skinner on the occasion of Razran's retirement which began "Gregory Razran/was no has-ran".

extinction. Finally, Andrew Salter's (1949) *Conditioned reflex therapy* prefigured much of Wolpe's work. Based on a perhaps erroneous understanding of Pavlov's work, Salter used assertiveness training, pairing stimuli with positive imagery, hypnosis as relaxation to reduce anxiety and treat insomnia, smoking and overeating. In 1964 he went on to edit *The Conditioning Therapies* with Wolpe and Reyna. Thus, from the 1920's to the 1940's there was a gradual development of clinical applications of classical conditioning for a number of rather different problems.

The South African and European and Wave

Today, it is hard to appreciate how strongly the psychoanalytic illness medical model held sway almost without challenge until the 1950's in all fields of mental health practice both in terms of understanding the causes and treatment of mental health issues and in terms of professional practice. Following the decline of "moral treatment" in the middle of the nineteenth century, with its emphasis on personal responsibility, environmental design, optimism, and exhortation of patients to change, the medical model supervened. Medical practitioners ruled the roost in mental institutions, and brought in microscopes to find the organic causes of these illnesses (e.g., Turner, 1920). A mental illness was seen as an illness; problematic behavior was a surface symptom of those illnesses; treatment of those surface symptoms was useless and wrong and would only lead to symptom substitution; a doctor's job was to discover the illness and give it a name (Ullmann & Krasner, 1965a). The implications for treatment were unclear, but there were still left over nineteenth century treatments such as bromides, hydrotherapy, spinning chairs restraint and seclusion (Alexander & Selesnick, 1966). Even if much of this was ineffective or even dangerous to patients, at least sick and probably dangerous people could be sequestered, prevented from passing on their contaminated genes, and the public kept safe. Two examples illustrate this state of affairs. First, after the publication of Mowrer and Mowrer's (1938) paper, psychoanalytic commentator Michaels (1939) and a note from the journal's own editorial board doubted the results published in their own journal, suggested that a behavioral analysis and treatment of nocturnal enuresis must be superficial and incomplete, the results could not be true, that symptoms substitution must be just around the corner. Second, on my first clinical psychology practicum in about 1984 my supervisor asked me to come take a look in a filing cabinet of hundreds if not thousands of clinical psychology reports from the preceding 20 years. Using the same format, each one thanked the physician for the referral and reports the IQ, neuroticism and extraversion followed by a "Yours sincerely". That is what British clinical psychologist largely did until the mid-1970's; they were physicians' technician handmaidens, a kind mental phlebotomist.

Much of that changed with the work of Joseph Wolpe's (1958) *Psychotherapy by reciprocal inhibition*. Wolpe was a South African physician who became frustrated in treating trauma in veterans of World War II ineffectively with psychotherapy and began searching for effective alternatives. His 1948 medical thesis was on

conditioning and fears based on the work of Pavlov (Poppen, 1995). From this thesis, the work of earlier researchers and practitioners such as Jones (1924), Herzberg (1941), Salter (1949) and discussion of war neuroses in terms of classical conditioning, Wolpe used the notion of reciprocal inhibition of anxiety, that is, presenting an alternate stimulus or engaging in other behavior that elicits a physiological state incompatible with autonomic arousal. He noted that this could be done in numerous ways. These included being assertive defined as talking in a loud, clear voice with marked intonation, responding quickly, making eye contact with the conversation partner, not acceding to other people requests immediately, expressing one's own opinions which sometimes disagree with those of others, contradicting others, and accepting compliments, or even somewhat pushy with others people. Reciprocal inhibition could also be done using role play in the office using behavioral skills training with the therapists. It could be done using abreaction, such as deliberately and assertively provoking a marital argument over a past injustice resulting in a sense of relief from anxiety (Wolpe, 1952). It could sometimes be done pharmacologically, through hypnosis, or Jacobsonian relaxation training. Sometimes, but not always, the reciprocal inhibition could involve systematic desensitization by thinking or imagining progressively more threatening stimuli while maintaining a state of relaxation. It is interesting to note that he commented that the first two methods were appropriate for social fears and relaxation was appropriate for fears of inanimate objects, such as weather (Wolpe, 1952). Subsequently, others have also used other procedures to induce relaxation such as massage, eating or playing in children.

Wolpe (1952) reported the application of these methods to a series of 70 cases, mostly of anxiety and mixed anxiety/depression and found that 86% were "cured" or "much improved". Patients were had previously participated in psychoanalysis fared less well, according to Wolpe due to the iatrogenic effects of psychoanalysis training their patients to focus on their past rather than the controlling present. With an eye to the economics of treatment, he also compared the outcomes and treatment times and found that psychotherapy by reciprocal inhibition also took many fewer sessions than traditional psychoanalysis which often took years rather than weeks and quite often could not even be completed. Wolpe subsequently worked directly with Eysenck and his group at the Maudsley clinic, and worked went on to work in the USA alongside people such as Lazarus (Poppen, 1995), did battle with psychotherapists misrepresentations of his work (Wolpe, 1959), and spent considerable efforts disseminating this approach through professional training, conferences and more popular books (Wolpe, 1990) and combatting formulaic, non-analytic, inadequate behavioral practice (Wolpe, 1977). Jumping on the bandwagon in the United Kingdom, Hans Eysenck (1952) rattled the saber in Britain and also declared psychoanalysis ineffective and could be applied scientifically and effectively for treatment anxiety disorders (Eysenck, 1960). Clinical work based on classical conditioning expanded rapidly in the 1970's to include a wide range of problems and variations in specific techniques and this became the basis for many graduate courses in clinical psychology in Britain and elsewhere to prepare new professionals for treatment in mental health in the 1970's.

A second thread of behavioral treatment of psychopathology related to classical conditioning is procedures based on respondent extinction (Sturmey et al., 2020). When CS is repeatedly presented in the absent of the US after a certain number of presentations it no longer elicits the CR. This is known as respondent extinction. Thus, clinical applications of this procedure involve identifying the CS and presenting the CS until it no longer elicits the CR. Respondent extinction can be distinguished from habituation, a non-associative form of learning, in which an unlearned response diminishes with repeated presentation of a stimulus, such as a startle to a loud noise. This can be distinguished from respondent extinction because the stimulus that is presented in respondent extinction is a CR and the organism has a learning history to establish that stimulus as a CR. Skinner (1953) noted a possible role for respondent extinction in classical psychotherapy. Exposure to verbal stimuli in a non-punitive environment might result in relief from anxiety through respondent extinction. So, by the mid-1960's procedures based on this principle were developed including implosion and flooding. The original implosion procedure was a two-step hybrid of behavioral and psychodynamic models of anxiety. In the first step patients are exposed imaginally to stimuli directly related to their fear, such as a snake. In the second step patients are exposed imaginally to scenes based on a psychodynamic hypothesis concerning the hidden basic problem such as scenes of sexual conflict, guilt, shame or fear of aggression (Stampfl & Levis, 1967). In contrast, flooding involves maximal in vivo exposure without any form of relaxation or reciprocal inhibition until the person is calm and fearless (Boulougouris & Marks, 1969). For example, one might take a person with snake phobia and require them to pick up a large living snake, look at it, describe it and wear it around them until the fear undergoes respondent extinction which might take approximately 2 h and sometimes only *one* session (Ost, 1996). These procedures based on respondent extinction have been applied extensively to anxiety disorders (Wolitzky-Taylor et al., 2008), obsessive compulsive disorder, trauma-related psychopathology (Paunovic, 2011; Paunovic & Öst, 2001).

Today many forms of therapy are direct and explicit applications of reciprocal inhibition and respondent extinction. Other forms of contemporary psychotherapy may well incorporate these procedures, but may only acknowledge them indirectly, through vernacular language or sometimes do not acknowledge them at all. For example, a treatment package for anxiety or stress might involve journaling of events that provoke worry and anxiety. If such as procedure is effective, one might attribute its effectiveness to “working through one’s problems”. A more parsimonious explanation might be that through journaling the person engaged in a self-managed form of respondent extinction. Reference to “working through one’s problems” is a vernacular, non-scientific term and so is not readily amenable to investigation whereas self-managed respondent extinction opens up the door to investigate this phenomenon and maximizing its potential benefits by identifying and using the variables that control self-control and respondent extinction.

The American Operant Deluge

A second strand of behaviorism comes from operant learning a predominantly American intellectual heritage. Thorndike (1913) demonstrated trial and error learning in cats when he showed that hungry cats learn to exit carefully constructed puzzle boxes to access food more and more quickly with experience and concluded that consequences “stamped in” behavior. Around the same time, Watson’s (1913) manifesto called for an objective account of psychology and an exclusion of mentalistic causes of behavior. He wrote: “Psychology as the behaviorist views it is a purely objective experimental branch of the natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, not is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness ...” (p. 158). It is interesting to note that his early career included ethological work involving extensive observation of the behavior of terns setting the scene for the primacy of observational data and functionalism. He also thought that behavioral psychology should be a pragmatic and useful science that could advise people how to teach, how to raise children and how to make money in business foreshadowing many of the applications of behavioral analysis in the late twentieth century.

Skinner (1938) took these strands and recognized the fundamental differences between Pavlov’s work and what he called operant learning. He viewed classical conditioning as limited as it could only explain a limited part of behavior based on inherited reflexes with survival value related to unchanging aspects of the environment such as gravity or threats to the organism’s integrity. Operant conditioning, however, was much more important as it explained the broad swath of behavior related to organism’s adaption to an ever-changing unpredictable environment. Skinner spent decades conducting basic research on learning in highly controlled conditions with non-human animals identifying the environmental variables and their parameters that did indeed control and predict behavior. The Skinner box was a method for studying and measuring behavior objectively focusing on the cumulative number of responses over time, using small N (often one subject) experimental design and inductive methods to accumulate vast quantities of replicable data to permit cautiously built up generalizations from individual studies and individual organisms (Skinner, 1938). Morris (2013) identified Skinner’s (1945) *The Operational Analysis of Psychological Terms* as a founding article for behavior analysis because: (1) it named the philosophy of science as radical behaviorism, meaning “thorough” or “root”; (2) it incorporated private verbal behavior as behavior; and (3) it incorporated private events such as consciousness as verbal behavior occasioned by behavior, such as behaving consciously, rather than consciousness causing behavior. They also noted that it was not until the 1980’s that Skinner write about variations and selection by consequences as common features of biological and cultural selection and selection of operant behavior during the lifespan.

Contemporary with Skinner’s early work were two other important developments which could be considered in the operant tradition. First, Dunlap (1932,

1942) developed the procedure of negative practice in which a problematic response is repeated for an extended period of time without reinforcement of that response. Dunlap applied this to both motor behavior, such as tics, stammering, and typing errors (Dunlap, 1932) and “affective and ideational habits” (Dunlap, 1942, p. 273). The second is Mowrer’s (1939) classic analysis of anxiety using two factor theory in which he wrote “anxiety is thus basically anticipatory in nature and has great biological utility in that it adaptively motivates living organisms to deal with (prepare for or flee from) traumatic events in advance of their actual occurrence, thereby diminishing their harmful effects” (p. 563). This quote illustrates both the two factors that control anxiety – antecedent stimuli that in the past have been paired with threats and subsequent avoidance of these antecedent stimuli. It is interesting to note that this analysis of anxiety foreshadows Estes and Skinner’s (1941) empirical demonstration of this model of anxiety.

Like Watson, Skinner always had an eye on implications for applied individual human problems and broader social problems. At various times Skinner addressed solutions to broad social problems such as education (Skinner, 1968), world peace, recycling (Skinner, 1953), designing cultures (Skinner, 1966), understanding and changing language (Skinner, 1957) and having a healthy, happy and productive old age (Skinner & Vaughn, 1983). He designed better cribs for children and their caretakers, proposed better missile guidance systems in World War II guided, of course, by pigeons, and teaching machines where children learned without teachers being present. He also used it extensively in the control and management of his own behavior throughout his life enabling him to live a healthy, happy, long and productive life (Epstein, 1997). This intellectual heritage and the accumulation of behaviorally trained students resulted in a series of books on psychology and psychotherapy as behaviorists see it (Dollard & Miller, 1950; Keller & Schoenfeld, 1950) and on methodology of behavior analysis (Sidman, 1960).

Skinner’s early work on mental health included the seminal study on acquisition and control of anxiety which demonstrated that stimuli that preceded aversive stimuli came to suppress ongoing adaptive operant behavior (Estes & Skinner, 1941). Other behaviorists, came out of the cold of psychoanalysis and provided behavioral accounts of psychotherapy (Dollard & Miller, 1950). Skinner (1953) expanded these ideas placing emphasis on behavioral self-management at the center of behavioral accounts of mental health issues. Namely, mental health problems reflected society’s control of its members through positive punishment which resulted in avoidance of the punishing environment and punishing agents and the negative side-effects of positive punishment including anxiety and problematic behavioral inhibition (Estes & Skinner, 1941). Thus, if someone fails to learn to adapt to these conditions by managing their own social and physical environments to tolerate aversive stimulation and postpone positive reinforcement, then a person is at risk for problematic behavior such as avoidance, drinking too much alcohol etc. to reduce the aversive side-effects of one’s history of positive punishment. Skinner proposed that the job of the therapist is refrain from directly instructing their clients to change their behavior, but rather to subtly and indirectly induce a repertoire of behavioral self-management in their clients. In so doing, clients can independently

discriminate the relationship between their own behavior and the environment and then rearrange their physical and social environments to manage this own behavior to reduce anxiety and depression and live in an adaptive, effective and apparently more autonomous way (Skinner, 1953). (See Table 1 for some examples of behavioral self-management and mental health).

The 1950's saw Skinner and his colleagues begin to apply operant analysis and interventions directly to alleviate human suffering. A possible isolated first example, is the report of operant conditioning of arm raising in an individual with intellectual disabilities considered incapable of learning by Fuller (1949). Subsequently, Lindsley (1956), a Skinner student, set up an operant laboratory and program of research in a mental hospital and first demonstrated control of lever pulling by schedule effects in people with schizophrenia which formed the basis of subsequent work on the token economy (Ayllon & Michael, 1959). Around the same time more traditional experimental psychologists began to evaluate reinforcement procedures

Table 1 Skinner’s nine strategies of behavioral self-management and their application to mental health issues

Strategy	Example
1. Use self-restraint to decrease undesirable behavior and physical aid to increase a desired behavior.	Fold your hands on your lap to prevent moving your hands around in an embarrassing manner, resulting in decreased social anxiety. Place your relaxation tape next to your desk so it is easy to use and you are more likely to engage in relaxation training.
2. Change the stimulus, such as remove a discriminative stimulus for a behavior we want to reduce and present a stimulus to increase the probability of desired behavior.	Walk away from a nasty person to reduce anxious behavior. Place a reminder to use relaxation training after work on car driving wheel making it more likely you will use relaxation training.
3. Use deprivation to increase a desirable behavior and satiation to decrease an undesirable behavior.	Skip lunch to eat more at a free dinner to eat more free food and save money. Drink a pint of water before going to a party to decrease future consumption of alcohol.
4. Manipulate emotional conditions.	Use mood induction to change future behavior, for example, rehearse one’s grudges before going to ask for a raise.
5. Use aversive stimulation	Set alarm clock across the room to wake up and get to work on time.
6. Use drugs to change behavior	Drink a big coffee to increase the probability of working in the afternoon.
7. Operant conditioning	Watch a favorite show after completing relaxation training to increase the probability of practicing relaxation.
8. Punishment	Slap your own hand as you go to grab an extra drink of alcohol reducing the probability of getting drunk and saying something embarrassing.
9. Doing something else	Change the topic of conversation or walk away when someone talks about embarrassing topics that provoke anxiety.

on memory in individuals with intellectual disability (Locke, 1962) and Wolf et al. (1963) demonstrated that operant principles could be applied effectively to reduce problem behavior such as throwing plates both in the clinic and home in an individual with intellectual disabilities. These and many other developments took place in pioneer academic behavioral programs such as those at the University of Kansas (Baer, 1993), the University of Arizona (Thompson, 2017) and the University of Manitoba, Canada (Walters & Thomson, 2013). These programs addressed many applied issues for the first time using both basic research, such as showing operant reinforcement and extinction of thumb sucking (Baer, 1962), and applied work (Wolf et al., 1963). There was a close relationship between behavioral theory and practice and this was extended to many problems including the development of typical children (Bijou & Baer, 1961).

In Europe, the first meeting of the British Experimental Analysis of Behavior group took place around 1963 (Hughes, 2007). This group grew into the European Association for Behavior Analysis which has spawned numerous European national organizations. A similar group developed in Ireland in the 1970's (Leslie & Tierney, 2013). Both groups began as primarily basic groups which, in response to the need for effective practitioners in autism, have subsequently focused on applied work.

Morris (2013) conducted a careful analysis of basic behavior analysis publications prior to 1959 and 1967. They identified 36 ABA articles which included four clusters. These were as follows. (1) Ayllon's work (e.g., Ayllon & Michael, 1959.) with psychiatric patients in Saskatchewan dealing with reducing psychotic talk, hoarding, refusal to self-feed and teaching mealtime attendance and eating by training psychiatric hospital personnel to use reinforcement and extinction. (2) Work by Staats (e.g., Staats et al., 1962) at Arizona State University on operant procedure to teach reading using token economies administered by adult volunteers. (3) Wolf's (ref) work at the University of Washington to address problem behavior, toilet training, isolate play, regressed crawling reducing crying and increasing appropriate speech. (4) A group of 24 other articles some of which were isolate publications. Thus, the core start to behavior analysis was one based in the USA by a small number of geographically dispersed researchers.

By 1965, Ullmann and Krasner's classic *Case studies in behavior modification* reported many and diverse applications of this blossoming new technology to problems such as reinstating speech in a mute person with schizophrenia, several behaviors related to autism, restoring eating in a person with anorexia, hysterical blindness, trauma-related anxiety, fetishes, sexual inadequacy, stuttering, tics, school phobia, toilet training, tantrums, phobias, regressed crawling, crying, operant vomiting and hyperactivity. In addition, research had already begun to address important applied issues establishing people as conditioned reinforcers, group classroom procedures and training staff to administer group token economies. The work of Ferster is also especially notable for providing theoretical analyses of autism (Ferster, 1964) and depression (Ferster, 1973) (along with Lazarus [1968]) and the beginning of applied behavioral psychopharmacology using behavioral technologies (Ferster & Appel, 1963; Ferster & DeMyer, 1961). These papers went on to provide the basis for

applied work in behavioral activation (Lewinsohn, 1974) and early intensive applied behavior analysis (ABA) for children with autism (Lovaas et al., 1965).

Nineteen fifty-eight saw the founding of the *Journal of the Experimental Analysis of Behavior* which at first include experimental analysis but not treatment of some applied problems such as stuttering (Flanagan et al., 1958). In 1968 the first issue of the *Journal of Applied Behavior Analysis* was published, which included the seminal article *Some current dimensions of applied behavior analysis* (Baer et al., 1968). As with Ullmann and Krasner's volume, the *Journal of Applied Behavior Analysis* (JABA) published papers on a variety of mental health for the first five or so years similar to that in Ullmann and Krasner.

The founding of an applied journal required at least five methodological changes from the basic science. First there was a formalization of small N experimental design to specify specific designs such as reversal and multiple baseline designs among others (Sidman, 1960). Second, instead of collecting data mechanically on arbitrary, convenient responded usually measured mechanically as number of responses and presented as cumulative rate of behavior, human observers had to be trained to observe socially important and meaningful behavior reliably in natural settings. This required training of observers which could measure several different response parameters such as duration, latency etc. and was typically presented sessions by session, rather than as cumulative number of responses. Third, rather than programming machines to present stimuli in contrived environments designed to study basic learning, environmental changes were often implemented by changing the behavior of natural behavior change agents, such as family members and staff. These natural change agents needed training to do so. In order to present convincing evidence of a reliable relationship between the independent and dependents variables, experimenters had to show that the behavior of the change agents also indeed changed in the hoped-for manner and was functionally related to the behavior of the target persons. Fourth, in order to show that socially convincing and meaning changes had occurred, applied researchers had to show that treatment effects generalized and maintained over time in socially valued ways. Finally, applied researchers had to ask the participants and the people around them what they thought about the goals, methods and outcomes of applied behavioral treatment (Wolf, 1978). Like other fields, the development of practice out of basic research has resulted in unresolved tensions between the science and practice of behavior analysis and, even in research let alone practice, a certain drift of application away from its basic foundations.

Ripening and Expansion of Applied Behavior Analysis: 1980's–2020

ABA has addressed an incredible breadth of socially significant behavior since the founding of JABA. A description of that is not possible in this chapter. Rather, a few major trends will be highlighted.

First, Skinner's (1957) *Verbal behavior* was a behavior analytic account of what in the vernacular we call language or communication. Skinner defined verbal

behavior as behavior in which reinforcement was delivered through other people rather than directly by a nonhuman environmental event. For example, if one picks up a glass of water and drinks, drinking is reinforced without social mediation; if you ask someone to pass the glass of water and someone provides this then the reinforcement is socially mediated. In defining verbal behavior in this manner Skinner produced a radically different analysis of language. Thus, pointing, yelling, and texting for a glass of water were now verbal behavior even though they involved no spoken words. In contrast, someone engaging in echolalia saying “water” repeatedly alone in a room were not engaging in verbal behavior because the reinforcer was not socially mediated. Verbal behavior also defined classes of verbal operants not based on their topography or grammatical classes but on the basis of the controlling environmental variables. For example, a mand is controlled by the reinforcer it specifies and its conditions of deprivation. Thus, if one has not drunk for a long time and says “water”, and that response is reinforced by water, then this is a mand. In contrast, a tact is a class of verbal behavior controlled by non-social antecedent stimuli, such as objects and reinforced by generalized conditioned reinforcers, such as praise. For example, if someone sees a glass of water and says “Water” and another person says “that’s right” then in this example “water” may be a tact. Thus, response topography is unimportant, but the variables controlled verbal behavior are definitional.

Chomsky (1959) reviewed *Verbal behavior* negatively by from a structuralist perspective; Skinner did not reply and some assumed that Skinner agreed with the critique, although MacCorquodale (1970) among others did reply. Although there were a several empirical papers showing environmental control of verbal behavior (Krasner, 1958), ABA did immediately not take up the challenge of the implications of Skinner’s *Verbal behavior*. Subsequently, Sundberg and Michael (2001) among others developed a completely new technology of teaching verbal behavior to individuals with intellectual disabilities and with autism. Further, Barnes-Holmes et al. (2000) used *Verbal behavior* as the basis of relational frame theory and acceptance and commitment therapy (ACT). So far, and unsurprisingly, there has been no effective technology to promote language or language-based interventions based on Chomsky’s views after more than 60 years.

A second important trends has been the development and expansion of methods of conducting and using functional assessments and analyses for treatment of severe problem behavior. Beginning with Carr’s (1977) conceptual analysis of the contingencies controlling self-injury, empirical studies demonstrated the important of functional analyses predicting the most effective treatment for severe problem behavior (Carr & Durand, 1985). The development of standardized functional analysis methods (Iwata et al., 1994) resulted in an enormous literature on functional-based treatment of severe problem behavior (Beavers et al., 2013; Hanley et al., 2003) including psychiatric symptoms, such as psychotic speech (Froján-Parga et al., 2019; Travis & Sturmey, 2010). It is conventional to distinguish three types of methods to conduct functional assessments and analyses. Indirect functional assessments include interviews and questionnaires completed by the clients or a relevant third party. For example, Durand and Crimmins (1992) developed the *Motivational*

Assessment Scale to determine the likely contingencies maintaining problem behavior. This has been extended to conduct indirect functional assessments for clinical problems such as smoking (Burrows et al., 2020). Direct functional assessments involve observing the behavior in the natural environment without changing the environment systematically such as in vivo recording of antecedents, behavior and consequences (Bijou et al., 1968) and scatterplots (1985). Finally, experimental functional analyses involve systematic manipulation of the environment using a small *N* experimental design. For example, Carr and Durand (1985) compared the effects of presenting little or no attention and easy and difficult tasks on children's problem behavior using reversal designs to demonstrate experimental control of problem behavior. Functional assessment and analysis methods have now been applied to a wide range of problem behavior (Sturme, 2020) and populations and has been enshrined in special education law in the USA and professional standards.

A third major area of expansion has been work on stimulus equivalence and transfer of stimulus functions within stimulus classes. Stimulus equivalence is demonstrated when an individual learns to match stimuli from class A (written words) to class B (photographs) and class B to C (spoken words) and the individual then learns several untrained relationships ($B \rightarrow A$; $C \rightarrow B$ and importantly $C \rightarrow A$). This training approach is not merely an example of an efficient method of training; rather, it is a behavioral model of conceptual behavior and categorization and thus forms the basis of important aspects of language, conceptual and intellectual skills. Originally demonstrated in the context of teaching reading (Sidman, 1971), stimulus equivalence has been used as a model for understanding classification of stimuli such as perceptual classes and conceptual behavior such as "understanding" graphs (Fields et al., 2009; Maffei-Almodovar et al., 2017). This approach has also been expanded to develop novel programs to teach children with autism among others (Dixon et al., 2017).

An important aspect of work on stimulus equivalence with direct relevance to clinical work is transfer of function among members of a stimulus class (Dougher et al., 1994). Once an equivalence stimulus class is formed, conditioning a function to one member of that class, such elicitation following pairing of one member of the stimulus class with electric shock (Dougher et al., 1994) and extinction of such conditioned responses (Augustson et al., 2000) produces generalization to other members of the class without direct training. Transfer of function might account to generalization of fearful behavior shown in phobias to untrained stimuli not associated with initial classical conditioning. This phenomenon might be incorporated in new therapy methods (Dougher, 1998).

Fourth, ABA has been active in applying the notions of delay discounting to disorders related to the *pathology of positive reinforcement*. Delay discounting refers to the preference that some people have for small immediate, low quality reinforcers over larger, better quality delayed reinforcers. Choosing the former is referred to as impulsivity. This framework has been useful in developing contingency management programs and other procedures based on increasing tolerance for delay of reinforcement to reduce drug use and increase vocational behavior in drug addicts with multiple mental health problems (e.g., Higgins et al., 1994),

gambling (Dixon et al., 2003), ADHD (Binder et al., 2000), and health-related behavior such as smoking and obesity (Dallery et al., 2013).

A New Profession

The expansion of the many applications of ABA has resulted in the development of a new profession. The growing and unfulfilled need for effective therapies, especially for young children with autism spectrum disorders, resulted in a situation where behavioral practitioners were regulated to differing degrees often by *ad hoc* local regulations. Additionally, licensed professionals outside of ABA sometimes claimed competence beyond their training due to insufficient professional training and an incomplete understanding of ABA. This resulted in some situations where there was concerns over: (a) the excessive and inappropriate use of positive punishment; (b) practitioner competence; (c) difficulties for consumers, such as family members to discriminate the quality of service providers and had no clear mechanism to make complaints or protect themselves and family members from harm; and (d) no clear basis for funding from health insurance or other funding mechanisms (Michael, 1972).

Growing out of licensure for ABA in Minnesota and Florida (Shook et al., 2002) a national USA program of licensure was established. This included detailed task lists for professional training, required hours of supervised experience, approval of graduate training programs, a national exam, adoption of national guidelines by individuals state laws controlling licensure, disciplinary and complaints procedures to protect the public, professional insurance, and requirements for continuing post qualification education including ethics. More recently, like other professionals, ABA training has expanded to address diversity (Beaulieu et al., 2019), women's issues (Baires & Koch, 2019) and cultural competence (Wright, 2019). The upshot is that the number of licensed applied behavior analysts in the USA increased exponentially from almost zero in 1999 to nearly 14,000 by 2014, about 80% of practitioners being Masters-level practitioners (Deochand & Fuqua, 2016). In addition, many countries outside the USA now have programs for licensed behavior analysts (Martin & Shook, 2011). Today, most practice focuses on children and adolescents with autism and other developmental disabilities, but behaviorism continues to make an important contribution in many areas including behavioral case formulation and explanations of behavior change during non-behavioral therapies (Sturmey, 2008, 2020).

Problems with Waves Two and Three

Many of us like to defy our parents; psychotherapists in the 1970's were no exception in their willingness to defy their elder behavioral mentors by embracing the alleged cognitive revolution (O'Donohue et al., 2003). In so doing, many

professional mental health programs and professionals abandoned the philosophical and scientific roots of behaviorism in favor of mainstream psychological and psychiatric concepts, methods and practices at great costs to themselves and their patients.

The first sin was retreating to the office and in so doing abandoning observational data and observing their clients in the natural environment. The retreat to the office has meant that therapist, accepting client self-report of behavior change and of treatment integrity, have built a house of sand on foundations of sand. Some of what clients tell therapist is true, but it is often insufficient to be confident that the client's life is better because of the therapy. The retreat to the office has another related problem. It is difficult or often impossible to perform a functional analysis in the therapist's office. Although it is conceivable that analog functional assessments and analyses could be conducted in an office setting, the validity of such assessments would always remain in doubt as important elements from the client's natural environment could always be missing from the analog assessment. The second related sin is that by retreating to the office with their clients, therapists focus on client thoughts and feelings as the cause of problematic and non-problematic behavior rather than as covert behavior subject to functional analysis. Clients can readily shape the therapists' behavior in focusing on a search for causes in the past that are sometimes hidden in the false hope that revealing and understanding these historical causes will change current behavior.

Third, self-proclaimed second and third wave and cognitive therapists misrepresent and/or misunderstand traditional behavioral therapies. One aspect of this phenomenon is that if a therapy produces a change in behavior that is an interesting phenomenon to be studied and understood in behavioral terms, thus, Skinner (1953) speculated how traditional psychoanalysis might produce behavior change. A related problem is that often the new therapies include old procedures but do not fully admit to this. New therapies tend to highlight their new procedures and downplay the old ones. For example, descriptions of ACT tend to highlight new acceptance strategies and downplay the old procedures goals setting and self-recording. For example, ACT involves new and interesting verbal psychotherapy procedures such as the "milk, milk, milk" exercise in which the client repeats the word for about 45 s and reports that it loses its emotional and meaningful functions. ACT also involves goal setting and self-recording, although less attention-grabbing than the new procedures, this everyday component of ACT may be a key component of ACT. Thus, dismantling studies often find first wave procedures are the effective component of such packages and may be equivalent to the entire package. For example, Jacobson et al. (1996) famously demonstrated that behavioral activation alone produced the same outcomes as a cognitive behavior therapy package for depression. Nezu and Perrin (1989) similarly demonstrated that the problem solving protocol (a form of behavioral self-management) was responsible for change in treatment of depression, rather than changes in attributional style. A final example comes from a recent dismantling study of ACT compared the "engaged" components of ACT (values-guided choices, building valued habits etc.) with the "open"

components (acceptance, use of metaphors and defusing judgements and rigid self-stories), the full ACT package and a waitlist control. They found that on measures of overall distress, all components were superior to the WLC but that the engaged components produced significantly larger rates of reliable improvement (46%) than the WLC (17%) and open (27%) conditions (Levin et al., 2020) perhaps because the open components alone do not give the participants the tools needed for change that are in the engagement condition.

A related problem is the mislabeling of therapy procedures as “cognitive” or “behavioral.” Sometimes the mislabelling is in plain sight, such as labeling relaxation training as a cognitive intervention, other times it involves labelling any strategy that acknowledges private events as a cognitive therapy (Sturmey, 2005). The radical behaviorist position is simple: If there is a reliable relationship between what goes on in any kind of therapy – i. e., environmental events – and client behavior, it is a good idea to go investigate the learning that underlies that change. The results are likely to be disappointing to therapists seeking novelty as it is likely to involve considerable demystification, everyday explanations and environmental control of the behavior of therapists and clients (Skinner, 1953).

Sixth, many writers in mental health do not know behaviorism sufficiently to make a good critique of radical behavioral explanations of behavior change in therapy based on an accurate account of behaviorism (see O’Donohue & Kitchener, 1998). Three examples include some of the following. First, some critics have stated that behavioral treatments have focused excessively on contingencies. For example, Novacco (1997) wrote that “traditional behavior therapy has a tendency to neglect attention to environmental fields by focusing primarily on contingencies ...” (p. xiii). In the same volume, Stenfort Krose (1997) proposed that traditional behavior therapy rejected introspection and that learning was in fact cognitively mediated, and that there were new procedures such as problem solving and self-control. This implies that such approaches did not exist before and were new cognitive therapies, whereas Skinner (1953) described the status of cognition as covert behavior to be analyzed and self-control could be framed within a radical behavioral approach. Second, some critics fail to make some basic distinctions correctly, for example, the distinction between habituation and respondent extinction. Third, some critics make the error of elevating and reifying thoughts and feelings to the cause of behavior or inventing metaphors of broken computers, broken brains, faulty images etc. as the causes of behavior.

Finally, the substitution of questionable paper and pencil psychometric self-report measures as the outcome variable in many CBT and third wave outcomes studies instead of actually measuring the behavior to be changed directly makes the outcome literature for second and third wave behavior therapies highly questionable.

Treasures from the Deep or Flotsam and Jetsam?

We are awash with a tidal wave of new therapies, including new second and third wave behavior therapies. This is not necessarily a bad thing: There are some new therapy techniques which gives therapists and clients a choice between different procedures and some of the new procedures will suit some people more than the old procedures. Some of the new procedures have already jumped the low barrier of evidence-based practice by conducting many RCTs of third wave therapies and may be more effective than earlier therapies.

But, is this treasure from the deep or flotsam and jetsam?

By inadvertently abandoning behavioral principles or throwing them overboard, perhaps in the enthusiasm for some new behavioral principles, extension of existing principles, or lack of training in behaviorism, cognitive therapist and new wave theoreticians and practitioners have lost some three fundamental things: The philosophy of the science – behaviorism – the basic science – the experimental analysis of behavior – and the applied science – ABA. Doubtless behaviorists will continue to paddle their canoe against the currently prevailing tides and apply the philosophy, concepts and methods of behaviorism to all kinds of therapies. Hopefully, second and third wave behavior therapists will remember their distant behavioral histories and at least adopt some valuable measurement practices from the first wave such as collecting observational data on the behavior of therapists in their natural environments. Some are indeed doing just this (e.g., Parga et al., 2017).

Psychotherapy has been at sea for more than 50 years. There is a lifeboat available and it is radical behaviorism. One wave is enough!

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Cognitive Therapy and the Three Waves: Advantages, Disadvantages and Rapprochement



Robert L. Leahy

It is fashionable to view the development of different cognitive behavioral therapies as forming “waves”, as if one precedes another and another supersedes what comes before. Although Hayes and others (e.g., Hayes & Hofmann, 2021) have denied that waves imply progression or superiority, it is hard to escape the intuitive implication that one wave is superior to another. I would agree with Hayes who claims that waves are like movements of waves on the shore, one coming in, another going out, with no “developmental” hierarchy. Let’s keep this in mind as we recognize that a “new wave” on the horizon is that of transdiagnostic approaches such as “common processes” (Hayes & Hofmann, 2021) and “the unified protocol” (Barlow et al., 2017; Farchione, et al., 2012). Indeed, it very well may be that actual therapists in the real-world pick and choose the tools or waves that they believe best fit the patient in front of them. I know that many of my colleagues who are in clinical practice are often eclectic and draw on all three waves depending on the presenting problem. Nonetheless, we often find ourselves defending one wave against another, although we may find that we all can benefit from each other.

In this chapter, I will take the position of explicating the cognitive therapy model, reviewing its history, examining the context of its emergence, comparing it to other approaches, and suggesting limitations and opportunities that a more expanded cognitive model might provide. Rather than “defend” the cognitive model, I will describe it, review the rationale for it, the research supporting it, its limitations and its strengths. It is my contention that we all have a lot to learn from each other. Perhaps that is the message of the Fourth Wave.

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Historical Context of the Cognitive Therapy

Although Ellis (1962) and Beck (1967, 1979) had developed their respective cognitive or rational emotive models independently and somewhat simultaneously, I will focus on Beck's model in this chapter for a variety of reasons. First, Beck's model has become identified with the cognitive approach, although it clearly overlaps with some of Ellis's model. For example, both models argue that biases or distortions in thinking contribute to psychopathology and both propose specific categories of these biases. Both models focused on what the patient is consciously thinking and what is going on currently in the patient's life. Second, there is considerably more research related to the Beck model than to the model advanced by Ellis. Third, Beck's model has continued to evolve over the years into a more integrative and comprehensive model of human functioning. For example, the initial model focused on depression, while subsequent developments elaborated models of panic, social anxiety, trauma, substance abuse, schizophrenia and personality disorders. And, Beck's model developed into a multi-faceted conceptualization including evolutionary theory, neuroscience, cultural effects, socialization, moods, and other processes (Beck & Haigh, 2014). With these caveats, we must acknowledge the significant and enduring contributions made by Ellis and his colleagues.

Similar to Ellis, Beck had been trained in psychodynamic therapy, which almost completely dominated American psychiatry and clinical psychology until the 1970s (Rosner, 2018). It may be difficult for younger clinicians to realize how pervasive psychoanalysis was in its domination to the exclusion of biological models and other therapeutic models. The monolithic domination of psychoanalysis and its intolerance of alternative approaches may have had a lot to do with its prolonged popularity in medical training and clinical psychology even though there was scarce empirical evidence to support the model. Indeed, until Eysenck (1952) raised the issue of lack of evidence of the effectiveness of psychodynamic treatment (no better than spontaneous remission), there was little concern that a widespread model lacked empirical support. Even after the issue of the lack of empirical support was raised and questions about the reliability and validity of projective techniques had been suggested, the psychodynamic domination of American psychology and psychiatry appeared to continue unabated.

Beck was trained in psychoanalysis and was on the psychiatry faculty at the University of Pennsylvania from the 1950s. During this period of the 1950s and 1960s psychoanalysis was undergoing significant changes, moving beyond the model of repression, hydraulics, and stages of development to models of how the ego (reality testing, organization of cognition and perception) functioned. Leaders of the ego psychology movement included Anna Freud (1968) and her work on the analysis of the ego and mechanisms of defense and Heinz Hartmann (1939/1958) in his work on ego autonomy. Beck viewed himself as part of this emerging ego psychology and viewed his new cognitive model as a natural development of this branch of psychoanalysis.

Beck was interested in testing the psychodynamic idea that depression was repressed hostility (Beck & Ward, 1961). The psychodynamic model proposed that dreams reflected the emergence of unconscious conflicts and content. Accordingly, Beck expected that the dreams of depressed patients would reflect the content of the repressed hostility. Contrary to his expectations, the dreams of depressed patients were filled with content about loss, abandonment, and failure (Beck & Hurvich, 1959; Rosner & Lyddon, 2004). Beck noted in his early work that he could identify these negative beliefs that were consciously expressed by his patients and help them examine their validity. Thus, he believed that one goal of therapy could be direct access to conscious negative beliefs that could be tested by experience, collecting evidence and challenging the logic of the depression.

Early work indicated that his patients improved more rapidly than in the more traditional psychodynamic treatment (Beck, 1967). The role of the therapist was more active, involved focusing on the present, and did not implicate unconscious content that required interpretation on the part of the therapist. To Beck's surprise, his "neo-analytic" cognitive model was rejected by the traditional, established psychodynamic community and he was cautioned that his approach indicated that he personally needed more psychoanalytic therapy to deal with his personal issues (Rosner, 2014). Beck took a leave of absence from the Department of Psychiatry at the University of Pennsylvania to direct himself toward his innovative approach.

During this voluntary sabbatical Beck immersed himself in a wide-ranging reading program (Rosner, 2014; personal communication with R. Leahy, February 22, 2018). He read the stoic philosopher Epictetus who placed great emphasis on the idea that one's interpretation of events was more important than the events themselves (Epictetus also had a profound influence on Ellis; see chapter "Meta-science and the three waves of cognitive behavior therapy: Three distinct sets of commitments" in this volume). Beck also read Jean Piaget whose constructivist model of stages of knowledge appealed to Beck's emerging constructivist model of psychopathology. He found that George Kelly's *Psychology of Personal Constructs* was especially interesting (Kelly, 1955). Kelly had argued that each individual had their own "construction of reality" and that the specific constructs (concepts) that were dominant for the individual were often the source of difficulties. For example, one person might focus on the "construct" of winner vs loser and view events in terms of defeat and humiliation, whereas another individual might view events in terms of beautiful vs. ugly, with corresponding concern about appearance where self-esteem would be based on looks. Clearly, these constructs are relevant to Beck's later use of the concept of "schemas". Kelly introduced the concept of "constructive alternativism" to reflect the idea that there is a wide range of different ways of interpreting an event. This concept is also reflected in Beck's model of considering alternative interpretations of reality.

There were developments in psychodynamic theory that mirrored Beck's alienation from the fold. As Beck was developing his cognitive model during this time John Bowlby was moving away from the drive-reduction model of psychoanalysis to develop his model of attachment. Bowlby noted that there was considerable evidence that there was an instinctive, mutually supportive behavioral system between

infants and their mothers (parents), that assured proximity, nurturance and protection. Bowlby argued that this system was better accounted for by evolutionary theory than by psychodynamic models and that it was a universal pattern observable in infants in different cultures and in different species (Bowlby, 1980). Attachment behavior had been observed in the work by Harlow on surrogate mothers (that is, figures that were soft and cuddly allowing clinging vs. wire-mesh figures that provided food) (Harlow & Zimmerman, 1959). Work by Rene Spitz (1946) on “hospitalism” had previously shown that simply feeding the infant was less important than the interaction and touch of a nurturant figure, where the latter led to thriving while its absence led to physical and mental arrest. Bowlby proposed that the attachment process was independent of drive reduction and that problems that arose due to separation, loss, or threats of loss resulted in cognitive models that emerged which he referred to as internal working models. We can immediately see the relevance of this to Beck’s concept of schemas. And, like Beck, his work was not well received by the British psychodynamic community (Bretherton, 1992).

Kelly’s model was not focused specifically on diagnostic categories, but was proposed as a general model of functioning that transcended diagnoses. Indeed, at the time of Kelly’s writing in the 1950s there were few agreed-upon diagnostic systems in use, since the DSM had not been developed. Beck’s model was also offered as a general model, but soon emerged as a model for depression in his 1967 book (Beck, 1967) and his 1979 treatment manual (Beck, 1979). Unlike the model proposed by Kelly, and certainly unlike the concurrent psychodynamic models of that time, Beck was eager to provide empirical support for a structured cognitive model. Thus, the 1979 book *Cognitive Therapy of Depression* (Beck, 1979) was a detailed manual of how to conduct the new cognitive therapy, provided the experimental protocol for early experiments on the effectiveness of this new approach, and cited research supporting its effectiveness. The psychodynamic world had never seen anything like this.

The schema concept was also part of Piaget’s constructivism, where Piaget distinguished between action concepts (*schemes*) and more static concepts (*schemas*) (Piaget, 1955; Piaget, 1970). Piaget drew a distinction between operative (active) and figurative (static) intelligence, where operative understanding of reality focused on the actions or modifications of “reality” (Furth, 1968). Piaget argued that many of the elements of thinking viewed by Immanuel Kant (Piaget, 1970, 1972) as innate concepts (such as causality, time, space, etc.) were not innate but emerged from interactions between the child’s actions, mental representations, and constructions through a series of invariant developmental stages. For example, sensori-motor intelligence reflected the understanding of how objects can be manipulated (illustrating primitive concepts of causality), while concrete operational intelligence reflected the understanding that changing one dimension (e.g., height) could compensate for changes in another dimension (e.g., width) so that quantity would be conserved. Piaget also identified the process of “decentering” that emerged during the period of concrete operations so that the individual could step away from the perception of a static stimulus to imagine possible transformations of that stimulus. This concept of decentering was relevant to the development of perceptions of

space, concrete operational thinking where thinking is not reducible to focusing on one dimension, and to the ability to coordinate different aspects, perspectives, and elements in a coordinated system (Feffer, 1967). For example, the coordination of different perspectives in a spatial field involved imagining how a change in my position in space to the position of someone else would lead to a different visual experience of that stimulus. Thus, the growth of these “constructions” of reality involved moving away from being anchored by a figurative or static visual stimulus to imagining possible changes and how these are related to one another within a system. Decentering is also part of Beck’s model, but in Beck’s model the emphasis is stepping away from what one sees to considering possible alternatives.

The Cognitive Revolution in Psychology

Beck’s model did not emerge out of a vacuum. American academic psychology was beginning to develop what became known as the Cognitive Revolution. In the 1960s and 1970s simple reinforcement models or social imitation models came under attack. One of the most effective challenges was made by MIT linguist Noam Chomsky (1959) whose review of B. F. Skinner’s book *Verbal Behavior* provided a devastating criticism of the limits of a strictly operant and behavioral model of language. Skinner’s model of language acquisition was based on reinforcement of verbal utterances and rejected the “black box” inside the child that facilitated language acquisition. Chomsky viewed his book review as a more general criticism of behaviorism and argued that he would offer a *reductio ad absurdum* of the behavioral model. According to Chomsky language is not reducible to a vocabulary of sounds or words but rather entails an underlying set of rules of syntax (Chomsky, 1968, 1969). These rules of syntax are so complicated that even linguists, let alone parents and children, can accurately describe them. Chomsky argued that children are born with “innate ideas”—a kind of language acquisition device—that (in today’s computer world) might constitute predetermined software for learning a language. Moreover, these are universal and similar parts of this structural model of language are found in all known languages. Rules for transformation of sentences entail these underlying rules. Furthermore, research on how children acquire language clearly illustrated that they did not directly copy what was heard, but rather reduced the complexity of their imitation to a set of simpler rules that eventually developed into the more complex language rules of the child’s community.

The cognitive model is an information processing model, that proposes that differences in how information is processed and evaluated have implications for psychopathology. Cognitive models of perception, memory and attention were gaining considerable influence. Ulrich Neisser was one of the forerunners of this in American psychology with the publication of his book *Cognitive Psychology* in 1967 (Neisser, 1967). The important work of Endel Tulving emphasized the constructive aspects of cognition and perception in contrast to models of reinforcement or mental copies (Tulving, 1972; Tulving & Thompson, 1973). Jerome Bruner advanced a cognitive

model stressing the active interpretation of stimuli and events and the organization of intelligence in his early book *A Study of Thinking* (Bruner et al., 1956).

One of the dramatic examples of the effects of cognitive mediation and the construction of memory is the work on false memories, where participants in experiments are given a false story about an earlier event that they later believe to be true, and research showing that participants' recollection of events is influenced by new information after an event that biases their recall (Loftus & Palmer, 1974; Loftus & Ketcham, 1996). Memory is not simply a copy of reality, as if we observe something and take a picture and retrieve the file later. The research on schemas underlying false recall indicates that memory is an active construction. This model is consistent with Beck's model of schemas that suggests that the content of depressogenic thinking is often established early on and that this leads to a selective focus on the negative. Similarly, the content of anxiety (threat orientation) is also set down early leading to selective attention to potential, if not real, threats.

Another development during this period was the emergence of work in artificial intelligence. The computer, as a rational information processing machine, became a metaphor of how the human mind could work. Two of the leading proponents of this—Minsky and Papert (1969) of MIT—attempted to view the development of intelligence as analogous to computer programming) (also, see Rosenblatt, 1958). Thus, the process of knowing could theoretically be described in terms of a set of rules about how "facts" were evaluated and combined. During this time the field of information processing was gaining popularity. The question addressed by this approach is how information is accessed, combined, and evaluated. Rather than view learning of information as a simple copy of "reality", the new approach viewed the mind as actively engaged in selecting information while filtering out other information, giving greater emphasis to the temporal acquisition of information (e.g., the primacy vs. recency effect), and viewing memory as affected by processes (such as emotion or connections within networks).

The information processing model had a direct effect on the development of the cognitive model of psychopathology. For example, Beck and Clark advanced an information processing model of anxiety based on biased attention to perceived threat accompanied by escape and avoidance (Beck & Clark, 1997). Similarly, Davis and others have found that the self-concept is based on biased information processing that maintains or triggers depression (Davis, 1979).

Another parallel development in the early years of the cognitive model was work in social psychology on how people explained their behavior and the behavior of others. Although the attribution model was later integrated into a cognitive model of depression, Beck was also developing his cognitive model during the same period that major contributions were being made on explanatory style and attribution processes. Initially, drawing on the work of Fritz Heider (1958) on what eventually became known as "naïve psychology", or how individuals explained psychological processes, social psychology and the social cognition branch became focused on how individuals inferred intention and dispositions (traits) in self and others. H. H. Kelley's model of covariation inferences suggested that people make inferences about dispositions or traits based on an individual's response repeated over

time (high consistency), as different from others' responses (low consensus), and as similar across similar situations (high distinctiveness) (Kelley, 1967, 1972). In addition, Kelley argued that causal inference would include consideration of sufficient and necessary causes. Edward Jones and Keith Davis also advanced a model of dispositional inference in a classic paper, *From Acts To Dispositions The Attribution Process In Person Perception*, which placed considerable emphasis on processes underlying inference of intentions to reach inferences of traits or dispositions (Jones & Davis, 1965). All of this work influenced Weiner who outlined dimensions of attribution for success and failure—effort, ability, task difficulty, luck—that served as a cognitive model of motivation (Weiner, 1974).

This model had a significant influence on the cognitive model of learned helplessness and learned hopelessness developed by Seligman, Alloy, Abramson and colleagues (Abramson et al., 1978; Alloy, 1988). According to the earlier model of helplessness advanced by Seligman, where “giving up” (helplessness) was viewed as a consequence of exposure to inescapable negative consequences (that is, the animal or human's responses had no effect on outcome, this non-contingency of outcome and response lead to a decrease in behavior (Seligman, 1975). However, as elegant as the non-contingency model first appeared it could not account for the low self-esteem and the general hopelessness across situations that was observed in human subjects. Consequently, Alloy and Abramson (Alloy et al., 1988; Abramsonky et al., 1989) considered how attribution processes might underly a more general cognitive process in helplessness, hopelessness and depression resulting in the reformulated model of learned helplessness. Thus, depression (along with helplessness and hopelessness) was found to be related to attributions of failure to stable qualities of the self—such as lack of ability—that were viewed as out of control of the person. Moreover, these negative attributions were generalized across time and situations, rather than being attributed to a unique situation. This reformulated model is consistent with the general cognitive processes suggested by Beck. It is instructive to understand that both Seligman and Beck were at the University of Pennsylvania and Seligman received training in the cognitive model. The attribution model that emerged has had an important influence on decades of research on the cognitive vulnerability to depression—work that is consistent with the cognitive model (Alloy et al., 2004, 2006).

The cognitive model derived from the attribution literature has had a significant impact on the work of Carol Dweck on beliefs about abilities that can be seen as either fixed or changeable (growth). Dweck refers to these as *Mindsets* (Dweck, 1988). For example, the mindset that your ability on something is not changeable can quickly lead to beliefs about helplessness, hopelessness and depression and to giving up with the first experience of failure. In series of studies over many years with children, adults, and on corporate culture, Dweck has shown that growth views of abilities lead children to persist after failure (try hard, find the challenge, this is interesting) and to the ability of adults to increase efforts following failure (Dweck, 1975; Dweck & Leggett, 1988). Similarly, educational systems and corporate cultures that emphasize growth mindsets have higher productivity and morale (Dweck & Yaeger, 2019). The implication of mindsets for clinical work is that some

individuals believe that their abilities and emotions are fixed which contributes to feelings of defeat and helplessness, whereas others endorse beliefs about growth and change which encourages further effort.

Beck's Cognitive Model

The cognitive model is a general model of psychopathology, placing emphasis on the role of cognition in the elicitation and maintenance of emotional disorders. For example, although depression can arise for any number of reasons (biochemical, external stressors, lack of skills to cope) once the problematic condition has manifested itself there is specific cognitive content that emerges is specifically related to the psychological disorder. The origins of the cognitive content could be due to any number of factors, including biochemical, genetic, early socialization, cultural factors, and other life experiences (Beck & Haigh, 2014)). For example, the genetic predisposition toward depression for some individuals will result in a biochemical diathesis toward depression which, along with early experiences of loss, criticism, or threats of abandonment, will lead to vulnerability to depression. Cultural factors that might place emphasis on achievement or perfectionism can also affect the vulnerability. More recent life events, such as the loss of a job or relationship, can then precipitate a depressive episode. Personal schemas of inadequacy and incompetence are activated that then generate a wide range of automatic thought biases such as fortune telling (“I will fail”), personalizing (“This is all my fault”), catastrophizing (“It’s terrible not to do well”), mind-reading (“Other people think I am a loser”), and other beliefs. These are then filtered through conditional beliefs or maladaptive assumptions—the rule-books that make one more vulnerable. These include rules such as “I need to be perfect”, “I should criticize myself if I don’t do well”, “If other people don’t like me then I am worthless”. The interacting and self-confirming nature of the automatic thoughts, maladaptive assumptions, and schemas operate as a closed system further escalating and maintaining the depression.

Beck describes a kind of cognitive architecture that reflects the foundation and building blocks of cognitive content underlying psychopathology. At the very foundation are schemas where are general concepts about self and others. Presumably these schemas are established during childhood, although they can also arise at any time during the life span. Schemas are the lens through which experiences (past, present and future) are perceived. Examples of negative schemas for the depressed individual are loser, incompetent, unlovable, out of control, and ugly, while schemas about others are that they will be judgmental, controlling, superior, and rejecting. The second layer of the architecture include maladaptive assumptions are conditional beliefs, such as “If-then” or “should” beliefs. These include rules for coping with the negative content of the schemas. For example, “If I am perfect, then I won’t be rejected” or “If I defer to others, they won’t abandon me”. These conditional beliefs direct the compensating strategies that the individual employs to avoid the expected negative consequences of the personal and interpersonal schemas. On the

more immediate level is the third part of the architecture—the automatic thoughts—that are thoughts that come spontaneously, appear plausible and reflect the biases or distortions implicated by the schemas and conditional beliefs. Beck identifies a number of typical biases such as mind-reading (“He thinks I am a loser”), labeling (“I am a loser”), dichotomous thinking (“Either I succeed or fail”), over-generalizing (“I seem to fail at so many things”), catastrophizing (“It’s awful if people don’t like me”), discounting the positive (“It doesn’t count that I did well at that, since that was easy”), and others. These three levels—schemas, conditional beliefs, and automatic thoughts—serve to reinforce each other as the individual continues to selectively attend to, remember, and evaluate experiences consistent with the content of the negative belief system.

In addition to this systemic depressive cognitive content, Beck argues that specific modes also arise. Modes are coordinated systems of cognition, behavior, emotion, and interpersonal functioning that function as a system. For example, in anger mode the cognitive content is one of viewing events in terms of humiliation, personal insult, being blocked by others from valued goals, unfairness, and other themes of insult, submission, and interpersonal threat. Once the anger mode is activated, events are processed through this biased lens and interpersonal behavior is then activated to cope with the “threat”. This includes attack, defense and attempts to dominate, accompanied by increased emotional energy to fuel the angry response.

The evolutionary model has had a significant influence on the cognitive model. Beck and his colleagues have viewed modes as adaptations to threats in the evolutionary relevant environment. For example, panic and agoraphobia may be viewed as adaptive responses to being exposed to potential predators in an open field or, alternatively, being trapped where exit is blocked. Social anxiety disorder may be viewed as an adaptation to avoid offending strangers and depression as an adaptation to accepting loss and defeat and ultimately pursue other goals. Once the mode is activated the associated thoughts, behaviors and interpersonal functioning are also activated.

Cognitive Model of Therapy

The process of therapy may differ considerably among therapists, but the general cognitive model emphasizes the following: (1) each session has an agenda that includes a review of the previous session, self-help assignments, and one or two problems for the current meeting; (2) the emphasis is on current functioning rather than the distant past, although work on the origins of schemas may include memories and interpretations from the past; (3) the emphasis is on what the patient is consciously thinking, rather than interpretations about unconscious content; (4) the therapist and patient collaborate using a Socratic Dialogue that emphasizes mutual respect, questions and answers, and a tentative approach to beliefs; (5) thoughts or beliefs are considered fair game for examination, empirical testing and refutation; (6) a wide range of techniques are used to test, examine, and if necessary replace

problematic beliefs; (7) in-session work is generalized to between session self-help with homework assignments to see if the patient can utilize these techniques to their advantage; and (8) feedback is elicited after each session and at the beginning of the next session.

The cognitive model of therapy employs a wide range of techniques (Leahy, 2017). These include socialization to therapy, bibliotherapy, identifying and categorizing automatic thoughts, examining the degree of belief and emotions associated with these thoughts, evaluating the costs and benefits of believing the thought, the semantic technique (definition of the thought), setting up behavioral experiments to test the thought, the double-standard technique (would you apply this to a friend), examining the implication of the thought (downward arrow), role playing for and against the thought, using metaphors and images, and many other techniques. The cognitive therapist also employs behavioral techniques such as activity scheduling, tracking pleasure and mastery, assigning activities, developing a reward menu, and setting goals in order to test beliefs. For example, the idea “I have no pleasure in my life” is tested out by keeping track of pleasure, relating changes in pleasure ratings with activities, time of day, people with whom the patient is interacting and anti-pleasure thoughts (“This doesn’t count because it used to be more fun”). Cognitive therapists increasingly employ mindfulness exercises in order to assist patients in gaining some emotional distance from their thoughts. Exposure techniques are used to challenge the idea that one cannot tolerate the discomfort or experience of a specific situation.

Throughout the course of therapy, the therapist and patient develop a case conceptualization that guides the understanding of the origin of beliefs, consequences, problematic coping (avoidance, compensation), effects on one’s relationships and other aspects of life, and how the cognitive architecture (automatic thoughts, conditional rules, and schemas) interact to maintain the problematic issues (Persons, 1993; Needleman, 1999; Kuyken et al., 2009). In treating individuals with personality disorders the case conceptualization begins with understanding how individual schemas about self and others were established during childhood, how these schemas resulted in problematic strategies of avoidance and compensation, and how the self-confirming selective attention, memory, and evaluation of information further maintained and strengthened these beliefs. Alternative realistic and adaptive beliefs are considered and examine as to how they might lead to more beneficial outcomes.

Cognitive models for a wide range of psychopathology have been advanced, including panic disorder (Clark, 1997), social anxiety disorder (Chambless & Hope, 1996; Clark, 1997), PTSD (Ehlers & Clark, 2000; Resick, 2018), substance misuse (Beck, 1993), psychosis (Beck & Rector, 2005), bipolar disorder (Leahy & Beck, 1988) pain (Winterowd et al., 2003), health anxiety (Salkovskis & Warwick, 2001), bulimia (Fairburn et al., 2003), couples (Epstein & Baucom, 2002), families (Dattilio & Epstein, 2005) and many other problems.

In addition, the cognitive model has been applied to conceptualizing and treating personality disorders with each personality disorder reflecting specific schemas and coping strategies (Beck et al., 2014). For example, the Avoidant Personality views the self in terms of being Vulnerable to depreciation, rejection, as socially inept and

incompetent and views others as critical, demeaning and superior. Corresponding beliefs include “It’s terrible to be rejected, put down”, “If people know the real me, they will reject me” and “I can’t tolerate unpleasant feelings”. Specific coping strategies include “Avoid evaluative situations” and “Avoid unpleasant feelings or thoughts”. In contrast, the Narcissistic Personality Disorder views the self as special, unique, superior and above the rules, views others as inferior, admirers, need-gratifiers for exploitation, and endorses rules such as: “Since I’m special, I deserve special rules”, “I’m above the rules” and “I should get my way”. The narcissist copes by using others, transcending rules, manipulating, and competing. The therapeutic model begins with developing a case conceptualization of how these personal and interpersonal schemas arose and how they have affected various aspects of the patient’s life. For example, the avoidant personality individual may have been criticized and humiliated during childhood and told how much more competent other children are. This led to the development of beliefs about one’s inadequacy and the critical nature of others. Examples of avoidance and deference to others maintained these negative beliefs and served to avoid being criticized by others. Cognitive therapy would assist the patient in identifying the typical negative automatic thoughts that support the avoidant personality, such as mind-reading (“She thinks I am boring”), personalizing (“If other people are not having a good time it must be because I am a drag”), and catastrophizing (“It’s awful if people don’t like me”). These beliefs can be examined using a wide range of techniques such as examining the advantages and disadvantages of these thoughts, evidence for and against, would you apply these thoughts to others, can you act in opposition to the thought, set up behavioral experiments to test out the thought, universalize not being liked by someone, and other techniques (Leahy, 2017)

How Are Other Approaches Viewed?

Does the cognitive model reject other approaches? It is common for proponents of models to pit one against another as if we are in a race where there is one “winner”. Patients come to therapy with problems to be solved, not seeking a specific school of therapy.

Does the Content of Thoughts Matter?

Behavioral and third wave adherents often suggest that focusing on the content of thoughts is of little or no value, suggesting that patients find themselves struggling with their thoughts. Of course, it is not simply the content of thoughts that leads to change, but the cognitive therapist does place a value on this process. The cognitive model does not reject behavioral or third-wave approaches, but rather places emphasis on specific content areas of thoughts that are open to modification. The cognitive

therapist will use behavioral exposure and behavioral activation in order to test the patient's negative thinking. For example, activity scheduling is used to examine the patient's belief that nothing gives them pleasure or that they feel down all the time. In keeping with the idea that the patient can test out beliefs through behaviors, the ultimate goal is to change the beliefs that maintain passivity, isolation, hopelessness and helplessness.

The cognitive therapist views the content of thoughts as important. Indeed, it was the argument advanced by behavioral proponents and ACT that addressing the content of thoughts was not helpful and could be potentially harmful. This does not appear to be consistent with the research showing that the cognitive model of depression is effective in reversing depression and has long-lasting effects (Hollon et al., 1990). Indeed, reviewing the research over the last 50 years suggests that cognitive therapy is as effective and, in some cases, more effective than psychopharmacology and that the positive effects of cognitive therapy are more long-lasting than the effects of medication treatment (Hollon et al., 2021). It is difficult to see how addressing the content of thoughts would be harmful if the therapy is so effective.

Moreover, there is considerable evidence that change in panic disorder is related to changes in the content of panic thoughts (Hofmann et al., 2007), depressive symptoms is related to changes in the content of negative thoughts (Garratt et al., 2007). The cognitive mediation evidence suggests that the content of thoughts is related to both psychopathology and the improvement in cognitive therapy.

Behavior Counts

It is unfortunate that some novices doing cognitive therapy may view the therapy as an exercise in philosophical debate. Perhaps the idea that the cognitive model relies on the Socratic Method of questions and answers and that the catalyst for psychopathology is the content of thoughts leaves some therapists with the idea that therapy is like a sophomore seminar in philosophy. This was not the model of cognitive therapy of depression that Beck and his colleagues advanced, since early in therapy behavioral activation techniques were part of the treatment protocol. Behavior counts—and using pleasure predicting, charting pleasure and mastery, and assigning pleasurable activities—are all fundamental to the cognitive model. As mentioned earlier, behavior is used to test out cognition. This includes testing the thoughts that “I have no pleasure”, “I will get rejected”, and “It's too hard”. Behavioral advocates like to claim that if you remove the behavior the cognitive approach is not as effective. But this misses the point: Behavior is a fundamental component of the cognitive approach because it allows us to test the patient's unhelpful thoughts.

Case Conceptualization

Rather than view therapy as simply the application of a lot of techniques in a robotic and formulaic fashion, the cognitive therapist will utilize an integrative case conceptualization. Indeed, the model of case conceptualization has expanded over the last several decades to include genetics, neuroscience, evolutionary theory, cultural and socialization factors (Beck & Haigh, 2014). A limitation of the first wave behavioral models is that they do not provide the richness and depth of case conceptualization that is possible with the cognitive model. For example, a cognitive model of envy would entail a recognition of dominance hierarchies, general preferences for higher status within groups, a range of cognitive content underlying envy (discounting one's positives, idealizing other people's lives, resentment, competition and undermining others) (Leahy, 2015; Leahy et al., 2021). Admittedly, one could use the idea of reinforcement and modeling to describe how envy or jealousy are learned, but the elaborate network of thoughts, behaviors, interpersonal strategies and safety behaviors is better conceptualized, in my view, by an integrative cognitive model. Jealousy, as an example, can be understood as the interaction of a number of systems and processes: evolution, genetics, socialization, honor culture, attachment history, relationship history, rumination style, personality type, self and other schemas, thought-action fusion (equating a thought with an imminent action or reality), and conditional assumptions about relationships. It would be difficult to put this together from a behavioral, ACT, DBT, or mindfulness approach. The concepts simply are not there.

Parsimony vs. Complexity

First wave behavioral therapists will advocate for the parsimony of their concepts and conceptualization, arguing that there is no need for the complexity of a cognitive model. I believe there are several reasons to doubt this advantage. First, the very nature of what a stimulus is that triggers a response is a better regarded as a cognitive concept. What does the stimulus mean to the individual? How did it acquire this meaning? What other meanings or implications are inferred from this one stimulus? Why does the individual use one set of coping strategies rather than another (e.g., avoidance rather than approach?). The behavioral model might argue that certain behaviors are reinforced, while the cognitive model would use a different approach and argue that certain beliefs are confirmed.

Furthermore, if behaviorists and ACT advocates did not believe that the content of thoughts mattered, then why would they try to convince people (patients, other therapists) that the content does not matter. Persuasion is about changing content. And, how does one go about persuading others? Well, it appears that they use the usual cognitive model by examining the consequences of a thought, the evidence for and against, and the logical implications or absurdity of a way of thinking or

behaving. Indeed, the rational and pragmatic principles underlying the cognitive model are the basis of rational discussion—and science.

Disengagement and Decentering Can Be Helpful

The Mindfulness, ACT, DBT and Metacognitive approaches have made significant contributions in separating out how one “relates” to negative thoughts rather than simply the content of the thoughts. ACT is especially convincing in this regard, encouraging the patient to step away, practice mindfulness awareness, accept the thought, and focus on valued action (Segal et al., 2002, Linehan et al., 2007; Hayes et al., 2011; Wells, 2011). This can be liberating for patients who find themselves with an internal dialogue that keeps them locked into their isolation and rumination. Similarly, the metacognitive model of Adrian Wells using a technique of detachment—that is, stepping back, observing, and letting go—to illustrate that one does not need to get entangled with the content of the thought. Some of the techniques that reflect detachment—such as treating intrusive thoughts as telemarketing calls, trains in the station, or clouds passing in the sky—are immediately helpful to many patients who get hijacked by their thoughts. Again, mindfulness and detachment may be particularly helpful for patients whose problem is being hijacked by unwanted thoughts, rather than treating these thoughts as background noise. The work in the metacognitive model on rumination and worry suggests that this detachment can be effective, even when the content of thoughts is not addressed (Wells et al., 2010). One of the problems that arises with rumination and worry is that the patient may acknowledge that a thought is extreme or even irrational, but insist on “Yes, but... I could be the one”. Mindful detachment bypasses this endless loop of doubt.

Acceptance Is Helpful—Even Necessary

Hayes and his colleagues have been instrumental in advancing the idea that acceptance of certain “givens”, including external conditions, emotions, sensations, and the like, may be an important part of moving on to commitment to action toward valued goals. Although one can argue that the cognitive model does include an acceptance piece—“Given that this is true, what do you think about it?” or “Given that this is true, what can you do”—the ACT and DBT models have made a compelling case for acceptance as simply good reality testing. Living in the real world means that you have to live with reality. There is a version of a cognitive model—intolerance of uncertainty—that includes an element of acceptance. This model suggests that it may be essential for the patient to accept some uncertainty, rather than equate uncertainty with a bad outcome or with irresponsibility (Dugas et al., in press; Hebert et al., 2019).

Relevance of More Complicated Problems

Learning theory owes its origins to research on laboratory animals where the conditions of the experiment were well controlled. This has little similarity to what life is like for human beings. Therapists in individual practice are not limiting themselves to the treatment of simple phobia, panic, agoraphobia or other well specified problems. Indeed, I have been interested in expanding a modern cognitive model to address jealousy (Leahy, 2018; Leahy & Tirch, 2008), envy (Leahy, 2021), regret (Leahy, in press), ambivalence (Leahy, 2015) and other more complex emotional issues that are often key elements in the lives of our patients. In fact, because of the openness to conceptual models, the cognitive model can also be expanded to include many of the heuristics that Kahneman and others have identified that can affect decision making and beliefs about one's emotions. These include heuristics about the prediction of emotion (affect forecasting, immune neglect, durability), availability, representativeness, time discounting, and other "schemas" for information processing biases (Kahneman, 2011; Leahy, 2004, 2015; Wilson & Gilbert, 2005). Many of these heuristics or biases in how information is processed can be the focus of a much-expanded cognitive model of psychopathology that can help address how psychopathology is maintained by problematic beliefs about how the world actually functions and how one's behavior will lead to dramatic changes in emotion. This is an area of immense possibility that one would be hard pressed to develop from a behaviorist, acceptance, DBT, or mindfulness approach.

Philosophical Problems with Behaviorism

Many of us will recall in college or graduate school becoming enamored with the ideas of operational definitions, the verifiability principle and the elements of logical positivism (Ayer, 1959). Thus, we specify the terms or observations that will define a concept, we claim that a concept is meaningful only if it can be verified by observation, and we hold to the principles of logical positivism (Ryle, 1949). This was the hallmark of the emergence of behaviorism in philosophy in the 1930s and was often used as a reason to consider inferences about mental processes as meaningless since they could not be directly observed or to describe thoughts as behaviors. The verifiability principle and logical positivism appeared to dominate American and British philosophy for quite some time but eventually was challenged by a number of apparently devastating arguments. For example, the reliance on the operational definition and the verifiability principle for meaning (Ryle, 1949) does not take into account that there are meaningful statements that are not verifiable—such as Austin's (1962) examples... "Please pass me the sugar". We all know what it means when someone makes a request, but we would not equate the meaning with the truth of the statement. Other declarative language acts that Austin and others identified appear to question the limited concept of the verifiability principle.

Further, the verifiability principle seemed to favor a confirmation bias, while Popper suggested that the truth value of a statement would depend on how we would disconfirm a statement (Popper, 1959). Is a concept open to disproof and, if so, how? Indeed, one of the most prolific defenders of logical positivism, A. J. Ayer, eventually acknowledged that it was a failed project. In 1976 Ayer claimed “The most important” defect of logical positivism “was that nearly all of it was false” (Hanfling, 2003).

Other challenges to behavioral models include the issue of how we infer if someone understands something. Philosopher John Searle (1980) offers an example of how an individual can follow a set of rules that appear to represent an accurate “translation” of Chinese language and activities but that the individual carrying out the “instructions” might appear to “know” what the messages are, but they do not. Another example of how behaviorism is limited is its difficulty in accounting for the experience of understanding, feeling, or what philosophers refer to as *qualia*. For example, Nagel (1974), in his classic essay “What is it like to be a bat?”, argues that a strictly behavioral model cannot account for the difficulty or impossibility for us to understand what a bat’s experience is. We simply cannot know what it is like to be a bat. Are we to assume that people and animals do not have these internal experiences that are not reducible to behavior?

Further, as noted above in the discussion on language, behavioral approaches cannot account for how language is acquired since the rules of syntax and the underlying structure or language are so complicated that linguists cannot adequately describe them, children do not directly imitate but rather reduce the complexity of imitation to regularized simpler levels of utterance, and the transformational nature of language (changing the order of words and the relationship among categories) cannot be accounted for by behavioral models.

Different Approaches for Different Problems

Many years ago, I did a lot of child behavior therapy work and it appeared to me then—as it does now—that the best approach was parent training, contingency management, time out, rewards, and contracting with kids. The first wave behavioral model had considerable advantages then and now. If you are working with OCD then the best approach is exposure with response prevention, although metacognitive work can also be helpful (Solem et al., 2010). In treating borderline personality, the approach I would recommend is DBT, not cognitive therapy, although some psychodynamic models are somewhat effective (Clarkin et al., 2007; Fonagy & Luyten, 2009) and Young’s schema focused therapy is also effective (Giesen et al., 2006; Sempértegui et al., 2003). Why is it that these different approaches can sometimes be preferable to a cognitive therapy model? With children and parents there are limits in using cognitive restructuring given the developmental level and the necessity to change the contingencies of behavior. You are not going to get very far with a five-year-old using the semantic techniques, cost-benefit analyses, double

standard, or vertical descent cognitive techniques. All of that will fall on developmentally deaf ears. With OCD cognitive disputation may feed into a rumination and reassurance seeking response, further reinforcing the OCD doubt, without providing the patient the opportunity to face their fears. Similarly, with simple phobia exposure therapy is the preferred treatment. You can rationalize the safety of a behavior every session but if the patient does not enter the field of experience it will be an empty exercise of a futile debate. In the treatment of borderline personality, the DBT model has great advantages as a skill acquisition approach that assists in behavior and emotion regulation. Although there is some cognitive content in DBT (e.g., emotion myths), the emphasis is didactic, behavioral practice, and acquiring skills.

The fact is that no one approach works for everyone, just as no one medicine works for all maladies. We need to move beyond schools and more toward the common processes—or fitting the therapy to the problem—rather than trying to fit the problem to the therapy.

Final Thoughts

We often find ourselves defending our approach while attacking others as if this is a winner-take-all business that we are in. The only “winner” that matters should be the patient and patients are seldom acolytes of schools of therapy. I know that my own views of ACT and mindfulness have evolved over the years and I am happy to say that I have benefitted from having the flexibility to embrace concepts, techniques and theories that I initially opposed. On the academic horizon I see the emergence of a new approach advanced by Hofmann and Hayes—the Process Based Model—that is integrative, process and problem focused, and open to using techniques and ideas from first wave behavioral, second wave cognitive, and third wave approaches. Perhaps this is the Fourth Wave—the one that we ride together.

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Advantages of Third Wave Behavior Therapies



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Cognitive behavioral therapy (CBT), or simply behavior therapy, can be viewed as a *family of behaviorally and cognitively oriented interventions* that include, but are not limited to, clinical behavior analysis, applied behavior analysis, behavior modification, cognitive therapy (CT), cognitive and behavioral approaches, and acceptance- and mindfulness-based CBTs (Hayes, 2004b; Hayes & Hofmann, 2018; Herbert et al., 2013; O'Donohue & Fisher, 2008, 2009). Today, behavior therapy, when viewed in this way, is widely recognized as having extensive empirical support as a class of psychosocial treatments for individuals with various behavioral health issues. These issues include depression, anxiety, substance misuse, and chronic pain (e.g., Dimidjian et al., 2016; Nathan & Gorman, 2015), to name but a few.

From a historical perspective, the field of behavior therapy writ large is often said to have three phases or waves (Dimidjian et al., 2016; Hayes, 2004b). The first historical wave of this tradition came about with the advent of behavior therapy in the late 1950s and early 1960s as an alternative to the psychodynamic approach, the prevailing model for treating psychopathology at that time. The first historical wave of behavior therapy was marked by the application of basic behavioral learning principles supported by experimental research (e.g., operant conditioning, respondent conditioning, and S-R learning) to well-evaluated applied methods of behavioral change. Examples of first wave behavior therapy procedures include contingency management, exposure and response prevention, and systematic desensitization that were designed to target changes in discrete and specific behaviors of an individual (see O'Donohue & Fisher, 2009). Many of these behavioral procedures were designed to target changes in discrete behavior of inpatient adults with severe mental illness, individuals with developmental or intellectual disabilities,

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outpatient children and adults with anxiety concerns, and children with skills deficits or behavioral issues.

By the late 1970s, the tradition of behavior therapy had moved into the era of CT (Beck, 1993; Beck et al., 1979; Hofmann et al., 2013). This second generation of behavior therapy was characterized by a new set of methods and concepts that emphasized the role of *cognitive processes* (e.g., verbal behaviors, schemas, core beliefs, automatic thoughts) in psychological health, psychopathology, and behavioral change. For example, following the philosophical worldview of *elemental realism* (mechanism; Herbert et al., 2013; Hofmann & Hayes, 2019; Klepac et al., 2012), second wave behavior therapies had developed and promulgated therapeutic techniques, such as cognitive reappraisal and Socratic questioning, to identify and modify dysfunctional cognitions and schemas that were theorized to be at the core of human psychopathology (Beck, 1993; Hofmann et al., 2013). In theory and practice, the second wave of behavior therapy is said to have broadened the scope and application of evidence-based interventions to complex behavioral health issues in adult outpatient populations that circumscribed first wave behavior therapy methods had not fully addressed (Beck, 1993; Hofmann et al., 2013), such as problematic core beliefs and complex cognitions (verbal behaviors) and their impact on overall behavioral repertoires of individuals across various life domains. However, first wave behavior therapy advocates largely disagreed with this analysis, and maintained that cognitions did not directly cause overt behavior, but rather that cognitions were essentially verbal operants that could be explained (O'Donohue & Szymanski, 1996). Furthermore, first wave theorists argued that verbal behavior could be explained by the tools and methods available to the first wave behavior therapists.

Arrival of Third Wave Behavior Therapy

As described elsewhere (Dimidjian et al., 2016; Masuda & Rizvi, 2019), the origins of third wave behavior therapy as a collective movement can be traced back to the volume *Acceptance and change: Content and context in psychotherapy* (Hayes et al., 1994). At that time, the term “third wave behavior therapy” was not formally used to define this movement. Instead, it was loosely referred to as a “contextual approach” or “radical behavioral” psychotherapy (Jacobson, 1997; Kohlenberg et al., 1993). Many proponents of this movement were clinical behavior analysts, following radical behaviorism, a philosophical worldview subscribed to by many first wave behavior therapy scholars and clinicians (Dougher & Hayes, 2000). Nonetheless, the proponents of this movement had already explicated many of the key themes of what would later be called “third wave behavior therapy” and “third wave CBT,” including theories that reflect *contextual and dialectical philosophical assumptions* (Hayes et al., 1988; Jacobson, 1997) and the reconciliation of acceptance and change in practice (Linehan, 1994).

The arrival of third wave behavior therapy was officially declared by a series of writings published in 2004. These included the volume *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition* (Hayes et al., 2004a) and a seminal paper by Steven C. Hayes (2004b), *Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies*. These writings introduced acceptance and commitment therapy (ACT; Hayes et al., 2012b), dialectical behavior therapy (DBT; Linehan, 1993), mindfulness-based cognitive therapy (MBCT; Segal et al., 2013), behavioral activation (BA; Martell et al., 2013), functional analytic psychotherapy (FAP; Kohlenberg & Tsai, 2007), metacognitive therapy (MCT; Wells, 2009), and several others (Hayes et al., 2004b, 2011; Wells, 2009), as members of the third wave of behavior therapy. Of those, ACT, DBT, and MBCT are described in the literature most frequently as third wave CBTs (see Dimidjian et al., 2016).

Aims of the Present Chapter

Sixteen years have passed since the arrival of third wave behavior therapy was officially declared. Over the past few years, the field of behavior therapy is said to have progressed beyond the third wave behavior therapy movement into a new era called *process-based CBT* (Hayes & Hofmann, 2017, 2018; Hofmann & Hayes, 2019). From this historical perspective, we are now well-positioned to begin to evaluate the contributions that the third wave behavior therapy movement has brought to the field of behavior therapy writ large, including its *additive* advantages in philosophy, theory, and practice (Herbert et al., 2013; Herbert & Forman, 2013; Masuda & Rizvi, 2019). As such, the purpose of this chapter is to review these contributions and additive advantages. To do so, we will first present our account of third wave behavior therapy and the characteristics of this movement. Subsequently, we will outline changes that this movement has brought to the field of behavior therapy. Finally, we are going to present the incremental advantages of third wave behavior therapies in theory and practice.

Third Wave Behavior Therapies

Like the first and second generations of behavior therapy, third wave behavior therapy can be understood as a collection of philosophical, theoretical, and practical movements within the field of behavior therapy that occurred between the early 1990s and the mid-2010s, rather than as a singular, qualitatively distinct, therapeutic paradigm of behavior change. In our view, attempting to conceptualize it as the latter is extremely challenging, if not impossible. This is because, although various third wave behavior therapies possess some shared features, such as inclusion of psychological acceptance and mindfulness in theory and practice and emphasis on

empirical verification in theory/treatment development (Hayes et al., 1994, 2004a, 2011; Herbert et al., 2013), these approaches have emerged from different philosophical and theoretical lineages that can be incompatible with one another on a philosophical level (i.e., worldview and philosophical assumptions; also see below for our detailed discussion on the importance of being clear about philosophical assumptions in theory/treatment development). Whereas, deliberately choosing one specific philosophical worldview from which to operate may permit the assimilation of various, philosophically diverse, third wave methods in both theory and practice (e.g., see Zettle, 2005 for a functional contextual account of cognitive mechanisms in therapy), assimilating these approaches by haphazardly following multiple philosophical worldviews could cause resulting theories and practices to be disorganized and incoherent. It is also important to note that these philosophical differences seem to be quite salient even among notable third wave behavior therapies, such as ACT, DBT, and MBCT (see Masuda & Rizvi, 2019 for a detailed account of these philosophical differences).

Treating the third wave of behavior therapy as a new paradigm that is qualitatively distinct from previous generations of behavior therapy is also untenable. As discussed extensively elsewhere (Hayes, 2004b; Herbert & Forman, 2013), third wave approaches have been built on the first and second waves of behavior therapy, and thus share many philosophical, theoretical, and practical cores with their predecessors. Consider ACT as an example. At a philosophical level, ACT is said to be similar to some first wave behavior therapies, as its philosophical worldview- functional contextualism (see below)- can be understood as an extension of radical behaviorism, the guiding philosophical worldview through which many first wave behavior therapies and practices have been advanced (Hayes et al., 2012a; Vilardaga et al., 2009). At theoretical and practical levels, ACT is also said to be similar to CT of the second wave of behavior therapy (Herbert & Forman, 2013), in part because cognitive defusion, a behavioral repertoire of looking at a thought, rather than looking from that thought, which is a salient conceptual and practical feature of ACT, originated from *cognitive distancing* processes that were first presented in CT (Beck et al., 1979; Zettle, 2005). As a result, there were some heated debates from the mid 2000s to early 2010s concerning how best to view third wave behavior therapies, such as “whether there is anything new in third wave behavior therapies” (Arch & Craske, 2008; Hayes, 2008; Herbert & Forman, 2013; Hofmann, 2008; Hofmann et al., 2013; Hofmann & Asmundson, 2008).

Finally, because of their topographical features in practice, the term “third-wave behavior therapy” and “third wave CBT” are often used synonymously with the term “acceptance- and mindfulness-based CBT” (Hayes et al., 2004a). The latter is often difficult to distinguish from the term “mindfulness-informed psychotherapies” that is used to describe a group of non-traditional psychotherapies that have emerged outside the field of behavior therapy (e.g., Bien, 2006; Germer et al., 2013; Pilla et al., 2020). Many of these mindfulness-informed psychotherapies have originated in contemporary psychodynamic schools of thought and other less empirically oriented traditions. Today, the field of behavioral health in Western countries continues to exist in what has been termed the *era of mindfulness revolution* (Li &

Ramirez, 2017; Norcross et al., 2013). In this context, secular mindfulness and mediation practices (e.g., brief mindful breathing exercise) permeate across many areas of everyday behavioral health practice irrespective of practitioner therapeutic orientation and training (Masuda & O'Donohue, 2017). As such, it may be important to differentiate the third wave behavior therapy movement from the larger mindfulness movement. For this reason, at least in this chapter, we view third wave behavior therapy as a collection of philosophical, theoretical, and practical advances that occurred between the early 1990s to the mid-2010s within the *behaviorally and cognitively oriented field of behavior therapy* (Hayes & Hofmann, 2018; Herbert et al., 2013; Hofmann & Hayes, 2018). What follows is a review of third wave behavior therapy as a historical movement within the larger field of behavior therapy.

Characteristics of Third Wave Behavior Therapy Movement

According to Hayes (2004b), the third wave behavior therapy movement is characterized as follows:

Grounded in an empirical, principle-focused approach, the third wave of behavioral and cognitive therapy is particularly sensitive to the context and functions of psychological phenomena, not just their form, and thus tends to emphasize contextual and experiential change strategies in addition to more direct and didactic ones. These treatments tend to seek the construction of broad, flexible, and effective repertoires over an eliminative approach to narrowly defined problems, and to emphasize the relevance of the issues they examine for clinicians as well as clients. The third wave reformulates and synthesizes previous generations of behavioral and cognitive therapy and carries them forward into questions, issues, and domains previously addressed primarily by other traditions, in hope of improving both understanding and outcomes... from a scientific point of view, with an interest in coherent theory, carefully assessed processes of change, and solid empirical outcomes (p. 658–660; italics in original).

As illustrated in this description, third wave behavior therapy as a whole tends to be *holistic, contextual, and functional* in its guiding philosophical assumptions (e.g., worldview in terms of unit of analysis, analytic goal, and truth criteria) (Hayes et al., 2011; Hofmann & Hayes, 2019). In other words, the client's overall functioning and presenting concerns are said to be understood through the *behavior of a whole person in a context* (e.g., act-in-context; Biglan & Hayes, 1996; Miltenberger, 2012; Skinner, 1974; Vilardaga et al., 2009) as the fundamental unit of analysis or how a client as an unique entity interacts with internal and external environments (e.g., emotion regulation; Aldao & Nolen-Hoeksema, 2010; Mennin et al., 2013). Similarly, individual difference, psychosocial, and cultural factors that are relevant to a client's concerns (e.g. gender, ethnicity, sexual orientation, religion/spirituality, social class) are translated into the framework of a *contextually situated act of a whole person* (Masuda, 2014, 2016) or organism-environment interaction (Hayes et al., 1988).

In theory, as is the case with second wave behavior therapies, third wave behavior therapies seem to place greater emphasis than first wave approaches on cognitive

processes (e.g., verbal behaviors, rule-governed behaviors) in the understanding of human conditions (Anderson et al., 1997; Masuda & Rizvi, 2019; Wilson et al., 1997). However, the focus of third wave behavior therapies is on the *contextually shaped function* of cognition and other private events, such as feelings, memories, and bodily sensations (e.g., the way a person relates or responds to them), that can be understood using the framework of act-in-context or the organism-environment interaction, rather than based on the *content* (i.e., second wave) and *frequency* (i.e., first wave) of these private events themselves (Hayes, 2004a). For example, Segal et al. (2004) summarize this shift in focus as follows:

...our analysis of how cognitive therapy has its lasting effects... suggests that this patient would be less likely to relapse if, during the course of her therapy, she changed the relationship to her thoughts; this is, although the *explicit* emphasis of cognitive therapy would be on changing the content of her thoughts through challenging them, answering them back, seeking evidence for and against their truth value, we suggest that changes need to take place at another level. This level had always been present in cognitive therapy but left *implicit*. Our analysis suggests that unless, through the cognitive and behavioral techniques within cognitive therapy, the patient had begun to shift her *relationship* to thoughts, to recognize her thoughts *as* thoughts, she would remain vulnerable to relapse and recurrence (p. 301).

Here, what Segal and colleagues meant by “changing the relationship to one’s thought” is the development of new behavioral repertoire in response to difficult private events (e.g., depressive thoughts). That is, a potential process of change in CT is the acquisition of responding to one’s private events as mental events (e.g., I’m having a thought saying “I’m not good at anything”), rather than as the verbal rules that are held to be literally true or to be adhered.

Contributions of Third Wave Behavioral Therapies

As articulated elsewhere (Hayes & Hofmann, 2017; Masuda & Rizvi, 2019; Mennin et al., 2013; O’Donohue & Fisher, 2008, 2009), there is no question that many applied third wave behavior therapy concepts and methods in theory and practice have become central parts of the behavior therapy and CBT tradition. As described in more detail below, examples of these concepts and methods include mindfulness, acceptance, decentering/defusion, and value clarification/construction (also see Hayes & Hofmann, 2018; Herbert & Forman, 2011; Klepac et al., 2012; O’Donohue & Fisher, 2008, 2009). Today these concepts and methods co-exist with previously established ones (e.g., contingency management, exposure, and cognitive reappraisal) within a unified model of CBT (Mennin et al., 2013), and within the larger field of behavior therapy (Klepac et al., 2012; O’Donohue & Fisher, 2008). This ongoing synthesis in theory and practice is another reason why using the term “waves of behavior therapy” to differentiate three waves of behavior therapy as distinct schools of thought and practice may not be a useful heuristic.

Clarifying the Assumptions of One's Own Philosophical Worldview and Those of Others

Given this historical context, one of the most notable contributions of the third wave behavior therapy movement is the revitalization of behavior therapy as an interconnected network of basic scientific theory, applied theory, and practice, which is guided by *an underlying philosophical worldview* (Hayes et al., 2013b; Hofmann & Hayes, 2019). During the 2000s through the early 2010s, being clear about one's own philosophical worldview and acknowledging that of others had become a central topic in the field of behavior therapy (Klepac et al., 2012). This was mainly due to the emergence of heated debates among behavior therapy researchers, scholars, and clinicians regarding whether third wave behavior therapies, such as ACT, were qualitatively distinct from previous generations of behavior therapy (Hayes, 2008; Herbert & Forman, 2013; Hofmann, 2008).

One domain of comparison involved the philosophical worldviews that these therapies follow. As a result, the field of behavior therapy now, more so than before, recognizes the importance of being clear about one's own underlying philosophical assumptions (Herbert & Forman, 2013; Hofmann & Hayes, 2019; Klepac et al., 2012). As described in detail elsewhere (Biglan & Hayes, 1996; Dougher, 1995; Hayes et al., 1988; Reitman & Drabman, 1997), a given philosophical worldview is said to have its own unique *pre-analytically chosen assumptions* that are not subject to direct empirical verification. More specifically, the assumptions of each worldview consist of the: (a) *fundamental unit of analysis* (i.e., what the subject of interest is and how it is understood), (b) *principal goal of analysis* (i.e., what the researcher ultimately seeks to accomplish), and (c) *truth criteria* (i.e., how the researcher evaluates the veracity of a given analysis).

Today, the field of behavior therapy is said to be guided by two distinct philosophical worldviews, namely elemental realism and functional contextualism (Klepac et al., 2012; Reitman & Drabman, 1997). *Elemental realism*, which is also known as mechanism or methodological behaviorism, is probably the most widely followed philosophical worldview in behavioral science communities. It assumes that the behavioral phenomenon of interest ontologically consists of critical elements interacting with one another (i.e., unit of analysis). As a philosophy of science, elemental realism also adopts prediction as the fundamental analytic goal of science by focusing on operationalism in defining components that together form the reality of interest and aims to create an accurate model of that reality. Therefore, the truth criteria of elemental realism is *correspondence* of the developed model and the reality (Hayes et al., 1988; Klepac et al., 2012). Furthermore, elemental realists tend to employ nomothetic research methods in theory building over idiographic research methods.

Functional contextualism views the phenomenon of interest as the manifestation of behavior-environment interactions as a whole. Unlike elemental realism, the unit of analysis in functional contextualism is holistic, not elemental, emphasizing the ongoing change in the act of a whole person in context. As a philosophy of science, the principal analytic goal of functional contextualism is the prediction-and-influence of this ongoing change of act in context with *precision and scope* (see our discussion of precision and scope in theory below). As such, theories and practices that are based on functional contextualism tend to “insist on a stronger version of determinism as reflected in the emphasis on idiographic research methods (Klepac et al., 2012, p. 691)”. Furthermore, unlike elemental realism, functional contextualism de-emphasizes ontology and assumes that knowledge is *constructed* and *justified* for a pre-analytically stated purpose and aim. As such the truth criteria of functional contextualism is successful working (e.g., what is true is what is working).

What is important to note here is that every behavior therapy researcher, clinician, and theorist follows a particular philosophical worldview, but often without explicit awareness (Hayes & Hofmann, 2017). For the field of behavior therapy as a whole, clarification of one’s own philosophical worldview not only promotes the development and refinement of clinical knowledge and technology within that philosophical framework, but it also alleviates unnecessary tensions among behavior therapy clinicians, researchers, and theorists who happen to follow different worldviews (Hofmann & Hayes, 2019; Klepac et al., 2012). Each philosophical worldview (e.g., functional contextualism, elemental realism) offers unique *a priori* criteria for the unit of analysis, analytic goal, understanding of causality, and truth criteria that can only be applied to theories and practices developed and refined within that philosophical worldview, but not applied to those guided by other worldviews (Hayes et al., 1988; Klepac et al., 2012).

Once again, the consensus among behavioral and cognitive scholars today seems to be that the set of assumptions derived from a given philosophical worldview is simply chosen and assumed *prior to one’s scientific and clinical work*, and thus is not subject to direct scientific debates and verification (Herbert et al., 2013; Herbert & Forman, 2013; Klepac et al., 2012). In fact, addressing the importance of being clear about one’s own philosophical worldview and those of others was a crucial turning point as the field of behavior therapy progressed into the early 2010s (Klepac et al., 2012). More specifically, as discussed extensively elsewhere (Hayes & Hofmann, 2018; Hofmann & Hayes, 2019; Ii et al., 2019), this turning point signified the dawn of the process-based CBT era. In this new movement, behavior therapy researchers, clinicians, and scholars with different philosophical worldviews collectively pursue the advancement of empirically verified procedures that are closely tied to empirically verified processes of change (Follette & Houts, 1996; Hofmann & Hayes, 2019; Rosen & Davison, 2003).

Being Deliberate About Treatment Development and Using Philosophy as a Guide

Scrutiny and clarification of underlying philosophical worldviews have naturally led to a strong focus on developing and refining basic and applied theories of behavior change and well-being (Hayes et al., 2012a; Hofmann & Hayes, 2019). Third wave behavior therapies, such as ACT, DBT, and MBCT, have focused far less than previous generations of behavior therapy on developing and refining tightly crafted treatment protocols for specific psychological disorders (e.g., the development of distinct therapeutic models for each of the 350+ psychiatric disorders in the current DSM). Instead, this movement has collectively emphasized *broadly applicable* evidence-based processes of change (e.g., emotion regulation, decentering, behavioral flexibility; see detailed accounts of these behavioral processes below) linked to evidence-based procedures in treatment development (Hayes & Hofmann, 2017, 2018). This is another major contribution of third wave behavior therapy, as the larger field of behavior therapy has now revitalized the pursuit of *unified and broadly applicable principle-informed treatment development strategies* by elucidating and examining functionally important pathways of change that cut across individuals with various behavioral health concerns (Klepac et al., 2012; Mennin et al., 2013). Once again, it is important to acknowledge that this principle-informed treatment development strategy has been a hallmark of first wave and second behavior therapies (Goldfried & Davison, 1994; Rosen & Davison, 2003). However, as the U.S. National Institute of Mental Health (NHMI) encouraged syndrome-focused treatment outcome research in the period between 1980 and 2010 (Hofmann & Hayes, 2019; Insel et al., 2010), in the field of behavior therapy, the emphasis on the close link between empirically derived principles of behavior change and evidenced-based intervention procedures was deemphasized during that period. What follows is a detailed explanation of the behavioral pursuit of this type of principle-informed treatment development.

Development of Pragmatic Theories High in Precision and Scope: A Unified Model of Behavioral Adaptation and Behavior Change

Historically, the field of behavior therapy has sought to develop and refine principle-informed treatment models with sufficient *precision* and *scope*, such as ones drawn from operant and respondent principles, that allow us to understand, predict, and influence the behavior of a given individual that is targeted in treatment (Goldfried & Davison, 1994; Hofmann & Hayes, 2018, 2019; Miltenberger, 2012; Rosen & Davison, 2003). In this context, *precision* is referred to as the extent to which a given treatment model allows a clinician or researcher to simultaneously understand, predict, and influence a behavioral phenomenon of interest accurately and

parsimoniously. *Scope* denotes the extent to which such a model is applicable to a wide range of clinical cases and behavioral issues.

It is important to note that this pursuit of developing and advancing a unified, principle-informed treatment model is not the pursuit of a “one-size-fits-all” intervention. Instead, the aim of this treatment development strategy is to reflect and expand the ultimate question collectively posed by the field of behavior therapy that was formulated by Gordon Paul in 1969: “What treatment, by whom, is most effective for this individual with that specific problem, under which set of circumstances, and how does it come about” (Paul, 1969, p. 44). In the contemporary era of process-based CBT, this important question can be rephrased as: “What core biopsychosocial processes should be targeted with this client, given this goal in this situation, and how can they most efficiently and effectively be changed?” (Hofmann & Hayes, 2019, p. 38). According to Hofmann and Hayes, this updated question “shifts attention away from identifying effective treatment for problem types, as moderated by demographic and circumstantial characteristics, to deploying effective treatment elements based on systems of therapeutic change processes as displayed by given people in given situations with given goals” (Hayes et al., 2019, p. 42). For example, instead of developing a specific treatment protocol for treating depression in individuals living with chronic pain (e.g., ACT for comorbid depression and chronic pain), the focus of treatment development here might shift to understanding and targeting specific, manipulatable *processes of change* underlying these individuals’ presenting concerns that may include depression and chronic pain, as well as broader processes of behavioral adaptation, by deploying treatment procedures that are empirically verified for influencing those processes.

The combination of new ideas, examination of assumptions, and a renewed emphasis on the centrality of processes of change in treatment has begun to change longstanding views of what behavior therapy encompasses and the processes by which it operates (Hofmann & Hayes, 2019). For example, research has indicated that traditional, second wave, CBT methods sometimes work, in part, by changing processes that were elucidated during the arrival of third wave methods. Specifically, CBT-based exposure for anxiety disorders has demonstrated efficacy in part through cognitive defusion, a major behavioral process of change in third wave behavior therapies (Arch et al., 2012). As discussed in more detail below, cognitive defusion or decentering is a behavioral repertoire of looking *at* private events (e.g., anxiety, dysfunctional thoughts), not *from* them, that is targeted in many third wave behavior therapies (e.g., Blackledge, 2007; Masuda et al., 2004). This particular way of responding to difficult private events is known to alter the stimulus function of these private events (Donati et al., 2019; Levin et al., 2012; Mandavia et al., 2015). Results of Arch and colleagues suggested that the CBT-based exposure procedures fostered this behavioral repertoire, and that this new repertoire, rather than fear reduction, a purported mechanism of change in exposure-based interventions suggested by second generation behavior therapies (e.g., Arch & Craske, 2008), accounted for its treatment effects.

Additionally, process-based evidence has notably expanded the range of methods that are worthy of consideration as treatment options. Take, for example, the

data on the centrality of catastrophic thoughts in panic. Within many second generation behavior therapies for individuals with panic concerns, changing catastrophic thoughts in form is typically the main focus of treatment (Craske & Barlow, 2014). However, as the CBT research focus broadened, the implications turned out not to be so clear-cut. For example, patients high in catastrophic misappraisal actually responded more favorably to capnometry-assisted respiration training, which has less focus on the modification of catastrophic beliefs than traditional CBT, which deliberately targeted the modification of catastrophic thoughts (Meuret et al., 2010a, b). This set of finding also suggests that whether a cognitive modification strategy is an effective intervention option depends on clients and their extant behavioral repertoires (e.g., contingencies surrounding catastrophic thoughts), and that under certain circumstances, other strategies (e.g., respiration training) are viable alternative.

Similarly, research has begun to identify moderators that indicate when specific methods, both traditional and contemporary, work best for different populations. For example, it appears that patients with an anxiety disorder alone may do better with traditional CBT than ACT, while those who are also comorbid with mood disorders may do better with ACT than traditional CBT (Wolitzky-Taylor et al., 2012). Data of this kind suggest that evidence-based practitioners can best help their patients by utilizing strategies from all of the generations of behavior therapy, informed by evidence of moderation and mediation.

Continued Commitment to Empirical Verification

Despite concerns raised by critics of the third wave of behavior therapy for its weaker commitment to empiricism (Corrigan, 2001; Öst, 2008, 2014), a large body of literature shows that third wave behavior therapies, especially ACT, DBT, MBCT, and BA, have continued to make a strong commitment to the empirical roots of behavior therapy in both theory and treatment development (Dimidjian et al., 2016; Hayes et al., 2011).

Given these concerted efforts to build and refine interventions high in both precision and scope, a large body of evidence now reveals third wave behavior therapies, particularly MBCT, DBT, and ACT, to be notably broad in their applicability to a wide range of behavioral and medical concerns across diverse groups of individuals (Dimidjian et al., 2016; Hayes et al., 2011). More specifically, evidence collected in North America and Europe demonstrates that third wave behavior therapy methods have been applied to adolescents and adults with a wide range of behavioral and medical conditions, including depression, anxiety, self-directed violence, substance use problems, and chronic pain, in diverse behavioral health settings (Dimidjian et al., 2016; Hayes et al., 2011). Regarding specific third wave interventions (e.g., Dimidjian et al., 2016), MBCT has been found to be particularly suitable for formerly depressed individuals with cognitive vulnerability to relapse (e.g., repertoires of depressive thinking and rumination). DBT has been found to be suitable for clients with pervasive behavioral patterns of emotion dysregulation to the degree of

services that the DBT treatment team can offer. ACT is considered to be a good treatment option for those with chronic pain, substance use problems, and a range of anxiety-related issues. Extant evidence also indicates that MBCT, DBT, and ACT achieve their clinical outcomes through the targeted processes of change, such as psychological openness, mindfulness, adaptive emotion regulation, decentering, and engagement in values-guided actions (Atkins et al., 2017; Gu et al., 2015). Putting this large body of evidence together, Dimidjian et al. (2016) conclude the empirical status of third wave behavior therapy as a whole as follows:

There is little doubt based on the meta-analyses reviewed that there exist a strong and growing evidence base supporting the efficacy of individual therapies commonly identified as “third wave.” ...each is supported by numerous efficacy studies, which overall attest to at least moderate to large effect sizes for between-group comparisons, using primarily WL or TAU conditions, or within group comparisons, although concerns have been raised about the use of such contrasts. ...it is clear that the existing evidence base supports the efficacy of the specified therapies in the treatment of problems and populations that are of high public health relevance, including anxiety, depression, borderline personality disorder and suicidal behaviors, and eating disorders (p. 898).

Furthermore, as discussed briefly above, third wave behavior therapies have ventured into applied themes that have traditionally been within the purview of less empirical wings of behavioral health, such as acceptance, mindfulness, cognitive defusion, dialectics, values, spirituality, and therapeutic common factors in theory and practice (Hayes et al., 2004b; Qina’au & Masuda, 2020). However, unlike these less empirically oriented traditions, third wave behavior therapies have done so through the pursuit of empirical verification, especially in the context of examining *broadly applicable evidence-based processes of change* linked to *evidence-based procedures* (e.g., Arch et al., 2012; Hill et al., 2020).

Take third wave behavior therapy approaches to mindfulness as an example. The synthesis of mindfulness into theory and practice has been identified as a novel trend that third wave behavior therapies have brought to the field of behavior therapy (Hayes et al., 2004a). As covered extensively elsewhere (Bishop et al., 2004; Kabat-Zinn, 1990, 2003; Li & Ramirez, 2017; Masuda & O’Donohue, 2017), the concept and practice of mindfulness originated within Buddhist traditions, and was later adapted for use in many secular practices and settings in Western cultures. Unlike other psychotherapy traditions that seem to eclectically incorporate mindfulness into their theories and practices, third wave behavior therapies have made great efforts to adapt, construct, and refine the theory and practice of mindfulness empirically. These efforts have been pursued through investigating clinically relevant questions, such as (a) how mindfulness is best conceptualized using behavioral principles (e.g., Hayes et al., 2007; Hayes & Wilson, 2003; Masuda & Wilson, 2009), (b) whether mindfulness practice influences key behavioral health outcomes (e.g., Hofmann et al., 2010), (c) what processes underly the effects of mindfulness practice (e.g., Keng et al., 2011), and (d) who responds most optimally to mindfulness practice (e.g., Dimidjian & Linehan, 2008). Through this process of empirical verification, several operationalizations of mindfulness have been derived (e.g., Baer et al., 2006; Chambers et al., 2009; Teasdale et al., 2002), followed by the

development of assessment tools used to conceptualize mindfulness as a key behavioral process of change (e.g., Baer et al., 2006; Brockman et al., 2017; Masuda & Wilson, 2009). These empirical advances have led to further refinement of third wave behavior therapy interventions that targets the behavioral repertoire of mindfulness (Baer, 2014; Hayes et al., 2003, 2006, 2011; Hayes & Wilson, 2003).

Particularly relevant to the topic of the present chapter, to be tailored to the framework of third wave behavior therapy, the use of the term “mindfulness” has been further clarified as referring to a *behavioral process of change* as well as a therapeutic procedure or method (Hayes & Wilson, 2003; Masuda & Wilson, 2009). As a behavioral process of change to be targeted in practice, mindfulness is conceptualized as the behavioral skill (i.e., operant) of becoming aware of, and open to, whatever one is experiencing, as it is in that moment, without reacting to it or evaluating it (Hayes, 2004a; Linehan, 1993, 2014). Along with this definition of mindfulness as a process, any therapeutic method that promotes the behavioral repertoire of mindfulness is considered as a *mindfulness procedure*. Once this operational distinction between process and procedure was clarified, third wave behavior therapy researchers began to examine whether “mindfulness practice” does, in fact, promote the behavioral process of mindfulness in addition to the improvement of clinical outcomes. These investigations were pursued experimentally through randomized controlled trials (Hofmann et al., 2010) and laboratory investigations (Levin et al., 2012). This line of research within third wave behavior therapy has made a major contribution to the advancement of the conceptualization and implementation of evidence-based processes of change linked to evidence-based procedures (Hofmann & Hayes, 2018, 2019; Masuda & Rizvi, 2019).

Additive Advantages of Third Wave Behavior Therapy

When examining incremental advantages that the third wave behavior therapy movement has brought to the field of behavior therapy writ large, it is important to set the parameters or criteria for the events to be qualified as additive advantages. To date, there are no well-articulated and agreed upon criteria for determining incremental advantages within extant models of treatment development. However, one way to do so is to refer to an extant guiding framework of behavioral science and its progress. One such model is that of *contextual behavioral science* (CBS; Hayes et al., 2012a, 2013a, b; Hayes & Hofmann, 2018). In a seminal article, Hayes and his colleagues explicate CBS as follows:

Grounded in contextualistic philosophical assumptions, and nested within multidimensional, multi-level evolution science as a contextual view of life, it seeks the development of basic and applied scientific concepts and methods that are useful in predicting-and-influencing the contextually embedded actions of whole organisms, individually and in groups, with precision, scope, and depth; and extends that approach into knowledge development itself so as to create a behavioral science more adequate to the challenges of the human condition (Hayes et al., 2012a, p. 2).

What is particularly relevant to the aim of the present chapter in this statement is "... seeks the development of basic and applied scientific concepts and methods that are useful in predicting-and-influencing the contextually embedded actions of whole organisms... with precision, scope, and depth." More specifically, in this chapter we consider any events that the third wave behavior therapy movement has promulgated or rejuvenated for the advancement of understanding and practice of evidence-based processes of change linked to evidence-based procedures as *additive advantages* of third wave behavior therapy that are now broadly shared with the field of behavior therapy as a whole (Hayes & Hofmann, 2017; Hofmann & Hayes, 2019).

Behaviorally-Informed Unified Models of Optimal Health and Behavior Change

As discussed above, the major foci of the larger field of behavior therapy has shifted from developing specific treatment methods (e.g., ACT, CT for depression) to building a *cognitively and behaviorally informed unified model of behavior change* so that effective treatment elements are deployed based on systems of therapeutic change processes as displayed by given individuals in given situations with given goals (Hayes et al., 2019; Hofmann & Hayes, 2019). One such unified model is proposed by Mennin et al. (2013).

In the process of developing their unified model of behavior therapy, Mennin et al. (2013) focused on commonalities across cognitively and behaviorally oriented therapies, including shared goals, domains of change (i.e., "change principles"), and therapeutic processes/procedures. More specifically, they offered a framework for examining common characteristics of these therapeutic approaches that emphasizes *behavioral adaptation* (e.g., generalized behavioral repertoire of flexibly adjusting one's behavior to one's environment in order to prosper) as a unifying goal of behavior therapy. Additionally, the model proposed three overarching domains of change in which key behavioral processes of change are targeted by evidence-based therapeutic procedures/techniques. These three areas are called: (a) *context engagement*, a set of behavioral repertoires to promote adaptive imagining and enacting of new experiences to counteract old and well-worn patterns of maladaptive association and reinforcement; (b) *attention change*, a second set of behavioral repertoires to promote adaptive sustaining, shifting, and broadening of attention to changing context; and (c) *cognitive change*, a third set of behavioral repertoires to promote adaptive perspective taking on events so as to alter verbal meanings and their emotional significance. Mennin and colleagues then link specific evidence-based treatment components, including behavioral exposure/activation, attention training, acceptance/tolerance, decentering/defusion, and cognitive reframing, to behavioral processes of change specific in each domain (e.g., repertoire of perspective taking for changing the verbal meaning and emotional significance of verbal events to the

domain of attention change). Mennin and colleagues concluded that these intervention components are emphasized to a greater or lesser degree across different cognitively and behaviorally oriented treatment protocols, but that the field of behavior therapy as a whole now considers them as *evidence-based procedures* to promote *fundamentally common therapeutic processes of change* across a wide range of clinical and applied cases.

Following a third wave behavior therapy unified model of behavior change and optimal health described in detail below (Hayes et al., 2011; Masuda & Rizvi, 2019), we argue that *attention training (mindfulness)*, *acceptance*, and *decentering/defusion* as therapeutic procedures and behavioral processes of change linked to the intervention procedures in Mennin et al.' (2013) unified model are additive advantages that the third wave behavior therapy movement has brought to the field of behavior therapy. Additionally, we posit *values and values-consistent behavioral commitment* (Twohig & Crosby, 2008; Wilson & Murrell, 2004) as an advancement in the domain of behavioral exposure/activation in Mennin and colleagues' model, which can also be viewed as an additive advantage that the third wave behavior therapy movement has brought to the field.

Additive Conceptual and Applied Elements

As discussed in detail below, applied models of third wave behavior therapies emphasize the significance of attention training (mindfulness), acceptance, decentering/defusion, and values and values-directed committed action (Hayes et al., 2011; Masuda & Rizvi, 2019). Exemplars of these applied models include the psychological flexibility model in ACT (Hayes et al., 2006, 2012b) and the emotion dysregulation model along with the "hierarchy of treatment goals and targets" in DBT (Koerner, 2012; Linehan, 1993). More specifically, these third wave models collectively identify *three* interrelated domains of contextually situated (i.e., contingency-sensitive), generalized repertoires that are theorized to promote adaptive behavioral functioning. Once again, as described in more detail below, these three generalized behavioral repertoires are called *centered*, *open*, and *engaged* response styles (e.g., Hayes et al., 2011; Kashdan & Rottenberg, 2010; Masuda & Rizvi, 2019). In these models, attention training (mindfulness), acceptance, decentering/defusion, and values/values-directed committed action as treatment procedures are explicated in terms of their functional relations to the centered, open, and engaged response styles.

Attention Training and the Centered Response Style. Optimal health and well-being require the ability to flexibly direct attention via constriction or expansion according to changes in situational demands (Mennin et al., 2013). For third wave behavior therapies, a set of behavioral repertoires that coincides with this adaptive attentional ability is called the *centered response style*. Specifically, the centered response style represents a cluster of behavioral skills that includes the repertoires

of: (a) intentionally becoming aware of whatever one is experiencing on a moment-by-moment basis; (b) flexibly shifting, focusing, and expanding one's attentional awareness while remaining sensitive and adaptive to changes in environmental contingencies; and (c) recognizing a stable sense of self as the context from which all attended perceptual experiences unfold (Hayes et al., 2011, 2012b; Masuda & Rizvi, 2019). In practice, third wave behavior therapies deploy attention training procedures, such as mindfulness exercises and meta-cognitive awareness training in MBCT (Segal et al., 2013), MCT (Wells, 2009) and DBT (Linehan, 1993, 2014), to promote the behavioral skill sets within the centered response style.

It is important to highlight that the field of behavior therapy has long recognized the therapeutic effect of this centered and attentional response style (Mennin et al., 2013; O'Donohue & Fisher, 2008). For example, behavioral repertoires that are required for effective *self-monitoring*, such as observing changes in one's own responses without strongly reacting to them, coincide with those of the centered response style (Humphreys et al., 2008). The acts of self-awareness and -monitoring have also been recognized as having powerful effects on other important behavioral repertoires in clients, including: (a) the perception of their own behavior that is targeted in therapy (e.g., clients with binge eating problems frequently disclose that they did not realize, prior to self-monitoring, just how often they engage in binge eating), (b) awareness of when and where the identified behavior is likely to occur (i.e., antecedents, establishing operations), and (c) self-monitoring itself being part of reinforcing or aversive contingencies for the targeted behavior. These benefits of self-monitoring have also been recognized in the context of other behavioral strategies, such as *urge surfing* (Lloyd, 2008) and *stimulus control* (Poling & Gaynor, 2008). Nevertheless, previous generations of behavior therapy seemed to view these aforementioned benefits more as byproducts of behavioral observations, rather than as independent clinical phenomena in their own right.

The additive advantage that the third wave behavior therapy movement has brought to the larger field of behavior therapy in this domain is the revitalization of what has been recognized as self-monitoring as a treatment vehicle itself, and the central emphasis on the centered response style as a generalized process of behavior change. In fact, many third wave behavior therapies, such as ACT (Hayes et al., 2012b), DBT (Linehan, 1993), MBCT (Segal et al., 2013), and MCT (Wells, 2009) spend a significant amount of time in practice fostering this flexible attentional repertoire through implementing evidence-based procedures, such as attention training and mindfulness practice (Dimidjian & Linehan, 2008). Furthermore, the field of behavior therapy as a whole now views this centered response style as *prerequisite behavioral repertoires* for optimal behavior change and behavior adaptation (Masuda & Rizvi, 2019). An extant body of evidence also points to the conceptual and applied relevance of the centered response style to diverse individuals with a broad range of clinical and applied issues (Baer, 2014; Herbert & Forman, 2011). Finally, a growing body of evidence has alluded to improvements in behavioral repertoires within the centered response style as part of the underlying process of change in some

second- and third-generation behavior therapies (see Hayes et al., 2011; Segal et al., 2004).

Acceptance, Decentering/Defusion, and the Open Response Style. In addition to intervention procedures that centrally train attentional direction, third wave behavior therapies use evidence-based procedures to promote emotional acceptance, which is characterized as a behavioral repertoire of sustained contact with affective content without being dissuaded by elaborated thought processes that promote disengagement and avoidance (Mennin et al., 2013). Within third wave behavior therapies, therapeutic procedures of *acceptance* and *decentering/defusion* in Mennin and colleagues' unified model are explicated within the domain of the *open response style*. The applied concept of the open response style points to a particular functional quality of responding to one's own internal and external environments (Masuda & Rizvi, 2019). Specifically, it refers to the extent to which an individual is willing to contact their own present moment experience *fully and openly, as it is, without reacting to, or impulsively acting on, that experience* (Hayes et al., 2011). Within this definition of the open response style, the applied concept of acceptance refers to a repertoire of contacting the present moment experience *openly while becoming aware of any reactions that occur in that moment without needless efforts to regulate them* (Herbert et al., 2008). The concept of decentering/defusion refers to the behavior repertoire of contacting the present moment experience *as it is* (Luoma & Hayes, 2008). More specifically, in the context of verbal events (thoughts and verbally evaluated emotional experiences), decentering/defusion involves experiencing these events simply as mental events that are fundamentally separate from a larger sense of self, instead of holding these mental events as literal truth. Finally, any applied techniques that promote these aspects of the open response style are called acceptance and decentering/defusion procedures, respectively.

Once again, in the field of behavior therapy, the significance of the open response style for the promotion of optimal health and well-being had not been explicitly addressed until the third wave behavior therapy movement (Herbert et al., 2008), although some aspects of it were peripherally addressed in previous generations of behavior therapies (Zettle, 2005). In fact, the legitimacy of pursuing the concept and practice of acceptance had been questioned by many behavioral therapy researchers and clinicians particularly from early 1990s to the mid 2010s (e.g., Hofmann, 2008). Furthermore, whereas some facets of the open response style (i.e., decentering/defusion from one's thoughts) originated in CT, they were not necessarily viewed as central behavioral processes of change in the previous generations of behavior therapy (Beck et al., 1979; Zettle, 2005).

The additive advantage that third wave behavior therapy has contributed to the larger field of behavior therapy regarding the open response style is that it offers an alternative therapeutic avenue when direct change efforts in practice are not successful or tenable (Herbert et al., 2008). As discussed extensively elsewhere (e.g., Goldfried & Davison, 1994; Miltenberger, 2012), directly targeting changes in emotion, cognition, and behavior is a hallmark of the behavioral tradition. The third wave behavior therapy movement does not negate the conceptual and applied value

of direct change efforts (e.g., changes in core beliefs, cognitive restructuring, distraction, thought suppression), especially when doing so results in greater behavioral adaptation in clients. Similarly, third wave behavior therapies choose to target the open response style in particular contexts only if doing so is likely to foster a client's behavioral adaptation and vital living. Extant evidence suggests that the promotion of the open response style through acceptance and decentering/defusion strategies, together with the promotion of the centered response style, is especially indicated when a client's overall behavioral repertoire is restricted by: (a) unworkable, yet persistent efforts to control and avoid one's own unwanted thoughts, affect, and memories, or (b) cognitive entanglement with one's own self-narrative (Hayes et al., 2012b; Herbert et al., 2008).

Values, Values-Directed Committed Action, and the Engaged Response Style. For third wave behavior therapies, strengthening contingencies that create meaning in life involves cultivating connections with closely held *values* through engaging in daily activities that promote vital and meaningful living (e.g., values-based living; Twohig & Crosby, 2008; Wilson & Murrell, 2004). Values in this context can be understood as “freely chosen, verbally constructed consequences of ongoing, dynamic, and evolving patterns of activity, which establish predominant reinforcers that are intrinsic in engagement in the valued behavioral pattern itself” (Wilson & Dufrene, 2008, p. 64). For example, wholeheartedness is a value for many adult clients; this personally chosen value can serve as a verbal antecedent as well as consequence, and augment any activities that reflect it (e.g., listening to a loved one, cooking, working, and socializing with colleagues) as intrinsically reinforcing (Hayes & Wilson, 1994; Masuda & Rizvi, 2019). In this way, values may serve as a potent reinforcer for engaging in adaptive behavioral repertoires aligned with those values, even when such actions may inevitably lead to contact with distressing internal or external experiences. In these situations, repertoires within the open and centered response styles may effectively be integrated with the action-oriented engaged response style to promote flexible and adaptive behavioral responding (Hayes et al., 2011).

Explicit focus on values work has not only been incorporated into specific third wave behavior therapies, such as ACT, but has also been more broadly integrated into a number of traditional behavior change interventions, including behavioral activation, exposure therapy, CBT, and motivational interviewing. For example, ACT, which emphasizes values-based living, has been effectively used to augment exposure and response prevention for obsessive-compulsive disorder (Twohig et al., 2018). Additionally, values-based interventions are often incorporated into behavioral activation for depression so that clients can increasingly contact positive reinforcement through engagement in activities that they value and find personally meaningful (Martell et al., 2013). Furthermore, the behavior change effect of motivational interviewing can be enhanced further with values work by helping clients contact discrepancies between their current behavioral choices and desired ones aligned with their values, and harness the motivational potential from this discrepancy to instantiate willingness to make adaptive behavioral changes (Villarreal

et al., 2020). These approaches all exemplify how values, within an engaged response style, can serve as a motivator for engagement in health-promoting activities and behaviors, despite barriers presented by distressing inner experiences (Hayes et al., 2012b). Augmenting empirically supported behavior change principles, such as exposure therapy and behavioral activation, with values is an example of the *additive benefits* of the third wave behavior therapy movement, and how this integration of processes has led to an effective synthesis of techniques across multiple generations of behavior therapy.

In sum, from a third wave behavior therapy perspective, greater *behavioral adaptation* or *psychological flexibility* characterized by the combination of centered, open, and engaged response styles may be viewed as an ideal state of well-being and optimal health. These behavioral skills do not eliminate psychological struggles, but rather help individuals to navigate themselves through the joys and sorrows that are an inevitable result of complex human conditions. The behavioral skills subsumed within these three response styles also dynamically interact to aid in promoting adaptive behavioral functioning in important life domains (engaged) while bolstering attentional (aware) and cognitive (open) processes to promote the ultimate goal of increased behavioral adaptation (Hayes et al., 2011; Masuda & Rizvi, 2019; Mennin et al., 2013). In a review of third wave behavior therapy methods, Hayes et al. (2011) summarize the unification of centered, open, and engaged response styles as follows:

Like the legs of a stool, when a person is open, aware, and active, a steady foundation is created for more flexible thinking, feeling, and behaving. Metaphorically, it is as if there is greater life space in which the person can experiment and grow and can be moved by experiences. Although not all of the approaches target all of the processes, it seems as though contextual forms of CBT are designed to increase the psychological flexibility of the participants by fostering a more open, aware, and active approach to living (p. 160).

Reflection and Conclusion

Over a decade has passed since the official declaration of third wave behavior therapy. As the tradition of behavior therapy moves into the era of process-based CBT (Hayes & Hofmann, 2018; Hofmann et al., 2019), a unique context arises in which to reflect on the additive advantages that the third wave behavior therapy movement has contributed to behavior therapy writ large. Despite some heated debates and mischaracterizations of the third wave as “washing away” previous “waves” of behavior therapy, many third wave applied concepts and methods, such as psychological acceptance, mindfulness, and decentering, coexist with those from previous generations of behavior therapy as defining features of our tradition (Hofmann & Hayes, 2018; Mennin et al., 2013). As discussed in this chapter, one major historical contribution of third wave behavior therapies has been to revitalize the ultimate questions the field of clinical psychology has been seeking to address since Gordon Paul’s pressing question: “What treatment, by whom, is most effective for this

individual with that specific problem, under which set of circumstances, and how does it come about” (Paul, 1969, p. 44). Today, the field of behavior therapy is well positioned to move forward into the future of intervention science by integrating strategies and methods from diverse perspectives and generations. This approach is furthered through the advancement of a reticular system of knowledge and technology development, which has placed greater emphasis on *broadly applicable evidence-based processes of change* linked to *evidence-based procedures* (Hayes & Hofmann, 2017, 2018). Through this framework, the field of behavior therapy is well suited to continue to instantiate behavioral science as a platform to meet the challenges that human conditions have brought to us.

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Part IV
Treatments for Specific Disorders

First Wave Conceptualizations of Anxiety Disorders



Cynthia L. Lancaster and Mary O. Smirnova

The shift from insight-oriented to behavioral conceptualizations of anxiety spurred one of the most dramatic improvements in treatment efficacy in the history of anxiety research (Eysenck, 1987). Further developments in psychotherapy have produced relatively smaller shifts in the efficacy of anxiety treatments since this time. The movement from first to second wave psychotherapies marked the addition of cognitive change strategies to behavioral change strategies.¹ Although the added focus on cognition improved outcomes in a few studies, in several studies, it did not (for review, see Telch et al., 2014). A recent meta-analysis even suggests that treatments that primarily emphasize the behavioral technique of exposure may have slightly larger effect sizes than those that use cognitive and/or cognitive-behavioral techniques for anxiety (although this difference did not reach statistical significance; Carpenter et al., 2018). The shift from second to third wave psychotherapies marked a movement toward the goal of accepting, rather than changing, anxiety-related thoughts and emotions. Similarly, third wave therapies for anxiety are fairly comparable in efficacy to their predecessors (e.g., Arch et al., 2012). Together, these data highlight that behavioral conceptualizations of anxiety produced one of the most important leaps forward for the field of anxiety treatment. How did this happen?

¹There is some nuance here, which will be discussed in more detail later in the chapter. Cognitive-behavioral therapy (CBT) includes a focus on automatic thoughts, which as the name suggests, may not be initially explicit. However, during the course of therapy, the client is asked to use their insight to identify and make explicit thoughts which might have initially been 'automatic,' suggesting that these cognitions may have perhaps initially been below the client's level of conscious awareness. Because these thoughts are brought up to the level of 'explicit' cognition and focused on as a key point for intervention in CBT, the treatment model implies the causal role of consciously accessible cognition in the etiology and maintenance of anxiety.

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In part, the development of behavioral therapy initiated a movement toward experimental methodology, with a focus on testing the efficacy of therapeutic approaches using falsifiable hypotheses with clearly operationalized independent and dependent variables, and a focus on the use of controlled experimental methods to better identify causal influences (i.e., methodological behaviorism; Day, 1983). This produced a lasting ripple of change in the science of psychotherapy, with its resonance seen throughout all waves of psychotherapy to this day. Indeed, research on first, second, and third wave treatments for anxiety are all marked the influences of experimental methodology (e.g., the reliance on randomized controlled trials as a gold-standard in initial efficacy studies). It is perhaps the empirical component of the behavioral movement, with a reliance on experimental evaluations of falsifiable theories, which initially allowed for such rapid improvement in our models for understanding and treating anxiety disorders. However, because this reliance on experimental empiricism is interwoven throughout all three waves of psychotherapy development, this part of the behavioral movement is not particularly helpful for distinguishing between them.

Instead, behavioral models can be better distinguished from second and third wave models due to their reliance on learning models as explanations for the mechanisms of the onset, maintenance, and treatment of anxiety-related disorders. Specifically, behavioral theories of anxiety disorders generally emphasize the association of environmental stimuli and behavior-related contingences in the development and maintenance of anxiety-related behaviors. The constitution of anxiety-related behaviors was well defined in a model developed first proposed by Lang (1968), which is still widely used today. Lang divided fear responses into three, separate components, including motoric behaviors, physiological responses, and verbal reports. Motoric behaviors, for example, might involve avoidance or escape from a feared situation. Physiological responses could include increases in heart rate, respiration, and perspiration. Verbal reports of anxiety could include a spoken or written statement endorsing the presence of fear.² Thus, behavioral conceptualizations of anxiety disorders use learning models to help explain the onset, maintenance, and treatment of the motoric behaviors, physiological reactions, and verbal reports associated with anxiety. Therefore, first wave models of anxiety can best be distinguished from second and third wave models due to their emphasis on changing the environment (e.g., stimuli associations and behavioral contingencies) to produce changes in anxiety-related behaviors.

In this chapter we will provide an overview of key behavioral models of anxiety-related disorders. To this day, behavioral models are true to their empirical roots;

²It is important to note that these three components of anxiety are not always highly correlated. Indeed, studies have found that they often do not change synchronously (e.g., Allen et al., 2015). One of the benefits of the behavioral model of anxiety is that it does not necessarily assume one underlying latent characteristic explaining these phenomena. On the other hand, the cognitive model, in its focus on the causal role of explicit cognition in producing changes in physiological response and (motoric) behavior, seems to imply that they should all be highly correlated. For more information about the cognitive model, see the section Challenges from the Second Wave.

they are typically well defined, and thus, easier to falsify. As a result, new behavioral models have rapidly emerged over time to account for theory-conflicting data. In this chapter we will provide a brief tour of several key behavioral models of anxiety, occasionally stopping to highlight how new findings emerged to spur changes in models over time. We will include a review of both early and contemporary behavioral models. Whereas early behavioral models carefully restrain their focus to the directly observable phenomena that were the subject of early behavioral research (e.g., stimuli associations and behavioral contingencies), more contemporary models often move beyond the focus of directly observable phenomena, and tend to be more cross-disciplinary. For example, they incorporate into behavioral models findings from other branches of psychology, such as evolutionary psychology and neuroscience (see for example, the theories of biological preparedness and inhibitory learning). After an overview of several of the most influential behavioral models of anxiety, we will conclude by comparing and contrasting these models with second and third wave approaches, and describing a case example to provide a more concrete demonstration of behavioral therapy in action.

Early Behavioral Models

Classical Conditioning and Generalization

The discovery of classical conditioning was a major breakthrough in understanding the acquisition and treatment of anxiety related disorders. Foundations of classical conditioning were formulated by Ivan Pavlov's (1927) iconic experiments with dogs. Pavlov found that when dogs were repeatedly presented with food alongside a metronome sound, dogs began salivating in the presence of the metronome sound, even without food. In this example, food is called an unconditioned stimulus (US) because it provokes an automatic response of salivating, and the metronome sound is called a conditioned stimulus (CS) because this neutral stimulus becomes associated with food through conditioning. In the classical conditioning model, learning occurs on a trial-by-trial basis, and as pairings accrue, the conditioned association becomes stronger.

This classical conditioning paradigm readily extends to the development of anxiety, and was exemplified by Watson and Rayner's (1920) seminal study with an infant named Little Albert. In this study, they paired a previously neutral stimulus (a rat) with a loud sound, which led Albert to startle and cry. After repeated pairings, Little Albert cried and showed avoidance behaviors, such as turning away, just at the sight of the rat, even without the loud noise. This indicated that Albert had acquired a conditioned fear response to the rat. Further, Albert's fear response also translated to stimuli that were perceptually similar to the rat, such as a rabbit, a dog, and a fur coat. This latter response is now known as generalization. Generalization occurs when there is a fearful reaction to a stimulus that is similar to the conditioned

stimulus (such as the rat), although there has been no direct fear conditioning to this new stimulus. The more perceptually similar the stimuli are to one another, the more likely the anxiety response will generalize (Lissek et al., 2008).

Watson and Rayner's (1920) research spurred Mary Cover Jones' (1924) early work, in which she applied the basic principles of classical conditioning to extinguish fear responding. In this study, Jones worked with a three year old named Peter to extinguish his fear of rabbits. A rabbit was presented repeatedly in the absence of aversive outcomes (i.e., no unconditioned stimulus), until the fear response to the rabbit was extinguished. This fear extinction generalized; Peter was no longer afraid of stimuli that were perceptually similar to the rabbit, such as a piece of cotton, a fur coat, and feathers. Interestingly, Jones used a graduated extinction approach, in which she slowly increased the difficulty of the practice by bringing the rabbit successively closer over time. Although we now know that graduated procedures are not necessary for achieving fear extinction (Gelder et al., 1973; Kircanski et al., 2012), this practice is still widely used by clinicians because of its practical appeal for helping patients to get started with the challenging task of confronting feared stimuli. Interestingly, recent findings suggest that non-graduated procedures might also elicit more anxiety for therapists (Schumacher et al., 2015), potentially contributing to their relatively less frequent use.

The fear extinction procedure initially used by Jones (1924) is now commonly referred to as exposure therapy, describing the therapeutic practice of approaching a feared (but non-dangerous) stimulus until fear subsides. Although it has been tweaked and adapted over time based on updates in behavioral models of anxiety, the general technique of exposure therapy is still a cornerstone of nearly all evidence-based treatments for anxiety (e.g., Craske & Barlow, 2006; Foa et al., 2007, 2012; Robichaud, 2013). It was the initial understanding of the classical conditioning and generalization of fear responses that gave rise to this treatment approach. Thus, the model of classical conditioning and generalization provided a foundational step forward in our understanding of the development and treatment of anxiety disorders.

Counter-Conditioning and Reciprocal Inhibition

Counter-conditioning represents an interesting tweak to traditional classical conditioning procedures. Essentially, a pleasurable stimulus is added to traditional extinction training. The goal is not just to extinguish the fear association, but also to pair the previously-feared stimulus with antagonistic reaction of pleasure to strengthen the inhibition of fear responding. Jones (1924) applied this principle in her early treatment paper focused on extinguishing the toddler, Peter's, fear of rabbits. Specifically, in some of the extinction trials, she presented Peter with candy alongside the rabbit in order to facilitate fear reduction.

Echoing the mechanism of counter-conditioning, Wolpe (1958) developed systematic desensitization based on a similar principle called reciprocal inhibition. Specifically, the principle of reciprocal inhibition suggests that fear extinction could

be achieved by pairing the presentation of a feared stimulus with a response that is physiologically incompatible with fear, such as relaxation. Therefore, in systematic desensitization, patients approached a feared stimulus while in a state of relaxation. During treatment, patients first learned relaxation techniques (e.g., progressive muscle relaxation) without the presentation of feared stimuli. Then, patients progressed through a hierarchy of graduated exposure therapy exercises while simultaneously maintaining a relaxed physiological state. Patients were then gradually exposed to feared stimuli while simultaneously using relaxation techniques until they were fully desensitized to the stimulus. In other words, the fear response was extinguished. The intended outcome of this treatment is for client to learn to associate the previously feared stimulus with relaxation, a physiological response incompatible with fear. In later years, likely because it made treatment easier to deliver within a therapy office, Wolpe's systematic desensitization treatment focused primarily on using imaginal rather than situational (in vivo) exposures (Rachman, 2015).

However, it turns out that several procedures used in systematic desensitization are not optimal for fear extinction. Specifically, researchers have struck down the ideas that extinction training can always be imaginal, should be gradual, and should include relaxation (e.g., Foa et al., 1985, 2012, Wolitzky-Taylor et al., 2008; Gelder et al., 1973; Cooke, 1968; Schmidt et al., 2000). Rather than always being imaginal, it may better if the modality of exposure therapy is matched to the clinical presentation. For example, some researchers have found that treatment with imaginal exposure alone was equally effective as in vivo (situational) exposure alone for obsessive-compulsive checkers (although neither alone was as effective as combined in vivo and imaginal; Foa et al., 1985, 2012). On the other hand, data suggest that situational (in vivo) exposures may be more potent than imaginal exposures for the treatment of specific phobia (e.g., showing better post-treatment outcomes in a meta-analysis; Wolitzky-Taylor et al., 2008). Perhaps this is because specific phobia presentations often involve distressing and impairing reactivity to situational cues related to the phobic target. Thus, in contrast to traditional systematic desensitization procedures, it has become clear that exposure therapy outcomes cannot always be optimized by presenting cues in an imaginal modality alone (e.g., Wolitzky-Taylor et al., 2008; Foa et al., 1985, 2012).

Furthermore, graduated procedures do not seem to be necessary to achieve successful outcomes from exposure therapy for anxiety. Researchers quickly discovered that there may not be any reliable differences in efficacy between graduated and flooding procedures (Gelder et al., 1973). Flooding involved prolonged confrontation with a highly feared stimulus right from the start of treatment. Interestingly, more recent research suggests that graduated exposure may be less effective than varying the difficulty of exposure throughout the course of treatment (Kircanski et al., 2012). The suggested explanation is that exposure therapy that is more variable in its intensity may produce better generalization of fear extinction (Craske et al., 2014).

After the advent of systematic desensitization, researchers also discovered that adding relaxation to exposure therapy does not necessarily facilitate fear reduction (Cooke, 1968). In specific cases, such as when there is a fear of the fear response

itself (such as in panic disorder), the addition of relaxation training can even be detrimental (Schmidt et al., 2000). Thus, because of this accumulating evidence, systematic desensitization is no longer the exposure therapy treatment of choice and the reciprocal inhibition model has fallen out of fashion.

Perhaps because of these historical events regarding reciprocal inhibition, research on more traditional counterconditioning procedures was largely neglected for several decades. However, renewed interest has produced some additional information regarding the efficacy of counterconditioning procedures. In regard to the extinction of fear responding, findings have been mixed (e.g., Hendrikx et al., 2021; Kang et al., 2018; Keller & Dunsmoor, 2020; van Dis et al., 2019). However, results thus far seem more promising in regard to the extinction of disgust-related responses, which are more resistant to extinction than fear-related responses (Olatunji et al., 2007). Disgust responses are common in a number of anxiety and related disorders,³ such as small animal phobias; blood, injury injection phobias; contamination-related obsessive-compulsive disorder; and even posttraumatic stress disorder related to sexual assault (Cisler et al., 2009). In study of lab-conditioned disgust and extinction, Engelhard et al. (2014) found that exposure therapy on its own was not sufficient in reducing disgust-related evaluative learning, but counterconditioning was. In a study of individuals with elevated contamination-related fears, Leburn and colleagues (2020) found that counterconditioning can be effective in addressing disgust-sensitivity in individuals with elevated contamination-related fears. Thus, research on counterconditioning has come full circle. Cutting edge studies on extinguishing disgust-related responses in anxiety disorders are now drawing on the same counterconditioning principle applied by Jones (1924) in one of the first studies of exposure therapy in the 1920s.

Two-Factor Theory

One critical downfall of the behavioral models for anxiety we have reviewed so far is that they do not address how anxiety disorders are maintained. Anxiety-related behaviors, such as pervasive and life-interfering avoidance, are not adaptive and often come with several detrimental consequences. This raises the question (often called the neurotic paradox; Mowrer, 1948), why do anxiety-related behaviors persist? In other words, what maintains anxiety-related behaviors such as pervasive avoidance? Mowrer's two-factor theory (1947) attempted to resolve this paradox by combining two early learning theories: classical and operant conditioning. The first factor in two-factor theory describes acquisition of fear through classical conditioning. The second factor refers to the operant conditioning of avoidance, which serves

³For the purposes of this paper, anxiety related disorders are conceptualized as going beyond the DSM-5 (*American Psychiatric Association, 2013*) category, including posttraumatic stress disorder and obsessive compulsive disorder, which can also be described using the same behavioral conceptualizations as disorders categorized under the header of anxiety in the DSM-5.

to maintain fear. Specifically, the model posits that avoidance of the feared stimulus results in fear reduction, and fear reduction, in turn, reinforces avoidance. This removes the opportunity for fear extinction, thereby maintaining fear. For example, a fear response towards dogs might be classically conditioned by experiencing a dog bite. Later, if an approaching dog elicits fear, then crossing the street to avoid the dog would reduce fear, negatively reinforcing avoidance. Avoidance would be a more likely response in the future, given that it resulted in the removal of the uncomfortable emotional state of fear.⁴ Persistent avoidance would then remove the opportunity for exposure to dogs in the absence of aversive outcomes (e.g., no dog bites), thereby preventing fear extinction. Thus, operantly conditioned avoidance prevents fear extinction because opportunities to interact with the feared stimulus are eliminated.

Two-factor theory has received ample criticism over the past several decades. Although a full review of criticisms of two-factor theory is beyond the scope of this chapter (for overview, see Kryptos et al., 2015), we will highlight two. First, the theory could not account for cases in which fear was acquired through pathways other than classical conditioning, such as observational (or vicarious) learning. Second, the model did not account for blocking (see below; Kamin, 1969) and conditioned inhibition (see below; Rescorla & Lolordo, 1965), which have important implications for the acquisition and treatment of anxiety disorders.

Rescorla-Wagner Model

The Rescorla-Wagner model (RW model; Rescorla & Wagner, 1972) represented another breakthrough in behavioral models of anxiety in that it provided an explanation for conditioned inhibition and blocking effects. Put simply, this model suggests that learning is governed by surprise. More surprise results in more rapid learning, including more rapid fear conditioning and extinction. In other words, the degree of mismatch between predicted and actual events governs new learning. Few behavioral models have had such a lasting and broad impact as the RW model (Siegel & Allan, 1996), and its rippling effects are still evident in contemporary behavioral models of anxiety (Craske et al., 2014).

Importantly, the RW model accounts for the phenomena of blocking and conditioned inhibition, which have important implications for fear learning. In blocking, when one conditioned stimulus (CS 1) has been established as a reliable predictor of an aversive outcome, pairing CS 1 with another stimulus (CS 2) will not result in learning because there is no prediction error. For example, imagine that a red light (CS 1) is associated with a shock through classical conditioning procedures, and then a tone (CS 2) is presented alongside the red light just before the shock. The

⁴The two-factor model echoes elements of Hullian drive reduction theory (Hull, 1943). Specifically, the two-factor model implies that the drive to reduce the unpleasant experience of anxiety motivates avoidance, and the reduction in this drive negatively reinforces avoidance.

tone will not become associated with the shock because the shock is already expected due to the red light. In other words, there was no surprise when the shock occurred, so there was no new learning. The presence of the light (CS 1) alone predicted the shock, so blocked any associative learning with the tone (CS 2). Thus, new fear learning is blocked by a competing stimulus. In the context of the acquisition of fears, this model can help explain cases in which the generation of new fear associations may be prevented or attenuated.

The Rescorla-Wagner equation also accounts for negative prediction errors. For example, negative surprises (i.e., no aversive outcome when one was expected) can produce conditioned inhibition (Rescorla & Wagner, 1972). To illustrate, imagine again that a red light is repeatedly paired with a shock. However, whenever the light is presented alongside a tone, there is no shock. This unexpected event (absence of the shock) produces learning. In the RW model, the light takes on a positive predictive value for the shock, and the tone takes on a negative predictive value; the light perfectly predicts the shock (association of +1) and the tone perfectly predicts the absence of the shock (association of -1). Thus, when presented together, the summed associations are zero, predicting no shock. At first this might seem like a highly intellectualized exploration of fear extinction parameters, but it has critical implications for anxiety treatment. If a conditioned inhibitor is present during exposure therapy, it prevents extinction. Sticking with our earlier example, let's discuss this in application to dog phobia. Imagine that a fear of dogs was generated from an instance in which a person was bitten by a dog while on a neighborhood walk. Afterward, they always carry a large stick with them whenever they go outside in their neighborhood, even when they are just walking to the car. They are not bitten on any of these occasions, so the stick becomes a conditioned inhibitor. However, the persistent fear is quite distressing, so the client seeks out the help of a therapist. The unwitting exposure therapist recommends practiced walks in which the patient encounters neighborhood dogs, and is perplexed to find that these exposures generate little to no fear extinction. However, it turns out that the client is carrying the stick on all these walks, and that the conditioned inhibitor of the stick has prevented new learning (i.e., fear extinction). The conditioned inhibitor, the stimulus of the stick, must be removed to extinguish fear. In this case, therapeutic progress is greatly informed by a clear understanding of the manner in which conditioning inhibition influences fear extinction.

The RW model produced an important leap forward in models for understanding the acquisition and treatment of anxiety and related disorders. It explained observations in fear learning research, such as blocking and conditioned inhibition, which other models could not explain. The RW model, however, is not without flaws (for a full review of its successes and failures, see Miller et al., 1995). For example, the RW model cannot account for spontaneous recovery or renewal of fear, in which fear re-emerges after the passage of time or after a change in context, respectively (Bouton, 2002). This has been accounted for by the inhibitory learning model, a contemporary model of fear learning that folds in components of the RW model.

Safety Signal Theory

In contrast to the RW model, safety signal theory accounts for the persistence of avoidance behaviors in conditioned inhibition paradigms through a slightly different mechanism (e.g., Lolordo, 1969; Weisman & Litner, 1969). Whereas the RW model suggests that fear responses are maintained through expectancy violation mechanisms, safety signal theory suggests that fear responses (such as avoidance) are maintained through the positive reinforcement of safety signals (Lovibond, 2006). Safety signal theory posits that avoidant behaviors produce feedback (i.e., safety signals) in the form of contextual or interoceptive cues. For example, a rat might avoid a shock by moving to the other side of the cage (producing a shift in context), or by pressing a lever (producing an interoceptive cue such as tactile sensation; Lovibond, 2006; Weisman & Litner, 1969). More akin to traditional operant conditioning models, these safety cues are seen as positively reinforcing avoidant behavior.

Although some have called safety signal theory a variant of two-factor theory (e.g., Mineka, 1979), it accounts for a number of phenomena that could not be explained by Mowrer's two-factor theory. For example, avoidant behavior can be acquired even when the warning cue is not terminated after performing the avoidant behavior (Avcu et al., 2014; Soltysik et al., 1983), and avoidant behavior can be maintained even when the warning cue no longer predicts the occurrence of an unconditioned stimulus such as a shock (Solomon et al., 1953). Either of these should undermine instrumental learning of avoidance through negative reinforcement as described in two-factor theory. However, safety signal theory accounts for how avoidance is maintained even in these circumstances, through the presence of positively reinforcing feedback cues or safety signals.

Although the RW model and safety signal theory describe different mechanisms for the maintenance of avoidance behavior in the context of safety signals, both models underscore the importance of eliminating safety signals during exposure therapy. In the context of exposure therapy, patients often engage in a number of covert and overt avoidance behaviors, which can undermine the efficacy of treatment (e.g., Salkovskis et al., 1999; Wells et al., 1995). For example, individuals with panic disorder may carry anxiolytic medications (overt safety behavior) and subsequent exposure to physiological sensations does not extinguish the fear because the presence of the medication signals safety. They might also engage in distraction during exposure therapy (a covert safety behavior), which could similarly act as a safety cue and prevent extinction. The RW model and safety signal theory both highlight the importance of carefully identifying and fading out the presence of safety cues during exposure therapy.

Safety signal theory resulted in the development of a procedure commonly called exposure and response prevention. This protocol name is often associated with the treatment of obsessive-compulsive disorder (e.g., Foa et al., 2012), perhaps because safety-seeking behaviors (i.e., compulsions) are highlighted in the disorder name and criteria. However, the use of safety-seeking behaviors is pervasive across

anxiety-related disorders, so the reduction of safety-seeking behaviors during exposure therapy has become standard practice. Findings across a number of studies support the idea that incorporating safety behavior fading into exposure therapy procedures increases its efficacy (for review, see Telch & Lancaster, 2012).

Vicarious Conditioning

The models discussed up until this point cannot account for the fact that fear can be acquired without any history of classical conditioning (Öst & Hugdahl, 1981; Rachman, 1991). For example, fear can be acquired vicariously or through observation. Specifically, vicarious fear learning occurs when fear responses are acquired through observation of others and the consequences of their behaviors (Bandura, 1965). For instance, a child might acquire a fear of spiders by seeing another child receive a painful spider bite, or by observing a parent exhibit fearful and avoidant reactions toward a spider. In order to better test the theory of vicarious conditioning of fear, it has been examined in rhesus monkeys, in order to rule out any possibility of prior learning history with the conditioned stimulus. Specifically, research in rhesus monkeys has shown that fear of snakes can be acquired by watching other monkeys react fearfully to real and toy snakes (Cook et al., 1985). In human research, toddlers acquired fear of rubber snakes and spiders after seeing their mothers respond to the toy with fearful or disgusted expressions (Gerull & Rapee, 2002). Experimental research in human adults has also demonstrated vicarious acquisition of fear from watching a confederate receive a shock after a buzzer sound. These participants then showed elevated physiological responses to the buzzer (i.e., galvanic skin response; Berger, 1962). In follow-up studies, experimenters found that the emotional reaction of the confederate, which was operationalized by arm movement when shocked, increased anxiety in observing participants, providing further evidence for fear acquisition through vicarious learning.

Vicarious learning principles can also be harnessed to facilitate fear reduction. In the context of exposure therapy, the procedure is typically called modeling, and involves the therapist demonstrating successful coping with the feared stimulus. For example, the therapist might show a patient with agoraphobia that they are able to enter and maneuver about a crowded mall without harm; they might show a patient with spider phobia how to successfully trap a spider in their home; or they might demonstrate for a patient with social anxiety how to start conversations with strangers. Interestingly, Jones (1924) seemed to anticipate this psychotherapy development as well; in her treatment of Peter's rabbit phobia, she used modeling on some trials, and found that it was effective for reducing his fear. More controlled studies later confirmed the benefits of modeling observed in this initial test. For example, modeling has been found to facilitate extinction of dog phobia and to promote the generalization of extinction to other dogs (Bandura et al., 1967). Experimental studies suggested that modeling accelerated fear extinction for phobia (Bandura et al., 1969), and surpassed systematic desensitization in increasing approach behaviors in

dental phobia (Shaw & Thoresen, 1974). Modeling is now often incorporated in the practice of exposure therapy.

Some would quite reasonably argue that vicarious learning could fall more within the bounds of second wave (cognitive-behavioral) models, as opposed to first-wave models. After all, Bandura, who authored seminal research on vicarious learning (Bandura et al., 1963), suggested social *cognitive* theory as an explanation for these effects (Bandura, 1989). This theory highlighted the critical role of explicit cognitions in governing fear-related responses, such as whether one will approach or avoid a feared stimulus. He focused in particular on cognitions related to self-efficacy, which he defined as “the conviction that one can successfully execute the behavior required to produce the [desired] outcomes,” (p. 193; Bandura, 1977). Bandura suggests that vicarious learning impacts self-efficacy beliefs, which in turn impact fear responding. This model was supported by research showing that higher self-efficacy beliefs are associated with lower avoidance, subjective and physiological fear response toward a feared stimulus (Bandura et al., 1982). However, behaviorists have argued that just because explicit cognition co-varied with other indicators of fear response, does not necessarily mean that it caused the fear response (e.g., Delprato & McGlynn, 1984).

In contrast to more explicit cognitive processes, more recent research seems to support the notion that implicit associative learning plays a role in vicarious fear learning. For example, researchers have found that fear which is vicariously conditioned in the laboratory can later be provoked by masked presentations of the feared stimulus (Olsson & Phelps, 2004). Masked stimulus presentations are so rapid that they are not consciously processed and cannot be explicitly reported upon. Similarly, masked stimuli also provoked fear responses after classical (Pavlovian) conditioning, but not after instructed conditioning, in which the participant receives verbal instructions about the association between the stimulus and the shock (Olsson & Phelps, 2004). Together, these findings support the notion that vicarious learning may operate through more implicit associative processes, akin to the mechanisms of classical Pavlovian conditioning. Further research has even demonstrated that fear responses can be generated through the masked presentation of social cues associated with a fearful expression. Specifically, there is evidence that masked presentations of fearful facial cues can produce fear-related neural (amygdala) activation (Whalen et al., 2004). The implicit response to social cues of fear, as well as the implicit response to vicariously conditioned fear, support the notion that vicarious learning procedures may operate through a more implicit associative learning process than previously thought. Thus, vicarious learning might be more closely tied to behavioral, rather than cognitive-behavioral models of fear learning. The mechanisms of vicarious learning remain an active field of study and debate. Whatever its mechanisms may be, decades of research have affirmed that vicarious learning procedures are a robust method for influencing the acquisition and treatment of pathological fear.

Contemporary Learning Models

Early behavioral models laid the groundwork for our understanding of fear acquisition, maintenance, and extinction. The general principles outlined by these models have been incorporated into a number of more contemporary learning theories. However, more contemporary learning theories go beyond the traditional focus of behavioral psychology, expanding beyond the exclusive focus on directly observable events. These learning models have helped explain a number of phenomena that early behavioral models were unable to explain.

Influence of Symbolic Generalization on Models of Fear Learning

Although early behavioral models cannot account for the fact that some fear and avoidance responses develop in the absence of classical or vicarious conditioning, a contemporary behavioral theory called symbolic generalization offers one possible explanation of this phenomenon (Dymond & Roche, 2009). The theory suggests that fear can be acquired through symbolic generalization, which occurs when stimuli are not perceptually, but arbitrarily related. Principles of symbolic generalization suggest fear can be learned from derived relational responding, and avoidance behavior can occur due to transformation of functions. Derived relational responding (Hayes et al., 2001) occurs when relationships are made between interconnected stimuli that are not classically or vicariously conditioned. Transformation of functions is evident when behavior occurs toward a stimulus that has been relationally derived.

For example, Augustson and Dougher (1997) trained participants with unfamiliar stimulus relations (A1-B1-C1-D1 and A2-B2-C2-D2), and then conditioned them to avoid shocks that were paired with stimulus B1. Interestingly, participants also avoided when they saw stimuli C1 and D1, but not C2 and D2. This suggests that B1 was associated with C1 and D1 and transferred its fear properties, in the absence of any direct conditioning of fear associations for C1 and D1. This study demonstrated that stimuli can evoke anxiety and avoidance behaviors because of derived relations to stimuli that have been conditioned through associative learning (Dymond & Roche, 2009). Additionally, Vervoort and colleagues (2014) found that both generalization and extinction of fear responses occurred among symbolically related stimuli (i.e., arbitrary line drawings).

Symbolic generalization is particularly relevant to human learning because we can make arbitrary categories based on language (see relational frame theory; Dymond et al., 2013). Fear and avoidance can be generalized to semantically related synonyms (Boyle et al., 2016). In one experiment, participants were differentially conditioned to associate a certain words (e.g., “broth”) with a shock, while another word was not paired with shock (e.g., “assist”). Participants later showed fear

(measured by skin conductance and behavioral avoidance) to other words that were semantically related but not directly conditioned (e.g., “soup”). Work on symbolic generalization can explain how certain words (such as snake, or a parent saying the word careful) can elicit fear. Words can become conceptually related to actual feared stimuli through derived relations. Bennett and colleagues (2015) introduced groups of derived relations with sounds, non-sense words, and novel animal-like objects. After fear was conditioned to words from the groups, the fear response generalized to the animal-like objects that were symbolically related to the words.

Symbolic generalization is often associated more closely with third wave than first wave therapies, and is particularly associated with relational frame theory, which provides the foundation for acceptance and commitment therapy (ACT; Hayes et al., 1999). However, ACT has been described as ‘rigorously behavioral’ (p. 3, Hayes, 2004) and many components of its theoretical framework are built on the foundation of contemporary behavioral models. Thus, a review of more recent findings related to symbolic generalization is relevant to a broad understanding of contemporary behavioral models of anxiety. Symbolic generalization provides an interesting behavioral account of fear learning in the absence of classical or vicarious conditioning.

However, it is important to note that recent research suggests some potential boundary conditions on these effects. Fear learning through the use of language may be limited to particular types of stimuli that are less relevant to the evolutionary adaptation of early humans (see overview of instructed conditioning and extinction findings, under Challenges from the Second Wave).

Influence of Personality and Latent Inhibition on Models of Fear Learning

In isolation, early theories of fear acquisition, such as classical and vicarious conditioning, do not explain individual differences in response to conditioning events. For example, why do some people, when exposed to a painful experience at the dentist’s office, develop a fear of visiting the dentist, while others do not? These individual differences might be explained in part by the influence of personality traits and prior experiences in setting the stage for fear conditioning.

For example, heritable personality traits, such as neuroticism (Jang et al., 1996) and trait anxiety (Legrand et al., 1999), have been found to facilitate fear conditioning. Heritable personality traits are attributes that are associated with genetic disposition that are relatively stable throughout the lifespan (Power & Pluess, 2015; Steunenbergh et al., 2005). Neuroticism can be described as a stable tendency to experience negative affective states in general, whereas trait anxiety can be described as a stable tendency to experience anxiety. Conditioning studies have demonstrated that both neuroticism and trait anxiety facilitate the acquisition of anxious responses as a result of conditioning events (Hur et al., 2016; Zinbarg & Mohlman, 1998).

Furthermore, both result in overgeneralized fear responses to non-threatening stimuli (Gazendam et al., 2013), such as avoidance (Lommen et al., 2010), which contributes to the maintenance of anxiety.

Prior learning history also impacts the acquisition of anxiety. For example, a history of non-traumatic experiences at the dentist's office helps to inoculate children against the development of dental anxiety after a traumatic experience at the dentist's office (Kent, 1997). Vicarious learning can also facilitate inoculation against fear conditioning. For instance, a history of watching a monkey interacting with a snake non-fearfully inoculates it against developing a fear of snakes after watching another monkey interact with a snake fearfully (Mineka & Cook, 1986). This phenomenon has been called latent inhibition, and it refers to the fact that prior, safe experiences with the conditioned stimulus help to inhibit the development of conditioned fear responses.

This summary provides a sampling of key studies to demonstrate the importance of accounting for the influence of temperament and prior experiences on fear learning. Together, they suggest the potential benefits of identifying individuals displaying at-risk temperaments, such as heightened neuroticism or trait anxiety, and considering the application of anxiety-inoculation techniques, such as latent inhibition (Mineka & Zinbarg, 2006).

Influence of Evolutionary Factors on Models of Fear Learning: Biological Preparedness and Species-Specific Defense Reactions (SSDRs)

Early behavioral models also had difficulty accounting for the fact that particular phobic targets and certain types of avoidance behaviors are more common than others. For example, fear of snakes is more common than fear of dental treatment, injections, and blood (Oosterink et al., 2009), even though individuals are more likely to be exposed to the latter stimuli in modern daily life. This poses problems for prior learning theories because this means that not all stimuli are equivalent in their ability to be fear-conditioned. This suggests that humans and animals may be biologically prepared to acquire fear to certain stimuli that were dangerous in early stages of the evolution of a species; these stimuli have been called fear-relevant stimuli (Mineka & Zinbarg, 2006; Öhman & Mineka, 2001). The underlying assumption is that a species-shared (phylogenetic) predisposition for faster acquisition of fear associations with these stimuli was evolved through natural selection because it offered a survival advantage for members of the species (Seligman, 1971).

For example, Öhman and Mineka (2001) found that humans acquire fear towards fear relevant stimuli like snakes much faster than they do towards fear-irrelevant stimuli like flowers. Additional compelling evidence comes from masking studies, in which stimuli are presented so quickly that they are beyond conscious awareness. Fear can be conditioned and extinguished to fear-relevant stimuli that are masked,

like snakes and faces, but not to fear-irrelevant stimuli that are masked, such as flowers and mushrooms (Esteves et al., 1994; Öhman & Soares, 1998). These studies suggest the role of biological preparedness in explaining why some phobias, such as snake phobia, are more prevalent than others, such as dental phobia (Oosterink et al., 2009).

Biological preparedness is evident not only in differences in associative fear learning across stimuli, but also differences in the acquisition of different types of avoidant behavior. Specifically, there is evidence that certain classes of avoidant behavior are acquired more readily than others. These classes include behaviors that are more likely to avert threats under naturalistic conditions, such as fleeing, freezing, or fighting. For example, in order to avoid an aversive outcome such as a shock, rats will learn to enact defensive responses more common to those seen in a natural habitat (e.g., running on a wheel or jumping to a new location) more quickly than they will learn to enact defensive responses that are not often seen in a natural habitat (e.g., rearing up on their hind legs on a wheel, or pressing a lever; Bolles, 1970; Bolles & Grossen, 1969).

Parallel to biologically prepared fear acquisition, Bolles (1970) suggested that there are species-specific defense reactions (SSDRs), which are essentially biologically prepared avoidance responses. According to this theory, fear elicits certain types of defensive behaviors that are innate to the specific organism. Non-SSDRs tend to emerge only after SSDRs have been ineffective in averting a negative outcome. Non-SSDRs can be trained, but this typically only happens after SSDRs have failed. This helps to explain why certain classes of avoidance responses are easier to acquire than others. Together, the theories of biological preparedness and species-specific defense reactions, rooted in evolutionary psychology principles, explain the relatively higher frequency of certain fear associations and types of avoidance behaviors.

Influence of Neuroscience on Models of Fear Extinction: Inhibitory Learning

Another challenge to classic learning models of fear lies in understanding how fear can re-emerge, even after successful fear extinction training (Pavlov, 1927). Behavior therapists, for simplicity's sake, may present the model of exposure therapy as a procedure to 'unlearn' a conditioned fear association. However, scientists as early as Pavlov (1927) posited that, rather than unlearning a fear association, Pavlovian fear extinction procedures instead result in the formation of a new inhibitory association. The new inhibitory association encodes the information that the feared stimulus is safe in some contexts, such as the contexts similar to the one in which extinction learning took place. Thus, the original fear association may persist in some contexts, even after completing fear extinction procedures. Colloquially, each time a feared stimulus is encountered after fear extinction training has been

completed, there is a sort of battle between the new inhibitory association and the original fear association. When the context is more similar to the context of safety learning (i.e., exposure therapy), the inhibitory association prevails and prevents the expression of fear. However, under certain conditions, such as contexts that are very different from exposure therapy, the original fear association may prevail, and fear expression might return. In other words, the model of inhibitory learning helps to explain why relapse can occur even after a marked reduction of fear during the course of exposure therapy: the original fear association persists, and can lead to a return of the fear response, whenever the fear-inhibiting association is not triggered.

Current data lend support to this model of new inhibitory learning. Inhibitory memories are context-dependent, and thus, they are less likely to be activated after a change in context. Failure of the inhibitory memory to activate produces the re-emergence of an extinguished fear response. For example, extinguished fear responses tend to be more likely to return after the passage of time (i.e., spontaneous recovery) or after a change to a new context that differs from the fear extinction context, such as a change in olfactory or visual cues (i.e., renewal; Bouton, 2002). True to the rich history of behaviorism, these theories were originally developed and tested using animal models (Bouton, 2002), and then translated and corroborated in human models of fear conditioning and extinction using both behavioral observations and neural imaging (Björkstrand et al., 2017; Kredlow et al., 2016; Schiller et al., 2013).

Drawing from the inhibitory learning model, Craske and her colleagues (2008, 2014; Sewart & Craske, 2020) have suggested that exposure therapy procedures should be optimized to increase the likelihood of inhibitory memory activation. This can be accomplished in several ways. First, one could improve the generalization of the new inhibitory memory by increasing variability during extinction training, in terms of both external and internal cues. External cues might include varying the features of the feared stimulus, such as presenting small and large spiders during spider phobia treatment. It could also include varying the features of the surrounding environment, such as practicing encountering spiders inside and outside, and with and without the therapist present. The context of time could also be varied, such as gradually spacing out exposure therapy sessions across time to offset the spontaneous recovery of fear. Variability can also be introduced for internal contextual cues, such as encountering stimuli that elicit differing levels of fear response, or encountering stimuli under different physiological baseline states, such as with different levels of caffeine. Thus, a number of techniques fall under the general strategy of facilitating variability during exposure to promote generalization of the fear memory.

In addition to improving generalization of the inhibitory memory, the inhibitory memory could also be cued using reminders present during extinction training. For example, the presence of a wristband that was used during extinction training, or even asking a patient to mentally rehearse a prior extinction training session, can facilitate recall of fear extinction, and thus, activation of the inhibitory memory. However, some have suggested that this strategy requires caution because retrieval

cues could run the risk of functioning as safety signals, potentially blocking fear extinction.

Furthermore, one could also improve the robustness of inhibitory learning through the general principles of prediction error, as set forth by the Rescorla-Wagner prediction error model. This generally includes adapting the exposure situation to maximize ‘surprisingness’ of the outcome, and could also include the use of procedures such as removal of safety signals, occasionally reinforcing extinction trials, and deepened extinction to facilitate prediction error. For example, fears about the consequences of having a panic attack would better extinguish in the absence of anxiolytic medications; this would facilitate prediction error by removing the conditioned inhibitor. Someone with a fear of negative feedback during public speaking could be occasionally provided with negative feedback on speaking performance. This would serve to increase the expectancy of the threat on future extinction trials, and therefore enhance prediction error when it does not occur. Finally, one could use deepened extinction to boost prediction error. In this procedure the fear response to two stimuli are extinguished one at a time, and then the fear response is extinguished to both stimuli presented simultaneously. Simultaneous (compound) presentation of the stimuli may boost the threat prediction, thereby boosting prediction error. For example, an individual with spider phobia might encounter two spiders at one time. Alternatively, an individual with panic disorder might practice walking through a crowded mall shortly after ingesting caffeine, to facilitate exposure to the sensation of a racing heart alongside the situation of being in a crowd. Because each of these techniques is designed to facilitate prediction error, they are consistent with treatment recommendations derived from the Rescorla and Wagner model (1972). However, the arguments for the importance of context variability and retrieval cues represent a notable departure from prior models.⁵ In the contemporary clinical science of exposure therapy for anxiety, inhibitory learning theory is currently among the most influential theories. It has generated a number of empirically supported and practical suggestions for improving exposure therapy outcomes (for full review, see Craske et al., 2008, 2014).

⁵Craske et al. (2014) also suggest leveraging the reconsolidation-update mechanism by providing new information about the safety of the feared stimulus (i.e., exposure therapy) during a period of time in which the fear memory is labile and susceptible to updating (within a six hour window after retrieval of the fear memory; Nader et al., 2000). However, translational studies in human clinical trials of exposure therapy have resulted in promising, but heterogeneous results, which are challenging to interpret at this point (Walsh et al., 2018).

Challenges from the Second and Third Waves of Psychotherapy

Challenges from the Second Wave

The second wave of psychotherapy marked the development of the cognitive model (e.g., Clark & Beck, 2011). The cognitive model posits that cognitions play a central role in causing emotional, physiological, and behavioral responses. During the course of therapy, maladaptive or inaccurate cognitions are identified, and the therapist uses various techniques to challenge and modify these cognitions. Once modified, the new cognition is posited to produce new responses (emotional, physiological, and behavioral) that are more adaptive in the environmental context.

Strict behaviorists might criticize this view of cognition by labeling it as ‘mental-ism’ (Day, 1983). As a rough summary, this strict behavioral view suggests that it would be more appropriate to view cognition as an intermediary between the environmental input (stimulus) and behavioral output (response), but that explicit cognition, on its own, should not be considered a sufficient causal, explanatory factor. One might argue that the difference in theories is therefore only a matter of emphasis on the importance of the role of cognition. This, however, would be inaccurate. The practice of cognitive(-behavioral) therapy for anxiety disorders, and its supporting theories (e.g., Lovibond, 2006), demonstrate a strong emphasis on the role of explicit cognition in governing fear learning. On the other hand, when behavioral theories for anxiety acknowledge cognition at all, they emphasize more implicit, automatic, and associative processes as governing fear learning (e.g., Rescorla & Wagner, 1972).

A close examination of the practice of second-wave, cognitive(-behavioral) therapy quickly demonstrates its strong focus on explicit cognition. In the case of anxiety-related disorders, these explicit cognitions are often reported in the form of propositional knowledge about the level of threat (or safety) associated with a given stimulus (Lovibond, 2006). In the practice of second-wave therapies, patients report their threat-related cognitions, and therapists help them see the connection between these cognitions and maladaptive fear and avoidance responses. Once identified, threat-related cognitions are challenged through the combination of rhetorical strategies and behavioral experiments (akin to exposure therapy, but with the stated goal of testing the accuracy of propositional knowledge related to threat/safety). For example, a patient with spider phobia might report the cognition, “If a spider is in the same room as me, it will probably bite me.” This cognition could be challenged with rhetorical strategies, such as asking the patient to weigh evidence for and against this belief by drawing on past experiences and other available information. It might also be tested by asking the patient to stand in the same room as a spider and observe the spider’s behavior, to gather more evidence for or against the reported prediction about a spider bite.

An analysis of the theoretical foundations of cognitive therapy also emphasizes its reliance on explicit cognition. For example, in his paper introducing expectancy

theory, Lovibond (2006) notes the concordance of this cognitive theory of anxiety with the practice of cognitive(-behavioral) therapy for anxiety⁶. More specifically, Lovibond's expectancy model (Lovibond, 2006) posits that higher-order (explicit and consciously accessible) cognitive processes govern fear learning, as fear is acquired when humans learn to expect an aversive stimulus (i.e., the unconditioned stimulus; US) shortly after a particular environmental cue is presented (i.e., the conditioned stimulus; CS). The model further suggests that humans acquire avoidant behavior when they expect that avoidance in response to the CS will prevent the occurrence of an aversive outcome (US). Importantly, in the expectancy model, Lovibond specifies that expectancies are acquired in the form of propositional knowledge, a type of explicit cognition amendable to self-report. Relatedly, Lovibond also specifies that expectancy theory applies to human models specifically, as opposed to non-human animal models. This assertion sets it apart from behavioral models, such as the Rescorla-Wagner prediction error model (RW model), which makes no such assertion that associations between the US and CS occur in the form of explicit cognition. On the contrary, the RW model was developed in the context of non-human animal research, which implies a reliance on more implicit, associative processes to explain fear learning.

At first glance, Lovibond's expectancy model seems to have some explanatory benefits over behavioral model. For example, this model has been used to explain the correlation between self-reported threat expectancies and electrodermal reactivity to fear-conditioned stimuli (Lovibond, 2006). The assertion has been that the (conscious) expectancy causes physiological reactivity. However, causality could easily run in the opposite direction, and literature from masked conditioning studies suggests that it might. Masked conditioning studies involve backward masking of the conditioned stimulus. In the backward masking procedure, the conditioned stimulus is presented very rapidly and immediately followed by a different image (the 'mask'), which prevents the participant from registering conscious awareness of the conditioned stimulus itself. In masked (shock) conditioning experiments, the presentation of a masked conditioned stimulus influenced self-reported shock-expectancy ratings (Katkin et al., 2001; Öhman & Soares, 1998). In one study, researchers have also found that expectancy ratings after masked stimulus presentation were associated with the participant's ability to detect their own heartbeats (Katkin et al., 2001). These data support the notion that propositional knowledge is

⁶We have focused primarily on Lovibond's expectancy model as an example of cognitive-behavioral models given its unique emphasis on explicit, consciously accessible cognition. This model makes a clean and complete departure from the more implicit, associative mechanisms of behavioral models. Yet there are also other well-known expectancy theories, such as Seligman and Johnson's cognitive theory (1973); this model relies on a blend of behavioral mechanisms (e.g., Pavlovian and instrumental conditioning) with cognitive mechanisms. Lovibond's expectancy model differs in that it truly places explicit cognition (in the form of propositional knowledge) at the center of the learning process, including as the mechanism governing Pavlovian and instrumental conditioning (Krypotos et al., 2015). Thus, it was selected for the sake of better highlighting contrasts between more purely cognitive and more purely behavioral models. In reality, many models of anxiety are a combination of both.

not necessary to produce fear learning, and in fact, propositional knowledge about threat can result from fear responses produced by more implicit, associative learning.

Importantly, this pattern of findings highlighting the role of implicit, associative processes in governing fear processing, extends beyond lab-conditioned fears to individuals who have naturally-acquired phobias. For example, in experimental studies of people with phobias, masked presentation of a feared stimulus has been shown to elevate neural (Lipka et al., 2011; Siegel et al., 2017), physiological (Öhman & Soares, 1998), and self-reported (Öhman & Soares, 1993) indices of fear reactivity. Furthermore, repeated masked presentations of phobic stimuli have also been shown to produce fear extinction learning (Siegel et al., 2018, 2020).⁷ Although the level of extinction achieved in these masked extinction studies does not equate to that of more traditional exposure therapy procedures, these experiments still provide a compelling challenge to cognitive theories as an all-encompassing explanation of fear learning. In sum, masked conditioning and extinction studies demonstrate that these fear learning processes can occur completely outside the bounds of conscious awareness. This presents a major challenge to cognitive theories, such as expectancy theory, which rely entirely on conscious, cognitive mechanisms of change.

Another potential argument in favor of the cognitive model of anxiety comes from the growing literature on instructed fear extinction. The expectancy model would help explain the relatively consistent observation that fear extinction can be facilitated by verbal communication of threat-related information (e.g., verbal information about stimulus-shock associations; Luck & Lipp, 2016). However, there are some important boundary conditions of the effects of instructed extinction. For example, certain stimuli (i.e., snakes and spiders) seem resistant to instructed extinction (Öhman et al., 1975; Hugdahl & Öhman, 1977; Hugdahl, 1978; Soares & Öhman, 1993; Lipp & Edwards, 2002). Additionally, instructed fear extinction does not seem to be effective when the unconditioned stimulus used in the lab is more intense, such as a more uncomfortable shock (Mandel & Bridger, 1967, 1973). In terms of clinical translation, this boundary condition is critical in that it suggests that the effects of verbal instruction might not translate to cases of anxiety associated with relatively stronger unconditioned stimuli, which could include many cases of posttraumatic stress disorder, for example.

Finally, a review of the literature suggests that rather than producing changes on its own (which would be visible in the first extinction trial), researchers more consistently find that instructed extinction facilitates learning across fear extinction trials (Luck & Lipp, 2016). This suggests that the instructions facilitate associative extinction learning processes, working in tandem with them, rather than replacing them. There are some interesting parallels to these basic science findings in the anxiety treatment literature. Instructed extinction is often viewed as an analogue for

⁷Whereas early research suggested that masked fear learning might be limited to fear-relevant (biologically prepared) stimuli only (Öhman & Soares, 1998), more recent studies suggest that it might be possible to achieve masked fear conditioning with both fear-relevant and fear-irrelevant stimuli (Lipp et al., 2014).

cognitive restructuring by basic science researchers (Luck & Lipp, 2016), and a small subset of studies has found that cognitive restructuring can facilitate the effects of exposure therapy (e.g., Bryant et al., 2003, 2008; Michelson et al., 1996; Mattick & Peters, 1988; Mattick et al., 1989). Further treatment research, identifying the boundary conditions of these synergistic effects, may help clinicians identify specific cases or conditions in which supplementing exposure with cognitive restructuring will be helpful.

In this section, we have raised challenges to the cognitive model of anxiety. The cognitive model emphasizes the causal role of threat-related propositional knowledge for producing changes in behavior, physiological, and emotional responses. Emerging evidence from studies using backward masking and instructed extinction provide evidence for fear learning in the absence of conscious cognitive processes. Furthermore, some research suggests that self-reports of threat ratings may be an emergent property of physiological fear responses, rather than the cause of them. Perhaps unsurprisingly, most second-wave cognitive behavioral therapists rely on models that incorporate a combination of behavioral mechanisms and cognitive mechanisms. Yet the data reviewed here provide a fascinating challenge to the cognitive component of the model. As the field moves forward, developing a more clear understanding of the boundaries and interactions of more bottom-up behavioral mechanisms with more top-down cognitive mechanisms is essential to refining our models for the etiology and treatment of anxiety.

Challenges from the Third Wave

Third wave therapies are best distinguished from first and second wave therapies by their emphasis on acceptance as opposed to change. Behavioral and cognitive(-behavioral) therapies focus on changing behaviors and/or cognitions. On the other hand, third wave therapies, or acceptance-based therapies, involve targeting treatment goals related to acceptance. Although at first glance these differences seem striking, we will argue here that there may be surprising levels of compatibility and overlap, particularly between first and third wave therapies.

The emergence of acceptance-based therapies was quite remarkable in that it marked the development of treatments that showed success with previously more illusive treatment targets, such as chronic pain (Kabat-Zinn et al., 1985) and borderline personality disorder (Lynch et al., 2007). An underlying assertion of most of these therapies is the futility of attempting to alter aversive internal experiences, such as thoughts, emotions, and physiological sensations. The more these are 'pushed away,' the more they are amplified (Wegner et al., 1987; Sloan, 2004). For example, when thoughts are actively suppressed, they actually increase in frequency (Wegner et al., 1987). Similarly, avoidance may amplify negative emotional experience; individuals who are avoidant of unpleasant internal states (i.e., high in experiential avoidance), self-report higher levels of emotional reactivity to aversive stimuli (Sloan, 2004).

Third wave therapies act to reverse these amplifying cycles of thought and feeling suppression by targeting the acceptance of aversive internal states (see Twohig et al. in this volume). In the case of anxiety, these therapies would target the acceptance of uncomfortable emotional states (e.g., fear/anxiety) and physiological states associated with anxiety (e.g., racing heart, sweating, breathlessness), and it would assist patients in accepting the presence of anxiety-related thoughts such as predictions about danger. It is important to note, however, that accepting the presence of aversive thoughts is not equated with believing them. It is more akin to accepting that your least favorite song is playing in the background of your mind.

In contrast to the acceptance of aversive thoughts and emotions, third wave therapies do *not* target the acceptance of maladaptive behaviors (see Twohig et al. in this volume). In fact, these therapies often harness acceptance of aversive internal states for the function of generating behavior change. In the case of anxiety disorders, the aim is often to act in accordance with one's own value system, while accepting that this might generate uncomfortable thoughts and feelings. For example, someone with spider phobia might wish to go on a hike with their family in a place where they fear they may encounter spiders. This person might practice going on the hike to spend time with their family, while accepting the presence of uncomfortable, anxiety-related thoughts and feelings about spiders. This explicit focus on behavior change may help explain why prominent developers of third wave therapies often describe a strong influence of behaviorism in their work (e.g., Hayes, 2004; Linehan & Wilks, 2015).

More contemporary behavioral models of anxiety demonstrate a clear parallel to these third-wave models (e.g., contemporary models of panic disorder; Bouton et al., 2001). In these models, aversive internal states have been described as conditioned stimuli that become associated with aversive outcomes over time. For example, during a procedure called interoceptive conditioning (Razran, 1961), researchers have found that Pavlovian associations can be formed in which the conditioned and/or unconditioned stimulus are internal cues such as bodily sensations. This phenomenon of interoceptive conditioning has been incorporated into more contemporary learning theories of panic disorder (Bouton et al., 2001). Experimental studies suggest that more mild internal sensations associated anxiety can be paired through Pavlovian conditioning procedures with the stronger internal sensations of a full-blown panic attack (Acheson et al., 2007, 2012). As applied to panic disorder, internal/interoceptive cues related to fear (e.g., heart racing, shortness of breath) become conditioned through repeated association with full-blown panic attacks. This associative learning phenomenon contributes to the frequency of panic attacks in individuals with panic disorder, and a part of exposure therapy is then to extinguish the interoceptive conditioning by triggering the interoceptive cue repeatedly, until the association with aversive outcomes can be extinguished. As such, a primary goal of the treatment is to dissociate aversive internal cues with dangerous or threatening outcomes, and as such, this process somewhat echoes third-wave goals of accepting the presence of aversive internal states.

It is also possible that third wave therapy procedures, such as mindfulness meditation, act in a way that is parallel to the extinction of interoceptively-conditioned

fear responding. For patients with anxiety, particularly in its more pervasive forms such as generalized anxiety, focus on the present moment during meditation practice can involve direct confrontation with aversive internal states (i.e., aversive thoughts and feelings; Lomas et al., 2015). Through repeated confrontation with these states, without engaging in strategies to alter or change them in any way, patients may begin to dissociate these internal cues with aversive outcomes. This procedure would be highly consistent with a behavioral model in which interoceptively conditioned associations were extinguished. With very minor adaptations, which have already been made in the context of more contemporary learning theories, first and third wave approaches become surprisingly compatible. Therefore, rather than offering a challenge to first wave models and practices, third wave models might suggest novel strategies for targeting behavioral change that are could be viewed as fairly consistent with behavioral models, such as harnessing meditation as a strategy for exposure to uncomfortable internal states (i.e., extinction of interoceptively conditioned responses), in service of the goal of reducing maladaptive behaviors, such as anxiety-related avoidance.

Thus far, the compatibility between first and third wave approaches has been emphasized. However, this is not to make the false claim that these therapies are the same; a review of the procedures included in their manuals reveals fairly quickly that they are not (Chapman et al., 2011; Hayes et al., 2011; Kabat-Zinn, 2013). For example, first-wave behavior therapists do not typically incorporate meditation practice into treatment. And, although both first and third wave psychotherapies promote behavior change, the proposed mechanisms of change clearly differ. Whereas third wave models focus on the mindful acceptance of uncomfortable internal states, more contemporary first-wave models focus on the extinction of the association between these internal states and an aversive outcome.

A critical question third wave models raise is how to best define the mechanism of their effects, the construct of mindfulness itself (Bishop et al., 2004; Shapiro et al., 2006). Perhaps because of the inherent challenges involved in adapting ancient Eastern traditions to the western world of empirical clinical medicine, defining mindfulness has been fraught with challenges, and has produced a wide variety of construct definitions and operationalizations (Grossman, 2019; Quaglia et al., 2015). There is almost an inherent conflict in wrangling an operational definition out of a construct deemed to be primarily experiential in nature. Behavioral models, on the other hand, have had relatively fewer challenges in operationalization of their mechanisms. This is particularly true for earlier behavioral theories, which defined mechanism in terms of directly observable events, as opposed to mindfulness, which is deemed to be a multi-faceted, latent construct adapted to clinical science from Eastern cultural traditions (Baer et al., 2008; Grossman, 2019).

In sum, first and third wave therapies are compatible some ways, and incompatible in others. They align in that they both focus on behavior change, and to some extent, third wave therapy procedures like meditation might even tap into some of the same mechanisms as traditional exposure therapy procedures (e.g., interoceptive exposure). Despite these areas of compatibility, the procedures used to reduce reactivity to aversive internal cues are different, as are the posited mechanisms of

change. Highlighting areas of convergence and divergence between first and third wave therapies is essential for a critical evaluation of both approaches. This can help delineate potential areas of overlap, where different terminology might be used to describe similar phenomena, and it can help highlight areas of divergence ripe for further research.

Thus far, we have described behavioral models of anxiety disorders, and compared and contrasted them with second and third wave models. We will now present a case example to demonstrate first wave principles in action.

A Case Example

Julia was a 34-year-old, married, Latinx mother of one who presented to the clinic seeking treatment for a fear of spiders. She described that in the prior week she was unable to get out of her car because she thought she saw something on the ground that looked like a spider, and that is when she decided that she needed to seek out help. She knew that she would soon need to be able to go hiking and camping to chaperone her daughter's girl-scout troop, and that her fear of spiders might get in the way of this.

Julia reported that she had been afraid of spiders ever since she was a child. She explained that she lived near a desert area growing up, and had gone on a camping trip with her parents. She remembered reaching down to grab her toy when there was suddenly a piercing pain in her hand. She saw a small black spider run into a corner. She developed a painful spider bite that swelled, became infected, and required a visit to the doctor. The bite eventually healed, but ever since this time, she had refused to go camping or hiking. She removes her covers each night before getting into bed to check for spiders, and when she finds a spider (or another insect that could be a spider) in her home, she has to leave the room until someone else can remove it. She describes that she quickly scans the floor of most rooms that she enters just to make sure there are not any spider around. She reported that her goals in therapy were to (a) be able to get rid of spiders herself when they are in her home, and (b) be able to go on hiking and camping trips with her daughter.

During her intake interview, Julia's clinician diagnosed her with the animal subtype of specific phobia. Her phobia onset was attributed to Pavlovian fear conditioning that occurred during the spider bite she described during her childhood camping trip. Although the spider that bit her was small and black, her fear had generalized to all spiders and even insects that look like they might be spiders. Her clinician noted that her pervasive avoidance of opportunities in which she might encounter a spider helps to maintain her fear of spiders by circumventing any opportunities for additional fear extinction to occur. Her clinician notes that Julia also performs a number of unnecessary protective actions (i.e., safety behaviors) whenever she encounters spiders or thinks that she might encounter them. This prevents her from experiencing prediction error, which in turn prevents fear extinction (see Rescorla-Wagner prediction error model). For example, checking her bed in the evening is

associated with protection from the possibility of a spider bite. Thus, when a spider does not bite her during the night, there is no prediction error, and so no fear extinction learning occurs. Therefore, she continues to check her bed each evening. Her other safety behaviors, such as scanning the floor for spiders when entering a new room, similarly serve to maintain her fear of spiders.

For further behavioral assessment after the intake interview, Julia's clinician conducted what is called a behavioral avoidance test (BAT). The BAT allowed Julia's clinician to observe her behavioral, verbal, and physiological responses to fear, consistent with Lang's (1968) tripartite model of fear responding. Julia's clinician presented her with a series of potential steps she could complete, with each progressive step involving closer contact with a spider. Tasks included: saying the word 'spider,' seeing photographs of spiders, watching a video of a spider, entering a room in which a (non-poisonous) spider was in a closed tank, walking up to the tank, removing the lid, reaching a hand into the tank, and allowing the spider to crawl on her hand. Julia was asked to wear a heart rate monitor during the task to assess her physiological responding, and she was asked to report her fear level on a scale from 0 (no fear at all) to 10 (highest fear) at each step of the task. On the first step of the BAT, Julia was able to say the word 'spider' with no hesitation, reported a fear level of one out of ten, and showed no evidence of increased physiological activity (i.e., no increased heart rate). On the next step of the BAT, seeing a picture of a spider, her clinician noticed that she quickly looked away from the spider (showing some avoidance), and her heart rate increased slightly, but that she still reported subjectively low levels of fear (two out of ten). On the third step, seeing a video of a spider, Julia was only able to watch for a couple seconds before she quickly looked away and turned off the video, showing higher avoidance. Her heart rate spiked, and she reported significant fear (eight out of ten). From this assessment, Julia's clinician learned that her fear response has generalized beyond spiders themselves to images and videos of spiders. Furthermore, she learned that Julia has a tendency to look away quickly when in the presence of spider related stimuli, which may also be functioning as a safety behavior. She additionally observed that Julia sometimes has verbal reports of fear that are asynchronous with her behavioral and physiological responses; for example, when looking at the picture of a spider, she showed behavioral avoidance and physiological reactivity at the same time as reporting lower levels of fear. In moderately feared situations, Julia's verbal reports might underestimate her behavioral and physiological levels of fear reactivity.

After the assessment was completed, Julia's clinician recommended a course of exposure therapy, in which Julia would encounter spider-related stimuli for the purpose of promoting fear extinction learning. She began by educating Julia about the roles of avoidance and safety behaviors in maintaining unhelpful/maladaptive fear responses, and then described how exposure therapy will help to correct Julia's overgeneralized fear reactions by producing new safety learning (i.e., inhibitory learning). At first, Julia showed some trepidation and reluctance to agree to this mode of treatment. However, her clinician described with confidence that this treatment, although challenging, would be the most effective way to help her achieve her goals of being able to capture spiders in her home and go on hiking and camping

trips with her daughter (Wolitzky-Taylor et al., 2008; Carpenter et al., 2018). Her clinician's confidence in this approach helped convince Julia to agree to give exposure therapy a try.

They began exposure therapy by working together to generate a list of activities that would provoke Julia's fear, including watching different spider videos, walking into a room with a spider in an enclosed tank, walking into a room with a spider out on the floor, and holding a spider. They also generated some activities that would take place outside the therapy office to increase the variability of her exposure therapy exercises to help inoculate her against the possibility of a post-treatment relapse in symptoms. This recommendation for increasing variability during exposures was based on the inhibitory learning model, and both clinical and basic science research, suggesting that contextual variability during fear extinction practice can help to promote extinction learning that is more robust against relapse (for review see Craske et al., 2014). Exposure activities planned for outside the office included taking a short hike (with and without the therapist), getting into bed without first checking under her covers for spiders, and visiting a pet shop in which she would practice capturing and holding different (non-poisonous) spiders. Julia was resistant to even putting this last item (pet shop) on this list, but her therapist encouraged her to 'dream big,' once again voiced her confidence that Julia would improve during exposure therapy, and reminded her that treatment targets would be selected collaboratively as they progressed (i.e., her therapist will never 'force' her to do anything). Feeling reassured that all exposure exercises would be decided upon collaboratively, Julia agreed to add the pet shop to her list of planned exposure therapy exercises.

Julia's first session of exposure therapy involved looking at pictures of spiders, the same task in which she began to show some fear response during her BAT at intake. Julia's fear response was monitored throughout each exposure exercise, similarly to how it had been monitored during her BAT. Her therapist asked for periodic verbal reports of fear on a 0–10 scale, monitored heart rate with an exercise watch, and observed her behavioral approach/avoidance. At first, Julia reported a fear level of zero, no heart rate reactivity, and no avoidance. Julia's therapist knew that this stimulus was not provoking a fear response, so would not be helpful for producing new safety learning (i.e., inhibitory learning). After discussion with Julia, the therapist realized that Julia only responded fearfully to pictures if they matched the perceptual properties of the original spider she encountered, which was small and black. They switched the image to a small black spider, and although her fear spiked in the initial first couple minutes, to her great surprise, Julia soon began to have no trouble at all with looking at this image for 5 min at a time. She became bored, and soon began noticing new features on the spider, such as the tiny hairs on its legs. With this initial success, they then began practicing with images of black spiders that were closer up. A very close-up image of black spider initially spiked her anxiety, and Julia took a short break from exposure. Julia reported that this spider looked exactly like the one that had bitten her as a child, and that she could see the spider's fangs in the image. Julia's therapist reminded her of her success with prior spider images, and they applied similar strategies here, slowly increasing the duration of

looking at the picture, until she could look at it for 5 min at a time without turning away. Julia was instructed to go home and practice once a day with a power point slide show that the therapist put together for her. The slide show was of a wide variety of images of black spiders in different locations and with different levels of zooming in, and the slide show included the large black one that had provoked the largest fear response in the session. She was asked to record her subjective fear levels before, during, and after each practice.

At the next session, they reviewed Julia's homework. She completed about half of the planned exposure therapy practices. Her therapist reinforced her excellent progress in completing some exposures on her own at home, and then they spent a few minutes troubleshooting the barriers that got in the way of completing all her practices, including not having access to the computer when she had planned to practice. Her therapist then proposed moving from pictures of spiders to videos of spiders, and feeling fortified by her initial successes with the pictures, Julia agreed. Over the next sessions, they used similar techniques to progress through the remaining activities. They ran into a plateau in Julia's progress when she began practicing standing in the room with a spider out of the tank. Julia did not seem to be experiencing much reduction in her fear responding. After observing her closely, Julia's therapist noted that she was crossing her arms and hiding her hands in her armpit area. She reflected on this behavior to Julia, and suggested the possibility Julia might be doing this to protect her hands, which is where she had been bitten as a child. Julia reported that she had not noticed doing this, but agreed that it was possible that hiding her hands might be making her feel more protected (i.e., acting as a safety cue; see safety signal theory and the RW prediction error model). After she stopped hiding her hands, her fear responses began to reduce again across trials. Julia eventually progressed to more challenging exercises, including capturing and even holding a non-poisonous spider, and hiking with and without the therapist. As sessions progressed, her therapist increased the variability in the exercises, mixing up easier exercises such as close up videos, with more challenging exercises, such as capturing or holding the non-poisonous spider. Toward the end of treatment, her therapist began spacing her sessions further apart. Varying the difficulty and spacing of sessions were each strategies for introducing other types of variability into the exposure therapy exercises, to promote more robust inhibitory learning and protect against relapse (Kircanski et al., 2012; Tsao & Craske, 2000). By the end of treatment, Julia had proudly showed her daughter a picture of herself at her final treatment session, holding two different tarantulas in her hands at a pet shop, and she was also able to chaperone one of her daughter's hiking trips. She reported that although she felt afraid when they first set out on the hiking trip, she soon noticed that she was crossing her arms and tucking her hands away and deliberately stopped hiding her hands away. As she began engaging with the children on the hike, she soon found that she was able to enjoy herself. She planned to continue her progress by chaperoning a camping trip with her daughter's girl scout troop. During the last session, Julia and her therapist reviewed her progress and strategies she could use on this trip, and during other activities, so that she could continue to design her own exposure therapy exercises to continue to overcome her fear of spiders.

Conclusions

A horse-race comparison of behavioral therapies to subsequent waves of therapy, including cognitive-behavioral and mindfulness-based therapies, has yielded an overall picture of relatively equivalent treatment effects for anxiety disorders (e.g., Arch et al., 2012; Foa et al., 2005). Thus, to continue to make progress in this area of research, it is essential to step back to the beginning and to better understand the behavioral conceptualization of anxiety disorders, the advent of which produced a dramatic leap forward in the efficacy of anxiety treatment. The behavioral conceptualization of anxiety disorders is not uniform, and new behavioral models have emerged over time to account for new data. Rather than suggesting a weakness of this approach, the many changes and refinements of these models highlight its vitality. As a whole, behavioral theories of anxiety are very much alive in that they are very much falsifiable, which helps to move the field forward at a brisk pace. Comparing and contrasting behavioral models with newer, second and third wave approaches, energizes the dialogue, helping to generate new ideas and hypotheses, so that we may further refine our understanding of the nature and treatment of anxiety disorders.

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Third Wave Conceptualization of Anxiety, Obsessive Compulsive Disorders, and Obsessive Compulsive Related Disorders



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As reviewed elsewhere in this book, the line between these three waves is difficult to draw (see earlier chapters of this volume). Arguably, this line is even harder to draw for the treatment of anxiety disorders, OCD, and OCRDs because the behavioral principles of habituation to bodily states (e.g., anxiety, fear) and extinction of avoidance responses are an important aspect of the treatment across all three waves (Twohig et al., 2013). This commonality is seen in the centrality of exposure exercises to all three waves, although the proposed process of change in each one of these phases varies (Twohig et al., 2015). Still, we believe it would be remiss to write that these three waves did not occur in the treatment of anxiety, OCD, and OCRDs. We will argue that there have been slow but notable refinements in behavior therapy's conceptualization of anxiety disorders, as well as notable modifications to treatments within each wave.

While each treatment that falls under the "third wave" category differs, the following are a set of key features that may distinguish this third wave from the first and second, especially as the third wave applies to anxiety disorders. First, while many of the third wave therapies have a focus on symptom reduction, they also have a strong focus on increased general functioning. Some could argue that symptom reduction obviously leads to increased functioning. While that view is reasonable, the focus on symptoms versus functioning will alter the measures used in therapy, determining when the client reaches the end of therapy, and how sessions are structured. As a simple example, a therapist who is focused on symptom reduction might track levels of anxiety and avoidance per week, whereas a third wave therapist might choose to ask about increases in the frequency of engaging in meaningful activities instead.

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A second broad difference is a focus on first versus second order change of internal experiences—in other words, whether the therapy aims to change the target private event or instead alter how the client responds to them. A very simple example is the use of subjective units of distress (SUDS) in many exposure therapies. To those who have done traditional exposure therapy (e.g., Foa et al., 2012), the main goal is to see within and between session decreases in SUDS. In many of the third wave therapies, the focus is on metacognition, mindfulness, and acceptance of the internal experience. We do not seek to increase or decrease any internal experience *per se*, but to alter its effect on behavior. For example, in traditional ERP, the aim is to decrease OCD symptoms (i.e., obsessions and compulsions) while in ACT, the aim would be to increase valued behaviors that OCD symptoms may interfere with.

Additionally, there are a number of procedures that are more central to the third wave of therapies for anxiety. Emotional acceptance or tolerance has found its way into the vernacular of most therapies for anxiety disorders (e.g., Abramowitz & Arch, 2014). Still, emotional acceptance and tolerance are central to most third wave therapies and are seen as the end outcome and not a step toward habituation as typically described by second wave cognitive behavioral treatments for anxiety (Arch & Craske, 2008). A second notable procedural difference is cognitive challenging as compared to stepping back from thinking. This difference is very consistent with the concept of first vs second order change (i.e., change the content versus change the function). In much of the work we will describe here, third wave approaches will use strategies to step back from and/or instruct the client to simply notice inner experiences. Most third wave therapies will aim to help the client take a metacognitive stance (i.e., thinking about thinking) toward their obsessions, fears, or anxieties versus actively engaging with them. Third, the concept of being present and mindful is central, or at least a notable part, of most of these third wave therapies. As a way to challenge the power of anxiety or fear-provoking stimuli (that occasion avoidance and meaningless action), a third wave therapist may help the client to mindfully notice all the stimuli in the environment—including the other private thoughts and emotions. Mindfully noticing may be defined as nonjudgmental awareness of internal experiences without trying to remove or change them and can be measured through a variety of questionnaires or through personal observations of behavior (e.g., noticing that avoidance is not chosen). This approach can open the response options to all stimuli available instead of the few that are triggering (e.g., the Choice Point exercise; Harris, 2019); in other words, the client is made aware of potential actions beyond avoidance. Several third wave therapies thereby have a strong focus on valued action over actions that are about emotional avoidance. For example, choosing to visit a family member with a dog instead of asking the person to meet at a restaurant in order to avoid the feared dog. We would hope for a client to shift their daily behaviors from regulating inner experiences to living a meaningful life.

Overview of Exposure Therapy in the Third Wave

These distinctions all play into the concept of exposure therapy in a meaningful way. Exposure therapy in third wave therapies is still the core of useful treatment for almost all anxiety, OCD, and OCDs (e.g., Twohig et al., 2015). In Foa and Kozak's (1986) seminal paper on traditional exposure therapy, the authors discuss emotional processing theory and the idea that a cognitive "fear structure" is activated when confronting a feared stimulus, leading to typical responses such as escape or avoidance. Their theory suggests that exposure exercises bring on this cognitive and behavioral fear response, but if the client does not engage in escape or avoidance then the avoidance response will habituate to the feared stimulus and in addition they will gain corrective knowledge (e.g., the feared outcome does not occur, the anxiety/fear is tolerable). Within and between session habituation is a key indicator of this process. However, after many years of research, we have found that within and between session habituation is not related at all or notably related to improvements in anxiety disorders (Asnaani et al., 2016).

Interestingly, while traditional exposure therapy was largely based on operant and classical research on learning and extinction (Mowrer, 1960), basic behavioral research since then has shown us that any learned response cannot be unlearned (Bouton et al., 2001). Basic behavioral principles on extinction show that it just takes the right context for a response to re-occur: spontaneous recovery (through passage of time), disinhibition (through renewed responding to a novel stimulus), reinstatement (through presentation of an unconditioned stimulus or reinforcer), renewal (through change in context), or resurgence (through a new behavior introduced during extinction). The difficulty in completely stopping a fear or anxiety response from continuing to occur has been written about by leaders in the treatment of anxiety disorders (Bouton et al., 2001).

Relatedly, behavioral research on language and cognition has found the same parameters with extinction to cognitive responses, where once a cognitive response is trained it simply takes the right context to bring it back (Wilson & Hayes, 1996). Recent research has found that the same is true with avoidance responding conditioned through stimulus equivalence or relational responding (Dymond et al., 2018). Thus, it is not just the traditional fear or anxiety response that is difficult to unlearn, but all cognitive activity surrounding the fear response and associated behavioral avoidance.

This all flows logically into the most supported cognitive behavioral understanding of exposure therapy to date: inhibitory learning (Craske et al., 2014b). In inhibitory learning, the link between the unconditioned response and the conditioned response is never unlearned. Even if habituation occurs, the right context will bring that response back. Instead, there is competing learning with the original learning, inhibiting the initial fear response and associated avoidance. Thus, a key feature of inhibitory learning are exposure exercises that focus on building "tolerance" to anxiety and fear throughout the course of treatment.

To us, this is a notable step towards a second order approach (altering function) to the treatment of inner experiences in anxiety, OCD, OCRDs. Exposure exercises from the third wave approach are therefore not about habituating to internal experiences—they are chances to practice being mindful and creating distance from thoughts so that this is easier to do in important extra-therapy situations (Twohig et al., 2015). For example, in acceptance and commitment therapy (ACT) we might approach a stimulus and stay in contact with it while it provokes emotion, but the function is to practice feeling rather than waiting until it decreases. Instead of focusing on therapy techniques that will result in a first order reduction in a cognitive or physiological response, acceptance and mindfulness procedures seek to promote stepping back from and just noticing the occurrence anxiety or fear. Therefore, we look at exposure exercises more so as an opportunity to see inner experiences for what they are (just thoughts, feelings, and sensations) and as chances to practice living meaningful lives and moving towards values. We seek to teach the client how to live with those behavioral and emotional responses and not be affected by them. Similar to a tolerance model, we seek to teach acceptance as a lifelong approach to internal experiences, rather than tolerate the moment to a future that has less difficulty.

Research Overview

A formal vote regarding who wants their treatment to be considered part of the third wave of behavior therapy never occurred; relatedly, we were not unanimous on using the terms “first, second, or third wave.” Nonetheless, following the previous guidelines on elements that are consistent with third wave therapies we are choosing to review: mindfulness-based therapies (MBT; mindfulness-based stress reduction [MBSR] and mindfulness based cognitive therapy [MBCT], Dialectical Behavior Therapy [DBT], and ACT).

Mindfulness Based Therapies for Adult Anxiety Disorders

While MBCT and MBSR are different treatments, to be consistent with most large meta-analyses, we will combine them in our review. As is well-known, MBSR was largely developed for chronic medical conditions (Kabat-Zinn, 2003) and MBCT was mostly focused on reducing relapse in depression (Kuyken et al., 2008). Both therapies include mindfulness practice with the hope of providing clients with skills to effectively respond to their distressing internal experiences. Specifically, in the treatment of anxiety, mindfulness is used to help the client be aware of all bodily states and take an open and accepting stance towards those experiences. This process could combat ruminations or worry, common themes in anxiety disorders (Kabat-Zinn, 2003; Mathews, 1990). In addition, several authors have proposed the

varied function mindfulness plays in the reduction of symptom related distress; for example, the cognitive shift to a non-judgmental perspective towards thoughts (Kabat-Zinn, 1982) or mindful exposure to distressing states may provide healthy alternatives to worry (Hayes, 2002).

As reviewed in the following meta-analyses, there are randomized controlled trials (RCTs) for heterogeneous anxiety problems: social anxiety disorder, generalized anxiety disorder, posttraumatic stress disorder, panic disorder, and health anxiety. The largest meta-analysis of mindfulness for anxiety disorders to date reported a within condition (pre-post) Hedges' g of 0.63 for mindfulness in participants who were not seeking services for anxiety disorders (e.g., seeking services for a different issue but had high anxiety scores), and a Hedges' g of 0.97 on anxiety in those seeking treatment for anxiety disorders (Hofmann et al., 2010). These results indicate that there is moderate support for the use of MBTs as treatments for anxiety disorders. The same team found MBTs had a medium effect size when compared to waitlist, a small effect size compared to active treatment comparisons, but these were not more effective than traditional CBT or behavioral therapies (Khoury et al., 2013).

Another notable meta-analysis analyzed MBTs for anxiety and stress across 47 studies (Goyal et al., 2014). While their review included MBTs and transcendental meditation programs, the results demonstrated moderate between-group effect sizes for anxiety. However, another meta-analysis found that MBT for anxiety disorders was effective when compared to a waitlist condition, but not more effective than another active or evidence-based treatment, such as cognitive behavioral therapy, as recommended by the American Psychological Association (Goldberg et al., 2018). Overall, these results indicate that MBTs are useful, but have not been shown to be more useful than existing treatments for anxiety disorders. Also, these more general meta-analyses found that MBTs have some of their strongest outcomes with anxiety (Goldberg et al., 2018; Goyal et al., 2014).

Dialectical Behavior Therapy for Adult Anxiety Disorders

Evolved from cognitive behavioral therapy (CBT) and composed of individual sessions, phone consultation, and weekly group skills training, DBT was originally developed as a treatment for borderline personality disorder (Linehan, 1993). Among the skills taught in the weekly group trainings are mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness.

DBT has been shown to reduce anxiety in heterogeneous clinical samples of an intensive outpatient program (e.g., Lothes II et al., 2016). Another mixed clinical sample of undergraduates reported reductions in general and specific anxiety disorder symptoms (e.g., OCD, specific phobia) following an adapted DBT treatment protocol (Panepinto et al., 2015). DBT has also been investigated as a specific treatment adjunct for anxiety. Residential DBT for posttraumatic stress disorder (DBT-PTSD) demonstrated promising results as a treatment for PTSD associated with

childhood sexual abuse in two studies (Bohus et al., 2013; Steil et al., 2018). Researchers have also investigated a skills-only intervention for test anxiety, noting reduced symptoms of test anxiety after receiving only mindfulness DBT skills (Lothes II & Mochrie, 2017) and reduced overall anxiety using DBT as a whole (Neacsu et al., 2014). On the whole, DBT shows some feasibility as a treatment for anxiety, even when treatment has been slightly remodeled from the original format.

Acceptance and Commitment Therapy for Adult Anxiety Disorders

ACT aims to increase psychological flexibility, the ability to live in the present moment, regardless of distress, while engaging in behavior based on one's values. To date there has been one meta-analysis showing small to large correlations between psychological inflexibility and different forms of anxiety (Bluett et al., 2014).

There is a wide range of evidence supporting ACT as a treatment for mixed anxiety disorders in a diverse set of delivery methods (e.g., individual, group, bibliotherapy, web-based) and settings (e.g., outpatient, college, residential; Gloster et al., 2020). In a recent meta-analysis of ACT meta-analyses, 6 of 7 meta-analyses reported small to medium between condition effect sizes for ACT as a treatment for anxiety; the remaining one favored active control conditions with a negligible non-significant effect size (Gloster et al., 2020). As covered in several other meta-analyses (Bluett et al., 2014) and systematic reviews of ACT for anxiety disorders (Twohig & Levin, 2017), multiple RCTs have been completed for every anxiety disorder. Across all meta-analyses the effect size was at least medium in favor of ACT. Most notably, ACT performed better than other active control conditions, but only equivalent to CBT.

Mindfulness Based Therapies for Anxiety Disorders in Youth

A recent meta-analysis found five RCTs comparing MBTs to a control condition (e.g., waitlist, narrative exposure therapy) for youth (Borquist-Conlon et al., 2019). One study used ACT and the remaining four were not traditional MBT but were manualized mindfulness-oriented treatments. The investigators found a medium effect size (Hedges' $g = 0.62$) on anxiety measures. When excluding ACT and DBT, another meta-analysis found mindfulness-based interventions to be efficacious for treating anxiety in youth (Kallapiran et al., 2015). They analyzed 11 randomized trials of MBSR and MBCT, finding large effect sizes when compared against nonactive treatments. Thus, there is limited support for MBCT and MBSR for youth with anxiety disorders as RCTs are mostly limited to nonactive controls.

Dialectical Behavior Therapy for Anxiety Disorders in Youth

In a meta-analysis of DBT-Adolescent, the authors analyzed three randomized controlled trials with a total of 146 participants with heterogeneous diagnoses (Hunnicutt Hollenbaugh & Lenz, 2018). Each study showed a small to medium between-conditions effect size favoring DBT-A as compared to TAU or multimodal therapy. The overall effect size for DBT-A for anxiety was .47.

Acceptance and Commitment Therapy for Anxiety Disorders in Youth

ACT for youth has not been thoroughly investigated as it has for adults. In a review from 2015, there were ACT outcome studies with positive results for children or adolescents who were diagnosed with OCD, learning disability and anxiety, and posttraumatic stress disorder (Swain et al., 2015). A recent meta-analysis of 14 RCTs ($N = 1189$) of ACT for youth combined outcomes across depression, anxiety, and problem behavior (Fang & Ding, 2020). Much like the adult data, ACT showed medium to large effect sizes against treatment as usual and waitlist, but there was no significant difference from traditional CBT. When analyzing depression and anxiety alone, the same outcomes were found.

Mindfulness Based Therapies for OCD and OCRDs in Adults

Mindfulness is thought to be helpful with avoidance of and/or rigidity towards internal experiences (including reassurance-seeking or rituals), interrupting internal OCD processes (e.g., mental rituals), and attentional biases common in OCD (Didonna, 2009). Indeed, individuals diagnosed with OCD report lower mindfulness qualities (e.g. nonjudgmentalness, awareness) as compared to a nonclinical group (Didonna, 2009). Mindfulness has demonstrated potential as a way to cope with difficult obsessions (Fairfax, 2008).

Studies looking at more structured mindfulness treatments (e.g., MBSR or MBCT) found promising results. One multiple baseline study found that MBCT reduced OCD, depression, and anxiety symptoms (Liu et al., 2011). The use of MBCT was also supported by a recent pilot trial looking at the effectiveness of group MBCT for OCD; results indicated significantly decreased OCD and increased mindfulness abilities (Didonna et al., 2019). Larger RCTs of mindfulness treatments for OCD show inconsistent findings. One study found that biweekly MBCT for “pure O” OCD left 67% of participants in remission, as determined by a 55% reduction in Yale Brown Obsessive Compulsive Scale (YBOCS) scores (Kumar et al., 2016). On the other hand, mindfulness-based exposure and response

prevention (ERP) did not differ from ERP-only outcomes, beyond increased levels of mindfulness (Strauss et al., 2018). Several RCTs have reported that MBCT following CBT in patients with lingering OCD symptoms ultimately reduced OCD, anxiety, and depressive symptoms while increasing mindfulness and self-compassion (Key et al., 2017). However, no differences in OCD symptoms were found following MBCT or psychoeducation groups after receiving a full course of CBT (Külz et al., 2019). The data on mindfulness for OCRDs are limited, with only one pilot study demonstrating improvements in tic-related symptoms after MBSR (Reese et al., 2015).

Dialectical Behavior Therapy for OCD and OCRDs in Adults

There is some evidence that patients with OCD have difficulty identifying and regulating a variety of emotions (Stern et al., 2014). However, there is only one published study looking at DBT as a treatment for OCD. Ahovan et al. (2016) assessed the effectiveness of eight, 90-min DBT sessions covering all four DBT modules for OCD resulting in reduced OCD severity and increased emotion regulation as compared to a control group.

Some theories suggest that hair pulling is utilized as an emotion regulation tool, particularly in response to negative emotions, thoughts, or urges (MacPherson et al., 2013). The focus of this research illustrates that, if hair pulling is functioning as an emotion regulation strategy, then DBT combined with habit reversal training (HRT) may provide the best outcomes over other treatments (Welch & Kim, 2012). DBT, as compared to a control group, resulted in greater improvement in hair pulling symptoms and emotion regulation difficulties (Keuthen et al., 2012). Hair pulling severity was reduced and gains were maintained at follow-up (Keuthen & Sprich, 2012).

Acceptance and Commitment Therapy for OCD and OCRDs in Adults

The amount of research on ACT for OCD is quite substantial (Bluett et al., 2014). In addition to many single subject designs on ACT for OCD, there have been at least six RCTs on ACT for OCD with two completed in the USA and the remaining in Iran. ACT outperformed progressive relaxation training in 79 adults with OCD showing response rates of 55–65% compared to 13–18% at post-treatment and 3-month follow-up (Twohig et al., 2010). In a follow-up to that study, ACT was combined with traditional ERP and compared to traditional ERP alone (Twohig et al., 2018). Treatments were equivalent and successful with response rates of 70% for ACT+ ERP and 68% of ERP at posttreatment, and 60% and 64% at follow-up.

In the four trials of ACT for OCD in Iran, all followed the same brief protocol used in Twohig et al. (2010) that does not emphasize exposure exercises. Consistent with Iranian medical system and culture, participants were often on stable doses of SSRIs and group therapy was often female only. Pretreatment YBOCS scores were in the 22–28 range, posttreatment was in the 13–17 range, and follow-up was in 6–15 range. ACT was always found to be superior to waitlist and never stronger than traditional CBT, although multiple trials found process of change differences between the treatments with psychological flexibility being involved in ACT more so than SSRIs alone (Baghooli et al., 2014; Esfahani et al., 2015; Rohani et al., 2018; Vakili et al., 2015).

In addition to multiple single subject studies and one open trial on ACT alone or ACT+HRT for adult trichotillomania (Haaland et al., 2017; Twohig & Woods, 2004), three randomized trials have tested ACT or ACT+HRT for adults with trichotillomania. In a RCT examining ACT enhanced HRT as compared to waitlist, the ACT condition had a 66% response rate compared to 8% of the waitlist (Woods et al., 2006). The same ACT+HRT protocol was tested when delivered over teletherapy, with similar results; 58% responders in the treatment group compared to 17.7% in the waitlist (Lee et al., 2018). Finally, ACT alone was tested as treatment for trichotillomania in adults and adolescents as compared to a waitlist; results supported the use of ACT alone for trichotillomania (Lee et al., 2020). The treatment group showed a 77% decrease in pulling versus a 10% decrease in the waitlist. In addition to hair pulling, one multiple baseline testing ACT for skin picking found four out of five participants reporting reduced skin picking at posttreatment, as well as increased psychological flexibility (Twohig et al., 2006). However, only one participant maintained these gains at follow-up.

Third Wave Therapies for Youth with OCD and OCRDs

Few studies have found evidence supporting the use of mindfulness and acceptance-based treatments in youth and teens with OCD and related disorders. In a multiple baseline for ACT for OCD in adolescents, 44% reported a decrease in symptoms (using the CYBOCS) at follow-up (Armstrong et al., 2013). In another study, adolescents with OCD already taking SSRIs were randomly assigned to group ACT, group CBT, or SSRI alone (Shabani et al., 2019). Both ACT and CBT groups had significant reductions in OCD severity at post and follow-up (Shabani et al., 2019). Lastly, one study of tic disorders in adolescents found no differences between ACT enhanced HRT as compared to ACT alone (Franklin et al., 2011).

Thoughts on the Three Waves

At an outcome level, third wave therapies do not appear to be more beneficial than first or second wave treatments for anxiety disorders and OCD (Bluett et al., 2014). Interestingly, researchers have not found benefits for the second wave over the third in terms of outcomes for these disorders, especially since exposure-based therapies are one of the most beneficial treatments for anxiety (Tolin, 2009). Again, no matter how exposures are done in the trials, we have not greatly increased its effectiveness (Tolin, 2009). The data on OCRDs are a little different because the work is much less advanced than with anxiety and OCD. A small amount of work was conducted during the first phase of behavior therapy (Azrin & Nunn, 1973) and even less for second wave procedures for trichotillomania and skin picking. A moderate amount of work has occurred testing a traditional CBT procedure for body dysmorphic disorder (BDD) showing large effect sizes for CBT over waitlist or credible placebo controls (Harrison et al., 2016). There has been a fairly steady stream of work on ACT and DBT for trichotillomania and skin picking (Bluett et al., 2014).

One thing that stands out regarding the third wave work on anxiety disorders and OCD is that the sample sizes of the studies are often fairly small and very few are federally funded. While there is not an exact date for when the third wave started, we can generally say around 2000. At that time, there was a notable shift in the funding priorities of the National Institute of Health (NIH) away from general efficacy trials for diagnosable mental disorders (Wilson, 2022). The real bulk of the efficacy work occurred in the 1980s and 1990s, when traditional CBT was developed for most anxiety disorders and OCD. The efficacy rates of CBT for anxiety disorders and OCD are high enough—around 50% response rate (Loerinc et al., 2015)—that NIH shifted priorities away from RCTs and towards neurobiological understanding of psychopathology (Goldfried, 2016). Thus, much of the third wave missed the opportunity to do the larger well-controlled RCTs supported by federal funding. Nowadays, most of the large funding for third wave research is in medical conditions or substance use (e.g., Vilardaga et al., 2020).

Process of Change Research

One notable shift that occurred from the first to third wave was an increased focus on processes of change and moderators (Hofmann & Hayes, 2019). We do not think that the third wave therapies deserve the credit for helping shift a focus to why treatments work and for whom. That was likely a natural progression in psychotherapy over time. First wave therapies for anxiety were largely based off traditional behavioral principles. With time, these procedures developed a more cognitive orientation. They shifted from focusing on extinction and habituation to elements of cognitive change (Foa & Kozak, 1986). Many of the second wave protocols for anxiety were more logical than process of change focused. For example, Barlow's

work on panic disorder cut down a larger treatment package to focus on the elements that were most helpful by excluding muscle relaxation (Pompoli et al., 2018). However, the steps to engage in that dismantling were less process based and more technique based.

More recently, a large focus has shifted to the processes that underlie disorders and processes and techniques that can successfully alter those processes (Hofmann & Hayes, 2019). Even more so with more modern statistical methods, we can track temporality of when a process change occurs and how that affects overt actions. Relatedly, we are finding through single and multiple mediation studies that one process of change can affect another in a useful way, such that a decrease in a potential mediator occurs with the support of another mediator (e.g. Ong et al., 2020; Arch et al., 2012; Wolitzky-Taylor et al., 2012). For example, in a larger trial ($N = 120$ adults with an anxiety disorder) comparing ACT to traditional CBT, both groups showed strong improvements at posttreatment, but ACT showed stronger improvements at follow-up. While there were greater improvements in psychological flexibility in the ACT condition at follow-up, second wave CBT showed better quality of life. In a secondary mediation analyses, changes in cognitive defusion were stronger in ACT, but cognitive defusion predicted worry reductions in CBT over ACT (Arch et al., 2012). In moderation analyses conducted on this trial, CBT was more effective for those with moderate anxiety sensitivity and no comorbid condition whereas ACT was more effective for those with comorbid mood conditions (Wolitzky-Taylor et al., 2012). Finally, they investigated physiological and behavioral moderators of treatment outcome (Davies et al., 2015), finding that ACT did better than CBT for those with high behavioral avoidance. Thus, these overall results show that ACT and CBT are both effective treatments, one may show stronger follow-up, some treatment matching can occur, and they are associated with different processes of change.

Another larger RCT ($N = 87$ adults with social anxiety disorder) compared ACT, CBT, and a waitlist (Craske et al., 2014a), finding that ACT and CBT outperformed the waitlist, with no differences between ACT and CBT. Lower psychological flexibility was associated with better outcomes in CBT at follow-up. Low and high fear of negative evaluation was also associated with better outcomes in CBT over ACT. In terms of mediators, ACT showed steeper initial declines in session-by-session negative cognitions and psychological flexibility, whereas CBT showed steeper declines towards the end of treatment (Niles et al., 2014). Psychological flexibility also predicted outcomes in ACT but not CBT. In this study no outcome differences were found, but some process and moderator differences were noted.

Finally, secondary analyses from a recent multisite RCT comparing ACT-based ERP to traditional ERP in 58 adults with OCD (Twohig et al., 2018; reviewed in the ACT for OCD and OCDs in Adults section) found sudden gains occurred in 27% of the sample and were most common in contamination OCD (Buchholz et al., 2019). While sudden gains were not associated with changes in cognitive distortions or psychological flexibility, there were only 2 (6%) participants with sudden gains in the ACT+ERP condition as compared to 10 (35%) in the ERP condition. Relatedly, we also found that cognitive fusion predicted the symmetry-related OCD symptoms

beyond obsessive beliefs, suggesting that addressing obsessive beliefs versus buying into thoughts might be moderated by OCD type (Hellberg et al., 2020). Again, looking at the entire sample, we found that those with less dysfunctional appraisals did better in ERP over ACT+ERP (Ong et al., 2020). At the process of change level, increases in psychological flexibility predicted improvements in both conditions, whereas change in dysfunctional appraisals was only relevant in ERP. Finally, in a review of video recorded therapy sessions, our team found that the number one predictor of outcomes—beyond minutes of exposure exercises—was experiential delivery of an acceptance/tolerance rationale (Ong et al., 2022). While these are results of just one RCT, it is visible that it is more complicated than the similar outcomes of ERP and ACT+ERP. Elements from each intervention were predictive at a moderating and mediating level.

Therefore, third wave treatments seem to have their place in CBT, not just because they theoretically fit and there is some empirical evidence that their processes of change might be specific to them, but because they might be offering some elements to therapy that had either been minorly present or not present at all in the first two waves. Concepts such as mindfulness, cognitive defusion, and a clear focus on linking treatment goals, values have arguable been built out by the third wave treatments. These methods have been brought into other versions of CBT and are key in process-based approaches to CBT (See chapter “[Advantages of Third Wave Behavior Therapies](#)” of this volume).

Clinical Example Using ACT

We are not going to present a real case, rather we will present information gleaned largely from the following trial comparing ACT+ERP to ERP alone in the treatment of adult OCD (Twohig et al., 2015, 2018). Even though this information is based on ACT many of the general principles would apply across the therapies reviewed; and even though it is on OCD, very similar assessment, conceptualization, and treatment strategies would apply.

When conducting assessment from a third wave point of view, we would want to assess OCD severity. It is worth noting that assessment of OCD severity from a second order change standpoint can have complications. Specifically, outcome measures usually have questions on the severity and frequency of internal experiences such as obsessions, along with content area (e.g., fears about germs, violent intrusive thoughts). For example, the YBOCS asks about frequency of obsessions and compulsions. These types of questions can confuse the client and assessor alike because we might literally work with the client on the idea that obsessions cannot be controlled. Therefore, assessment should also include measure on quality of life and general functioning, such as the Quality of Life Scale (Burckhardt & Anderson, 2003), the Mental Health Continuum short form (Lamers et al., 2011) or the Work and Social Adjustment Scale (Mundt et al., 2002). Questionnaires on daily functioning seem to work better than global quality of life measures because larger quality of

life issues (e.g., work, relationships) can be slow to change, but smaller daily functioning issues can change quickly.

Of course, it is important to assess process of change constructs that are consistent with the treatment model one is working from. There are standard measures of psychological flexibility (e.g., Acceptance and Action Questionnaire II; Bond et al., 2011) and disorder specific assessments of psychological flexibility exist for OCD, trichotillomania, and hoarding disorder are available: AAQ for Obsessions and Compulsions (AAQ-OC), AAQ for trichotillomania (AAQ-TTM), AAQ for hoarding (AAQ-H; Ong et al., 2019). Finally, in addition to the larger battery of assessments given at the beginning of treatment, after treatment, and at reasonable intervals throughout treatment, we suggest self-monitoring of a clear overt action (e.g., compulsions). This monitoring allows for day to day tracking of treatment progress.

In terms of case conceptualization, we look at disorder severity data and other standardized assessments of important psychological processes (e.g., psychological inflexibility around obsessions). Those assessments can provide us with a nomothetic view of the clinical presentation. For idiographic information, the ACT Advisor, a short questionnaire, provides a form with scales for the six processes of change that are addressed in ACT (i.e., acceptance, cognitive defusion, self-as-context, present moment awareness, values, committed action). This assessment allows us to determine where the client is on the six processes we will address in therapy. For example, if a client with OCD is low on present moment awareness, we would expect them to have trouble staying mindful, often thinking about the past/future or about their current obsession (e.g., Thoughts during a dinner party such as “Is this table clean enough?” or “Are there germs on this knife?”), rather than paying attention to their meal and company), and have general difficulty flexibly using their attention. Alternatively, a client who scores high on present moment awareness may easily stay in the present moment and direct their attention to what is most important to them in that moment (e.g., noticing the mind’s concern about cleanliness and choosing to pay attention to the dinner party instead). Thus, low scores often indicate greater psychological inflexibility (e.g., fusion). We find that clients are either low on all six processes, or they are low on the more “acceptance and mindfulness” processes but high on the values and behavior change processes. We often find that there is a notable subset of those with OCD who are “white knuckling” through their disorder. For example, a person with obsessions around driving (e.g., fears about hitting someone) may be able to drive, but only enduring shorter distances with great difficulty and reliance on compulsive behaviors (e.g., checking their rear-view mirror to see if they hit a person). Someone who knows what they want and has been trying to do it—although in a nonfunctional way—is in a different spot than someone who is cognitively fused and not having success in pushing through the OCD either (e.g., a person who completely refuses to drive due to intrusive thoughts around driving). We complete the ACT Advisor, or something similar, at most sessions.

In terms of actual therapy, the main focus is to teach the client how to be psychologically flexible around their obsessions by utilizing and engaging them with the six ACT processes. Once the client begins to score on the higher end of the ACT

Advisor, we then move into ACT-based exposure exercises (e.g., engaging in activities that provoke anxiety/fear and are meaningful) as an opportunity to (1) pursue their values, and (2) practice interacting with their obsessions in a new, more functional way. The amount of time in therapy needed to develop psychological flexibility is hard to predict. Thus, spend as much or as little time needed to get to that place and keep the appropriate cut-off scores in mind (e.g., below 24–28 on the AAQ-II; Bond et al., 2011). We have seen it as fast as the first session (if the client has experience with these topics) or as long as maybe eight sessions. To teach psychological flexibility, we spend time with the client discussing whether attempts to regulate or control obsessions (e.g., compulsions like hand-washing, mental rituals, self-talk, medication) increase its power or decrease it. We use examples from their own lives where attempts to control, suppress, or otherwise regulate things has actually backfired. For example, a client with trichotillomania may pull their hair in order to satisfy an urge for symmetry in their eyebrows—not only does the urge return repeatedly despite these efforts, but the pulling also results in bald spots.

We then use acceptance, defusion, and mindfulness strategies to help the client see their obsessions for what they are—thoughts, images, and feelings. An example of a common acceptance and defusion strategy used in the treatment of anxiety and OCRDs is the “tug of war with a monster” metaphor. Clients are asked to consider their obsessions as a monster they are currently playing tug of war with. Whenever the monster calls out to them (e.g., what if I did something sacrilegious?), clients often pick up the rope and fight or bargain with the monster (e.g., praying excessively, re-assuring oneself that it was not a sin). We would instead encourage the client to drop the rope and continue about their lives—sometimes the monster will call out to them and they do not have to respond or pick up the rope.

“The movie theater” exercise utilizes mindfulness and defusion to aid clients in viewing obsessions for what they are. In this exercise, clients are guided through a visualization where they imagine themselves entering a movie theater with a blank screen. Clients imagine themselves sitting in the audience and then view their thoughts as passing images or words on the screen. In this way, clients practice that they are not their urges or obsessions, but an observer of each thought or feeling as it passes by. After seeing the obsession (e.g., I fear I might harm my child), they can choose to observe it and not respond.

In sum, we are aiding the client to understand that obsessions are about events but are not the events themselves. For example, a client who has an obsession about sexually abusing their child would work towards an understanding that having these thoughts is not the same as engaging in the feared behavior. One way to illustrate this concept is to have the client pretend to bite into a half a lemon and imagine the reaction their body has. We might then compare that reaction to the one the client has when they picture their obsession. It can be a strong reaction, but it is a thought about a thing, not that thing (e.g., a thought about sickness, not actually sickness). The difference is really important—we may want to avoid the real thing, but we do not have to avoid thoughts about something if it is not functional.

We also bring in values discussions early in therapy. Therapy is never primarily about OCD reduction but about moving toward valued goals in life. It is always

about building relationships, growing in work or school, or whatever else they care about. We link the distress obsessions bring on as an indicator that something important is happening and then to use that moment as an opportunity to go towards their values. For example, if a client feels fear around harming their child in some way, instead of avoiding that feeling (e.g., refusing to be alone with the child), we aim to approach that feeling in the service of the value of being a parent (e.g., taking time to intentionally be present with the child). Finally, every session has a behavioral commitment to go towards their values in some specific way while practicing psychological flexibility. Again, these exercises are always about building openness to obsessions while pursuing values.

Once psychological flexibility is present, we like to engage in longer in-session exposure exercises and assign larger out of session ones. These exercises follow much of the functional principles that have already been described. Specifically, the exposure exercises are seen as opportunities to follow one's values and practice developing a new relationship to one's obsessions—a more psychologically flexible one. Each exposure session begins by asking the client how their exercises (i.e., exposures or behavioral commitments) went from the past week. We are interested in how open they were to the anxiety/obsessions that occurred during those exercises and whether they completely engaged anyway. Based on an assessment (e.g., ACT advisor), we would spend some time building up the needed ACT process of change. Once we felt the client was in touch with that ACT process, we would work with the client to develop an exposure exercise that they thought they could be fully open to for a specific, agreed upon time period. We do not usually build a hierarchy, but if we were to (because it can be wise to have needed stimuli ready) we would base exercises on the client's willingness to do the exercise instead of how much distress it would cause.

Staring the ACT-based exposure involves reminding the client to get in touch with the value they are pursuing and coaching them to engage with the process of change that was discussed earlier in the session. The exposure is seen as an opportunity to interact with their obsession in a different way (e.g., accepting, distanced, defused) while pursuing values. Because it can be hard to see whether the client is practicing defusion or acceptance, we check in and coach the client along during the session. We might ask, "how are you treating the obsession?," or "how open are you to the obsession right now?," or "are you connected with why it is worth doing this exercise?" We do not ask for SUDS, but we have asked about "willingness." We end the exposure when we complete the agreed upon task. Because we are practicing building a new relationship to the obsession, it really does not matter if the obsession or anxiety increases or decreases—we want the way the client relates to that feeling to change. We would plan homework that matches the skills we practiced in session.

Conclusion and Future Directions

Arguably, the discussion about the role of the three waves of therapy in anxiety, OCD, and OCRDs is an example of the discussion of the three waves in general. The first wave of behavior therapy was groundbreaking in its ability to successfully treat disorders that seemed overwhelming at the time. The second wave added a logical and scientific approach to dealing with cognitions. We feel the third wave build upon the previous two by retaining the behavioral thinking of the first wave and the focus on cognition from the second. The third wave takes a different stance towards language and cognition than the second wave. We feel confident it is new. Having strong technologies that can focus on first order change (second wave) and second order change (third wave) of cognitions and other internal experiences is key. Many disorders fall under the anxiety, OCD, and OCRD umbrella, and while they share many functions, they have their own features. In OCD alone, we can have strong fears (e.g., an obsession around killing someone) or a feeling that something is not right, but not dangerous. We have urges that a hair needs to be removed in trichotillomania and a fear of dying in in a panic attack. We need many methods of conceptualization and treatment for the myriad of internal experiences that occur in anxiety, OCD, and OCRDs, to be built within the behavioral theory put forth in the first wave.

This situates the important work of process based cognitive behavioral therapies (PB-CBT) at the forefront. Process based CBT has been proposed within our field for a long time (Hayes et al., 1996), but more formal writing on the topic has increased lately (Hofmann & Hayes, 2019; O'Donohue & Fisher, 2009). At the core of PB-CBT is the notion that while we have a method to categorize disorders (e.g., the DSM, or ICD-10), those methods do not capture the complexity of the individuals we work with. PB-CBT also proposes that there are transdiagnostic psychological processes and certain empirically supported techniques are helpful at addressing those processes to produce good clinical outcomes. Thus, it is possible that the best therapeutic practices are not from any wave of CBT, but from all waves. Each wave of CBT has offered unique and important processes and procedures that likely match with certain clinical presentations. Thus, while it is important to recognize new developments in our field, we should also recognize that we have all been helping understand the treatment of anxiety, OCD, and OCRDs.

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Depressive Disorders: First Wave Case Conceptualization



Kyra Katte and Amy E. Naugle

Description and Diagnosis

The prevalence and debilitation of depression makes it one of the most significant mental health concerns and most impairing psychiatric disorders for individuals, their family members, and society as a whole. Lifetime prevalence of depression is estimated to be 10–15%, with a 12-month prevalence of 9% in the United States (Lépine & Briley, 2011). Men and women with depression are respectively 20.9 and 27 times more likely to die by suicide than the general population (Ösby et al., 2001). When investigating all causes of death, individuals with depression are twice as likely to die prematurely in comparison to those without a diagnosis of depression (Ösby et al., 2001). In a 40-year longitudinal study, children or adults with depression worked 7 fewer weeks per year, had a 20% decrease in potential income, and contributed to a lifetime loss of \$300,000 for each family (Smith & Smith, 2010).

Age of onset is typically between mid-adolescence and mid-40s, with the median age of the first episode of major depression occurring before 20 years of age (Nihalani et al., 2009; Moffitt et al., 2010). The debilitating effects of depression are further intensified by relapse and recurrence, with 50–85% of individuals with depression experiencing multiple episodes of depression in their lifetimes (Coyne et al., 1999). Women are twice as likely to receive a diagnosis of depression in comparison to men and this gender gap is thought to be related to biological (e.g., hormonal changes during puberty) and environmental factors (e.g., women's greater hours of housework, tendency to care for more stressful/demanding situations at home, exposure to sexual abuse, use of ruminative coping, body image concerns, increased chances of widowhood/bereavement and lower pay compared to men) (Hyde et al., 2008; Mirowsky, 1996).

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Depression can be defined by a number of symptoms that cause functional impairment for an individual and form a syndrome (Malhi & Mann, 2018). Symptoms of depression include depressed mood, anhedonia (i.e., a decreased inability to feel pleasure), neurovegetative symptoms (e.g., loss of appetite or weight, fatigue, insomnia), suicidal ideation, and difficulty with concentration. A diagnosis of depression for an individual is warranted after experiencing five of nine depressive symptoms nearly every day for a two-week period, as dictated by the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-5) (American Psychiatric Association, 2013).

Behavioral Model of Depression

Operant Conditioning

Before one can fully understand the theory behind the behavioral model of depression, it may be helpful to provide a brief description of the principles of operant conditioning and its implications on the frequency of behavior. Skinner (1957) proposed that behaviors that operate on the environment lead to consequences that in turn affect the frequency of the occurrence of the functional class of behaviors in the future (hence the name operant). Therefore, the frequency of a behavior is controlled by its consequences. Specifically, positive reinforcement (i.e., the addition of a stimulus to the environment that leads to an increase in future frequency of behavior), negative reinforcement (i.e., the withdrawal of a stimulus from the environment that leads to an increase in future frequency of behavior), positive punishment (i.e., the addition of a stimulus to the environment that leads to a decrease in future frequency of behavior) and negative punishment (i.e., the removal of a stimulus from the environment that leads to a decrease in future frequency of behavior) affect the rate at which an organism responds (Skinner, 1957). Following these principles, extinction occurs when emitting a behavior no longer leads to reinforcement, so the frequency of the behavior decreases over time (Fantino & Stolarz-Fantino, 2012).

In addition, Skinner (1958) wrote that the organism often has emotional reactions to these operations, typically a more positive reaction to reinforcement than to punishment. Similarly, a behavior can be more likely to occur if it is followed by the removal of an aversive stimulus in the environment. An individual can either avoid contacting the aversive stimulus or escape it once it has been contacted (Fantino & Stolarz-Fantino, 2012). With this knowledge, a clinician can begin to understand which variables in their client's environment may be maintaining their depressive symptoms by completing a functional analysis or a descriptive functional assessment of the depressive behavior (Murphy & Lupfer, 2014). A functional analysis or assessment identifies the idiographic antecedents and consequences that are causal and controllable in terms of their effects on the target behavior (Haynes & O'Brien, 1990).

With a better understanding of operant conditioning and the application of functional analyses for clients with depression, the knowledgeable clinician may begin to realize that there are two critical aspects of their client to be aware of. First, clients appear to be experiencing an emotional reaction to positive/negative reinforcement/punishment. Second, there is a certain amount of positive reinforcement in one's life that feels good and must be achieved in order to continue to feel good. Therefore, it stands to reason that increasing positive reinforcement in one's life is likely to reduce their depressive symptoms.

History of Development

Skinner (1965) was the first to offer a functional description of depression. In *Science and Human Behavior*, Skinner (1965) conceptualized depression as an extinction phenomenon in which behaviors that were formerly socially positively reinforced are later interrupted. This interruption in an established sequence of behavior was hypothesized to lead to feelings of loneliness (Skinner, 1965). Skinner's (1965) functional analysis of depression served as the foundation upon which the first-wave treatment for depression (i.e., behavioral activation) was developed. Although some have argued against the conceptualization of behavioral activation as a first-wave behavioral treatment, it is considered to be a part of the first generation of behavior therapy because it directly applies operant conditioning to change overt behavior (Hayes & Hofmann, 2017). By contrast, the second wave focused on both behavior and cognitions, whilst the third and final wave of behavioral therapies included the addition of mindfulness techniques to change behavior (Hayes & Hofmann, 2017).

Ferster (1965, 1966) further behaviorally characterized the defining characteristic of depression as the reduced frequency of a positively reinforced behavior. He viewed most behaviors of a person with depression as passive and reactive, rather than active and freely emitted (Ferster, 1973). Ferster (1973) also identified escape and avoidance from aversive social consequences as potential antecedents for depression.

Similarly, Lazarus (1968) viewed depression as a lack of adequate or sufficient reinforcers in one's environment. He proposed that an individual with depression is on an extinction schedule which results in a weakened repertoire. Initially, a significant reinforcer in one's environment is withdrawn. The individual then either grieves the loss of the significant reinforcer or utilizes other reinforcers in their environment (Lazarus, 1968). If an individual lacks the capacity or opportunity to utilize other reinforcers at their disposal, then a chronic condition arises in which the individual is unaffected by most stimuli in their environment and then enters a depressive state (Lazarus, 1968).

Following the aforementioned behavioral views of depression, Lewinsohn and Atwood (1969) hypothesized that the depressive syndrome could be explained by a low rate of response-contingent positive reinforcement, which acts as an

unconditioned stimulus for dysphoria, fatigue and some somatic symptoms. The social environment also maintains depressive symptoms by providing sympathy for depressive verbal behaviors (e.g., expressions of pessimism, fatigue, self-blame, and low self-esteem). The social environment can lead to a further decrease in positive reinforcement in one's environment because an individual's social supports may begin to avoid the aversive depressive verbal behaviors of the individual, further exacerbating their depressive symptoms.

Lewinsohn (1975) postulated that three variables affect response-contingent positive reinforcement that an individual can experience: (a) the number of activities that may be reinforcing for an individual, which is determined by one's personal characteristics and experiences, (b) the availability of potentially reinforcing events in one's environment, and (c) the extent to which the individual emits behaviors that increase the likelihood of contact with potentially reinforcing events in one's environment. With these three tenets of Lewinsohn's (1975) behavioral model established, clinicians can begin to identify how their clients with depression enter a depressive downward cycle in which they begin to engage in less activity, which leads to a decrease in positive reinforcement from their environment, and then become progressively more passive and depressed over time as the cycle continues (Kaiser et al., 2016).

To better understand our clients' downward spiral of depression, it is helpful to acknowledge that there are many examples of reinforcing and punishing relations that affect mood. For example, putting on a coat when it is cold is negatively reinforcing and feels good because it removes the aversive chill. Going on vacation with friends in Hawaii is positively reinforcing and feels amazing because it adds enjoyable activities in one's life. Eating gross food is a form of positive punishment and leads to a foul mood because it adds a horrible taste in our mouth. Finally, a friend canceling dinner plans is negatively punishing and leads to upset feelings because it removes the opportunity to have an enjoyable evening. With this context, it is easy to understand why people with depressive symptoms report engaging in fewer pleasant and more unpleasant events compared to those without depressive symptoms (Lewinsohn & Amenson, 1978).

Empirical Evidence in Support

Although no studies were able to clearly accept or reject the claims of the behavioral model of depression at its conception, there were a number of studies that were consistent with the model. First, given that people with depression emit fewer behaviors than those without depression (due to lower levels of behavior emission in general) (Libet & Lewinsohn, 1973; Libet et al., 1973), and that it is presumably reinforcing to be attended to, we can postulate that people with depression receive less social reinforcement from their environment than those without depression. Second, the number of pleasant activities that an individual engages in is significantly associated with their mood (Lewinsohn & Graf, 1973; Lewinsohn & Libet,

1972). In this way, engagement in pleasant activities acts as a reinforcer such that the probability of future engagement in pleasant activities increases. Third, individuals with depression obtain less positive reinforcement in their lives than nondepressed psychiatric and normal control groups and the subjective enjoyability of engaging in pleasant events for individuals with depression is rated lower (MacPhillamy & Lewinsohn, 1973). Fourth, individuals with depression appear to be more sensitive to social and painful aversive stimuli than nondepressed subjects and rate unpleasant events (i.e., punishers) as significantly more unpleasant (Lewinsohn et al., 1973; Libet et al., 1973; Schless et al., 1974). Therefore, we can expect that individuals with depression are more likely to avoid or escape unpleasant situations to provide short-term relief from the heightened aversiveness of unpleasant events, which leads to isolation and further exacerbation of depressive symptoms in the long-term, creating a positive feedback loop. Fifth, the incidence of aversive life events (e.g., marital conflict, work changes, death, and illness) in the 6 months prior to a depressive episode was shown to be three times higher than in a nondepressed group during the same period of time (Paykel et al., 1969). Therefore, we can deduce that a dramatic decrease in pleasant events (i.e., positive reinforcement) in one's environment may be a critical antecedent for developing depression.

Since its conception in the 1970s, a number of studies concerning the behavioral model of depression continue to provide support for the model. Hopko and Mullane (2008) demonstrated that students with depression engage in fewer social, physical, and academic activities than nondepressed students. In addition, participants with depression exhibited higher negative affect, lower activity level, and a significant relationship between each activity and its corresponding reward value when behavior and mood were tracked every 2 h (Hopko et al., 2003a). These findings provide further support for the notion that changes in reinforcement correspond highly with mood in the moment and across time. Furthermore, individuals with depression experience less pleasure from engaging in daily activities and also expect future behaviors to be less rewarding (Hopko et al., 2003a, b; Hopko & Mullane, 2008). This pessimistic view follows Lewinsohn's (1975) assumption that individuals with depression are essentially on an extinction schedule in which behaviors that are no longer rewarding are removed from their repertoire with time due to a weaker association between behavior and reinforcement. Furthermore, those with depressive symptoms experience more unpleasant events (i.e., punishers) in their lives and perceive them to be more aversive than those without depressive symptoms (Lewinsohn & Amenson, 1978).

Empirical Evidence Against

Although a number of studies provided support for the behavioral model of depression, some research conducted during its inception demonstrated inconsistent results. Contrary to the researcher's predictions, individuals with depression appeared to encounter unpleasant events during a 30-day period with the same

frequency as those who did not have depression, which does not align with the model's assumptions concerning the low rate of positive reinforcement for those with depressive symptoms (Lewinsohn & Talkington, 1979). The same study found that those with depression only rated some, but not all, unpleasant events as more aversive than the control group, which directly conflicts with the behavioral model of depression and the findings of Schless et al. (1974). Costello (1972) also questioned if the behavioral model of depression can be simplified by hypothesizing that it is the loss of a reinforcer's effectiveness (via biochemical or neurological changes or the disruption of a chain of behavior), rather than the loss of overall reinforcement, that accounts for the development of depressive symptoms. His support for this argument, however, is more anecdotal in nature and related to the depressive symptoms that follow death, rather than chronic symptoms of depression. He goes on to acknowledge that "there is no experimental evidence to support or embarrass this" (Costello, 1972, p. 597).

More recent research has also questioned the behavioral model of depression for a number of reasons. Theoretically, it does not account for depression onset without an apparent environmental cause and the strictly behavioral view does not consider the impact of cognition, relaxation, and values-consistent or inconsistent behaviors, which was viewed as a significant limitation in comparison to the second and third wave behavioral theories by some, but not all, behaviorists (Hayes, 2004). Additionally, the model neglects to acknowledge aversive control (i.e., negatively reinforcing and punishing contingencies) as a possible factor in impacting the onset and maintenance of depression (Kanter et al., 2008). For example, choosing to not attend a yoga class may help one avoid the possibility of humiliation, but it may also prevent positive social engagement opportunities as well. Studies indicate that depression is more typically characterized by the accrual of multiple chronic mild aversive situations (e.g., financial trouble, work-related stress, and homemaking demands) than by a decrease in positive reinforcement (e.g., job loss, divorce; Kanter et al., 2008). Although, it is important to recognize that the avoidance and escape of aversive stimuli can often lead to a decrease in positive reinforcement opportunities (e.g., calling in sick to work can be a form of avoidance that disallows one to contact possible reinforcers at work or on the way to and from work), so these two concepts are intricately related (Kanter et al., 2008).

Behavioral Activation

Description

As the evidence base for the behavioral theory of depression grew, so did interest in applying the model to treating depression. Based on the propositions of the behavioral model, the main objective of the behavioral treatment of depression is to achieve a satisfactory level of positive reinforcement in the lives of clients with

depression by impacting the level, quality, and range of activities that one engages in (Lewinsohn, 1975). The singularly behavioral component of this type of therapy came to be known as behavioral activation. Unlike the psychodynamic treatments that were popular during its establishment, behavioral activation is derived from empirical research and applies a pragmatic approach. Prior to implementing behavioral activation treatment, however, it is essential to first complete a functional assessment in order to achieve five critical components: (1) evaluate the severity of the depressive symptoms, including suicide risk (2) identify any and all relevant behavioral deficits and excesses as these are thought to interfere with gaining reinforcers, (3) understand the variables that maintain the depressive symptoms such as partners reinforcing lower response rates, (4) develop a treatment plan by applying specific behavioral goals, and (5) enhance the client's buy-in to treatment (Lewinsohn, 1975). Because clients are asked to commit fairly extensive work outside of session in behavioral activation treatment, it is crucial that buy-in to treatment is maximized while presenting the treatment rationale and developing treatment goals with clients in order to enhance motivation and treatment adherence. In practice, typical strategies to increase buy-in with clients include providing psychoeducation (e.g., stating that "behavioral activation is an evidence-based treatment known to improve the wellbeing of people with similar concerns to yours"), building rapport and enhancing the therapeutic alliance, and applying motivational interviewing techniques (e.g., utilizing decisional balances and increasing change talk).

Engaging in activity can be incredibly arduous for clients with depression, so the application of basic clinical skills is essential when implementing behavioral activation with clients (Martell, 2018). One manner in which to enhance collaboration and treatment adherence with clients is to deliberately put yourself in their shoes and clearly demonstrate an empathic and genuine concern for their unique situation. Therapists might also enhance clients' treatment outcomes by actively attending to the present moment with clients so that examples of improvements in behavior offered by the client can be emphasized. Validating a client's experience is a third clinical skill that can help clients engage in activities in a new way by demonstrating that the therapist truly understands that even basic activity engagement can feel insurmountable when living a life that feels absent of pleasurable experiences (Martell, 2018). Validating a client's struggle can also be advantageous in strengthening the therapeutic alliance because an overly positive "cheerleading" therapist can lead some clients with depression to believe that the therapist is far too different from them to be of any value (Dozois & Bieling, 2010).

After completing a functional analysis with a client and whilst implementing clinical skills, a clinician is prepared to implement behavioral activation treatment with their client. Although researchers and clinicians have implemented behavioral activation in a multitude of forms across the past several decades, research indicates that it is effective when implemented as a structured and brief format or in a less formal manner, when a clear behavioral formulation has been achieved (Martell, 2018). Despite the proposal of many behavioral therapies for depression, the behavioral activation approach outlined by Lewinsohn et al. (1980) was the most

influential during the first wave therapy movement and will therefore be discussed in the most detail (Kaiser et al., 2016).

Use of the Pleasant Events Schedule (PES; MacPhillamy & Lewinsohn, 1975) and the Unpleasant Events Schedule (UES; Lewinsohn et al., 1985) is helpful at the start of treatment to identify specific events in a client's life that may be affecting their depressive symptoms (Lewinsohn et al., 1980). Each list consists of 320 items that one may find pleasant or unpleasant. The client's ratings of the frequency of pleasant and unpleasant activities across the past month is thought to reflect the rate of positive reinforcement and aversiveness experienced by the client. The 80 most frequent pleasant and unpleasant items are then combined to form an individualized Activity Schedule, which clients use to track their daily activity engagement and mood throughout treatment. The main objective of tracking mood and activity is to demonstrate the covariation between these two variables for the client, which can be easily demonstrated via a visual graph depiction. The daily and continuous feedback during treatment allows the therapist and client to make adjustments as necessary to treatment procedures and goals (Lewinsohn et al., 1980).

Empirical Evidence in Support

Since its development in the 1970s and 1980s, a wealth of empirical support has demonstrated that behavioral activation is a promising treatment intervention for depression. Early research on treatment effectiveness primarily consisted of case studies which indicated that behavioral activation can be effective in treating depression, but more rigorous research was later completed (Lewinsohn, 1975). In a meta-analysis of 16 studies consisting of 780 subjects on behavioral activation, a difference between behavioral activation and control conditions revealed a pooled effect size of 0.87 at posttest (Cuijpers et al., 2007). A larger meta-analysis of 34 studies consisting of 2055 participants also demonstrated a difference between behavioral activation and control conditions at posttest with a large pooled effect size of 0.78 (Mazzucchelli et al., 2009). The authors of both meta-analyses did not find a significant difference between behavioral activation and cognitive therapies at posttest or follow-up. Taken together, these results indicate that behavioral activation is a parsimonious and effective treatment intervention for adults with depression.

The transition into the second wave of behavioral therapies led to the integration of behavioral activation with cognitive therapies, but it became apparent that a component analysis of cognitive behavioral therapies for depression was necessary to delineate the active components of the increasingly more complex interventions. Jacobson et al. (1996) compared the following three groups: behavioral activation alone, behavioral activation and automatic thought modification, and full cognitive therapy treatment. Behavioral activation alone was found to be equal in efficacy in comparison to the other two groups and demonstrated similar relapse rates at a two-year follow-up (Gortner et al., 1998). Given that behavioral activation is a more parsimonious intervention technique, it may be more accessible to less experienced

clinicians or paraprofessionals, and therefore better able to benefit more clients (Jacobson et al., 1996).

In addition, behavioral activation may be more effective than cognitive behavioral therapies because clients have a lower attrition rate in behavioral activation treatment and it is known to be useful for clients that do not respond to cognitive therapies (e.g., individuals with severe depression, substance use, and dementia; Sturmey, 2009). Compared to medication, behavioral activation is also a cheaper option that results in lower relapse rates and fewer side effects (Sturmey, 2009). Given what we now know about behavioral activation, there is adequate evidence to conclude that it is an evidence-based therapy for depression (Sturmey, 2009). Furthermore, the first wave of behavior therapy for depression (i.e., behavioral activation) appears to be as effective as the second wave (i.e., cognitive therapies) in treating depressive symptoms and is a more parsimonious treatment intervention.

Empirical Evidence Against

Although behavioral activation is supported by evidence in numerous studies, some studies do not shed as favorable of a light upon behavioral activation as an effective treatment for depression. For example, Martell et al. (2004) proposed that it seems unlikely that arbitrary behavioral prescriptions (e.g., riding a bike for a certain amount of time) will alleviate the symptoms of depression, which is supported by the fact that busy people can experience severe symptoms of depression. They additionally recognize the following criticisms: (a) support for behavioral activation treatment does not equate support for the behavioral theory of depression, (b) the practical and parsimonious dissemination of treatment has yet to be determined, (c) we do not know the mechanisms of change in behavioral activation, and (d) it is unclear if behavioral activation can be dismantled further.

Less specific criticisms include a common argument in treatment outcome research that participants in controlled trials tend to be less severe and are not affected by comorbid conditions, which does not accurately reflect clients in real-world settings (Dozois & Bieling, 2010). There is also a desperate need for research on treatment outcomes for racial/ethnic minorities as this is a neglected area in research on treatments for depression (Hu et al., 2020).

Use with Different Clients

Because behavioral activation is contextualistic (i.e., idiographic) in nature, its application may be well suited for treating depression in culturally diverse populations. Behavioral activation treatment manual adaptations have been formed for Latinos (BA-L; Kanter et al., 2014), Muslims (BA-M; Mir et al., 2016) and African Americans (Bowe, 2013). To date, 17 studies have culturally adapted behavioral

activation to fit culturally diverse populations and ethnic minorities, with the following target populations: seven for Latin Americans, four for African Americans, one for Muslim patients in the United Kingdom, two for adults in Indian primary health centers, one for victims of systematic violence in Iraq, one for locals in Iran, and one for older adults living alone in China (Lehmann & Bördlein, 2020). Access to services was amplified by providing treatment via phone or in clients' homes, by providing treatment in clients' native language, and by treatment being delivered effectively by less experienced practitioners. A systematic review of the 17 studies claimed that behavioral activation is an "effective, cost-efficient, and well-fitting treatment for depression in these target groups" because it allows clients and practitioners to consider cultural, social, environmental, and psychological factors that may be impacting the maintenance of depression and the course of treatment (Lehmann & Bördlein, 2020, p. 700). As advocated by Hu et al. (2020), there is a clear need for continued research on treatments for depression in culturally diverse populations and ethnic minorities, with a specific focus on evaluating the components of culturally adapted treatment interventions that impact outcomes being particularly important (Lehmann & Bördlein, 2020).

The majority of the research on behavioral activation investigates individual therapy formats, despite groups having greater therapeutic efficiency with a greater capacity to benefit more clients (Porter et al., 2004; Raines et al., 2020). Porter et al. (2004) addressed this by developing the Behavioral Activation Group Therapy (BAGT) manual which led to significant decreases in depressive symptoms at post-test and three-month follow-up after only 10 weeks of group therapy. Similarly, Chu et al. (2009) developed a transdiagnostic Group Behavioral Activation Therapy (GBAT) for youth in a school setting which evidenced superior posttreatment and four-month follow-up outcomes for adolescents in comparison to a waitlist control (Chu et al., 2016). It is important to continue to consider the implementation of group therapy formats because providing effective treatment to more clients in a shorter amount of time is cost-effective for clinicians and their clients and allows services to be delivered to a greater number of clients, which is particularly essential in regions where access to healthcare is limited (Porter et al., 2004).

A key issue to consider is how much one needs to increase reinforcers, which is largely unknown at a group (i.e., nomothetic) level. For this reason, the individual (i.e., idiographic) nature of behavioral activation is an immense strength that the astute clinician would be wise to utilize effectively. For example, it may be important to consider if your client finds social reinforcers (e.g., being complimented) to be more impactful than solitary reinforcers (e.g., putting on make-up) so that the stronger reinforcer can be emphasized in the treatment process.

Clinical Case Example

Description

Behavioral activation is appropriate for clients with the following characteristics: (a) experience depressive symptoms, (b) believe that changing behavior can impact mood, (c) willingness to work towards changing behavior, and (d) concerned about the side effects and cost of medications (Lejuez et al., 2001). Behavioral activation can also be customized for individuals with a diagnosis of depression and a comorbid mental health and/or physical health disorder (Cannity & Hopko, 2017). Therefore, it seems that anyone with depressive symptoms will likely benefit from the implementation of behavioral activation treatment. The following fictional clinical case description matches these qualities and will serve as a representative client for behavioral activation treatment.

Jane Doe is a 33-year-old Caucasian cisgender woman who meets criteria for major depressive disorder, recurrent, moderate. Jane is married, has a 2-year-old daughter, and teaches third grade at her local public school. She experienced two prior depressive episodes which persisted for approximately 12 months at ages 19 and 27. Her current depressive episode began shortly after she returned to teaching for the fall semester, approximately 2 months ago. She is not currently taking any medications and does not match criteria for any other mental health diagnoses, though she does express feeling anxious about work and home duties at times. Jane's primary complaints include general anhedonia, frequent bouts of crying, depressed mood, hypersomnia, and lethargy. Jane reports that spending time with her daughter and husband is incredibly rewarding, but that she is so tired after work that she does not have the energy to spend time with them. She also expresses that she is too tired to keep up with household tasks (e.g., cooking, cleaning dishes, and laundry), so her husband completes all domestic duties in the home. Jane sleeps approximately 10–12 h per day, which further limits the time that she can spend engaging in rewarding activities (e.g., socializing with friends and family, exercising, and engaging in preferred hobbies). Jane reports that she used to enjoy reading, hiking, and walking her dog, but that these activities no longer bring her a sense of enjoyment, so she no longer participates in these behaviors.

Jane's weekly activity log shows that she wakes up at 6:30 am, works 8 am–6 pm, and then sleeps 7:30 pm–6:30 am Monday through Friday. On the weekends, she tends to wake up at 9 am and lies in bed watching TV until noon, grades papers until 5 pm, goes back to bed at 5:30 pm and watches TV in bed until she falls asleep around 9 pm. Her husband brings her breakfast, lunch and dinner in bed because she reports that she is too tired from the week to cook or leave her bed to eat. Jane reports that working is important to her, but that she does not have energy left to engage in other activities that are meaningful.

Application

Because it can be quite challenging for a client with depression to increase their activity levels, providing a reasonable treatment rationale is a critical first step in behavioral activation treatment. Jane's clinician might provide the following treatment rationale (adapted from Lejuez et al., 2001), which implements idiographic characteristics specific to Jane's case and promotes collaboration with Jane:

Jane, it seems that you may be waiting to feel better before engaging in some of your more enjoyable activities, such as spending time with your family, reading, hiking, and walking your dog. As you are aware, it can be hard to wait to feel better, so I am proposing we try a different method together. Based on an abundance of prior research, which I am happy to share with you if you would like, we believe that the first step to feeling better is engaging in more positive situations in your life. We theorize that if you are engaging in activities that bring you a sense of joy and accomplishment, then it is challenging to feel depressed. It can be difficult to start, but it tends to get easier with the more positive experiences you encounter. The treatment can be hard at times, but I am here to help you through this process, and we will work together at a pace that feels best for you.

With Jane's buy-in and active collaboration, her clinician can next create a functional analysis in order to identify the controllable variables in her environment that are maintaining her depressive behaviors. For example, we can theorize that Jane's husband may be negatively reinforcing her depressive symptoms by completing all the required domestic duties.

Following Lewinsohn et al.'s (1980) treatment protocol, the next step for Jane's treatment involves completing a Pleasant and Unpleasant Events Schedule to identify the 80 most pleasant and unpleasant items to place on Jane's activity log. Jane's top ten most pleasant and unpleasant items are displayed in Table 1. Upon careful review, Jane's clinician can understand that the majority of her pleasant and unpleasant activities are related to time spent with her husband and daughter, so emphasizing engagement in pleasant activities with her family will be Jane's primary treatment focus with her clinician. Jane and her clinician can collaboratively identify enjoyable family-focused activities and begin to schedule these during the times that are most reasonable for Jane.

Jane's therapist can ask her to track her daily mood on a scale from 1–10 (1 = poor, 10 = very good) and to track the number of pleasant and unpleasant events that Jane engages in each day, based on her top 10 pleasant and unpleasant activities. With this valuable information, her clinician can create a graph to depict changes in her mood and activity engagement over time (see Fig. 1). The visual depiction allows Jane and her clinician to easily observe how engaging in less unpleasant events and more pleasant events correlates with an increase in mood for Jane over time.

Depressive symptoms have a high propensity for relapse, so it is essential to form a relapse prevention plan with Jane prior to treatment termination. Helping Jane to understand how her behaviors affect her mood, with significant help from the graph depicted in Fig. 1, is a critical component of Jane's therapeutic process and will significantly decrease the chance of relapse. At this stage, it is also helpful for Jane's

Table 1 Jane’s top ten pleasant and unpleasant events most highly correlated with mood

Type	Specific event
Pleasant	1. Reading stories, novels, poems or plays
	2. Exploring (hiking away from known routes, spelunking, etc.)
	3. Seeing good things happen to my family or friends
	4. Listening to the sounds of nature
	5. Doing a job well
	6. Being with someone I love
	7. Teaching someone
	8. Being with my husband
	9. Taking a walk
	10. Being with my daughter
Unpleasant	1. Being dissatisfied with my husband
	2. Arguments with husband
	3. Disciplining a child
	4. Being near unpleasant people
	5. Not having enough time to be with people I care about (husband, daughter)
	6. Having my husband dissatisfied with me
	7. Displeasing others (parents, employer, teachers, friends, etc.)
	8. Learning that someone is angry with me or wants to hurt me
	9. Seeing someone in pain (bleeding, unconscious)
	10. Leaving a task uncompleted

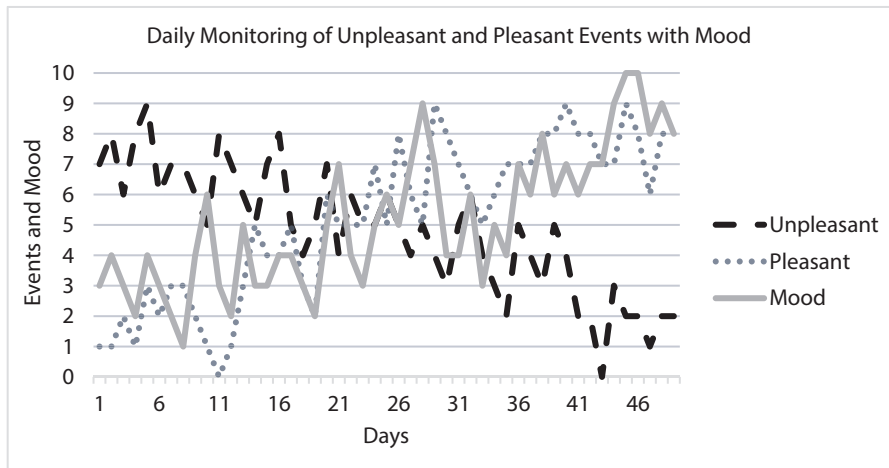


Fig. 1 Case presentation: daily monitoring of unpleasant and pleasant events with mood

clinician to review the purpose of a functional analysis and clarify how Jane may understand the influence of the environment on her mood in order to manipulate the relevant controlling variables in the future. For example, Jane's clinician may query Jane on how excessive sleeping negatively reinforced her depressive symptoms. By collaboratively creating a functional analysis of her own behavior with her clinician, Jane will be more effective at manipulating the controlling variables in her environment in the future and preventing the onset of an additional depressive episode. Additionally, Jane's clinician can review normal fluctuations in mood with Jane so as to not pathologize increases or decreases in Jane's future disposition.

Potential Difficulties

Ambivalence

Fewer than 20% of individuals who seek treatment are prepared to take action to change their mental health problem, so clinicians must be prepared to address ambivalence with their clients (Prochaska, 2000). For individuals with depressive symptoms, it can be particularly challenging to enhance motivation for change because avoidance is a common behavioral response to their depressive mood (Dozois & Bieling, 2010). In these instances, motivational interviewing can be particularly helpful for clinicians to meet clients where they are by simply validating, exploring, and genuinely understanding a client's perspective regarding their ambivalence to change (Hettema et al., 2005). In so doing, a client may begin to engage in change talk (i.e., statements related to a client's desire, need, and ability to change), which can be selectively reflected back by their clinician. With this back-and-forth process, clients can hear their own motivations for change which can enhance client's commitment to change. In fact, the commitment strength of change talk stated during the final moments of a session by clients are the strongest predictor for future behavior change (Amrhein et al., 2003).

Homework Compliance

Although homework completion is known to enhance therapy outcomes (Kazantzis et al., 2010), clinicians report issues with homework compliance and out-of-session tasks with 50% of their cases (Helbig & Fehm, 2004). Because homework completion is a vital part of behavioral activation treatment, it is important for clinicians to be prepared to address issues with homework completion when implementing behavioral activation treatment. Clinicians can revisit the treatment rationale, provide additional psychoeducation, break tasks into simpler and more manageable

steps, and reinforce the importance of homework with clients in order to enhance homework completion with their clients (Dozois & Bieling, 2010).

Arguably one of the most effective ways to address homework noncompliance in behavioral activation treatment is by completing a functional assessment with a client. With careful consideration of the client's antecedent-behavior-consequence (ABC) sequence, clinicians can identify potential barriers to activation and/or homework completion for clients (Martell, 2018). Given that the purpose of a functional analysis or descriptive functional assessment is to understand the variables that increase/decrease the frequency of a behavior over time, clinicians can work with their client to identify and manipulate the relevant variables that may contribute to increasing homework completion. For example, in our clinical case example, Jane struggled to spend time with her family because she was tired at the end of her workday. In this example, we can conceptualize lethargy as the antecedent, isolation as the behavior, and the lack of increase in mood or time spent with her family as the consequence. Via an exploratory discussion with Jane, a number of potential ideas could be proposed that directly affect the ABC sequence such as spending time with her family before work, working fewer hours during the day, drinking coffee when she got home, or planning activities with her family after work that she could not cancel. Based on Jane's preferences, she can select the preferred activity, which is likely to increase Jane's chances of completing the activity. Asking Jane to formally commit to engaging in her preferred activity at the end of session is an additional strategy to increase the chances that she will complete it (Amrhein et al., 2003). By completing this process collaboratively and openly with Jane, she is additionally more likely to be able to complete her own functional analyses in the future, which will assist with relapse prevention post-treatment termination.

Resistance

Some clients may also resist scheduling activities with their clinician. If the resistance appears to stem from ambivalence about change, similar tactics (e.g., revisiting treatment rationale, providing additional psychoeducation, breaking tasks into smaller steps, and utilizing motivational interviewing techniques) may be applied that were discussed above. A functional analysis may also be helpful to identify the variables that may be contributing to the resistance. If the resistance stems from a client's desire to be spontaneous and unconstrained, however, it may be beneficial to ask clients how this technique has been working for them so far (Leahy et al., 2011). Clients that are resisting activity scheduling may also benefit from hearing their clinician describe activity scheduling as an exercise analogy (Leahy et al., 2011). For example, Jane's therapist might ask questions such as "If you want to get in shape, would you only exercise when you feel like it," "What might be the outcomes of approaching fitness in this way," or "Have you ever exercised even though you didn't feel like it?". These types of questions might help Jane and similar clients

think about how activity scheduling can be a vital aspect of enhancing their mental health and hence increase treatment adherence and outcomes.

Summary

Depressive symptoms have a debilitating impact on self, family and society. Lewinsohn's (1975) behavioral model of depression proposes that depressive symptoms are maintained by a low rate of response-contingent positive reinforcement in which individuals with depression engage in less activity which diminishes their contact with positive reinforcement and further decreases their overall activity engagement and mood. From the behavioral theory emerged the first wave behavioral treatment for depression (i.e., behavioral activation) designed to achieve satisfactory levels of positive reinforcement in one's life by affecting the quality, level, and range of positive reinforcement that individuals contact in their environment (Lewinsohn, 1975).

Functional assessment that identifies the antecedent-behavior-consequence (ABC) sequence of behaviors are an essential first step to treatment and basic clinical skills are beneficial for clinicians to apply throughout treatment. Lewinsohn et al.'s (1980) treatment approach advocates for the application of the Pleasant and Unpleasant Event Schedules to form clients' Activity Logs and encourages daily activity and mood monitoring for clinicians to graph and share with their clients.

Behavioral activation has demonstrated impressive clinical utility with ethnic minorities and in group format and continues to gain empirical support. When faced with challenges in treatment, clinicians will benefit from revisiting the treatment rationale and utilizing functional analyses to address and resolve barriers. Future research should work to identify the mechanisms of change in behavioral activation, with a particular focus on the aspects of culturally adapted treatment interventions that impact outcomes for culturally diverse populations and ethnic minorities.

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Second Wave Treatment for Depressive Disorders



Adrienne K. Chong, Ali M. Molaie, and Jane E. Fisher

Cognitive behavior therapy for depressive disorders began with the application of operant conditioning principles (e.g., reinforcement) to increase the rate of active (versus passive) behavior in depressed clients (Ferster, 1973; Lewinsohn, 1974). This can be considered the first wave of treatment of depressive disorders (see Naugle, chapter “[Depressive Disorders: First Wave Case Conceptualization](#)”, in this volume). The second wave of behavior therapy incorporated behavioral techniques from predecessors, while providing an entirely new set of assumptions and therapeutic strategies focused on the phenomenological, subjective aspects of depression (Beck, 1967). Most prominent of the theorists elaborating the second wave of behavior therapy for depression were Aaron T. Beck (1967; Beck, Rush, Shaw & Emery, 1979) and Albert Ellis (1957, 1962, 1987, 1995), whose cognitive models provided an initial scaffolding for addressing cognitive processes (e.g., information processing biases) and content (e.g., negative beliefs) in treatment for depressed persons.

In this chapter, we begin with a discussion of two primary second wave cognitive theories of depressive disorders: Rational Emotive Behavior Therapy (REBT; Ellis, 1957, 1991, 1996) and Cognitive Therapy (CT; Beck, 1963, 1967; Beck & Alford, 2009) followed by overviews of case conceptualization and treatment strategies for depression that are based on these theories. Finally, we review findings from outcome and process studies addressing REBT and CT for depression.

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Cognitive Theories of Depression

Rational Emotive Behavior Therapy

REBT has undergone several changes in name since its conception, from Rational Therapy (RT) in 1955 to Rational Emotive Therapy (RET) in 1961, and finally ending with Rational Emotive Behavior Therapy in 1993 (Ellis, 1996). REBT's model of psychopathology is in many respects consistent with that of CT (Ellis, 1995). That is, Ellis specifically intended REBT to be a brief, intensive intervention (Ellis, 1996). Central to REBT is what Ellis labeled the "ABC" model of emotional disturbance (Ellis, 1991). Ellis asserted that individuals have several main goals in life that are often related to health and safety, relationships, meaning, and pleasure. When individuals encounter an Activating Event or Adversity (A) that prevents or hinders them from reaching their goals, their Beliefs (B) about the Activating Event lead to Consequences (C) of either healthy and adaptive, or unhealthy and maladaptive responses (Ellis, 1991, 1996).

Within an REBT framework, rational beliefs (rB's) allow individuals to respond to Activating Events adaptively, and often include preferences, wishes, and hopes. For instance, an individual might think, "I would have preferred to get the promotion at work, but I can apply again in the future." Irrational beliefs (iB's), on the other hand, are often comprised of "shoulds," "oughts," and "musts." These absolutistic and dogmatic demands upon the self, others, the world, and the future lead to thwarting of goals and healthy preferences. DiGuiseppe et al. (2014) discuss three levels of cognitions within REBT, of which *automatic thoughts*, perceptions, and attributions constitute the first level (e.g., "They do not like me."). They identify three second-tier irrational beliefs, each with a rational counterpart: (1) *Awfulizing*, assigning catastrophic consequences to thwarted desires, (2) *Low frustration tolerance*, perceiving that one is unable to bear having unmet demands, and (3) *Depreciation/self-downing*, global, negative evaluations of self, others, and/or the world (DiGuiseppe et al., 2014). The deepest, third, level reflects the core irrational belief of *demandingness*, an insistence that perceptions of the self, others, and the world *absolutely must* be in accord with their preferences (Ellis, 1997). Ellis (1987) argued that independent of characteristics identified by other cognitive models of depression (e.g., Beck's cognitive triad, Seligman's internal, stable, and global attributions), demandingness plays a central role in the onset and maintenance of depression.

Cognitive Therapy

Within Beck's cognitive framework, the way an individual views and organizes the world impacts their emotions and behavior (Beck, 1967). The cognitive model of depression posits that three overlapping concepts account for the development and

maintenance of depression: Schemas, the cognitive triad, and cognitive distortions (Beck et al., 1979). Schemas refer to cognitive structures that are used to organize, interpret, and evaluate stimuli and events (Beck & Alford, 2009). Depressogenic cognitive *schemas*, or core beliefs, develop as a result of past experiences wherein private responses to events (e.g., thoughts, emotions) were not subject to corrective feedback that may have resulted in more accurate interpretations of those experiences (Beck et al., 1979). Beck (1963) described core beliefs as specific content that is embedded within the schema, although Judith Beck (2011) acknowledged that some authors use the terms “core beliefs” and “schemas” synonymously.

Beck argued that persons at risk for depression experience “automatic” cognitive errors or distortions comprised of negative views of three areas (labeled the *cognitive triad*): The world, the self, and the future (Beck et al., 1979; Beck & Alford, 2009). Beck considered *automatic thoughts* to be quickly occurring representations of larger, more complex thoughts, which Ellis (1962) referred to as internalized verbalizations. Judith Beck (2011) later posited that intermediate beliefs, which include attitudes, rules, and assumptions, link core beliefs and automatic thoughts.

Cognitive distortions refer to inaccuracies between the reality of a situation and an individual’s perception of the situation. Individuals vary on the degree of the inconsistencies between objective events and the perception of events, and some level of divergence is expected for any individual (Beck & Alford, 2009). However, individuals who experience depression differ from their non-depressed counterparts in the systemic nature of their cognitive distortions. More specifically, Beck categorized cognitive distortions as stylistic, semantic, or paralogical. Stylistic distortions refer to magnification or minimization, semantic distortions refer to inexact labeling, and paralogical distortions refer to arbitrary inference, selective abstraction, and overgeneralization (Beck & Alford, 2009). Now we consider cognitive distortions in more detail.

Stylistic Distortions: Magnification or Minimization *Magnification*, also sometimes referred to as catastrophizing, presents as an exaggeration of the importance, impact, or intensity of a specific event (Beck, 1963). Depressed individuals may view a relatively small event as a catastrophe. For instance, a client might tell you that they were in a car accident that will cost them thousands of dollars, which they cannot afford. Upon receiving an estimate for damages, the client learns that the damage was superficial; repairs are optional and will cost a more manageable \$200. *Minimization* involves underestimating one’s ability, competence, or performance (Beck, 1963). A student might always believe she performed terribly on exams, despite almost always performing well. A nurse might think that he is not competent enough to handle the responsibilities of his job despite consistently positive reviews.

Semantic Distortions: Inexact Labeling It is often the case that an individual’s cognitive and emotional responses are consistent with the way they interpret and label the experience (Beck, 1963). *Inexact labeling* can also lead to other distorted thinking, such as magnification. For example, a client might initially report that her partner was critical and demeaning the previous night. After discussing the event

with her therapist, the client shares that she and her partner had a discussion about their finances and disagreed on several issues. Importantly, the client is able to accurately report that her partner remained respectful and open during the conversation, and they were ultimately able to compromise.

Paralogical Distortions: Arbitrary Inference, Selective Abstraction, and Overgeneralization *Arbitrary inferences*, sometimes more specifically referred to as either “mind reading” or “fortune telling,” occur when an individual forms a conclusion about something without corroborating evidence or despite contrary evidence (Beck, 1963). Mind reading entails making assumptions about what another person is thinking, while fortune telling refers to making predictions about the future. At the first day of work at a new job, an individual might demonstrate mind reading and think, “My coworkers all hate me,” without any evidence to support the cognition.

Selective abstraction, also referred to as “mental filtering,” is the process of focusing on one detail or event to the exclusion of other, often more salient or important details or events (Beck 1963). A father forgets to pack his child lunch once and thinks, “I’m an incompetent parent.” In this case, the father selectively focused on one event, based his conclusion on that event, and ignored other events that demonstrated evidence contrary to his conclusion.

Overgeneralization refers to the formation of a broad conclusion based on a single event. Beck typically talked about overgeneralization as occurring when individuals form a conclusion about themselves (e.g., about their worth or ability) based on a single incident (Beck, 1963; Beck & Alford, 2009). For example, an individual who has never been late to work is caught in traffic one day and thinks, “I’m a useless employee.” Individuals with depression also often form a conclusion about their lives or the state of the world based on a single occurrence.

According to Beck (e.g., Beck & Alford, 2009), clients typically evidence multiple cognitive distortions. For example, a student receives a B+ on a paper and thinks, “My teacher must view me as incompetent” (arbitrary inference). The professor had praised numerous things about the student’s paper, and also suggested including additional references for the next paper. This leads the student to think, “My work is unsatisfactory” (selective abstraction). The student returns home and tells his roommate that his professor “hated” his paper and “reprimanded” him for the quality of his work (inexact labeling). This in turn leads the student to think that he has ruined any chance of doing well in the class (magnification).

The Cognitive Triad in Detail

Negative View of the World

The first element, negative view of the world, presents as a pattern of selectively or inaccurately interpreting experiences as overwhelmingly negative. Individuals construe their experiences as defeating or denying them in some way, and view their life as a pattern of these experiences (Beck & Alford, 2009). Inaccurate interpretations can range from mild to severe distortions, and typically include overgeneralization, catastrophization, arbitrary inferences, and selective abstraction (Beck & Alford, 2009).

Perceptions of Defeat Within Beck’s cognitive model, individuals at risk for depression are highly sensitive to defeat or any stimulus perceived as a barrier to their goal. What may seem like a small obstacle to others may appear to be an insurmountable obstacle for an individual with a history of depression (Beck & Alford, 2009). For instance, a student who forgets their pencil for an exam may think, “I’ll never be able to finish this test,” or, “I’ll fail no matter what I do.” For individuals at risk for depression, situations in which a goal is not met are likely to be interpreted in a highly negative manner and viewed as a complete failure. A high performing individual who does not receive a promotion at work may think, “I completely failed. I should quit my job.”

Perceptions of Deprivation Individuals at risk for depression often view a variety of events—regardless of the magnitude—as a significant loss of something important (Beck & Alford, 2009). Waiting 5 min for a coworker to arrive to a meeting may seem like a substantial loss of valuable time. A college student walking alone to class may think, “I’m missing out on spending time with friends.” Witnessing classmates walking together may further exacerbate these feelings of deprivation. Social comparison often evokes thoughts about deficits and deprivation. A very wealthy individual may think, “I have nothing,” when they learn that their colleague recently purchased a new car.

Perceptions of Deprecation Another common feature of the private experience of persons with a history of depression is the interpretation of neutral statements or events as disparaging (Beck & Alford, 2009). For instance, while telling a friend about their day, an individual with a history of depression may think, “they’re bored,” or, “I’m not very interesting.” These attributions of derogatory judgment may be limited to certain contexts (e.g., work, school), or they may be generalized to all contexts. In severe cases, an individual may perceive negative judgments from all social contacts, even interpreting positive comments as critical and unfavorable. For example, while receiving positive remarks from a professor, a student may think, “she’s mocking me,” or, “she really thinks I’m incapable.”

Negative View of the Self

The second component of the cognitive triad is negative view of the self (Beck et al., 1979). In addition to negative interpretations about their experiences of the world and with others, individuals with depression also negatively evaluate themselves. This is a tendency to overgeneralize a specific behavior or occurrence, such that a single negative instance leads to a conclusion about their overall character (Beck & Alford, 2009). For example, a student might not perform as well as they hoped on a test and think, "I'm a failure." A parent might forget their child's favorite blanket at home and think, "I'm a terrible parent." In these cases, the individuals not only view their behavior as highly negative, but also draw overarching conclusions about themselves based on these events. Moreover, individuals with depression often focus on their perceived deficiency to the exclusion of other positive behaviors and traits. With a negative view of the self also comes self-rejection: Individuals with depression tend to be highly critical of themselves and their perceived inferiority (Beck & Alford, 2009). Individuals can range from mild to severe with regard to negative self-evaluations. Those with mild symptoms demonstrate a heightened sensitivity to their mistakes or difficulties and tend to view themselves as inadequate. Individuals who present as severe may view themselves as completely worthless.

Self-Criticism According to Beck and Alford (2009), persons experiencing depression are disposed to blaming and criticizing themselves for negative outcomes, viewing events as a result of their perceived inadequacies or deficiencies. In mild cases, this may present as blaming oneself for relatively small, inconsequential, or neutral occurrences. For example, an individual may think, "I'm incompetent," after taking longer to run errands one day. As severity increases, an individual's scope of blame may also escalate. Individuals with depression may blame themselves for accidents or misfortunes that are very clearly and objectively not their fault (e.g., engaging in self-blame for a friend's poor performance on an exam or a parent's failure to secure a job promotion). In very severe cases, individuals experiencing depression may blame themselves for very large, even global incidents (e.g., believing that they are responsible for wars or other violence and suffering).

Negative View of the Future

The final component of the cognitive triad is a negative view of the future (Beck et al., 1979). In addition to a negative view of current experiences and self, individuals with depression tend to view their future as a continuation of their current negative state (Beck & Alford, 2009). They may feel hopeless about the future, as they do not see any chance of improvement. This view of the future applies to both long-term and specific, short-term predictions. For instance, an individual

experiencing depression might consider calling or texting a friend but think, “they probably won’t answer,” and thus decide not to make contact. A long-term view of the future as irreversibly negative can lead to feelings of hopelessness. In more severe cases, this can lead to suicidal ideation or behavior.

Treatment of Depressive Disorders

Conducting REBT

REBT can be delivered in individual or group format, and in clinical studies of depression it typically ranges from 12 to 20 weekly sessions (e.g., David et al., 2008; Iftene et al., 2015). A number of strategies and techniques can be derived from the “ABC” model, from which Ellis highlighted the importance of Disputing (D) unhelpful beliefs. Ellis (2005) then identified multiple types of disputation methods to promote what he termed effective “philosophies,” such as logical disputing of inaccuracies and the rationale underlying irrational beliefs, and functional disputing of the effectiveness or consequences of irrational beliefs. As part of treatment, Ellis (1987) advocated the use of disputation techniques against irrational beliefs common to cognitive therapies, but also explicitly emphasized the need to challenge what he termed “*musturbatory*” assumptions. For instance, a depressed client struggling with thoughts of incompetence may be asked to examine evidence for and against unrealistic perceptions, while questioning the validity and/or usefulness of the “underlying musts.” In therapy, a therapist may inquire: “Let us suppose the worst... Why *must* you always perform well?” (Ellis, 1987, p. 132). Targeting the implicit commands embedded within cognitive distortions is posited to lead to lasting change and promote effective (E) new philosophies and responses to inevitable life difficulties (Ellis, 1987). In this vein, Ellis (1987) proffers the following advice to REBT therapists: “Look for the absolutistic should! Look for the unconditional must!” (Ellis, 1987, p. 135).

Ellis noted that although Disputing may be primarily a cognitive response, both emotive and behavioral Disputing are also necessary (Ellis, 1995). *Emotive Disputing* can help clients to challenge irrational beliefs with adaptive coping statements. Further emotive techniques in REBT including shame-attacking, rational emotive imagery, role playing, use of parables, and therapist embodiment of unconditional acceptance promote change via development of functional emotions (David et al., 2019; Ellis, 1995). Behavioral Disputing allows clients to act in contradiction to irrational beliefs with techniques such as activity planning, distraction, and stimulus control. An active, directive, and even forceful therapeutic stance is often taken in REBT, to provide functional alternatives to irrational beliefs, namely: (1) *Realistic evaluations of ‘badness,’* (2) *High frustration tolerance,* (3) *Unconditional acceptance of self, others, and the world,* and ultimately, *preferences* that permit the possibility of failure (David et al., 2019; Dryden & Bernard, 2019).

Conducting CT

The term “cognitive therapy” is often used interchangeably with “cognitive behavior therapy” (CBT; Beck, 2011). CT, or CBT, for depression began as an individual therapeutic intervention and has since been delivered and tested in a number of different modalities, including individual format, group format, telephone-administered, and self-help (Cuijpers et al., 2019). CT is goal oriented, problem-focused, structured, and aims to be time limited. However, treatment duration can range from several sessions to multiple years (Beck, 2011). Straightforward cases of depression may be completed in six to 14 weekly individual sessions (Beck, 2011). For an example of individual CT, please see the case illustration below.

Cognitive Techniques

Cognitive techniques work at both the micro and macro level in that they attend to smaller, proximal events such as identifying and challenging specific cognitions, and also examine larger patterns such as determining an individual’s sensitivities and identifying cause and effect relationships (Beck & Alford, 2009). Initially, the client and therapist focus on examining and challenging current cognitions in order to provide a short-term decrease in distress. Unhelpful beliefs about the self, the world, and the future (i.e., the *cognitive triad*) are examined next in order to maintain relief and prevent relapse.

Understanding Maladaptive Patterns Through a review of the client’s relevant life history, the therapist can begin to identify significant patterns. The therapist can start to conceptualize the development of the client’s depression by considering the cognitive triad and examining the formation of maladaptive beliefs about the self, the world, and the future, in addition to sensitivity to specific stressors (Beck & Alford, 2009). Common themes observed among individuals with depression include failing to meet a goal, not receiving approval or desired attention, perceptions of rejection, and perceptions of exclusion. These occurrences are often experienced as highly distressing, and the individual may feel completely overwhelmed or hopeless about the future. By determining the origins of unhelpful patterns and being primed to notice such responses, individuals may be more prepared to recognize these maladaptive patterns as they occur.

Identifying Specific Depressive Cognitions Sometimes, clients are able to immediately identify the specific thoughts that occur following an event, which elicits unpleasant emotions. However, it is more often the case that clients are unaware of the private experience that Beck characterizes as *automatic thoughts* (Beck et al., 1979). Clients who are unaware of these thoughts tend to perceive a direct relationship between the event or stimulus and their affect. In these situations, it can be helpful to ask clients to direct attention to thoughts that occur in the moment in order to examine the specific cognitions that arise between the occurrence of an

event and the experience of unpleasant emotions (Beck & Alford, 2009). Once a client is aware of their automatic thoughts, the therapist can help the client to better recognize and distance themselves from such thoughts.

It can also be extremely helpful to identify common themes that arise from these automatic thoughts, which are typically related to depressive themes, such as deprivation, deprivation, and self-criticism (Beck & Alford, 2009). In therapy, the therapist can guide the client to recognize specific cognitive distortions and consider alternative, more objective, explanations.

Challenging Automatic Thoughts and Depressive Cognitions According to Beck (Beck et al., 1979), the content of automatic thoughts for individuals with depression demonstrate the various cognitive distortions that occur. The importance of recognizing automatic thoughts lies in the ability to identify and challenge specific cognitive distortions. In practice, it is often helpful to label the cognitive distortion that resulted in an inaccurate thought. After a client identifies an inaccurate interpretation, the next step is to describe why or how it is inaccurate (Beck & Alford, 2009). Listing the reasons for the inaccuracy can reduce the intensity of the resulting affective response.

Differentiating Thoughts and Facts Clients often believe automatic thoughts are true and thus these thoughts are treated as factual. Clients often benefit from learning that they can have a thought without believing its validity (Beck & Alford, 2009). For example, having the thought, “I am incompetent,” does not mean it is valid.

Identifying Alternative Explanations One method of challenging invalid negative cognitions is identifying alternative interpretations (Beck & Alford, 2009). Therapists can help clients to develop a more accurate interpretation by encouraging the client to consider other explanations for what happened. Helping clients attend to all of the relevant information can lead to a more accurate interpretation.

Looking at the Evidence Automatic thoughts typically contain some amount of truth, and clients are often able to easily identify evidence that supports the accuracy of their thought (Beck, 2011). In addition to identifying evidence in support of a client’s automatic thought, the therapist can also help the client to examine evidence that does not support the automatic thought or that supports an alternative explanation.

Decatastrophizing Clients often expect the worst-case scenario or have negatively skewed predictions about what might happen. These worst-case scenarios are often unrealistic, and therapists can help clients to identify a more realistic outcome (Beck, 2011). If a client has a difficult time identifying a realistic outcome, the therapist can begin by asking the client about the best-case scenario (Beck, 2011). Sometimes, a client’s negative prediction is likely to happen or does occur. In these cases, the therapist can help the client learn that they can cope with the outcome.

The therapist may also want to assist with problem-solving or teach the client coping skills if they perceive a skills deficit that would impede the client's ability to effectively cope with the outcome.

Other Aspects of Beck's CT for Depression

Behavioral Aspects While there are many cognitive techniques to help clients examine the facts of a situation and determine alternative interpretations, it is generally helpful to test negative expectations through behavioral experiments (Beck & Alford, 2009). Beck's CT has included behavioral principles and techniques since its inception (Beck et al., 1979).

Activity Scheduling Creating activity schedules can help clients come into contact with pleasant, valued activities (Beck et al., 1979). Specifically, scheduling activities can help clients to counter low motivation. Before engaging in activity scheduling, clients are first encouraged to be aware of several considerations (Beck & Alford, 2009). First is the fact that no one can achieve every single plan in life. Second, goals are described in terms of actions to engage in instead of a quantity of something to accomplish. Third, there are sometimes uncontrollable factors that impede our ability to engage in activities, such as changes in the weather or canceled events. Additionally, subjective factors such as fatigue and loss of energy can also hamper progress. Finally, Beck suggested allowing time to plan the following day.

Graded Task Assignment Graded task assignment allows clients to recognize smaller successes of engaging in activities, which are assessed on dimensions of mastery or pleasure (Beck & Alford, 2009). Beck describes a series of features of graded task assignment (Beck et al., 1979; Beck & Alford, 2009). First, the client and therapist define the problem. Next is the determination of a task, along with the assignment of tasks moving from simple to complex. It is also imperative for the client to immediately and directly observe successful outcomes. It is helpful for the therapist to also acknowledge the client's doubts or cognitive distortions, such as minimization of successful outcomes or selective abstraction. The therapist can help to facilitate an accurate, valid evaluation of outcomes and a focus on the client's work toward achieving their goals. Finally, the client and therapist create new goals.

Interpersonal Aspects A healthy, collaborative therapeutic relationship is essential to consider when conducting CT for depression (Beck et al., 1979). This is particularly important since the way the client views the world may be dissimilar to the way the therapist views the world (Beck & Alford, 2009). Interpersonal behavior may also play a key role in the development and maintenance of depressive disorders, as an individual's behavior impacts how others behave toward them. The relationship between interpersonal dysfunctions and cognitions may not apply to all clients. With clients for whom this is applicable, it is important to help the client

recognize the reciprocal relationship between their interpersonal behavior and their cognitions. Next, behavioral experiments are designed to test their beliefs, and the therapist can help the client to develop adaptive conceptualizations of their experiences.

CT Case Illustration

Initial Evaluation

Assessment is an ongoing process, and as therapy progresses, it is important for a therapist's case conceptualization and treatment targets to evolve to match and meet the client's current difficulties. During the initial evaluation, the therapist typically focuses on building rapport with the client, determining appropriate dose and type of treatment, and creating an initial cognitive conceptualization (Beck, 2011).

Mr. Garcia identified as a 45-year-old, divorced, heterosexual, Latino male who presented to an outpatient therapy clinic due to low mood, loss of motivation, feelings of hopelessness, and passive suicidal ideation (e.g., "Everything would be easier if I just didn't wake up in the morning."). Mr. Garcia endorsed that he lived with his two adolescent children. He endorsed recent difficulties at his office job and stated, "Things that used to take me 10 minutes now take me several hours." Mr. Garcia also endorsed feelings of inadequacy and stated that these changes occurred following a reduction in his salary. He met diagnostic criteria for Major Depressive Disorder, single episode, moderate severity, with mild anxious distress.

Mr. Garcia reported low levels of social support from friends and family, stating that he had previously been too busy with his job to maintain close relationships. He also shared that he had recently started to feel disconnected from his children. Specifically, Mr. Garcia disclosed that he lacked motivation to engage in activities with them and that even when he did, he was unable to remain present and maintain concentration.

Upon further discussion, the therapist learned that Mr. Garcia had thoughts about being an inadequate parent as well as being an inadequate provider for his children following the reduction in his salary. Additionally, he began to question his job security and had worries about becoming houseless. Mr. Garcia denied any significant medical history, previous psychiatric diagnoses, or mental health treatment. He endorsed previous experiences of intense sadness following acute events, such as the death of a family member, but denied significant impairment.

Mr. Garcia indicated that his goals for therapy were to improve his engagement and relationship with his children, to decrease feelings of sadness and low mood, and to improve his motivation and productivity at work. The therapist proposed an initial treatment plan involving eight to 12 weekly sessions of cognitive therapy for depression, to which Mr. Garcia agreed.

Case Conceptualization

Mr. Garcia evidenced negative views in the three domains that comprise the cognitive triad: Negative views about the self, negative views about the world, and negative views about the future. He also demonstrated distorted thinking in both family and work domains. Specific to his family, Mr. Garcia endorsed thoughts such as, “I can’t provide for my children, so I’m a useless father,” and, “I can’t do anything right; I’ll never be a good parent again.” Mr. Garcia also evidenced cognitive distortions in his thoughts about work and his future, such as, “I’m a terrible employee. My supervisors hate me and they’re going to fire me. I won’t be able to find another job. I won’t be able to pay our rent and we’ll be homeless. My children will be taken away from me.”

The therapist tentatively hypothesized that the precipitating event for the client’s depressive episode was his salary reduction, which primed the core belief, “I am a failure,” or, “I am incompetent.” The therapist also learned that Mr. Garcia’s ex-wife, to whom he was married for 22 years, would often berate him for not doing things correctly and constantly pointed out flaws that she perceived. Mr. Garcia stated that although this bothered him at the time, he was always able to remind himself that he had a good job and was able to provide for his family.

Mr. Garcia’s belief, “I am incompetent,” appeared to drive many of the unhelpful thoughts that arose in various situations throughout his day. For instance, when he could not buy his son an expensive birthday present, Mr. Garcia had the thought, “I am no good as a father.” When his supervisor sent a report back with some minor revisions, Mr. Garcia had the thought, “I’m a terrible employee. I can’t do anything right.” These thoughts also resulted in mild anxiety and distress, and Mr. Garcia found that he was so worried about his performance at work that he was unable to concentrate on his job. When he returned home, he ruminated about his work performance and worried about being able to be a good father for his children, which prevented him from engaging with his children.

First Session

The therapist began the first session by setting an agenda that included providing feedback on Mr. Garcia’s diagnosis, conducting a mood check, confirming Mr. Garcia’s therapy goals, educating Mr. Garcia about the cognitive model, discussing a homework assignment, and inviting feedback from Mr. Garcia.

The therapist provided psychoeducation about the cognitive model by eliciting a specific instance over the past week during which Mr. Garcia felt particularly sad, down, or hopeless. Mr. Garcia shared an experience at home during which one of his children exclaimed, “Are we having leftovers again?!” at the dinner table. The therapist elicited Mr. Garcia’s thoughts during the situation and Mr. Garcia reported that he thought he was a bad father for feeding his children leftovers for the second

night in a row. Mr. Garcia thought, “Other parents can provide more for their children. My children are unlucky to have me as a father.” The therapist then elicited Mr. Garcia’s feelings in that situation, and Mr. Garcia reported that he felt sad and helpless.

The therapist elicited several additional examples from Mr. Garcia and drew a diagram demonstrating the progression from the situation to the automatic thoughts, and the automatic thoughts to the emotional reaction. The therapist helped Mr. Garcia observe the relationship between his thoughts and emotions.

Consistent with the CT approach (Beck & Alford, 2009; Beck et al., 1979), the client and therapist collaboratively determined the homework assignment for the upcoming week. Mr. Garcia stated that he was typically unaware of his thoughts in the moment and agreed that it might be helpful to write down his thoughts whenever he noticed himself feeling particularly sad, down, depressed, or hopeless. The therapist then elicited feedback from Mr. Garcia about the session. Mr. Garcia stated that it was not as difficult as he expected and that he hoped he would benefit from therapy.

Second Session

The therapist began the second session with a mood check and then set the agenda, which included reviewing the homework, helping Mr. Garcia respond to automatic thoughts, setting the next homework assignment, and inviting feedback from Mr. Garcia.

To help Mr. Garcia respond more adaptively to automatic thoughts, the therapist elicited an example over the past week during which Mr. Garcia felt sad, down, or hopeless. Mr. Garcia stated that his supervisor asked him to revise a recent report. Mr. Garcia then disclosed that he thought, “I can never do anything right at this job. I’m probably the worst employee here. They’re probably going to fire me if I don’t get my act together.” The therapist introduced Mr. Garcia to unhelpful thinking styles (also called cognitive distortions). Mr. Garcia identified that he engaged in arbitrary inferences, overgeneralization, and catastrophization. After identifying unhelpful thinking styles, Mr. Garcia and the therapist collaboratively examined the evidence for and against his automatic thoughts. For example, looking at Mr. Garcia’s thought, “I can never do anything right at this job,” Mr. Garcia reported that feedback and revisions were a normative part of his job and that he rarely received feedback that he did something incorrectly. The therapist then inquired whether there was a thought that was more accurate or appropriate to the situation. Mr. Garcia stated, “This feedback is a normal part of my job. My coworkers are also getting the same feedback.”

Subsequently, the therapist inquired whether Mr. Garcia might find it helpful to examine the evidence for and against his automatic thoughts throughout the week and to identify alternative, adaptive thoughts. Mr. Garcia agreed but expressed some concern about the length of the homework assignment. The therapist and Mr. Garcia

agreed that he would attempt to document three instances during the week. The therapist provided Mr. Garcia with a thought record (see Beck et al., 1979, p. 403) for Mr. Garcia to record the situation, automatic thoughts, emotions, adaptive responses, and the outcome.

Third Through Ninth Sessions

As therapy progressed, the therapist continued to promote the client's autonomy by having the client set the agenda for the session. Over the third through ninth sessions, the therapist helped the client continue to generate adaptive responses and also helped the client shift to identifying and modifying intermediate and core beliefs.

Several cognitive techniques were employed during these sessions. First the *downward arrow technique* (Beck, 2011) was used to help the therapist and Mr. Garcia identify his core beliefs reflected in his automatic thoughts. More specifically, in this exercise, Mr. Garcia was asked to identify a situation which provoked a difficult emotion, such as sadness or guilt. Mr. Garcia then identified a time that he was unable to take his children on an annual family trip they had taken in previous years. Mr. Garcia had the thought, "I can't make my children happy." After inquiring about the emotional experience that resulted from that thought, the therapist probed, "If that thought is true, what does that mean about you?" Mr. Garcia answered, "That I'm a terrible father." The therapist continued, "And if that thought is true, that you're a terrible father, what does that mean about you?" Mr. Garcia answered, "Well if I'm a terrible father, what would be the point of anything I'm doing? My kids are the most important thing in my life. I'm supposed to provide for them and make sure they're happy." The therapist validated Mr. Garcia's response and continued, "So what does it mean about you if you're a terrible father?" Mr. Garcia answered, "That I've failed. I'm a complete failure."

The therapist and Mr. Garcia also designed behavioral experiments to test Mr. Garcia's expectations or predictions in specific situations. For instance, Mr. Garcia endorsed the fear that if he asked his supervisor for help, his supervisor would know Mr. Garcia was incompetent and he would be fired. Mr. Garcia stated that he was 85% certain that asking his supervisor for assistance would lead to this outcome. When Mr. Garcia tested his predication, his supervisor was friendly and assisted Mr. Garcia with his problem. Following this first behavioral experiment, Mr. Garcia's belief that he would be fired for asking for help dropped to 40%. After additional experiments, his belief dropped to 5%.

At the end of each session, Mr. Garcia and the therapist collaboratively determined homework assignments for the upcoming week. As Mr. Garcia progressed through therapy, he increasingly took charge of planning his own homework assignments. Later sessions focused on strengthening more adaptive core beliefs such as, "I am competent," by shifting the focus of sessions to positive experiences and successes.

Termination Session

During the termination session, Mr. Garcia and the therapist reviewed techniques that Mr. Garcia learned from therapy and discussed potential setbacks that Mr. Garcia might encounter and how he might respond. At termination, Mr. Garcia no longer met criteria for Major Depressive Disorder and endorsed improved mood, increased productivity at work, decreased stress, and improved relationships with his children.

Empirical Research

Outcome Research

REBT

Outcome research in REBT is primarily characterized by measurement of changes in transdiagnostic forms of emotional distress (David, 2014). Clinical studies that have examined the effect of REBT on depression specifically are generally supportive (David et al., 2018). David et al. (2008) conducted an RCT comparing 14 weeks of REBT, CT, or pharmacotherapy (fluoxetine) in outpatients presenting with non-psychotic MDD. In this study, REBT and CT consisted of twenty 50-minute individual treatment sessions. The authors reported equivalent efficacy among the three conditions, with REBT and CT demonstrating slightly greater improvement than pharmacotherapy at 6-month follow-up (David et al., 2008). More recently, Iftene et al. (2015) found 16 weekly group sessions of REBT equally efficacious to sertraline in a sample of depressed adolescents. Several trials have further documented additive effects for REBT in combination with pharmacotherapy (e.g., Macaskill & Macaskill, 1996).

A number of studies support the generalizability of REBT across cultures and populations. For example, Onuigbo et al. (2019) reported significant reduction in depressive symptoms among Nigerian university students with blindness receiving 12 weeks of 60-minute, group-based REBT (with intermittent follow-up sessions) compared to a no-intervention control. REBT-based group coaching programs utilizing twice-weekly, 50-minute sessions varying in length also improved depressive symptoms in a sample of prison inmates (Eseadi et al., 2018) and inpatients living with Type 2 diabetes (Eseadi et al., 2017) in Nigeria. Six 60-minute sessions of REBT also reduced symptoms of depression among HIV-infected women in India (Mangayarkarasi & Sellakumar, 2017). REBT has been further applied to children and adolescents (Anyanwu et al., 2019; Zhaleh et al., 2014), and continues to be refined for problems comorbid with and secondary to depression (Dryden & Bernard, 2019).

CT

Acute Treatment CT is the most widely studied psychotherapy for depression, and over the span of several decades has become established as an evidence-based treatment modality (Cuijpers et al., 2013). Meta-analyses that pool data across multiple randomized clinical trials (RCTs) support the efficacy of CT relative to active and placebo controls for depressive disorders (Barth et al., 2013; Cuijpers et al., 2020). Investigations comparing CT and pharmacotherapy have demonstrated comparable outcomes between CT and antidepressant medication (ADM; DeRubeis et al., 1999). The combination of CT and ADM appears to improve acute outcomes for depressive disorders (Cuijpers et al., 2009; de Maat et al., 2007). Notwithstanding findings from several trials (Dimidjian et al., 2006; Elkin et al., 1989, 1995), the majority of the literature also comports with the conclusion that CT is as effective as medication in the treatment of severe depression, given adequate training and provision of CT (Driessen & Hollon, 2010).

Relapse and Recurrence Studies assessing longer-term outcomes including relapse (return of a treated depressive episode) and recurrence (onset of a new depressive episode) have demonstrated similarly efficacious results (Biesheuvel-Leliefeld et al., 2015; Bockting et al., 2015). Continuation phase CT following discontinuation of acute phase treatment of depression appears to provide additional benefit to higher risk clients (Bockting et al., 2015). There is also evidence for prevention of depressive relapse with CT and ADM combined treatment for clients who do not achieve remission with monotherapy (Dunlop et al., 2019). In contrast, trials of relapse or recurrence combining CT with ADM have demonstrated mixed results (Blackburn et al., 1986; DeRubeis et al., 2020; Evans et al., 1992). A 3-year follow-up of clients who recovered from either combined CT and ADM or ADM alone found reduced rates of depressive recurrence for those receiving maintenance doses of ADM compared to withdrawal of ADM, regardless of whether they had achieved recovery with combined CT and ADM or ADM alone (DeRubeis et al., 2020). DeRubeis et al. (2020) interpret this finding to suggest that ADM may interfere with CT's enduring effect on depressive relapse, given prior studies showing such a preventive effect for CT in the absence of ADM and after initial recovery from ADM monotherapy (Hollon et al., 2005; Paykel et al., 1999).

Moderators of Outcome Nomothetic findings demonstrating the efficacy of CT for depression have been supplemented with research examining predictors and moderators of treatment response (DeRubeis et al., 2014). Improved symptom relief in CT has been demonstrated for patients with briefer duration of current depressive episode, later age of onset, absence of family history of affective disorder, and history of more prior depressive episodes (Sotsky et al., 1991). Further, several pre-treatment variables have been shown to predict superior response to CT relative to comparison pharmacological and psychotherapeutic approaches. These variables include externalizing coping style (Beutler et al., 1991), attachment avoidance (McBride et al., 2006), learned resourcefulness (Simons et al., 1985), unemployment,

recent life events, married or cohabiting status (Fournier et al., 2009), childhood maltreatment (van Bronswijk et al., 2021), elevated distress and anhedonia (Khazanov et al., 2020), lower levels of dysfunctional cognitions (Sotsky et al., 1991) and personal growth (Lopez-Gomez et al., 2019), endorsement of existential reasons for depression (Addis & Jacobson, 1996), somatic complaints, paranoid symptoms, interpersonal self-sacrificing, attributional style focused on achievement goals (Huibers et al., 2015), and even neuroimaging findings (i.e., insula hypometabolism; McGrath et al., 2013).

Development of sophisticated methods such as machine learning that combine sets of moderators hold promise for targeted prescription of CT alone or combined with other treatments such as ADM (Lorenzo-Luaces et al., 2020). Bruijniks et al. (2019) argue that what they call learning capacity, an overarching moderator, may further address inconsistencies found within the literature on the proposed mediators of CT (i.e., changes in dysfunctional thinking) by identifying for whom CT procedures are likely to affect hypothesized processes and outcome. Indeed, such patient characteristics have been found to moderate the relation between cognitive change and outcome (Fitzpatrick et al., 2020) as well as therapist adherence to cognitive-specific interventions and outcome (Sasso et al., 2015). Furthermore, extant evidence suggests an array of moderators that predict differential response to CT versus comparison interventions, such as ADM and interpersonal psychotherapy (e.g., Fournier et al., 2009; McBride et al., 2006). As such, advances in statistical modeling that link individual differences to mechanisms are likely to further clarify subgroups that benefit most from CT.

Research Examining Treatment Models and Processes/ Mechanisms of Change

REBT

The REBT model of depression received broad support in several early investigations (David et al., 2019). Depression is often associated with endorsement of irrational beliefs measured using self-report instruments (McDermut et al., 1997; Prud'Homme & Baron, 1992), although equivocal findings have been reported (Lewinsohn et al., 1982). In a study comparing endorsement of irrational beliefs in remitted-depressed patients with never-depressed participants, Solomon et al. (2003) found that participants with remitted depression endorsed higher levels of self-demandingness than did their never-depressed counterparts. The inclusion of remitted depressed (versus currently depressed) participants allowed for a more stringent test of the REBT hypothesis that demandingness beliefs pose risk for individuals with a history of depression, and may not be a consequence of the negative depressed mood state (Solomon et al., 2003).

A recent meta-analysis reported a medium effect size ($r = 0.33$, $p < 0.001$) between irrational beliefs and depression, with the association higher when a stressful event was present ($r = 0.67$, $p < 0.001$; Višlā et al., 2016). A separate meta-analysis found a comparably sized inverse effect for the relation between rational beliefs and depression (Oltean & David, 2018). Oltean et al. (2017) demonstrated adequate fit for an expanded REBT model, which proposes that irrational beliefs precede the onset of negative automatic thoughts that contribute to greater anxiety and depression. The authors also note that demandingness beliefs predicted all other irrational beliefs, and that catastrophizing and self-downing beliefs were associated with more negative evaluations of satisfaction with life (Oltean et al., 2017).

Fewer studies have examined the mechanism of change of REBT on depression. In an RCT comparing REBT, CT, and pharmacotherapy, Szentagotai et al. (2008) found that irrational beliefs, negative automatic thoughts, and dysfunctional attitudes changed similarly across all three conditions. Importantly, change on one measure of irrational beliefs, assessed via content analysis of participants' thoughts in two negative hypothetical scenarios, uniquely mediated the effect of REBT on depressive symptoms. Additionally, clients who relapsed at 6-month follow-up displayed higher levels of irrational beliefs on the same measure at post-treatment than did participants who did not relapse (Szentagotai et al., 2008). Thus, burgeoning research is consistent with Ellis' (1987) model of depression, and alongside use of more rigorous methods, can begin to examine causal hypotheses of the REBT conceptualization of depression (David et al., 2019).

CT

An extensive corpus of research has emerged investigating the role of cognitive change procedures in depression, and to a lesser extent, the purported mechanisms and mediational hypotheses of CT (Lorenzo-Luaces et al., 2015; Moreno-Peral et al., 2020). While consensus has not yet emerged regarding the empirical status of cognitive change as a mechanism within CT (Kazdin, 2007; Longmore & Worrell, 2007), available data are largely consistent with central tenets of the cognitive model (Lorenzo-Luaces et al., 2015). A number of studies report that therapist adherence to, and competence in, CT techniques accounts for significant variance in symptom change. Theory-specified actions of cognitive therapists, such as Socratic questioning, labeling cognitive errors, and examining evidence for and against beliefs, have been shown to precede reduction in depressive symptoms in CT, compared with other aspects of treatment (e.g., therapeutic alliance; Braun et al., 2015; Strunk et al., 2010a). Competence ratings, to varying degrees, also predict outcomes of CT for depression (Strunk et al., 2010b, 2014).

Reviews of treatment studies confirm increases in the frequency and quality of hypothesized cognitive content (e.g., adaptive beliefs) and compensatory skills (e.g., cognitive restructuring) following CT, although these changes may not be specific to CT (Cristea et al., 2015; Garratt et al., 2007; Hundt et al., 2013). Several trials conducted by Dozois et al. (2009, 2014) showed that changes in deeper

cognitive structures (i.e. depressive schemas) also accompany CT when combined with pharmacotherapy, although specificity to CT has not been consistently reported (Quilty et al., 2014).

Numerous studies further demonstrate that cognitive changes covary with and precede depressive symptom reduction (Garratt et al., 2007; Hundt et al., 2013; Sasso et al., 2015), including “sudden gains” (Tang & DeRubeis, 1999; Tang et al., 2005) and relapse/recurrence (Brouwer et al., 2019; Ezawa et al., 2020). For example, Adler et al. (2015) found that CT skills, specifically identifying alternative interpretations and responding adaptively to maladaptive beliefs and stressful life events, improved over the course of CT and was positively related to depressive symptom change. In contrast, implicitly-assessed maladaptive beliefs did not change or account for symptom improvement (Adler et al., 2015). This latter finding is tempered by the possibility that endorsement of maladaptive beliefs by depressed clients varies as a function of measurement strategy. In an RCT comparing CT with antidepressant medication, Segal et al. (2006) found that remitted depressed clients who received pharmacological treatment endorsed greater dysfunctional cognitions following a sad mood induction than did clients who recovered through CT. Importantly, clients with heightened cognitive reactivity evidenced significantly increased risk of relapse 18 months post-treatment (Segal et al., 2006).

Researchers have conducted dismantling studies to isolate the impact of cognitive procedures on outcome in depression, as well as examine hypotheses about cognitive mediation. An influential dismantling study conducted by Jacobson et al. (1996) found the full CT package comparable in efficacy to the BA and partial cognitive (i.e., monitoring and challenging of automatic thoughts) components at post-treatment and relapse (Gortner et al., 1998; Jacobson et al., 1996). In this study, all three conditions were equally effective in decreasing negative thinking and dysfunctional attributional styles. Contrary to predictions, attributional styles predicted reduced depressive symptoms only in the BA condition, while frequency of pleasant events was associated with later change for clients who received CT, and not BA.

Studies employing formal tests of statistical mediation between cognitive procedures, cognitive change, and depressive outcomes have provided relatively mixed findings regarding the hypotheses within the cognitive model (Forman et al., 2012; Lemmens et al., 2017; Quigley et al., 2019; Schmidt et al., 2019). Forman et al. (2012) found that self-reported changes in dysfunctional thinking and cognitive defusion mediated outcomes in both CT and Acceptance and Commitment Therapy (ACT) in a sample of depressed and anxious outpatients. Additionally, moderator analyses revealed that cognitive (e.g., cognitive restructuring) and affective (e.g., distraction) change strategies specifically facilitated outcomes for clients receiving CT, whereas acceptance was positively related to outcome for those in the ACT condition.

In a particularly comprehensive intensive longitudinal design, Schmidt et al. (2019) found that out-of-session rehearsal of CT skills mediated the relation between in-session cognitive change and depressive symptom improvement. Further, in-session cognitive change was predicted by therapists’ use of cognitive procedures. In their sample, neither therapeutic alliance nor behavioral methods

emerged as significant predictors of in-session cognitive change. Other studies have not found an effect of cognitive mediation in trials comparing CT with pharmacotherapy (Quigley et al., 2019) or psychotherapy (Lemmens et al., 2017).

Evidence of the association between CT skills and outcomes has emerged across various populations, including adolescents (Webb et al., 2012), and individuals with varied presentations beyond those categorized as major depressive disorder, such as seasonal affective disorder (Evans et al., 2013) and premenstrual dysphoric disorder (Hunter et al., 2002). The hypothesized mechanisms of the cognitive model are additionally supported by research verifying an association between depression and cognitive variables, such as attentional biases toward negative information, mood dependent endorsement of negative beliefs, and mood-congruent recall effects (LeMoult & Gotlib, 2019). Developments in neuroimaging also suggest that CT affects clinical recovery via hypothesized mechanisms of “top-down” information processing (DeRubeis et al., 2008). Finally, additional process variables, such as the therapeutic alliance, may influence the process-outcome relation of CT for depression, although not all investigations find that alliance precedes subsequent improvement (Cameron et al., 2018).

Conclusion

This chapter provided an overview of the theory and technique of REBT and CT, both interventions emblematic of second wave CBT approaches to treating depression. The efficacy of CT, and to an extent REBT, is supported by decades of outcome studies supplemented by burgeoning research designed to identify moderators and theoretically congruent mediators that may optimize dissemination and implementation of these treatments. The foundational belief upon which these treatments are based—that cognition must be identified, addressed, and understood for effective change in depression to occur—continues to be a central tenet carried forward into the contemporary evidence-based armamentaria of CBT practitioners.

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Depression: Third Wave Case Conceptualization



Zoey Zuo and Zindel Segal

Current Standard of Care for Depression

Despite recent developments in biological and psychological interventions, depression remains a leading cause of disability worldwide, affecting an estimated 4.4% of the global population (approximately 322 million), with an 18.4% increase between 2005 and 2015 (World Health Organization, 2017). In addition to its high global prevalence, depression tends to have a highly recurrent course, and individuals' risk of recurrence increases by 16% with each successive recurrent episode (Judd et al., 2000; Solomon et al., 2000).

In recognition of the fact that major depressive disorder (MDD) is often characterized by multiple phases, including an acute phase, treatment response, episode relapse, and episode recurrent, Frank et al. (1991) and others have suggested the need to match interventions to the specific phase of disorder that patients find themselves in. Indeed, interventions used to attain initial treatment response and remission may be different from those used to maintain longer term recovery (Guidi et al., 2016). To date, antidepressant medication (ADM) and psychotherapy (e.g., Cognitive Therapy [CT]) have proven to be the standard of care for MDD with approximately 40–50% recovery rates (Hollon et al., 2006); the most common intervention for prevention of episode return is maintenance antidepressant medication (mADM) (Geddes et al., 2003). Cognitive therapy has also demonstrated protective benefits against depression's return (Garber et al., 2009; Hollon et al., 2005).

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Rationale for Adapting Mindfulness Meditation to Prevent Depression Relapse

While mADM is largely effective for prevention, a number of drawbacks have been associated with reliance on antidepressant medication. Chief among these drawbacks is the low rates of treatment compliance over time. In a national survey, 22% participants reported discontinuing ADM prematurely (Samples & Mojtabai, 2015). In another study, 42.4% of patients discontinued ADM during the first 30 days, and only 27.6% continued to take the medication for more than 90 days (Olfson et al., 2006). A literature search of antidepressant nonadherence between 2001 and 2011 revealed that approximately 50% of psychiatric patients and 50% of primary care patients are nonadherent six months after the start of the antidepressant treatment (Sansone & Sansone, 2012). What are some reasons for this low treatment compliance consistently observed across studies? Once the initial symptoms have abated, patients may consider themselves as “feeling well” or “recovered” and may view long-term mADM as unnecessary, especially since the medications tend to be costly and can lead to many side effects (for a review, see Sansone & Sansone, 2012). Another challenge is “tachyphylaxis”, a phenomenon in which antidepressants lose their potency over time (Kinrys et al., 2019). Furthermore, women who are pregnant may have additional concerns about these medications. On top of these patient-related factors, clinicians also play a role in nonadherence: clinicians might not have provided sufficient instruction about the medication or followed up with their patients (Masand, 2003; Woolley et al., 2010). When considered collectively, these factors may end up leaving a sizable number of formerly depressed patients “uncovered” during a period in which their risk of relapse or recurrence continues to rise. Against this backdrop, Teasdale et al. (1995) sought to develop a psychotherapeutic alternative to mADM to prevent the relapse and recurrence of depression.

The development of this psychotherapy was informed by Beck’s model of cognitive vulnerability (Beck, 1967) and the experimental literature on mood-related cognitive changes in remitted depressed patients (Segal et al., 1996). Based on Teasdale’s differential activation hypothesis (DAH; Teasdale, 1983, 1988), during dysphoric states, the content and degree of the activation of one’s negative information processing biases can determine whether one’s momentary sadness becomes maintained or escalated. The DAH model argues that during an individual’s early depressive episodes, a connection becomes established between sad moods and negative information processing patterns. Subsequent temporary dysphoric states can re-activate these negative thinking patterns, which then preserve or even aggravate the dysphoric states into new episodes of depression. As a result, compared to individuals who have never experienced depressive episodes, recovered depressed patients have higher cognitive vulnerability and are at a higher risk of re-experiencing more depressive episodes. For example, when a previously depressed individual is in a momentary sad mood, a thought that they are underperforming at work can linger all day and be over-generalized into a belief that they are a failure in every

aspect of life. With continued rumination and worrying, this downward spiral can eventually lead to a full-blown depressive episode. We can say that this individual has a high level of mood-linked cognitive reactivity, meaning that sad moods trigger large increases in their dysfunctional attitudes. Segal et al. (2006) reported that over an 18-month follow up, formerly depressed patients who showed high levels of mood-linked cognitive reactivity had a 69% relapse rate, whereas those with minimal or decreased reactivity relapsed at lower rates of 30% and 32% respectively. These findings underscore the importance of targeting mood-linked changes in cognitive processing among formerly depressed patients as one potential mechanism for reducing their risk of relapse/recurrence.

Mindfulness-Based Cognitive Therapy (MBCT)

MBCT is considered a third-wave psychotherapy primarily due to its emphasis on changing one's *relationship* to thoughts and emotions, rather than changing their *content*. Coming out of first-wave behavioral therapies which focused on the measurement of observable behaviors, second wave therapies such as Cognitive Behavioural Therapy (CBT; Beck et al., 1979) rigorously focused on cognition as the driver of mood and behavior. These models highlighted the importance of challenging the content of maladaptive thoughts with evidence and changing these thoughts in order to change mood and behavior. This type of content change is referred to as a "first-order change". Unlike second-wave therapies, third-wave therapies focus on a "second-order change" by aiming to change one's *relationship* with one's thoughts, emotions, and sensations. The common factors of third-wave therapies are summarized as follows: "No one factor unites these new methods, but all have ventured into areas traditionally reserved for the less empirical wings of clinical intervention and analysis, emphasizing such issues as acceptance, mindfulness, cognitive defusion, dialectics, values, spirituality, and relationship. Their methods are often more experiential than didactic; their underlying philosophies are more contextualistic than mechanistic" (Hayes, 2004, p. 640). For example, MBCT teaches metacognitive skills to help reduce participants' mood-related cognitive reactivity to prevent relapse/recurrence. Participants learn to become mindful through "paying attention on purpose, in the present moment, and non-judgmentally to things as they are" (Williams et al., 2007, p. 47). By building up present-moment awareness, the ability to sustain attention, and the ability to observe thoughts and feelings without reacting to them, participants learn to view their negative thoughts and sad moods as transient mental events rather than facts or the reality. Table 1 compares third-wave MBCT to second-wave CBT in an imaginary scenario, in which a previously depressed individual responds to his situation according to principles of MBCT and CBT respectively.

Table 1 CBT vs. MBCT approaches

Scenario: Alan has a history of depression and was successfully treated for his most recent depressive episode two years ago. He recently moved to a new city during the COVID-19 pandemic and had to work remotely from his small apartment which has a nice view overlooking the city. It has been 4 months and he has not made many new friends, except one co-worker who was friendly to him. He started to feel isolated, sad, and worried that he may never integrate into his new company. This table compares how CBT and MBCT may help him address thoughts related to his low mood.

CBT Approach	MBCT Approach
Focus is on the content of thoughts, e.g., “I will never integrate into my new company.”	Focus is on the process of thinking, and less on the content, e.g., adopting a decentered perspective on thinking: “I notice that I am having the thought that I will never integrate into my new company.”
Primarily focused on negative thoughts and beliefs, e.g., “I will never integrate into my new company.”	Negative and positive thoughts and beliefs are not particularly differentiated, as they are both treated as mental events. E.g., “I will never integrate into my new company.” “I like the view from my apartment.”
Focused on identifying negative thoughts as they occur.	Focused on noticing any thoughts / emotions / sensations in the present moment, regardless of their affective content.
Gathering evidence that support or refuse the content of negative thoughts to change the degree of belief. E.g., the evidence that one co-worker was friendly to Alan does not support the thought that he will never integrate into his new company.	Engaging less with whether thoughts are true or false, and more emphasis on how watching them come and go in the mind may reduce their urgency. E.g., noticing the thought that “I will never integrate into my new company” arise and dissipate just like any other thoughts that come and go.
Learning to address stressful situations by reducing stress through action steps, e.g., by making a concrete plan to socialize at work.	Learning to address stressful situations by first giving oneself some space to breathe or explore what stress feels like, e.g., by taking a 3-minute breathing space before considering an action step.

Structure of MBCT

MBCT draws elements from CBT and Mindfulness-Based Stress Reduction program (MBSR; Kabat-Zinn, 2013). Some of the MBSR-based techniques include the body scan (i.e., paying attention to different parts of the body and bodily sensations systematically, for example, from head to toe), mindful stretching (i.e., stretching the body in a slow and focused manner), mindfulness of breath/body/sounds (i.e., selectively attending to the sensations of breathing, body, and sounds), and open monitoring of the present-moment experience (i.e., observing present-moment thoughts, emotions, or sensations without selectively focusing on any specific object). These techniques are designed to train participants to become aware of their body sensations and mental events, maintain attention on them, and observe them without judgement (Kabat-Zinn, 2013). Some CT-based techniques include questioning automatic thoughts and identifying sources of pleasure and social support. These techniques help to bring participants’ automatic thoughts and emotions to their conscious awareness, so that they can work on developing a healthier relationship with their thoughts and emotions. Through a combination of techniques and exercises, participants learn to approach their present-moment experiences with an attitude of open-minded curiosity and non-judgement and view their thoughts and feelings as transient mental events, rather than facts. Participants also learn to become more aware of their unique depression-related warning signals so that they can make an action plan in advance, and respond to these signals with flexibility (e.g., letting a problem be, instead of attempting to fix it). By training participants to notice their negative thoughts and feelings and move on without ruminating over them, MBCT equips participants with important relapse prevention skills.

MBCT was originally developed for individuals with residual depression (Segal et al., 2002, 2013). Participants are eligible for the intervention if they are: previously depressed, able to meet the demands of program (45 min home practice per day), not at high risk of suicide, no substance abuse, no untreated trauma, nor a BPD diagnosis (advised to seek alternate treatment). To become an MBCT instructor, individuals need to fulfill the following qualification requirements: (1) trained as mental health professional, experience with evidence based treatments for

Table 2 MBCT session content

Session 1	Beyond automatic pilot
Session 2	Another way of knowing
Session 3	Coming home to the present – Gathering the scattered mind
Session 4	Recognizing aversion
Session 5	Allowing things to be as they already are
Session 6	Seeing thoughts as thoughts
Session 7	Kindness in action
Session 8	What now?

Teasdale et al. (2014)

depression, (2) have attended MBCT teacher development course, (3) have participated in MBCT as a participant, (4) have led MBCT groups and received supervision, and (5) have an ongoing personal mindfulness meditation practice.

There are eight 2.5-h weekly sessions in total (see Table 2 for the topic of each session; Teasdale et al., 2014). The first phase (Sessions 1–4) teaches the basics of mindfulness, and the second phase (Sessions 5–8) teaches ways to handle mood shifts. In the first phase, participants learn to become more aware of how much the mind wanders, how the wandering mind can maintain or escalate negative thoughts and emotions without one's knowledge, and how to bring one's attention back to readily accessible reference points (e.g., body, breath). Once participants have become more aware of their moment-to-moment thoughts and feelings, they enter the second phase of MBCT to develop skills to flexibly respond to these thoughts and feelings. Starting from Session 2, each session begins with a meditation exercise (e.g., body scan, sitting meditation) to bring participants' attention to the present moment. Participants' meditation experiences are discussed, homework will be reviewed, and new homework will be assigned. The discussion on noticing and regulating thoughts and feelings will be thoroughly explored.

The core skill to be learned in MBCT is how to step out of automatic negative thinking patterns and stop them from escalating temporary negative moods into full-blown depressive episodes. To achieve this goal, participants learn a set of skills that include: concentration, awareness of thoughts, emotions, and sensations, being in the moment, decentering, acceptance, letting go, being in a state of non-achievement, and attending to the bodily manifestation of a problem (see Table 3; Segal et al., 2013).

Table 3 MBCT skill set

Concentration	The ability to pay sustained and quality attention to a reference point.
Awareness of thoughts, emotions, and sensations	The ability to detect automatic negative thinking patterns so that one can let them go and free up the mental resources used to automatically process these thoughts.
Being in the moment	The ability to stay focused on experiences in the present moment, rather than ruminating about the past or worrying about the future.
Decentering	The ability to view thoughts, emotions, and sensations as passing events.
Acceptance	The ability to accept mental and bodily events as they are, while being kind to ourselves.
Letting go	The ability to let go of thoughts, emotions, and sensations to prevent getting into negative thinking patterns.
“Being” rather than “doing”	The ability to switch from getting things done to being in a state of having no immediate need to achieve anything or go anywhere.
Attending to the bodily manifestation of a problem	The ability to attend to the body's response to a problem, so that one is neither avoiding the problem nor letting it be escalated by automatic negative thinking patterns.

Segal et al. (2013)

Efficacy of MBCT

An initial evaluation of MBCT found that among patients with 3 or more previous depressive episodes, only 37% in the MBCT group relapsed, compared to 77% in the treatment as usual (TAU) group, in which patients were instructed to seek help from their family doctor or other sources as they normally would, if their symptoms worsened (Teasdale et al., 2000). For patients with 2 previous episodes, MBCT provided no statistically significant additional benefits than TAU: 54% relapse in MBCT group compared to 31% relapse in TAU group. Teasdale et al. suggest that different processes might be mediating relapse/recurrence in patients with different numbers of previous episodes. With each additional episode, mood-induced automatic negative thinking patterns are more likely to play a larger role in relapse/recurrence. Since MBCT was designed to reduce these negative thinking patterns, its larger effect in individuals more vulnerable to these negative thinking patterns (i.e., patients with more than 3 previous episodes) might reflect this proposed mechanism of change. Similar to Teasdale et al.'s (2000) findings, Ma and Teasdale (2004) showed that among previously depressed patients with 3 or more depressive episodes, MBCT was more effective than TAU (i.e., seeking help from family doctor or other sources as per usual if symptoms worsened) and reduced the rate of relapse/recurrence from 78% to 36%. Patients with 4 or more previous episodes benefitted the most from MBCT: 38% of patients in the MBCT group relapsed as compared to 100% in TAU.

Empirical evidence also suggests that the effect of MBCT is comparable to that of mADM. Segal et al. (2010) showed that for previously depressed patients in stable or unstable remission, MBCT is as protective as mADM against relapse/recurrence: MBCT and mADM both achieved a 73% reduction in relapse/recurrence rate compared to placebo among unstable remitters; MBCT, mADM, and placebo did not differ among stable remitters. Kuyken et al. (2015) randomly assigned patients with three or more major depressive episodes who were on mADM to continue receiving mADM or to receive MBCT with support to taper/discontinue mADM (MBCT-TS), and measured their time to depressive relapse/recurrence, residual symptoms, and quality of life over 2 years. The authors found that the outcomes of mADM and MBCT-TS were comparably good, as both interventions were associated with lasting positive outcomes. An individual patient data meta-analysis of 9 RCTs suggested that MBCT appears efficacious in preventing relapse among individuals with recurrent depression, especially those with more notable residual symptoms (Kuyken et al., 2016). Compared to usual care or mADM treatment, MBCT was associated with a significant reduction in the risk of relapse/recurrence. Furthermore, MBCT had comparable effects on demographically diverse patients treated in different European and North American countries by different clinicians, which suggests that MBCT is a generalizable intervention.

In addition to the evidence supporting the efficacy of in-person MBCT, a more recent RCT found that an online version of MBCT provided additional improvement in residual depressive symptoms and relapse rate on top of usual depression

care (Segal et al., 2020). Online MBCT offers a promising scalable approach for the prevention of depressive relapse/recurrence.

A randomized clinical trial compared the relapse prophylaxis following MBCT and CT (Farb et al., 2018). Participants were randomly assigned to receive either an 8-week MBCT (N = 82) or CT (N = 84), followed by assessments every 3 months over a 24-month period. No difference was found in terms of rates of relapse or time to relapse between the two groups. Both groups acquired an important metacognitive skill, decentering, which is associated with protection against relapse. These findings suggest that MBCT and CT are equally effective and develop similar metacognitive skills to regulate thoughts and emotions despite their differences in techniques. It is also worth to note that no study to date has directly compared the efficacy between MBCT and other third-wave psychotherapies, such as ACT, in preventing depressive relapse or recurrence.

Since MBCT has been shown to protect against the return of depressive symptoms, how much dosage is needed to bring about such changes? To date, there have been mixed findings for MBCT and mindfulness-based programs in general. A recent meta-analysis suggests that increased practice of mindfulness meditation was associated with greater treatment benefits, such as lower depressive symptoms, but the actual dosage ranges have yet to be specified (Parsons et al., 2017).

Therapeutic Change Mechanisms of MBCT

Three recent review papers summarized the mechanisms and mediators of change for MBCT for depression (Alsubaie et al., 2017; Gu et al., 2015; van der Velden et al., 2015). Gu et al. (2015) statistically synthesised 15 RCTs and 5 quasi-experimental mindfulness-based intervention studies, combining results from 11 MBCT and 9 MBSR studies. The authors found strong, consistent evidence for the mediating role of cognitive and emotional reactivity, and moderate, consistent evidence for the mediating role of mindfulness and repetitive negative thinking. This finding supports the theoretical underpinnings of MBCT: acquiring mindfulness skills improves insight and non-judgemental acceptance of thoughts and experiences, and potentially alleviates depressive symptoms by reducing the recurrent maladaptive thinking about these symptoms (Segal et al., 2002). The authors also found preliminary although insufficient evidence for the mediating roles of psychological flexibility and self-compassion. It is important to note that these findings reveal the collective effects of MBCT and MBSR, and that the studies were conducted in both clinical (depression, cancer, anxiety, distress) and non-clinical samples.

A systematic review by van der Velden et al. (2015) examined the change mechanisms in 23 MBCT studies in individuals with recurrent MDD. The study found that changes in mindfulness, rumination, worry, compassion, and meta-awareness were all associated with, predicted, or mediated the effects of MBCT on treatment outcome. Preliminary evidence also identifies attention, memory specificity,

self-discrepancy, emotional reactivity, and momentary positive and negative affect as potential contributors to MBCT's effects. Taken together, this review suggests that MBCT may prevent relapse by improving participants' abilities to view their present moment thoughts, emotions, and experiences as transient mental events, and attend to them without engaging in automatic cognitive evaluation processes (e.g., rumination and worry).

In Alsubaie et al.'s (2017) systematic review, 10 studies evaluated MBCT's change mechanisms in treating or preventing depression, compared against active or non-active control groups. Mindfulness, rumination, worry, affect, self-compassion, cognitive and emotional reactivity, and attention have been identified as mechanisms that lead to improvements in current or recurrent depression, although some mixed results exist among these studies. The authors note that there is a need to strengthen the methodological rigour in process RCTs before more definitive conclusions can be drawn about how MBCT brings about changes.

Cost-Effectiveness of MBCT

In an RCT conducted in the UK (Kuyken et al., 2008), MBCT was compared to mADM over a 15-month follow-up period. MBCT was found to be more effective than mADM in alleviating residual depressive symptoms and improving the quality of life, but no difference was found in the average annual cost between the two interventions. A cost-utility analysis was conducted to measure the difference in the mean costs of the two interventions divided by the difference in their mean effects. It revealed that MBCT has a 42% probability of being the more cost-effective treatment option compared to 58% for mADM, assuming that society is unwilling to pay additional amounts on relapse prevention. As society's willingness to pay increases, the probability of MBCT being the more cost-effective treatment increases; if society is willing to pay more than \$1,000, MBCT has a higher probability of being more cost-effective than mADM. The authors also found that the cost differences between the two treatments converged over time, and MBCT cost less than mADM toward the end of the study. Due to the short follow-up period, it remains unclear if MBCT would be more cost-effective in the long term overall. In another study by Kuyken et al. (2015) with a larger sample, the effectiveness and cost-effectiveness of MBCT was compared to that of mADM over a 24-month period in adults with a history of MDD. Unlike their previous study, this study revealed no significant difference in effectiveness or cost-effectiveness between these two interventions.

In an Australian context (Shawyer et al., 2016), combined MBCT and depressive relapse active monitoring (DRAM) intervention demonstrated a high probability of being less costly and more effective than DRAM alone, as measured by the incremental cost-utility ratio (difference in mean costs between the two interventions divided by the difference in mean disability-adjusted life years). MBCT participants experienced significantly fewer days and shorter durations of depressive episodes than controls; the cost of MBCT was also lower from the perspectives of mental

health care, overall health care, and society as a whole. In a Canadian economic and healthcare context, Pahlevan et al. (2020) conducted a model-based cost-utility analysis comparing MBCT to ADM and found that MBCT was less costly and was associated with a larger gain in health effect than ADM. In all three studies, the side effect profiles of MBCT and antidepressant differed and may have contributed to the neutral or somewhat small cost advantage for MBCT. Difficulties reported by MBCT patients were largely psychological in nature, such as reliving difficult situations or experiencing strong negative affect, whereas for patients receiving ADM, side effects were mostly physiological in nature, e.g. nausea, fatigue, reduced sexual drive, dry mouth, insomnia.

Emergent Themes from Qualitative and Case Studies of MBCT

Eisendrath et al. (2011) presented the case study of Jean, who had struggled with depression all her life. Jean was hopeless and withdrawn from pleasurable activities, believing that nothing would make her feel better. MBCT taught her to stop resisting and start accepting her depression. Through increased awareness of body sensations and thoughts, Jean became more aware of the positive and negative experiences related to depression. She learned to notice when she began to feel more depressed than normal and respond to it by doing things differently. She learned to change her relationship with depression, from seeing it as a daunting enemy to seeing it as a signal about something in her life at that moment, and even as something she could live with. Jean came to see thoughts as thoughts, rather than facts. Breath-focused sitting helped her observe how her thoughts develop in her head without having to believe in what the thoughts were telling her. Being in a group also had its benefits: other MBCT participants appeared normal to Jean, which made her realize that she might also appear more normal to others than she had thought. Jean became better able to sustain attention on his work; her BDI dropped from 28 to 9 after the treatment.

Tickell et al. (2020) identified the common themes in participants' accounts about their experience with MBCT, which include their beliefs about the causes of depression, personal agency, acceptance, quality of life, ADM tapering/discontinuation, and interactions with their doctors. Mason and Hargreaves (2001) identified some trajectories that MBCT participants go through. Some participants start the intervention with their own expectations, encounter some initial setbacks (e.g., not being able to complete homework or not doing it "correctly"), and then come to terms with MBCT as their mindfulness skills develop and their relationship with their thoughts change. They start to detect early warning signs of depressive relapse and learn to apply mindfulness skills to everyday life.

Some core elements can be extracted from these quantitative analyses and case studies. Some participants have initial doubts about how a psychological intervention can fix problems that they believe are caused by neurochemical disruption. Through psychoeducation, they might change their beliefs about the cause of

depression and start to recognize the psychological component of it. MBCT focuses on training metacognitive skills, which help improve participants' sense of agency and control over their depression, especially when they are no longer actively in treatment. It appears that different techniques might work differently for each participant. Many participants benefit from being able to see thoughts and emotions as mental events, rather than facts, and being able to stop avoiding depression and accepting it as a part of their life. It is also critical that participants learn to detect early warning signs for the return of depressive episodes and respond to them by engaging in mindfulness practices that they learned from MBCT. On top of these specific curative factors, many participants acknowledge the benefits of having a social support structure from MBCT group members, therapist, and their general physician.

MBCT Case Illustration

To further illustrate the process of MBCT, we will use Rushil's case as an example. Rushil is a 48-year-old male who immigrated from India eight years ago and works as a logistics manager for a global shipping company. He has a history of recurrent MDD complicated by asthma and osteoarthritis in his right knee. He is married with two children, one of whom is studying in university and the other is pursuing HVAC training at a community college. Rushil has struggled with recurrent depression with obsessive features since his early adulthood. His episodes of depression are associated with irritability, hypersomnia, hyperphagia and social isolation as well as intense worry. He received little treatment for depression in India because his condition was not properly diagnosed until his mid 30s. He showed a moderate response to SSRI antidepressant medication managed by his GP, which was helpful because, once he recognized that he was becoming depressed, starting on an antidepressant allowed him to return to work without taking large amounts of sick leave. Even though he experienced periods of drowsiness at work and constipation, he felt that the primary objective was to reduce his depressive symptoms and he was willing to tolerate these side-effects. Rushil is very committed to his work and receives a good deal of personal validation from his workplace. Once his more severe symptoms had remitted, Rushil's GP advised him to stay on his medication for an additional 3 to 6 months to ensure that the episode was fully treated. Typically, Rushil's mood would stabilize within 3 months of starting on medication and he would often wonder why he needs to continue with the medication when he is not experiencing active symptoms of depression. More recently, Rushil's depressive episodes have become more severe and he had had one short-term hospitalization for suicidal ideation, although he admitted that he would not harm himself because of his wife and children.

Over the past six months, Rushil became depressed again following cutbacks at this workplace that required him to let go of two staff members and left him feeling uncertain about his own position. His wife pointed out that he had been sleeping

more on weekends and turning down social engagements with friends. At his wife's urging he booked an appointment with his GP who asked him to complete a PHQ-9 (Kroenke & Spitzer, 2002). Rushil scored 21 on this measure, leading his GP to suggest that he re-start Celexa, the same antidepressant that was prescribed two years ago for his last episode of depression. Rushil stayed on Celexa for a full year and found that while his energy, appetite and concentration returned within 2–3 months, his sleep was still impaired and he frequently worried about his health and future. His GP felt that given his initial symptom picture, Rushil had in fact responded quite well to Celexa and that the residual symptoms he continued to report could be addressed through attending an MBCT program. He provided Rushil with links to studies on MBCT's efficacy in the treatment of longer-term management of his depression and described how this program could be utilized if Rushil stayed on or decided to discontinue his Celexa.

Rushil attended an MBCT program that was offered at a local health clinic. During his first meeting with the MBCT instructor, Rushil learned about the 8-week group structure and requirements for home practice. When asked how the program could be helpful, Rushil replied that, in addition to help with his insomnia, he would like to “worry less” and “be less sensitive to criticism at work”. With these goals in mind, Rushil started the 8-week program.

In Session 1, the instructor repeatedly referenced the difference between *automatic pilot* and *mindfulness*. These concepts were conveyed through a combination of group discussion and mindfulness practices. In Rushil's first mindfulness practice, the group leader guided him to direct his attention to the sensations of sight, texture, smell, sound, and taste of eating a raisin. Rushil was interested in the answers that other participants provided as the group discussed what was noticed during the practice and how mindful eating might be related to preventing depression and staying well. At the end of the session, the group leader assigned home practice for the week and Rushil was provided with mindfulness recordings that he downloaded as mp3 files to his phone, so that he could listen to these recordings at his convenience between sessions.

In Session 2, Rushil participated in a 30-min Body Scan practice, during which he moved his attention to specific foci in his body. After the practice, he was invited to describe what he noticed during the Body Scan, and to reflect on how intentional deployment of attention contrasted to automatic pilot. By listening to how other participants responded to the same question, Rushil found it reassuring that group members experienced many of the same challenges as he did during the practice, such as feeling sleepy or judging himself when his mind wandered from the practice to thinking about what to make for dinner that night. Next, Rushil completed an exercise that highlighted the relationship between thoughts and feelings. He was asked to imagine a scenario in which he saw a friend walking down the street, waving at his friend, while his friend simply didn't respond. Rushil said that a number of thoughts quickly came into his mind, including “he's mad at me” and “did I do something wrong?” which led to some sadness. Other group members reported thinking “I wonder why he is so stuck up today?” or “he probably has a lot on his mind” which led to feelings of annoyance or concern. The variety of interpretations

provided by the group suggested that there was no single correct way of explaining why the friend didn't wave and that the first thoughts that pop into their minds can often determine the moods we feel. This practice was reinforced with a home practice assignment that involved noting one pleasant event each day and the accompanying thoughts, feelings, and sensations. The following week, Rushil reported that he enjoyed bringing his attention to pleasant events because he noticed many things he would usually miss, such as the smell of coffee in the morning and it helped him to stay more present. Although this practice was not assigned again, Rushil planned to continue doing it in his own time.

In Session 3, Rushil reported feeling connected to the group leader, who he described as being patient and understanding. In this session, he was guided through a sitting meditation. He noted the physical sensations that were present during this practice, and how busy his mind was the entire time. He participated in two additional mindfulness practices, including a number of mindful stretches and an informal practice called the 3 Minute Breathing Space (3MBS). The 3MBS was described as a "mini-meditation" to be used at any point during the day, and as a first step in dealing with difficult situations. While reviewing the previous week's home practice, Rushil noted that it was difficult to make time to complete the Body Scan every day and that he was looking forward to having a briefer meditation option. In addressing the whole on the topic of home practice, the group leader noted that participants may encounter obstacles to daily home practice, especially in the first few sessions of the program. Together, Rushil and the group leader identified some ideas to support his practice, including protecting his practice time by adding it to his calendar and 'cutting himself some slack' when unexpected challenges get in the way. Determined considered a plan where he could complete briefer practices during busy workdays and longer practices on the weekends.

In Session 4, "Exploring the Landscape of Depression", Rushil learned about the neurovegetative symptoms and cognitive features that comprise the syndrome of depression. Seeing these signs early on plays a vital role in prevent depression from gathering momentum because it supports earlier intervention. He reviewed a list of frequent negative automatic thoughts and created a personalized list of thoughts that accompany his depressive episodes, such as "I'm a loser" or "others don't respect me". He noticed that the mindfulness practices helped increase his ability to observe the presence of these thoughts without getting pulled into disputing them.

In Session 5, Rushil practiced bringing his mindfulness skills of awareness, curiosity and investigation to more emotionally challenging situations. During a sitting meditation Rushil brought to mind an argument he had with a co-worker and noticed that while strong feelings or anger arose along with tightness in his chest, these did not last the entire time and actually gave way to feelings of regret and sensations of relaxation around his eyes. At first, Rushil was worried that focusing on negative events in this way might even hasten the onset of depression but with time, he found by allowing and simply attending to these moments of negative affect, they changed in intensity or provided him with new ideas for how to cope with them. For example, there were moments when he was able to stand back a bit and watch his thoughts

instead of reacting to them. At other times he could simply label his emotions, saying, “Oh, sadness is here” or “there is fear”.

Session 6 extended these concepts by showing how mindful attention can be linked to effective action when responding to emotional difficulties. Following a 3MBS practice, the instructor outlined “Four Doors” for taking mindful action when negative thoughts, emotions, or sensations are present. The first door, “Re-entry”, suggests that participants act by simply bringing their awareness to a difficulty. The second “Body Door” invites participants to attend to the ways in which difficult emotions can present themselves as physical sensations. The third “Thought Door” suggests bringing awareness to observing negative thoughts coming and going in the mind, rather than getting pulled into their content. The fourth “Door of Skillful Action” highlights the option of asking what is needed right now to help one take best care of oneself and then going ahead and doing that. Rushil told the group leader that over the past two weeks, he was surprised at how taking a 3MBS allowed him to face emotional challenges both at work and at home without resorting to automatically blaming himself or others.

In Sessions 7 (“Building Your Plan of Action”) and 8 (“Supporting Your Practice in the World”), Rushil reflected on which self-care activities he could engage in to make himself feel happier, more active, and engaged in his life. He identified his personal relapse signature as composed of hypersomnia and social withdrawal and wrote a letter to himself to itemize the strategies he learned in the program. This letter was intended to be read if he became depressed in the future and it outlined a customized wellness plan that included activities such as: “Call your sister if you notice your mood is starting to drop. Do one nice thing for yourself each day like buying a magazine you’ll enjoy reading during lunch, or make plans to go for dinner after work with a friend.” Rushil reviewed his wellness plan with his spouse so that she could act as an additional support in putting his plan into action. He kept the letter in his closet and another copy on his computer so that it would be easy to find if and when it was needed. Towards the end of the program, Rushil told the group that he really enjoying the practical suggestions for staying well that were provided in the last two sessions of the program. When asked what practices he saw himself sticking with after the group, he said he could see himself using the 3MBS pretty regularly and going to a Yoga class on the weekend. Overall, he felt he had more of a plan for addressing his low moods and felt good that there was a role he could play in looking after himself over the long term.

Concluding Remarks

In this chapter, we compared third-wave psychotherapeutic approaches to earlier approaches, using MBCT as a primary example. A wealth of research shows that MBCT is an efficacious and cost-effective alternative to CBT and antidepressants in preventing depression relapse and recurrence among people who have a history of depression. From a combination of quantitative and qualitative studies, we are starting to better understand how MBCT brings about its therapeutic effects, for

example, by training people to see thoughts and emotions as *mental events* instead of *facts* and to respond to these mental events with an attitude of acceptance and non-judgement.

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First Wave Treatment of Obesity



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Although more operational definitions of obesity are available (and will be reviewed herein), obesity has been defined as excessive fat accumulation that impacts one's health. Since 1975, the prevalence of obesity has tripled worldwide (World Health Organization, 2020). In the United States, the prevalence of obesity has increased from 30.5% in 1999 to 42.4% in 2018 (Hales et al., 2020). As obesity rates increase, the consideration of health and psychological risks linked to obesity comes into greater focus. As summarized in Pulgarón (2013), a number of health conditions are associated with the development of obesity, ranging from mild health concerns to more severe medical conditions. Relatively mild health symptoms include difficulty breathing, snoring, increased sweating, difficulties engaging in strenuous physical activity, fatigue, as well as joint and back pain. More serious health symptoms include: high blood pressure, high cholesterol, atherosclerosis, gastro-esophageal reflux disease, gallstones, infertility, osteoarthritis, sleep apnea, liver disease, kidney disease, pregnancy complications, heart disease, stroke, type 2 diabetes, and specific cancers (e.g., Visscher & Seidell, 2001).

In addition to this extensive list of health correlates of obesity, there are also significant psychological and social impacts. Psychologically, individuals who are overweight may experience low confidence, low self-esteem, depression, and feelings of isolation (Wardle & Cooke, 2005). Additionally, folks who are overweight often encounter sizeism (discrimination based upon one's body shape and size) and may struggle with internalized sizeism (Chrisler & Barney, 2017). Furthermore, a number of interpersonal problems are associated with obesity, such as social stigma (Pont et al., 2017), bullying, and discrimination (Beck, 2016). Employers often assume individuals who are obese to be "lazy", "less competent", "lacking self-discipline", and "emotionally unstable" (Puhl & Brownell, 2003). Individuals who are obese tend to receive less pay for the same quality work, are less likely to be

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promoted, and are placed in high-level positions at a lower rate as compared to individuals of average weight (Loh, 1993; Puhl & Brownell, 2001).

Finally, the medical cost of obesity and its health correlates in 2008 was estimated to be \$147 billion, a figure that has increased with the growing prevalence of obesity and escalation of medical costs (Finkelstein et al., 2009). According to D'Angelo (2018), medical expenditures in the U.S. for obesity-related illness in adults has increased from 6.13% in 2001 to 7.91% of national medical expenditures in 2015. Clearly, obesity is a major health concern with far reaching impacts.

Biology of Obesity

At its most basic level, weight management involves a balance of energy ingested and energy expended. Energy ingested constitutes the number of calories someone consumes in foods and liquids throughout the day while energy expended is the active utilization of calories for body metabolism and physical activity (Hall et al., 2012). The basal metabolic rate is the minimum number of calories one requires to maintain bodily functions while at rest (McNab, 1997). In other words, an individual maintains a stable weight if the calories absorbed from food are equal to those expended both in terms of body metabolism and physical activity. On the other hand, if people ingest more calories than they expend, then they will gain weight. Importantly, caloric content differs by food type (e.g., protein, fat, or carbohydrate). Furthermore, the absorption of nutrients depends on how fast the organic material moves through the digestive tract as well as its respective nutrient composition. While caloric restriction and an increase in physical activity are more likely to result in weight loss, this is not always the case; genetic, metabolic, and hormonal factors also play a role in weight management (Comuzzie et al., 2001; Snyder et al., 2004).

According to set-point theory, body weight is maintained within a stable range labeled the “set-point” (e.g., Mrosovsky & Powley, 1977; Wirtshafter & Davis, 1977). Not only does the body typically maintain its weight within that range, despite variability in energy ingested and expended, but the body also appears to protect itself against weight loss during periods of caloric deprivation with a variety of metabolic adjustments (Farias et al., 2011). This phenomenon may serve as a barrier to those who attempt to lose weight via caloric restriction.

Basic Factors Related to Obesity

Food consumption is directly related to the development and maintenance of weight gain and is measured in a variety of ways. Researchers and clinicians assess quantity and quality of food ingested via self-report, direct observation, laboratory measures, and psychological assessments. Dietary self-report may involve the representation of the “average” food consumed (e.g., frequency questionnaires for

food consumed over the past few months) or detailed assessments of food intake on a small sample of days, though the most accurate of self-report data currently appear to be an automated multiple-pass method (e.g., Moshfegh et al., 2008) in which an automated system evokes recall for food and beverage consumption. Laboratory measures, on the other hand, may involve an initial semi-structured clinical interview followed by the presentation of a multi-item food array with possible instructions, such as “eat normally” or “binge.” Food consumption in the laboratory setting is quantified by direct observation and/or physical measures (e.g., weight of food consumed). While laboratory measures produce precise quantification of food consumption, they also suffer from “ecological validity” challenges and may not truly represent food consumption in daily activities outside the lab setting (e.g., Walsh & Boudreau, 2003). Finally, some psychological assessments that evaluate food consumption include but are not limited to: The Restraint Scale (Herman & Polivy, 1975), the Three-Factor Eating Questionnaire (Stunkard & Messick, 1985), and the Dutch Eating Behaviour Questionnaire (van Strien et al., 1986).

As previously mentioned, physical activity is one method of energy expenditure and therefore an important factor related to weight management. Exercise is helpful for weight management not only because it burns calories but because it also temporarily increases one’s metabolism (e.g., Koay et al., 2020). Researchers can measure exercise engagement via direct observation, self-report, and device or measurement systems. There are a variety of direct observation methods used to code the engagement of physical activity, including real-time observations or viewing of recordings taken from body cameras and wearable movement sensors (McKenzie, 2002). Observational data can capture activity pattern, frequency, duration, and intensity, as well as exercise context. Finally, self-report measures include questionnaires, diaries/logs, and devices.

Biopsychosocial Factors Related to Obesity

Although energy ingested and energy expended is the basis for understanding weight management, there are physiological factors that impact one’s eating and exercise behavior, as well. Cohen (2008) identified 10 neurophysiological pathways that alter food choices. First, when humans see images of food, they secrete dopamine in the dorsal striatum which then increases their motivation to eat. Second, research indicates that humans have innate preferences for foods that are higher in sugar and fat content, a genetically programmed preference that is a product of natural selection. In prehistoric times when food supplies were neither plentiful nor safe, individuals who ingested high sugar and high fat substances and returned to ingest more of those substances (in other words, their foraging and consummatory behavior was reinforced by ingestion of these foods) were more likely to obtain sufficient calories to survive in and pass along their genes to the next generation. Third, due to the human evolution as a species of hunter-gatherers, humans gather food in abundance when available. Additionally, due to its impact on survival, humans selected

varieties of food rather than depending on a single source. Consequently, in modern society, people who go to the grocery stores that are stocked with abundant quantities and varieties of food may be more likely to purchase larger quantities of food as well as more high-calorie foods, commonly without significant nutritional value (Cohen, 2008). Fourth, humans tend to exhibit difficulties estimating the volume and the caloric content of food. Therefore, many people unwittingly consume excess calories. Fifth, humans have a natural tendency to conserve energy. This means that people are more likely to consume food that is either already prepared or easy to prepare (Cohen, 2008) or are more likely to live a sedentary lifestyle. Sixth, people also have a tendency to imitate others and this mimicking applies to food consumption, as well. In other words, people are more likely to make the same food and portion choices, as others. One hypothesis behind this phenomenon is the firing of mirror neurons when either observing others making food selections or eating, or engaging in those actions themselves (Cohen, 2008). Seventh, there is a phenomenon called “automatic stereotype activation” where humans unconsciously respond to others based on stereotypes. In other words, particular characteristics of others or stimuli in the environment may evoke specific responses. Marketers have used this phenomenon to appeal to target audiences when advertising food. Eighth, marketers have utilized classical conditioning through their use of brands or symbols. Ninth, marketers use priming to evoke associations that will make consumers more likely to purchase their food products (Cohen, 2008). Finally, due to human’s limited conscious awareness (i.e., 40–60 bits per second) compared to the overall cognitive processing capacity (i.e., 11 million bits per second) many human “decisions” are automatic, based upon cues or heuristics (Cohen, 2008). Cohen suggested that the small percentage of conscious awareness involved in decision-making may impact the human deliberation of food choice when people are already overwhelmed with demands. In summary, not only are there are neurophysiological pathways that alter food consumption but these phenomena have been taken advantage of for consumerism in modern society.

Physiological Measurement of Obesity

Obesity is typically defined and quantified by anthropometric measures of body weight, size, and composition. The assessment and quantification of eating and exercise patterns as well as the major behavioral contributors to obesity will be discussed in the next section. There is a number of ways that clinicians and researchers measure obesity, including: body mass index (BMI), skinfold thickness, waist circumference, waist-to-hip ratio, bioelectric impedance, densitometry, air-displacement plethysmography, hydrometry, and dual energy x-ray absorptiometry (Hu, 2008). Each of these methods used for the measurement of obesity carry their own strengths and weaknesses and their utilization depends on the purpose of the clinical practice or research as well as relative cost.

Behavior Analysis and Obesity

Behavior analysis is the scientific study of individual behavior (Journal of the Experimental Analysis of Behavior, 1957 to present). When the focus is on understanding and improving socially relevant human behavior, that discipline is known as “applied behavior analysis” (Baer et al., 1968; Deitz, 1978; Journal of Applied Behavior Analysis, 1968-present). Applied behavior analysis strategies and principles have proven effective in affecting meaningful change across a spectrum of human behaviors. These methods and principles have also been applied to both the assessment and management of eating and exercise behavior for years (e.g., Cinciripini, 1984; Wsocki et al., 1979). The ways in which both researchers and clinicians might assess and treat obesity are discussed below.

To date, there is an extensive body of research on behavior analysis and behavior therapy approaches to obesity (e.g., Bennett, 1986; Brownell, 1982; Brownell & Wadden, 1986; Wing, 2002). An exhaustive and comprehensive review of this research literature is beyond the scope of this chapter. What follows is an explanation of the major conceptual and clinical strategies emanating from First Wave Behavior Therapy as applied to the management of eating and exercise, as related to obesity.

Behavioral Assessment of Obesity

The behavioral interventions for obesity focus on the identification and quantification of the environmental and behavioral factors that contribute to weight gain. Many of the early behavioral interventions for obesity focused on self-recording and self-reports of food consumption (e.g., Romanczyk, 1974), often with a focus on caloric intake. In spite of their limitations, these early behavioral measures were characterized by clear operational definitions, objective quantification, and repeated assessment over time of food consumption and exercise, both key contributors to obesity. These measures also allowed for the evaluation of behavioral interventions to manage eating and exercise. As a corollary, repeated assessments (e.g., often daily assessments) of food consumption and physical activity were often incorporated into clinical services in a manner that allowed for continuous assessment of the impact of behavioral interventions on eating. This form of ongoing assessment has been characterized as part of high quality clinical behavioral interventions for decades, and it is captured in contemporary versions of the Ethics Code for Behavior Analysts (Behavior Analyst Certification Board, 2020).

By the early 1980s, behavioral researchers and practitioners began to adopt an assessment strategy that came to be known as functional behavior assessment and/or functional behavior analysis (e.g., Iwata et al., 1982). These methods focus on the identification of the behavioral processes (e.g., social reinforcement, tangible reinforcement, sensory reinforcement, and avoidance/escape contingencies) that

maintain clinically relevant behavior. *Functional assessment* typically refers to descriptive methodologies (either descriptive observation or questionnaire strategies) whereas the use of term *functional analysis* is restricted to methods that involve the experimental manipulation of suspected maintaining/controlling variables (Cone, 1997). Pioneered initially with self-injurious behavior in children diagnosed with autism (Iwata et al., 1982), functional behavior assessments have proven helpful in determining variables that influence the development and maintenance of disordered eating behavior (e.g., Johnson et al., 1995; McManus & Waller, 1995; Schlundt et al., 1985) and the development of interventions that are informed by identification of the controlling variables for unhealthy eating patterns.

There are a number of commonly identified antecedent and consequent events (i.e., controlling variables) that are particularly relevant to food consumption. For example, the availability of healthy food options as antecedents appears to be crucial for successful weight management. People with limited resources, whether they are financially burdened or live within a “food desert,” often attend to more personally salient factors (e.g., financial resources and/or physical access to food) out of necessity rather than to the nutritional value or quality of food when grocery shopping (Whelan et al., 2002).

Not only do such environmental factors (e.g., financial resources, availability of food choice) play a role, but emotional states serve as antecedent variables as well. Feelings of ineffectiveness may evoke less controlled eating behavior (e.g., Wagner et al., 1987). Similarly, the experience of negative emotions or unwanted thoughts may evoke unhealthy eating behavior. Furthermore, additional research argues that overeating can also reduce the awareness of other aversive emotional states, such as sadness, anxiety, and guilt (e.g., Heatherton & Baumeister, 1991). Under these circumstances, the consumption of food can produce desired affective changes immediately and temporarily (e.g., reduction of negative emotions or the presentation of feelings of contentment), serving the function of moderating these emotional states.

Finally, individuals with lower distress tolerance tend to report higher levels of food addiction symptoms (Kozak et al., 2017). From a behavior analytic account, distress tolerance can be understood as skills within one’s behavioral repertoire of engaging in behavior(s) that reduce physiological arousal, and/or attending to the stimuli within one’s internal and external environment openly. Because there are both antecedent and consequent events related to the development and maintenance of unhealthy food consumption (i.e., quality or quantity of food), interventions can manipulate these controlling variables to promote behavioral change.

Behavioral Interventions for Obesity

To date, all three waves of behavioral interventions are relevant to weight management. Each wave of behavioral interventions takes a unique approach and may vary in terms of treatment goals, while originating from common theoretical

underpinnings. The first wave of behavioral treatments for obesity will be discussed in greater depth in this chapter.

First Wave Behavioral Treatments of Obesity

First wave behavior therapy is based in both classical and operant conditioning (Cooper et al., 2020; Hayes, 2004). Classical conditioning is an associative learning procedure in which originally neutral stimuli gain the eliciting properties of unconditioned stimuli with which they are paired repeatedly (e.g., Gormezano & Moore, 1966; Michael, 2004; Watson et al., 2016). On the other hand, operant conditioning, or instrumental learning, is a method of learning that occurs through the reinforcement or punishment of behavior via naturally-occurring or socially-mediated consequences (e.g., Skinner, 1937, 1966; Michael, 2004).

Many of the first wave intervention strategies were emphasized in early research and clinical applications of behavioral interventions to obesity (e.g., Brownell, 1982; Stuart, 1972). To this day, many of these intervention strategies have proven durable and are still represented in obesity management interventions, along with second and third wave behavioral strategies.

Stimulus Control, Classical Conditioning, and Motivational Operations: A Basic Account Operant behavior, including food consumption and physical activity, is controlled largely by the consequence of that behavior (e.g., reinforcement or punishment). However, the strength of an operant behavior is also influenced by antecedent stimuli that signal the availability of reinforcement (called discriminative stimuli or SD; Cooper et al., 2020, Chapter 17).

Furthermore, an additional set of antecedent variables also influence operant behavior, more specifically behavioral processes that alter the *value* of food as a reinforcer (e.g., Laraway et al., 2003). Among the behavioral processes that alter the value of food as a reinforcer (either establishing or abolishing the value of food) are classical conditioning and motivational operations (MO's), including biologically-based MO's such as food deprivation, satiation and illness.

As described above, classical conditioning involves the pairing of two stimulus events and is illustrated by the classical Pavlovian experiments. Relevant to the present topic, classical conditioning processes are thought to be involved in establishing physiological and emotional reactions to stimuli that are consistently paired with food (e.g., the open sign at a favorite bakery may come to elicit salivation and other hunger sensations). Classical conditioning processes are also involved in establishing food aversions (e.g., avoidance of foods that have been paired with nausea) through a temporal pairing mechanism and alters the stimulus value of the conditioned stimulus. Oftentimes, this process is theorized to be involved in altering the reinforcing value of stimuli, including food and exercise related stimuli.

In a similar manner, a number of motivational operations (MOs) have been identified that enhance or abolish the reinforcing value of stimuli, including food (e.g., Laraway et al., 2003; Tapper, 2005). In fact, in research MOs as a behavioral

process have been found to alter the effectiveness of stimuli or events as reinforcers (Michael, 1982, 1993, 2000; Miguel, 2013). In the context of food consumption, many of these MOs are based on biological processes, such as food deprivation and satiation, that alter, at least temporarily, the reinforcing value of foods. These MOs are referred to as *unconditioned motivational operations* because the organism does not require a learning history to be impacted by such factors (Michael, 1982). However, other MOs operate through behavioral processes that are independent of biological processes, often called *conditioned motivational operations* (Michael, 1982, 1993, 2000). These include a range of verbal influences. For example, hearing a credible report that certain food additives are linked to cancer may alter the reinforcing value of those food substances and produce a shift in behavior to other food substances. Once again, the defining feature of MOs is that they enhance or abolish the reinforcing value of other stimuli (e.g., food) and in so doing alter the strength of behavior that has been reinforced (or punished) by those stimuli. Therefore, whereas discriminative stimuli signal the availability of a potential reinforcer (e.g., seeing an “open” sign on a favorite restaurant), MOs (e.g., a person who has just ingested large meal) determine whether the *putative* reinforcers signaled by the discriminative stimulus will indeed function as reinforcers. As such, the reinforcing value of food at a favorite restaurant will depend on whether a person has recently eaten a large meal or maybe made a commitment to meet a friend for some exercise.

Antecedent Interventions Informed by the basic-theory accounts of stimulus control, classical conditioning, and MO, antecedent interventions are first-wave behavioral interventions that are designed to alter relevant aspects of a person’s environment *prior to* their engagement in the target behavior. To date, there is a number of antecedent interventions that have been implemented in an effort to influence food consumption and engagement in physical activity. A brief review of antecedent interventions for healthy eating and physical activity can be found below.

Stimulus Control Strategies As previously described, environmental stimuli can impact human eating and exercise behavior (Weingarten, 1985). While the authors described stimulus control at a theory level in the above section, this theory can be utilized to inform applied strategies which will now be discussed. When food has been paired with environmental cues, those stimuli then occasion food-seeking behaviors upon subsequent presentations. Previous research has illustrated via associative-learning paradigms food seeking behavior can be triggered by indirect or direct exposure to food rewards (e.g., Watson et al., 2014, 2016).

Watson et al. (2017) elaborates that responding for food can be primed. The direct outcome-response priming effects, as described by Watson, involves the presentation of contextual stimuli that generate expectancy of the outcome preceding the response. For example, if someone smells freshly baked cookies, they may then head to the kitchen to consume a cookie. On the other hand, Watson et al. (2017) also describes stimulus-outcome-response priming effects which involves the presence of a discriminative stimulus that signaled the availability of the outcome, then priming the engagement in food seeking behavior. An example of the

stimulus-outcome-response might be if, whenever one's family watched a movie a parent baked cookies, the child then goes to the kitchen to find a cookie when the movie begins.

A common stimulus control strategy for weight loss is limiting portion size, whether using household measures (e.g., Byrd-Bredbenner & Schwartz, 2004) or serving food on plates that indicate appropriate proportions (Pedersen et al., 2007). Previous research indicates that the availability of larger portions often leads to excess food consumption (Wing et al., 1996). Therefore, another applied example of portion control strategy is to reduce the availability of larger portions (or increase the response effort to obtain larger food portions). For instance, if someone only buys one piece of cake at the store instead of an entire cake, they can then influence how much cake they consume throughout the week. All of these examples illustrate that people can make incremental changes in their environment that then impact their engagement in healthy eating or exercise.

Access On a larger scale, the availability of healthy food options in one's community greatly impacts one's ability to engage in healthy eating. Unfortunately, healthy food options are not always available or affordable (Whelan et al., 2002). People who experience these types of environmental barriers to quality foods would likely benefit from public policy that ensures the availability of high-quality, healthy food at affordable prices. For instance, if there is only one store that carries food products in a specific town, then the citizens are confined to the options carried there. If the market stocks lower cost food options like instant ramen noodles or chef Boyardee and either does not carry fresh produce or marks such items significantly higher, then customers either cannot purchase healthier foods or are much more likely to purchase more affordable options.

Modeling Modeling involves the arrangement of a teaching situation in which a person, (the "model") performs the target behavior that the observer or learner then imitates. Modeling can occur in-vivo (performed by the model in person) or via a filmed demonstration. This strategy is one of many observed in marketing and advertising, where a high prestige model (a celebrity) endorses or is shown consuming a particular product. According to Vartanian et al. (2013) modeling impacts one's perception of the "appropriate" amount of food to consume. Modeling has also been used to increase self-efficacy and improve exercise performance (Yee Ng et al., 1999; Winett et al., 1988).

Modeling appropriate food portions or healthy food choices can occur across a variety of contexts, notably by caregivers within the home. For instance, a parent may cook fresh plant-based meals and then serve healthy portions to members of the family. Children or other members of the family can then imitate such meal preparation and determination of healthy serving sizes, as well.

Self-Monitoring Self-monitoring in the context of weight management involves recording one's weight, food consumption, and engagement in exercise (Romanczyk, 1974). It is a crucial component of assessment efforts, but also known to have a

well-documented impact on the behavior being monitored. Recording one's own engagement in healthy eating and exercise provides information about those health-related behaviors. Individuals can then compare their engagement based upon the recorded data to the goals that they had set for themselves and thereby notice perceptible changes in their behavior closer to real-time. Self-monitoring one's eating and exercise behavior can serve as an antecedent intervention because the journal itself can serve as an environmental stimulus that prompts engagement in the target behavior.

Sperduto et al. (1986) argued that self-monitoring was a necessary, if not central, component of behavioral weight management strategies. In fact, evidence has continued to support the use of self-monitoring for weight management (e.g., Burke et al., 2011). Not only has the research supported the short-term benefit of self-monitoring for weight reduction but there is also evidence to suggest that self-monitoring is an important strategy that increases the long-term maintenance of weight loss (e.g., Artinian et al., 2010; Wing & Phelan, 2005). While self-monitoring appears to be a critical component of behavioral weight management strategies, treatment adherence can be difficult as it often requires high levels of response effort and consistent completion for self-monitoring to be accurate.

Consequent Interventions Consequent interventions often focus on arranging contrived consequences for desirable behaviors (often conditioned reinforcers such as praise or money) and, more rarely, for undesirable behavior (such as conditioned punishers such as the loss of money or social censure). First wave behavioral interventions for weight management have featured a range of response consequences to increase one's engagement in exercise and/or healthy eating.

Behavior Contracts A behavioral contract is a formal agreement that stipulates an objective behavioral goal (e.g., increase the daily duration of exercise). It is considered as a consequent intervention as it arranges for reinforcing consequences to be delivered contingent on achieving the stipulated behavioral goal, and sometimes arranges punitive consequences for *failing* to achieve a behavioral goal (e.g., Quale, 1975). Behavioral contracts have been applied successfully to a wide range of behaviors, such as exercise, studying, medication adherence, that are have important deferred consequences, but often have immediate consequences that make long-term adherence challenging, a behavioral process known as "delay discounting" (Odum, 2013; Rachlin, 2006). Sometimes the immediate consequences are punitive (as in effort and muscle soreness for exercise) or of such small magnitude as to be ineffective in motivating the desirable behavior, especially when competing behaviors that produce more immediate reinforcement (e.g., eating snacks while watching TV, versus going to the gym for a workout).

Although they are typically classified as consequent intervention strategies, behavioral contracts typically use a combination of antecedent and consequent interventions to help people change and maintain behaviors that produce deferred consequences (e.g., lowering body weight, getting in shape, obtaining a degree). At

minimum, a contract relies on goal setting, rule-governed behavior and some level of commitment, often public in nature (see Cooper et al., 2020, Chapter 28 for description of behavioral contracting, also known as contingency contracting). Rule-governed behavior is defined as behavior that is under the control of a verbally mediated rule rather than immediate consequences. People are coached to identify an objective and attainable goal, that can be gradually adjusted to more ambitious goals over time (e.g., Cullen et al., 2001). Importantly, the person whom the contract serves should be involved in the creation of the contract and selection of reinforcers so that they are more motivated to engage in the target behavior. This person is typically required to make a commitment (often in the form of a signed formal contract) to obtain that goal, and many contracts arrange for specific contrived consequences for attaining or for failing to attain the agreed upon goal. The terms of the contract can be adjusted periodically to adopt easier or more challenging goals and to incorporate different forms of contrived reinforcement. For example, monetary deposits that can be returned, destroyed or even sent to a “most hated” political group have been used with behavioral contracts but any form of reinforcement (a favorite photo or article of clothing) can be arranged as the contrived consequence in a behavioral contract.

Behavior specified in a behavior contract may include behavior to increase (e.g., exercise duration; Neale et al., 1990) and behavior to reduce or eliminated (e.g., number of twinkies eaten in a given week). The behavior contract should also clearly indicate the conditions under which the person will earn and redeem reinforcers. For example, Wsocki et al. (1979) utilized behavioral contracting in order to increase physical exercise among college students. In their study, participants relinquished access to personal items that they were required to “earn” back via aerobic exercise as well as observing and recording the exercise of other participants. The vast majority of participants not only increased their physical activity throughout the study but also maintained this increase at the 12-month follow-up.

Reinforcement Contingent reinforcement increases the future frequency or intensity of a specific behavior (Michael, 1982). Reinforcement may be positive or negative in nature. Positive reinforcement involves the presentation of a conditioned or unconditioned stimulus following one’s engagement in a target behavior that results in an increase in the future frequency of that behavior. In contrast, negative reinforcement involves the removal, delay or reduction of an aversive stimulus following one’s engagement in the target behavior and results in an increase in the future frequency of the behavior. Previous research indicates that both positive and negative reinforcement increased exercise behavior (e.g., Coleman et al., 1997) and assisted with weight loss (Manno & Marston, 1972).

It is important to also consider the temporal proximity of the contingent reinforcement to the person’s engagement in the target behavior. According to previous research, immediate reinforcers tend to exert greater control over human behavior than delayed reinforcers (e.g., Lattal, 2013). Often, natural reinforcers for exercise or healthy eating are delayed and, as a result relatively ineffective when compared to more immediate consequences (a delay discounting phenomenon, Rachlin,

2006). In the case of exercise, an example of a delayed positive reinforcer might be the additional strength or muscle tone that is gained from repeated exercise. Other examples of positive reinforcement for exercise or healthy eating might be compliments received from others when noticing the physical differences in one's body composition and the doctor relaying that one's heart is functioning well after eating healthfully for a few years. Behavior can also be reinforced by the removal or reduction of a stimulus condition as a consequence for engaging in a behavior, a process known as "negative reinforcement." Colloquially speaking, the stimulus that is being removed or otherwise diminished (in intensity or its presentation delayed) is often portrayed as an "aversive" stimulus. For example, if taking an aspirin is followed by the reduction or elimination of headache pain, and aspirin-taking was observed to be more probable in future situations where a headache was experienced, then we would conclude that aspirin-taking was negatively reinforced by the termination/reduction of headache pain.

An example of negative reinforcement for healthy eating might be the reduction of excess body weight, if the person desires to lose weight. However, these consequences are temporally delayed from the behaviors that produce these physiological changes. Furthermore, some behaviors produce only a change in the *probability* of a stimulus consequence, as is the case when taking a vaccine shot reduces but does not fully eliminate the risk of infection and serious illness. Finally, the stimulus changes are often incremental over time, in that weight loss accumulates gradually to the point where changes are noticeable.

As a result, these delayed, incremental and probabilistic consequences are often relatively ineffective when compared to more immediate consequences (e.g., the physical effort involved in exercise "wins out" over the long term impact of health and weight; the immediate reinforcing effect of a sugary food "wins out" over the delayed and cumulative effects of foregoing sweets). In other words, the desirable/healthy behavior is often supplanted with the less healthy alternative (that produces more immediate reinforcers). Under these circumstances, people might consider determining immediate reinforcers (e.g., appetitive tangible, social, or edible ones) that they can only receive after engaging in physical activity or eating healthfully. For instance, someone might work out with an accountability partner who only praises them after they have completed the designated exercise.

Premack Principle The Premack principle is a theory of reinforcement that posits that low probability (sometimes referred to as less desired) behavior can be reinforced by the opportunity to engage in higher probability (sometimes referred to as more "desired") behavior (Premack, 1959). Said another way, there is something about the "more desired behavior" either inherent in the behavior or produced by the behavior, that functions as a reinforcer when it is available in a contingent relationship with the less desired behavior.

For example, Mitchell (1973) demonstrated that it was possible to increase activity levels via contingent access to a high-frequency response. It is important to note that when this high-probability response was no longer contingent on the engagement in the lower-probability response, or activity, then the frequency of the

low-probability response greatly reduced. Other researchers have found support for the use of the Premack principle with weight reduction (e.g., Horan & Johnson, 1971) and exercise engagement (e.g., Allen & Iwata, 1980).

Goal Setting and Feedback Goal setting involves the identification of a benchmark or goal for desired target behaviors (Locke & Latham, 1984) and the monitoring of behavior relative to that benchmark. Here, goal setting and feedback are considered as consequent interventions because the individual is determining the behavioral requirement necessary to result in reinforcement; once that person engages in the target behavior, they then obtain reinforcing information about their performance (feedback) which will influence the future frequency and intensity of that behavior.

According to Locke and Latham (1994) the four steps of successful goal setting includes identifying the need for behavioral change, determining the goal, monitoring one's progress towards that goal, and then obtaining reinforcement for achieving that goal. Effective goal setting typically uses smart goals. Smart goals are specific, measurable, attainable, realistic, and time-bound (Doran, 1981). Consider the following example. John recently decided that he needs to exercise more frequently. Therefore, he has determined that he will walk on the treadmill for 30 min, 4 days per week. He will then need to monitor his progress towards that goal for exercise engagement. If he successfully completes the predetermined exercise goal, then he will gain access to reinforcement. Often, the setting of an intention is not sufficient to initiate or maintain behavior change. Thus, the provision of feedback may be beneficial to bolster the efficacy of goal setting and stimulate motivation.

Avoidance Contingencies There are both long-term and short-term avoidance contingencies at play with regards to weight management, exercise, and food consumption. In the short-term, exercise and eating healthfully often require additional response effort and access to resources. For instance, people who work out often require the financial resources to afford either a gym membership or the equipment necessary to exercise at home. If someone does have a gym membership, then they also have to put forth the effort to commute to the gym. Consequently, many people do not engage in these health-related behaviors. In the long-term, people who live a sedentary lifestyle and do not eat healthfully are at risk for the development of numerous medical conditions described earlier in this chapter.

On the other hand, people who are sensitive to these risks or who are attending to long-term consequences, may be more likely to eat healthfully and engage in regular physical activity (Dassen et al., 2015). Interventions that focus on avoidance contingencies might increase the saliency of the detrimental delayed consequences of a sedentary lifestyle and unhealthy eating, while removing the barriers or reducing the response effort required to engage in those health-related behaviors.

Public Commitments A commitment is an expression of one's intention to take action. Public commitments tend to be longer lasting and more effective than private commitments (McKenzie-Mohr & Schultz, 2014). It involves making those

intentions known to an audience, possibly by announcement or posting (Kulendran et al., 2016). While public commitments have antecedent elements (public statement of goals), they also activate a number of response consequences in the form of social praise or social censure for adhering to a public commitment as well as naturally occurring feedback as a person monitors their performance relative to the goal that they stipulated in the public commitment. It is also worth noting that many people have a history of reinforcement for keeping their promises and a history of punishment for “breaking promises.”

Public commitments can vary in terms of the degree to which the person’s position is known by others and the degree to which a person to whom the commitment is made controls effective reinforcers and/or punishers for the person making the commitment. For instance, one might say that they are going to commit to living a healthier lifestyle without providing any additional information. Alternatively, if someone states that they are going to live a healthier lifestyle by attending Zumba class four times per week and abstaining from eating fast food, then the disclosure of their commitment is greater. When people make such commitments publicly, they are more likely to follow through with the stated behavior in order to ensure that the commitment is maintained (Hui & Molden, 2014).

Social Support Social support appears to significantly influence the success of weight loss programs. In applied behavior analysis (behavior modification), social support is viewed as a consequent intervention because significant others can influence the frequency or intensity with which others engage in health-related behaviors, specifically by providing contingent consequences such as encouragement or praise following the emission of the target behavior. In reality, social support may also involve some antecedent behavioral processes, as a person’s social support group provides reminders, prompts and invitations to engage in healthy behavior.

Social support for weight management comes in a variety of forms. Support may be formal (e.g., a clinic-based group) or informal (via one’s friends and family). Clinic-based groups are often run by psychologists, nutritionists, or another weight-loss professional. Support can be emotional (e.g., encouragement when feeling discouraged), practical (e.g., caring for one’s children while they workout), or contingent (e.g., provision of positive reinforcement [praise for engaging in physical activity]) in nature.

Wing and Jeffrey (1999) evaluated the effect of significant others and their involvement as well as structured social support on weight loss program completion and maintenance of progress. They recruited participants either alone or with three friends or family members. These participants were then randomly assigned to either (a) a standard behavioral treatment or (b) the standard behavioral treatment plus structured social support. The study found that when participants were recruited with three friends or family members and were provided standard behavioral treatment plus social support, they completed treatment and maintained their weight loss more so than those in the comparison groups.

Behavioral Packages Behavioral packages involve the combination of multiple treatment components, both antecedent and consequent interventions, in an attempt to increase the magnitude of behavioral change. With regard to weight management, food consumption, and physical activity, behavioral packages commonly include some combination of the following treatment components: rule-governed behavior, goal setting, reinforcement, self-monitoring, behavioral contracts, and/or feedback (e.g., Normand, 2008; Stock & Milan, 1993).

Recommendations from First Wave Behavioral Treatments of Obesity

Based upon a review of the literature, there are multiple first wave behavioral interventions that stand out as more effective for producing long-term changes in one's food consumption and physical activity. The use of stimulus control strategies and MOs appear to be particularly helpful for setting up environmental contexts which support healthy eating and/or physical activity. From a first wave behavior therapy perspective, it is also crucial to arrange for reinforcement (social, monetary, sensory or other forms of reinforcement) to promote and maintain changes in eating and exercise behavior. Often times, the reinforcers are artificially arranged (e.g., a behavioral contract) to support behavior in hopes that the behavior will eventually contact and be maintained by the naturally occurring consequences of that behavior (e.g., changes in body weight and appearance, feeling stronger and more physically fit). It is important that any effective behavioral treatment for obesity utilize effective reinforcement strategies, often with an initial focus on contrived reinforcers but shifting to more naturalistic sources of reinforcement (e.g., focusing on physical changes in body composition or functioning and naturally occurring social reinforcement) as the impact of sustained behavior change accrues over time. Additionally, as discussed in detail earlier, self-monitoring as well as goal setting (with feedback) appear to be particularly beneficial treatment options for weight loss. Finally, social support across levels of formality and types appears to be a necessary supplement to behavioral treatment packages due to the impact on both short-term and long-term changes in food consumption and exercise.

Limitations of First Wave Behavior Analytic Approaches in the Treatment of Obesity

While there are a number of strengths of first wave behavioral interventions for weight management, there are several weaknesses, as well. First, weight management via multiple first wave behavioral interventions indicates a lack of maintenance or generalization (e.g., Stunkard, 1977; Coupe et al., 2019). All too

often, behavioral and health gains were lost when active interventions were terminated.

Second, there is still an ongoing need for research on strategies to sustain improvements over time, including the shift in control to more naturalistic but deferred reinforcers (e.g., feeling better as a result of weight loss and exercise). On a related note, first wave behavioral researchers often report changes in participants' weight or BMI, rather than effect sizes, which may not reflect the true clinical significance of the intervention. Third, first wave behavioral interventions tend to lack attention to important contextual factors, such as the detrimental impact of food deserts or the interplay of cultural factors. For example, while first wave behavioral interventions may focus on increasing physical activity while reducing caloric intent with a goal of weight loss, there is less attention paid to the resources available in individual communities. An increased awareness of and resolution for barriers to accessibility of high quality, nutritious foods could greatly impact one's engagement in healthy eating behaviors. Finally, first wave interventions often do not attend to socially significant issues, such as stigma or bias that greatly impact one's self-concept and day-to-day life choices.

Second and Third Wave Behavioral Treatments

Second and third wave behavioral interventions of obesity involve different interventions and processes, but most of the later interventions build on and do not invalidate the contributions of first wave behavior treatments. The premise to many second wave interventions is the assumption that cognitions, emotions, and physiological states evoke maladaptive behavior. Consequently, modifying one's internal experiences can result in changes in behavior. These intervention strategies are often designed to assist a person who is interested in losing weight to identify both cognitive and emotional triggers for their eating and sedentary behavior, learn how to change their maladaptive thoughts, and modify their difficult emotional states so that they can more easily engage in behavior that is consistent with their goal of losing weight.

Alternatively, third wave behavioral treatments emphasize one's context and often utilize experiential change strategies to behavior change (Hayes, 2004). More specifically, third wave interventions tend to focus on using acceptance, mindfulness, and values strategies in order to increase one's ability and willingness to engage in values-based actions (i.e., proper levels of exercise, diet), even while experiencing challenging thoughts, emotions, and bodily sensations. Another notable difference between third wave behavioral interventions and earlier behavioral methods may be the goal of treatment. While the treatment goals of first and second wave behavioral treatments are likely to include weight loss and/or the modification of difficult internal experiences, third wave behavioral treatments are more focused on effective, meaningful living, and weight loss may be the by-product of committing to such a living. In other words, third wave behavior interventions tend to focus

on how weight management can support one's engagement in meaningful activity (e.g., playing with one's child), therefore emphasizing the person's values-based functioning rather than on the person's weight or under which category their BMI falls. Finally, the quality of life for someone who is overweight can be significantly impaired due to stigma, bullying, discrimination, and experienced weight bias (Puhl & Brownell, 2001). Unfortunately, many earlier behavioral interventions did not address these concerns. A number of third wave behavioral interventions acknowledge the significance and impact of such concerns and involve those issues and the person's relationship to them as foci of treatment.

From our perspective, each wave of behavior therapy has contributed helpful and effective tools to promote healthy food consumption and exercise practices. In many ways, the intervention components are not incompatible with each other but provide a selection of effective interventions that allow for the tailoring of interventions to the unique challenges and controlling variables for each individual (e.g., Brownell & Wadden, 2016). One of the unique features of a science-based clinical practice that all waves of behavior therapy follow is that research clarifies and refines prior knowledge (and on rare occasion corrects faulty conclusions). New research findings are incorporated into clinical practice and, on occasion, and challenges encountered in clinical practice form the gist of new waves of research. This reciprocal interaction of research and clinical practice fuels the evolution of more effective clinical practice and allows interventions to be refined and matched to unique client and contextual situations. We fully expect that additional "waves" of behavior therapy beyond the three covered in this book will occur and contribute to the development of increasingly effective and efficient strategies to promote sustained changes in those eating and exercise behaviors that contribute to obesity (and to other behaviors that have an impact on physical and mental health).

Conclusion

Obesity has been known to affect one's physical and mental health. These concerns are particularly problematic due to the increasing prevalence of obesity in the United States. Because weight management involves a balance of energy ingested and energy expended, researchers have focused on eating and exercise behavior. The behavioral methods of assessment and intervention for exercise and eating behavior have evolved over time but have remained founded in basic behavioral principles. For writing this chapter, we reviewed various first wave antecedent and consequent interventions, attending to both theory and applied strategies. Based upon the research findings, we highlighted specific interventions that appear to be the most beneficial for producing immediate and long-lasting change. While there are various strengths of first wave behavioral approaches to the assessment and intervention for weight management, they have served as the catalyst and foundation for subsequent research and the development of new and effective interventions for obesity-related behaviors. Like all interventions, these first wave interventions have

weaknesses and limitations, including the lack of treatment specificity to allow for replication, limits on the maintenance and generalization of treatment effects (Brownell et al., 1986), and failure to attend to idiosyncratic contextual factors and social issues that contribute to obesity (Brownell & Wadden, 2016). It is hoped that clinical practice in managing obesity and exercise will continue to evolve as research identifies and refines interventions and the underlying behavioral processes on which effective interventions are based.

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Obesity: Third Wave Case Conceptualization



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The obesity epidemic presents an unprecedented challenge to public health. Over two billion adults are currently overweight, and prevalence rates are at epidemic levels in most industrialized countries including Chile (74%), Mexico (73%), the United States (70%), Portugal (68%), Australia (67%), the United Kingdom (64%), Hungary (62%), Germany (60%), Canada (59%), Spain (53%) and France (49%) (OECD, 2019). Excess weight is a leading cause of death and it contributes to a wide range of health issues, including cardiovascular disease, type 2 diabetes, risk of certain cancers and early mortality (Al-Goblan et al., 2014; Di Angelantonio et al., 2016; Katzmarzyk et al., 2001; Lavie et al., 2009; Ortega et al., 2016; Renehan et al., 2008; Vucenik & Stains, 2012).

Lifestyle modification interventions are considered the current gold-standard treatment for obesity. Such programs prescribe calorie and physical activity goals and teach various behavioral skills, such as stimulus control, self-monitoring, problem-solving, and relapse prevention, in the service of adhering to these goals and obtaining negative energy balance. These programs produce significant weight loss (between 5% and 10%) over year-long intervention periods if delivered intensively (i.e. 16–30 sessions over 1–2 year) (Butryn et al., 2011; Wadden et al., 2020). Importantly, weight losses $\geq 5\%$ are considered clinically significant given their association with health benefits and reduction of chronic disease symptoms (Blackburn, 1995; Pasanisi et al., 2001).

However, the outcomes of traditional lifestyle modification interventions are suboptimal—a significant proportion of participants (approximately one third) do not lose clinically significant amounts of weight, and rates of weight regain in the absence of weight maintenance therapy are high, with nearly one-half of participants returning to their original weight within 5-years (Butryn et al., 2011). Thus,

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despite the short-term efficacy of lifestyle modification programs for weight loss, long-term weight maintenance remains poor and of critical importance to address.

Partly in response to the suboptimal outcomes of current gold-standard lifestyle modification approaches, new treatments for weight loss that incorporate mindfulness and/or acceptance-based principles have been developed over the past 10–15 years. Third Wave treatments for obesity emphasize metacognitive awareness of thoughts, feelings, and decision-making and incorporate mindfulness- and/or acceptance-based strategies. Broadly speaking, these treatments can be categorized into two types: those that focus primarily on cultivating mindfulness through meditation and mindfulness practices (mindfulness-based interventions; MBIs), and those that synthesize cognitive, behavioral, and Third Wave treatment components (e.g., acceptance-based behavioral treatments; ABTs). While these two treatment approaches have some overlap, we will discuss each approach separately given their distinct theoretical underpinnings and treatment approaches.

Theoretical Rationale

Mindfulness-Based Interventions (MBIs)

There has been growing interest in the application of mindfulness techniques to issues of eating and weight, and a variety of treatment approaches now incorporate mindfulness in some capacity. Mindfulness is often defined as “the awareness that arises from paying attention, on purpose, in the present moment and non-judgmentally” (Kabat-Zinn, 2003a, b). Mindfulness is considered to be a trait (Baer et al., 2006), but can also be cultivated through the practice of mindfulness meditation. Though mindfulness principles have philosophical, spiritual, and contemplative origins, mindfulness practices and techniques have been incorporated into a variety of psychological treatments, and have been found to produce clinical benefits for a range of conditions, including anxiety, depression, borderline personality disorder, somatization disorders and chronic pain (Baer, 2003; Hofmann et al., 2010; Lakhan & Schofield, 2013; Zeidan et al., 2011). More recently, mindfulness has been used to target problematic eating behaviors (e.g., Alberts et al., 2010; Daubenmier et al., 2011; Kearney et al., 2012; Kristeller et al., 2014; Tapper et al., 2009; Timmerman & Brown, 2012).

Various theoretical models suggest that obesity and overweight are related to dysregulation of eating behaviours as well as maladaptive responses to internal and external cues. The dysregulation model of obesity, for example, posits that the inability to self-regulate eating behaviors results from poor recognition of physical hunger and satiety cues (Dalen et al., 2010). Recently, mindfulness has gained attention as an avenue through which problematic eating could be targeted by improving awareness of internal and external cues (Dalen et al., 2010; Kristeller & Wolever, 2011). Additionally, mindfulness cultivates the skill of self-regulation by

encouraging non-judgmental awareness (Baer, 2003; Shapiro et al., 2006), which may also be beneficial in discouraging overeating.

Eating in response to cues other than hunger is a key factor proposed to disrupt weight maintenance efforts. For example, a significant proportion of adults with overweight or obesity (an estimated 57–90%) vs. approximately 15–45% of non-overweight individuals report eating in response to their emotions (Ganley, 1989; Gibson, 2012; Péneau et al., 2013), and greater emotional eating predicts poorer weight loss outcomes (Fraysn & Knäuper, 2018). Similarly, stress is associated with hedonic hunger (Lemmens et al., 2011) and preference for high fat, high calorie foods (Oliver et al., 2000), which if experienced chronically, may contribute to obesity (Dallman et al., 2003). Mindfulness training cultivates the ability to attend to one's emotional experiences and accept them (rather than attempt to suppress them by eating) by enhancing awareness of cravings, physical sensations, emotions, and thoughts in a non-judgmental and curious way (Kristeller & Wolever, 2011). Mindfulness may then attenuate the relationship between emotions/stress and the non-hunger-related eating that is proposed to disrupt weight regulation.

Individuals also frequently eat in response to various *external* cues, such as the presence of highly palatable foods or locations/events associated with eating (e.g. a movie theatre). Mindfulness can counteract eating due to external factors by increasing awareness of the factors that may cue eating, and by promoting nonreactive responses to immediate desire and impulses. For example, MBIs teach people to “tune in” to their internal experiences, including hunger and fullness signals, and to mindfully observe moment-by-moment sensations while eating (Kristeller & Wolever, 2011). Individuals can then utilize an awareness of these signals to guide eating, rather than eat from a place of habit, automaticity, or reactivity. The cultivation of internal awareness (sometimes called “inner wisdom”) may be particularly key given the ubiquity of highly palatable foods and the prevalence of reward-driven eating. Reward-driven eating, characterized by loss of control over eating, a lack of fullness or satisfaction when eating, and a preoccupation with food (Epel et al., 2014), can overwhelm natural homeostatic mechanisms that govern hunger and satiety (Berthoud, 2006), resulting in weight loss difficulties (Mason et al., 2016).

Through increasing awareness of thoughts, feelings, sensations, and external cues, mindfulness enhances self-awareness. Self-awareness can in turn allow individuals to notice maladaptive eating behaviors and their triggers (Brewer et al., 2018), and to notice the consequences of maladaptive eating behaviors, such as the emotional and physical effects of eating past satiety or in the absence of hunger. This same awareness also allows individuals to notice and appreciate the physical and emotional consequences of more adaptive eating behaviors, such as eating in response to hunger and fullness cues (Brewer et al., 2018).

In addition to increasing moment-by-moment awareness, mindfulness is thought to strengthen higher level processes more generally, such as dispositional attentional control (de Bruin et al., 2016; Chambers et al., 2008; Rodriguez Vega, 2014), working memory (Zeidan et al., 2010), visuo-spatial processing (Zeidan et al., 2010), and executive function (Zeidan et al., 2010). Meditative practices enhance attentional control, for example, by instructing individuals to focus attention on the

breath or the body and continually bring attention back to the object of focus when the mind wanders. Attentional control can then be used to target weight-control related behaviours, such as through enhancing enjoyment of physical activity and healthy foods (e.g., by increasing taste satisfaction), and by reducing overconsumption of certain foods (Loucks et al., 2019). The continued attentional refocusing involved in mindfulness may train self-regulatory skills (Tang et al., 2007), which are thought to be critical to successful weight management (Wing et al., 2006).

Of note, mindfulness may constitute an “effortless awareness” form of self-regulation, which is different than self-regulation that comes from deliberate effort (e.g., using cognitive control to distract or resist experiences) (Friese et al., 2012; Garrison et al., 2013; Kabat-Zinn, 1982). Indeed, brain imaging work suggests that mindfulness-based treatments do not rely upon the recruitment of prefrontal brain regions associated with cognitive control, unlike cognitive-based treatments (Kober et al., 2017).

Mindfulness practices also promote acceptance, both of in-the-moment thoughts, feelings, and sensations, and of oneself and one’s body more generally. An attitude of acceptance could in turn reduce avoidant or inflexible patterns of behavior thought to maintain a variety of disorders, including binge eating (Lillis et al., 2011).

Given that mindfulness targets core processes implicated in issues of eating (such as automatic or reactive patterns of eating, dysregulation of affect and behavior, and self-judgment), it follows that mindfulness has been drawn upon in efforts to enhance the treatment of disordered and dysregulated eating. In this chapter, we define MBIs as skill-based interventions that focus upon (i.e. target in each session) cultivating greater mindfulness through either traditional meditation practice (Kabat-Zinn, 2003a, b), or through exercises aimed at increasing present moment awareness in daily life, such as through increased awareness of thoughts and feelings, or hunger and satiety cues (Craighead & Allen, 1995; Kristeller & Hallett, 1999). We contrast such approaches in which mindfulness is the primary treatment component to interventions that include mindfulness as one of many treatment components, such as ABTs, ACT, and Dialectical Behavioral Therapy for binge eating (Telch et al., 2001).

Acceptance-Based Behavioral Treatments (ABTs)

According to ABT, obesity is an expected consequence of living in an obesogenic environment—that is, an environment in which highly palatable, calorie dense foods are in over-abundance, and the need for physical activity in daily living is low. Instead, human beings evolved to prefer high calorie foods and to *conserve* energy—in our distant evolutionary history, it was to our advantage to consume high calorie foods when available, and to limit energy expenditure through staying sedentary when possible.

This mismatch between our modern-day obesogenic environment and our evolved preferences is thought to give rise a variety of internal experiences, such as

thoughts, emotions, and physiological experiences (e.g., urges), that pull people away from weight control goals, such as calorie reduction and physical activity promotion. The provision of strategies to manage these challenging internal experiences is considered a critical “puzzle piece” that is missing within current gold-standard weight loss approaches. For example, even if individuals modify their home environment so as to only include healthy, lower calorie food options, they may still experience cravings and preferences for higher-calorie foods passing by restaurants and fast-food chains on their way to work. As such, ABTs provide participants with additional psychological skills, based upon principles of mindfulness and/or acceptance, to manage challenging internal experiences that inevitably arise.

Behavioral weight loss strategies are conceptualized as a core foundation for weight control. Participants are thought to be successful in ABTs in so far as they adhere to the prescribed calorie and physical activity goals, which produce a negative energy balance, and thus weight loss. Key behavioral strategies such as self-monitoring dietary intake and weight, problem-solving, stimulus control (i.e. adjusting one’s immediate environment such that higher calorie foods are less readily available, and lower calorie foods are more readily available), and goal setting are considered essential to meeting calorie and physical activity goals. Yet, it is tremendously difficult to adhere to calorie and physical activity prescriptions in a modern-day obesogenic environment. Thus, traditional lifestyle modification interventions based upon these principles often produce suboptimal outcomes.

To counteract the biological, social and environmental challenges of sustained weight control, ABTs supplement behavioral strategies from traditional lifestyle modification interventions with acceptance- and mindfulness-based skills from Third Wave therapies, in particular Acceptance and Commitment Therapy (ACT; Hayes et al., 1999), but also Dialectical Behavior Therapy (DBT; Linehan, 1993), and techniques, such as urge surfing, from Marlatt’s relapse prevention model (Marlatt & George, 1984).

Treatment Overviews

Mindfulness-Based Interventions (MBIs)

Mindfulness-based treatments were originally developed for non weight loss seeking populations (Kabat-Zinn, 1990; Teasdale et al., 2000), but have since been adapted and built upon to target issues of weight and eating. Given the conceptual fit of mindfulness skills and weight management, a growing number of studies of mindfulness-based treatments include weight as an outcome measure (Alberts et al., 2010; Kearney et al., 2012) and some mindfulness-based treatments have been adapted so as to target issues of eating and weight.

Mindfulness-Based Eating Awareness Training (MB-EAT; Kristeller & Hallett, 1999; Kristeller & Wolever, 2011; Kristeller et al., 2014), for example, is a 12-week

manualized group-based intervention originally developed to normalize patterns of eating amongst samples with binge eating. MB-EAT incorporates some traditional mindfulness meditation (e.g. on breath or general awareness) with the goal of increasing attentional and self-regulatory abilities. In addition, MB-EAT incorporates content specific to mindful eating with the goal of disrupting automatic or habitual patterns of eating. The overarching aim of MB-EAT is to enhance self-regulation related to eating, emotions, and behavior. While MB-EAT was originally developed for binge eating, elements of MB-EAT have since been adapted and incorporated into treatments focused upon increasing healthy eating or promoting weight management or weight loss. Below, we describe the core elements of MB-EAT (see Kristeller & Wolever, 2011 for an overview of the conceptual foundation of MB-EAT), and then discuss how adaptations of MB-EAT have been applied to weight loss and related outcomes.

Training Mindfulness MB-EAT draws inspiration from traditional mindfulness-based treatments, such as mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990) and mindfulness-based cognitive therapy (MBCT; Teasdale et al., 2000). Such interventions systematically train mindfulness through mindfulness meditations that guide participants to at first focus attention on a target (e.g. the breath), and nonjudgmentally observe when attention has shifted before gently reorienting to the attentional target. Then, participants are invited to openly observe any thoughts, feelings or sensations that arise as transient mental states. MB-EAT incorporates various mindfulness meditations and exercises, such as body scans, sitting meditations and walking meditations (Baer, 2015), from such traditional mindfulness programs. In MB-EAT, certain adaptations to traditional mindfulness programs are made to make the program more accessible to individuals with overweight, such as teaching chair yoga instead of hatha yoga.

As in traditional mindfulness programs (e.g. MBSR), in MB-EAT participants are encouraged to maintain a regular meditation practice (10–20 min daily) outside of sessions. Participants are encouraged to practice mindfulness not only through formal meditations, but also in the midst of daily activities with “mini-meditations.” Mini-meditations involve taking a moment to pause and observe one’s internal sensations throughout the day, and especially before meals or in moments of stress.

Cultivating Mindful Eating Several exercises in MB-EAT involve developing the ability to tune in to biological hunger and satiety signals, which individuals with eating issues are often proposed to be disconnected from (Kristeller & Wolever, 2011). To aid in this ability, individuals are taught to distinguish between, and accurately label, internal experiences, such as physical/biological hunger and emotional/hedonic hunger. A variety of guided mindful eating meditations are conducted throughout the program. For example, the MB-EAT program introduces mindful eating with a raisin, and then incorporates foods that are increasingly difficult to mindfully eat (e.g., sweet high fat food) during the remainder of the program due to their hedonic or caloric properties. Following guided meditations that introduce and train these abilities, group discussions prompt individuals to reflect upon their

experiences. Near the end of the program, to simulate the challenges of mindfully eating at a buffet or party, participants are guided to mindfully eat a potluck-style meal consisting of a “healthier” dish and a favorite dish.

MB-EAT teaches participants not only to tune into hunger and satiety signals but also to notice and increase enjoyment of food, for example, through observing flavor and texture preferences, and through savoring each morsel of food. A distinction is made between “wanting and liking” (Finlayson et al., 2007) based upon “sensory-specific satiety” or *taste satiety*, the phenomenon by which taste buds adapt to the flavor of a food after eating a small quantity of it, and thus the subjective taste of a food decreases (Hetherington & Rolls, 1996). Participants are taught to derive pleasure from eating based upon the *quality* of the eating experience, as opposed to the *quantity* of the food ingested. Emphasis is placed on making food choices not only based upon calorie or nutritional considerations, but also based upon what foods one enjoys.

Disrupting Emotional Eating In MB-EAT, emotional eating is considered to be a common driver of overeating. Participants are thus taught to increase their awareness of emotions, thoughts, and self-judgments that often cue eating, and to interrupt patterns in which such cues prompt reactive eating. Cognitive distortions (e.g. permission-giving thoughts such as, “I already ate too much, I may as well keep eating now”) are addressed, and individuals are encouraged to find healthier ways of meeting their emotional needs.

Cultivating Self-Acceptance MB-EAT also focuses upon cultivating a stance of self-acceptance, given that many people with binge eating struggle with self-criticism and feelings of guilt or shame. A body scan exercise, for example, teaches individuals to distinguish between judging the body and experiencing it (Kristeller & Wolever, 2011). Individuals are taught self-acceptance skills in relation to not only their body, but also themselves more generally. A general stance of acceptance towards the self is cultivated through various exercises such as a self-acceptance meditation in which participants are guided to let go of self-blaming or self-critical thoughts while focusing on the breath, and through practicing non-judgmental awareness of thoughts, feelings and sensations.

Treatment Adaptations for Weight Loss and Related Behaviors Since MB-EAT was originally developed for populations with binge eating, its focus has historically been the normalization of patterns of eating, as opposed to weight loss. Iterations of MB-EAT have presented calorie and nutrition information in the context of physical hunger and calorie balance, as opposed to weight loss (Kristeller et al., 2014). Certain MB-EAT programs have framed external calorie and nutrition information as “outer wisdom,” in contrast to the inner wisdom of tuning into one’s internal experiences and mindfully eating. Individuals can utilize this outer wisdom, paired with inner wisdom, to flexibly inform their personal weight management efforts (Kristeller & Lieberstein, 2016).

Interventions based upon MB-EAT have since been implemented into treatments explicitly targeting healthy eating, weight loss or weight management. Timmerman and Brown (2012), for example, evaluated a 6-week group-based mindful restaurant eating program for participants who frequently eat out. The aim of the program was to help participants select lower fat, lower calorie options when eating at restaurants. The program provided a combination of nutrition psychoeducation, goal setting (a core standard lifestyle modification skill), and mindful eating meditations promoting awareness of hunger and satiation signals and cues of mindless eating. Weight and dietary intake were included as primary outcome measures.

The Mindful Eating and Living program (MEAL; Dalen et al., 2010), was developed specifically for people with obesity, based upon past mindful eating interventions. Dalen et al. (2010) conducted a pilot study of the 6-week group-based MEAL curriculum, which incorporated mindfulness meditation, mindful eating, and group discussion. Eating exercises included a variety of foods and contexts in which eating occurs (e.g. when hungry full, alone, or with others). Participants were provided with basic nutrition and calorie information, though were encouraged to utilize mindfulness as opposed to external information to guide eating decisions. As with MB-EAT, MEAL incorporated a gradual physical activity promotion component of around 5–10% each week. Similarly, Daubenmier et al. (2016) evaluated a weight loss MBI for adults with obesity in the Supporting Health by Integrating Nutrition and Exercise clinical trial (“SHINE”). The treatment incorporated mindful eating exercises, self-acceptance and loving kindness meditation, home meditations, and mini-meditations. In addition, the treatment involved a modest calorie reduction (500 calories) and gradual physical activity promotion. Participants were given general nutrition psychoeducation on the benefits of increasing intake of fruits, vegetables and proteins, and decreasing calorie-dense foods that lacked in nutritional value.

Certain MBIs have also been adapted to focus on stress eating specifically, given the known effect of stress on visceral adiposity, and the negative health effects of visceral adiposity. Daubenmier et al. (2011) evaluated a 9-class MBI based upon MBSR, MBCT, and MB-EAT that targeted stress eating (and thus cortisol awakening response and abdominal fat). Overall weight loss was not a goal of the treatment. As such, participants were provided with 2-h of psychoeducation on nutrition and exercise; guidelines for reducing caloric intake or increasing exercise were not emphasized. Similarly, Corsica et al. (2014) developed a 6-week MBI for stress eating based upon MBSR and cognitive and behavioral strategies for stress eating. In addition to MBSR content, the intervention incorporated a variety of cognitive and behavioral techniques, such as stress education, cognitive restructuring, exposure and response prevention, alternate activities, and relapse prevention. Overall weight loss was again not the goal of the program, and calorie and physical activity prescriptions were not provided.

More recently, Loucks et al. (2019) conducted a Stage 1 single-arm clinical trial of a Mindfulness-Based Blood Pressure Reduction program (MB-BP). MB-BP retained the MBSR curriculum, and also included education on hypertension risk factors and health effects, as well as specific mindfulness modules focused on

awareness of diet, physical activity, medication adherence, alcohol consumption, stress, and social support for behavior change.

Overall, there is significant heterogeneity in MBIs in terms of duration (e.g., 6–12 weeks), intensity (e.g., the amount of daily mindfulness meditation practice encouraged) and focus (e.g., the normalization of eating behaviors, stress eating and weight loss). Critically, MBIs for eating and weight also vary in the degree to which traditional nutrition and weight loss psychoeducation is incorporated and emphasized. For example, in a systematic review of MBIs for eating and weight loss, Katterman et al. (2014) found that six of ten studies that measured weight as an outcome provided psychoeducation around nutrition, exercise, or energy balance. While most MBIs do not include behavioral weight loss strategies, a couple of more recent studies have, such as through incorporating goal setting (Timmerman & Brown, 2012) or by encouraging calorie reduction (Daubenmier et al., 2016). Thus, while MBIs target dysregulated or maladaptive patterns of eating, few explicitly focus upon weight loss and fewer incorporate strategies from traditional weight loss approaches (e.g., specific calorie prescriptions, goal setting, and self-monitoring). Future research would benefit from examining whether weight loss and maintenance outcomes could be improved by combining mindfulness strategies with established behavioral strategies.

Acceptance-Based Behavioral Treatments (ABTs)

One of the most widely researched treatments for weight loss that incorporates both mindfulness- and acceptance-based strategies is acceptance-based behavioral weight loss (ABT) (Roche et al., 2019). ABT represents a synthesis of behavioral weight loss and mindfulness and acceptance-based components. In contrast to MBIs, which generally do not emphasize behavioral strategies from traditional lifestyle modification interventions, in ABTs, behavioral weight loss strategies (e.g. stimulus control, self-monitoring, goal setting, problem solving, and increasing social support) are conceptualized as a core foundation for treatment success.

Yet, behavioral strategies are considered, on their own, to be insufficient for the tremendous challenges of living in an obesogenic environment. As such, ABT supplements behavioral strategies from traditional behavioral lifestyle modification interventions with acceptance-based skills, and sometimes mindfulness-based skills, from Third Wave therapies, in particular Acceptance and Commitment Therapy (ACT; Hayes et al., 1999), but also Dialectical Behavior Therapy (DBT; Linehan, 1993), and parts of Marlatt's relapse prevention model, such as urge surfing (Marlatt & George, 1984). As with standard lifestyle modification programs, treatments are typically conducted via 20–31 group sessions over a year long period, with groups meeting weekly at first, and then tapering in frequency over time. Broadly speaking, ABTs can be conceptualized as including three interrelated core components: mindful decision-making, willingness, and valued living.

Mindful Decision Making As in MBIs, *mindful decision making* in ABTs involves training individuals to increase awareness of the perceptual, cognitive, and affective experiences that influence eating and physical activity decision-making. Mindful decision making applies to a wide range of behaviors, including what foods to buy and eat, when to start and stop eating, when to start and stop physical activity, and decisions relevant to one's personal food or physical activity environment. The overarching goal of mindfulness in ABT is to help individuals move from "mindless" eating/physical activity decision-making to mindful and deliberate decision-making in line with specific weight control goals.

Whereas many MBIs focus upon improving the self-management and normalization of eating (e.g. Kristeller et al., 2014), ABTs employ mindfulness as a strategy to meet specific prescribed calorie and physical goals. In ABTs, mindfulness serves to create a space between cues and automatic reactions, thus allowing people to intentionally select behaviors that may be more in line with their health goals. In this way, mindfulness in ABTs is distinct from mindfulness in MBIs, in which participants learn to tune into their body and use those cues, at least in part, to guide what and how much to eat (e.g., MB-EAT; Kristeller & Wolever, 2011).

Willingness Another core component of ABT is *willingness*, or choosing to engage in weight-control behaviors, such as calorie reduction, calorie tracking, and physical activity regardless of what one's internal experiences are pulling one to do. Willingness involves having a stance of acceptance towards internal experiences that will inevitably arise during weight control efforts, tolerating those difficult experiences and then choosing to engage in weight-control behaviors (e.g., choosing a smaller portion) that are consistent with long-term goals and values (e.g., being a healthy and engaged community member) rather than short-term desires (e.g., going back for a second helping). Willingness incorporates various cognitive defusion techniques aimed at creating distance from internal experiences, such as thoughts and feelings, and viewing these internal experiences as separate from the self. Cognitive defusion can be defined as "looking *at* thoughts rather than *from* thoughts" (Harris, 2009). In cognitive defusion exercises, participants are taught to view their thoughts and feelings as simply that—thoughts and feelings that the mind continually and automatically provides—as opposed to absolute truths that one must act upon.

In order to introduce cognitive defusion, various ACT metaphors are utilized, such as "hands over face," or "yellow sunglasses," which illustrate how it is easier to observe the world and one's mind at work at a distance (e.g. when one's hand is not directly in front of one's face, or when one's tinted sunglasses are taken off) (Blackledge & Hayes, 2001; Harris, 2009). Participants are taught to create distance and objectivity from their thoughts by utilizing the phrase "I'm having the thought that..." For instance, the phrase "I will never keep this weight off" would become "I am having the thought that I will never keep this weight off" (Kohlenberg et al., 1993, p. 588).

In ABT, the core goal of willingness is to help participants separate (“uncouple”) internal experiences (e.g., thoughts, feelings, cravings, and urges) from behaviors. Uncoupling is introduced, for instance, with the “pick up the pen” exercise which guides participants to pick up a pen or pencil *while* telling themselves that they cannot do so. Various strategies are then taught to help participants implement uncoupling into daily life, such as replacing the phrase “only if” with “even if.” For instance, the phrase “I would go grocery shopping for healthy ingredients tonight only if I wasn’t so tired” would become “I will go grocery shopping for healthy ingredients tonight even if I am tired.”

In addition, the willingness component of treatment incorporates the relapse prevention technique of “urge surfing” in which participants are taught to view their urges or cravings as ocean waves (Marlatt & Gordon, 1985). Just like ocean waves which gradually grow, crest, then fall, participants are taught that while urges can feel strong, they are always temporary. In ABT, emphasis is placed on a willingness to experience urges and cravings without judging them or acting upon them. In other words, a person could have a strong craving for chips, and still choose to eat an apple. Participants are taught that delaying an urge for even a few minutes is a success, and that urge surfing will become easier with practice.

Together, these willingness strategies promote the stance of accepting any internal experiences that arise (even uncomfortable or unwanted ones) and engaging in behaviors consistent with weight-control goals or values *regardless* of which way those internal experiences are pulling. Earlier iterations of ABT emphasized tolerating aversive experiences, such as hunger, cravings and “negative” emotions (Forman et al., 2013; Lillis et al., 2015), while later iterations focused upon tolerating reductions in pleasure, such as choosing a neutral or mildly pleasant food option in lieu of a highly pleasurable one (Forman et al., 2016). Of note, this later ABT iteration has found larger effects, perhaps because tolerating reductions in pleasure is related to hedonically driven overeating, which may be a more prevailing than distress-driven overeating.

Valued Living Finally, the *valued living* component in ABT is premised on the idea that commitment to weight control is exceptionally difficult due to environmental, biological, and motivational challenges and thus will only be maintained in the long-term if weight control efforts are connected to an individual’s big-picture life values. Values can be defined as freely chosen qualities of a desired life to continually guide purposive action (Hayes et al., 2006). In ABT, values are conceptualized as a way to “supercharge” motivation—with an awareness of values, participants have autonomously generated, personally meaningful reasons to make the tremendous challenge of weight loss worthwhile.

Values work in ABT begins with a structured process for identifying and clarifying life values. Values are described as “what we want our life to be about” and are illustrated through metaphors, such as a compass. While people can continually use a compass to move in a desired direction, they can never “reach” East. In this way, values are distinct from goals, which are discrete and accomplishable (e.g., a 10% weight loss). To begin clarifying values, participants are prompted to consider

values in various life domains (e.g. work, family, spirituality). Then, they are guided to connect these values to weight control. Values that connect to weight control include taking care of one's body, being a good role model for one's community, being there for one's family in the long-term, engaging in meaningful hobbies and interests to the fullest extent possible, and being a lifelong learner. In later sessions, participants are encouraged to consider how their values may have shifted over time.

Participants are then taught strategies to make decisions guided by their cherished values, as opposed to more immediate desires or states. Values awareness involves bringing values to mind when making eating and physical activity decisions, and may entail utilizing visual and written reminders (e.g. a picture in a wallet, or post-it-notes) to remind participants about their values, even in the day-to-day bustle of life. An awareness of one's values is considered to be particularly key during weight control decision points, such as when deciding whether to exercise, or when deciding whether to have a second helping. Participants are taught to evaluate when a decision is consistent with their values (i.e., an "up vote") or is inconsistent with their values (i.e., a "down vote"). Values work may comprise various additional topics, such as how to integrate multiple values (e.g., spending time with loved ones *and* eating healthfully), prioritize multiple values (e.g., valuing work but leaving work early some days in order to exercise), or make values-consistent decisions in the face of challenges (e.g. social pressures).

Weight Loss Focused ABTs Within acceptance-based interventions, there is heterogeneity in the emphasis of these three components and the strategies utilized. In certain ABTs, the core components of *mindful decision making*, *willingness* and *valued living* serve to help people implement core behavioral strategies (e.g. self-monitoring) and adhere to the calorie and physical activity goals of standard lifestyle modification therapy (Forman et al., 2013, 2016). According to such "weight loss focused ABTs," if participants are able to adhere to calorie and physical activity goals, treatment would be effective. Yet, these behaviors are tremendously challenging to implement in daily life and necessitate additional acceptance- and mindfulness-based strategies.

For instance, in standard behavioral lifestyle modification interventions, self-monitoring calorie intake is considered a cornerstone of treatment success. Yet, many people struggle to do so consistently and accurately, and self-monitoring non-adherence is robustly associated with poorer treatment outcomes. A milieu of internal experiences may pull people away from self-monitoring, making compliance difficult. For example, people may have thoughts such as "this will take too much time," or "I'd feel terrible if I knew exactly how much I ate." People may also need to tolerate unpleasant emotions (e.g., boredom) and reductions in pleasure (e.g., taking the time to track calories rather than watching more of an enjoyable movie). In this example, *mindful decision making* would entail observing and accepting all thoughts and emotions that arise. *Willingness* would entail choosing to track calories, regardless of these thoughts and feelings. And *valued living* would entail

remembering the “why” behind weight loss—that is, viewing calorie tracking as in the service of personally meaningful health-related value, such as being a vivacious and energetic grandparent. In this way, weight loss focused ABT would enable people to implement this core behavioral strategy (self-monitoring), and thus benefit from treatment.

Values Focused ABTs Alternative versions of ABT place greater focus on valued living, and lesser focus on weight loss per se (e.g., Lillis et al., 2020; Lillis & Kendra, 2014). These “values focused ABTs,” sometimes called Values-Based Healthy Living (VHL; Lillis et al., 2020), view a laser focus on weight loss as problematic because such a focus could impede psychological flexibility through avoidance (e.g., avoidance of weight-related criticism from self or others, or feelings of guilt). In values-focused ABTs, the source of motivation matters, and weight-control behaviors are encouraged in so far as they are in-line with an individual’s values. The same behavior (e.g. refusing a second helping of cake at a party) could be maladaptive for one individual, yet adaptive for another. For instance, this decision could be maladaptive if motivated by self-hatred or disgust, yet adaptive if perceived as a step towards an important personal value (e.g., a long-lived life with loved ones). Values are conceptualized as flexible, long-term sources of motivation, while avoidance is conceptualized as a potentially effective motivator in the short-term, yet detrimental in the long-term.

As in weight loss focused ABTs, values focused ABTs aim to help participants identify and clarify their values, and have an awareness of those values when making decisions (Lillis et al., 2020). Values are clarified through a variety of exercises, including writing, group discussion, guided visualizations, and reflection. Participants are encouraged to identify ways in which their health-related decisions can empower important personal values, such as being a present and energetic grandmother, or being a role model in one’s community. Through connecting weight control and health decisions to important personal values, health behaviors are proposed to become more satisfying and sustainable in the long-term. As in weight loss focused ABTs, the connection between various weight control behaviors (e.g., healthy eating and physical activity) and valued living is emphasized and serves as a deep source of motivation which individuals can draw upon to brave the inevitable challenges of weight control. Yet, in contrast to weight loss focused ABTs, values focused ABTs place great emphasis on valued living more broadly. In this way, ACT features more prominently in values focused ABTs, and ACT exercises unrelated to health are included. For example, individuals are encouraged to explore values in their life more generally and monitor even values-consistent behaviors unrelated to weight loss.

Research Support and Future Directions

Mindfulness-Based Interventions (MBIs)

MBIs have consistently been found to decrease problematic eating behaviors related to obesity, such as emotional or stress eating, impulsive eating and binge eating (Carrière et al., 2018; Daubenmier et al., 2011; Katterman et al., 2014; Levoy et al., 2017; O'Reilly et al., 2014). A 2017 meta-analysis, for example, found that MBIs had a negative effect on impulsive eating ($d = -1.13$) and binge eating ($d = -.90$) (Ruffault et al., 2017). More limited research suggests that MBIs promote healthy behaviors conducive to weight control, such as reduced caloric intake, healthier eating choices, and increased physical activity (Barnes & Kristeller, 2016; Loucks et al., 2019; Marchiori & Papias, 2014; Ruffault et al., 2017; Seguias & Tapper, 2018). In a laboratory study, for example, participants who ate lunch while cued to focus on the sensory properties of the meal, as opposed to those in the control condition who ate in silence, subsequently ate more calories from snacks ($d = 1.14$) (Seguias & Tapper, 2018), and a 2017 meta-analysis found that MBIs had a positive effect on levels of physical activity ($d = .42$) (Ruffault et al., 2017). Yet, the effects of MBIs on weight loss itself have been mixed (Loucks et al., 2019; Olson & Emery, 2015; O'Reilly et al., 2014; Rogers et al., 2017).

For example, in a systematic review of mindfulness meditation-focused interventions for binge eating, emotional eating and weight loss, Katterman et al. (2014) identified ten studies that assessed weight as an outcome. Statistically significant changes in BMI were observed in the mindfulness intervention group in three of the studies (Cohen's d s between -0.09 and -3.29). Statistically significant weight losses were only observed in studies in which weight was a primary outcome measure, indicating that MBIs may only affect weight if it is explicitly targeted within treatment. The greatest weight loss (1.7 kg over 6-weeks) was observed in Timmerman and Brown (2012), potentially because mindfulness training was paired with behavioral goal setting—a strategy known to promote weight loss within the current gold-standard behavioral weight loss treatments (Ammerman et al., 2002). However, no studies showed a move from obese to normal weight (Katterman et al., 2014).

A recent meta-analysis of MBIs for weight loss and eating behaviors (Carrière et al., 2018), identified 18 studies that included weight as an outcome. At post-treatment, average weight loss was 3.1 kg (3.3% of initial body weight), and at follow-up, which occurred, on average, 16.26 weeks following treatment, average weight loss was 3.4 kg (3.5% of initial body weight). The authors found a moderate effect of MBI on weight loss in pre-post analyses (Hedge's $g = .42$), and a low-to-moderate effect of MBIs on weight loss in between-group analyses comparing MBIs to control conditions, though heterogeneity in control conditions precludes definitive conclusions. Seven studies compared MBI to an active control condition. Overall, the MBI condition produced low weight losses (on average, 3% of initial body weight), and these were less than the weight losses of the relatively weak

comparison conditions (on average, 5%). However, weight loss was maintained at follow-up (12–48 weeks) in the MBI conditions, whereas some weight regain was observed (approximately 0.4%) in the control conditions. Similarly, Loucks et al. (2019) found that a mindfulness-based blood pressure reduction program produced a significant BMI reduction (0.3 kg/m²) at 3-month follow-up in individuals with overweight/obesity. Future research is needed to investigate the possibility that MBIs could produce longer-term weight loss or maintenance, and a major limitation of existing trials of MBIs is their short follow-up durations.

Overall, while MBIs for binge eating have an established research base (Godfrey et al., 2015; Ruffault et al., 2017), less is known about how MBIs might produce weight loss amongst individuals with obesity, potentially due to the high levels of heterogeneity with regards to target population, target outcomes (e.g., eating dysregulation, stress eating, weight loss), intervention duration (6–12 weeks), intensity (e.g., the amount of daily mindfulness meditation practice encouraged). A better understanding of active treatment ingredients, the needed intensity/duration of treatment, and optimal target outcomes could increase the effectiveness, precision, and scalability of MBIs.

Of note, while the role of MBIs on total weight loss is unclear, MBIs improve outcomes related to overweight, such as blood pressure (15.1 mm Hg reduction in SBP among individuals with hypertension at 1-year follow-up), and the health of foods selected (e.g., eating according to the DASH diet, Loucks et al., 2019). Thus, there is preliminary evidence that MBIs are efficacious interventions for health promotion, or adjunct interventions to weight loss. However, larger randomized trials need to be conducted. Many standard lifestyle modification interventions are distinct from MBIs in that they teach participants to override cravings and overeating by adhering to external guidelines (e.g., calorie targets), and a challenge of MBIs for weight loss is the integration of content on tuning into one's inner wisdom (e.g., hunger, fullness, taste satiety), with outer wisdom, or an awareness of calorie content and nutrition. Future research should determine whether some components of MBIs are more effective than others, and whether these components would engage the effects of other treatment approaches, such as standard lifestyle modification. In addition, future research would benefit from further examination of whether MBIs are especially effective for certain subgroups of participants, such as those who engage in binge eating or have higher levels of impulsivity.

Research on MBIs for weight loss is relatively new. In addition to being limited by smaller sample sizes and shorter follow-up periods, there are a paucity of studies examining potential process measures. MBIs appear to be effective to the extent to which they increase levels of mindfulness (Carrière et al., 2018). However, many studies do not include validated mindfulness measures, making it difficult to ascertain whether mindfulness (as opposed to a related or complementary skill, such as emotion regulation) accounts for intervention effects. Recent research suggests that MBIs target various processes related to problematic eating, including emotion-regulation, self-control, and self-awareness (Loucks et al., 2019). Additionally, because most MBIs incorporate several different strategies (e.g., general mindfulness meditation, mindful eating exercises, and sometimes behavioral and cognitive

skills, such as instruction in weight management approaches and relapse prevention), it remains unclear which components of treatment are active treatment ingredients. For example, it is not clear the extent to which formal mindfulness meditation practice vs. mindful eating is important for MBIs. Future research would benefit from examining process measures, moderators of treatment outcomes, and evaluating which components of treatments are active ingredients for weight loss over longer follow-up periods.

Additionally, the generalizability of findings remains unknown. To-date, study participants have primarily been women and members of non-minority racial/ethnic groups (e.g., Kristeller et al., 2014; Loucks et al., 2019), and practitioners are typically highly trained. Relatedly, future research would benefit from examining how interventions could be scaled to reach a larger population.

Acceptance-Based Behavioral Treatments (ABTs)

ABTs have been established as an efficacious treatment, capable of producing clinically significant levels of weight loss (Butryn et al., 2017a, 2021; Forman et al., 2013, 2016; Lillis et al., 2016). Whereas MBIs produce no weight loss or modest levels of weight loss (e.g. Katterman et al., 2014), ABTs have been shown to be capable of producing clinically significant levels of weight loss of approximately 12–14% of initial body weight after year-long intervention periods (Butryn et al., 2017a; Forman et al., 2013, 2016).

Over the past 10 years, accumulating research has compared the efficacy of ABT and standard lifestyle modification interventions for weight-control, and five randomized controlled trials have compared intensive ABTs to active control conditions, such as standard behavioral treatment. Results have been mixed. In one trial that focused upon providing participants with skills to tolerate aversive experiences (e.g., cravings, and negative emotions and thoughts), ABT was found to produce superior weight loss over the course of treatment, but only under certain conditions. That is, when delivered by expert as opposed to novice interventionists, ABT produced greater weight loss (13.2%) than the standard lifestyle modification condition (7.5%) (Forman et al., 2013). In a later iteration of the manual that focused upon providing participants with skills to tolerate reductions in pleasure (e.g., choosing the lower calorie option even if less delicious) ABT produced greater weight loss (13.3% of initial body weight) than a standard lifestyle modification condition (9.8% of initial body weight) after a 1 year intervention period (Forman et al., 2016).

Yet in other studies that combine ABT with other intervention materials, ABT and standard lifestyle modification interventions produced equivalent levels of weight loss (Butryn et al., 2021; Butryn et al., 2017a). In one trial, ABT was combined with skills to help participants modify their home food environment and more easily navigate the obesogenic environment (Butryn et al., 2017a). In another trial, ABT was paired with additional materials emphasizing physical activity promotion (Butryn et al., 2021). In both trials, weight losses observed in the combined ABT

conditions did not differ from that observed in the standard lifestyle modification conditions, potentially because the overall amount of ABT content delivered was decreased, or because content focused on willingness and values clarity to the exclusion of mindfulness. Together, this research suggests that ABT may only outperform standard lifestyle modification treatments when mindfulness- and acceptance-based components are delivered with sufficient intensity, although the exact dosage remains unknown. Future research would benefit from examining the intensity and duration of treatment needed to produce effects. Additionally, future research would benefit from examining the components of ABT needed to produce effects.

Despite these successes, a remaining challenge with treatments for obesity is their long-term effectiveness. In a trial by Forman et al. (2016), ABT produced greater percent weight loss than the standard lifestyle modification interventions *during* the intervention period (13.3 vs. 9.8%), though differences between conditions were not maintained at the 1 year follow-up (7.5% vs. 5.6%) or 2 year follow-up (4.7% vs. 3.3%) (Forman et al., 2019). ABT did, however, produce sustained improvements in subjective quality of life at follow-up, as measured by the Quality of Life Inventory (QOLI, Frisch et al., 1992), such that 50.5% of participants in the ABT condition vs. 27.8% in the standard lifestyle condition achieved clinically significant improvements in quality of life from baseline to 2-year follow-up, as operationalized by Frisch et al. (2005). This indicates that while ABT may not have enduring effects on weight loss, it may have enduring benefits outside of weight loss. Lillis et al. (2016) similarly found no significant weight loss advantage of ABT over a standard lifestyle modification condition at 1-year follow-up. However, a greater proportion of those in the ABT condition achieved the 5% benchmark of clinically significant weight loss (38% vs. 25%), suggesting a potential long-term advantage of ABT.

Some, though limited, research has explored potential moderators of treatment effects (Butryn et al., 2017a, 2021; Forman et al., 2013, 2016; Manasse et al., 2017). Due to ABT's focus on increasing acceptance of and willingness to experience unwanted internal experiences and decreasing automatic responses to internal and external cues, some researchers have hypothesized that ABTs would be especially effective for those with overall heightened reactivity to cues (e.g., cravings and emotions). Support for this hypothesis has been mixed. Some research has supported this hypothesis (Forman et al., 2013), for example finding that participants with higher levels of depressive symptoms, emotional eating, disinhibited eating, and reactivity to the presence of highly palatable foods lost a greater amount of weight (1.94–6.55%) in an ABT condition as opposed to a standard lifestyle modification condition. Of note, the ABT condition in this trial focused upon building distress tolerance skills, and in a later version of the treatment that focused more generally upon tolerating reductions in pleasure, no significant moderating effects for these variables was found; instead ABT was equivalently effective for all participants (Forman et al., 2016). These differences in findings are likely attributable to differences in treatment focus: whereas the ABT condition in the earlier trial focused upon increasing tolerance of aversive states (e.g., sadness), the ABT condition in the

latter trial focused more generally upon increasing tolerance of reduction in pleasure or comfort (e.g., selecting a less pleasurable food).

One related study found support for the moderating role of impulsivity (Manasse et al., 2017). Participants with greater levels of impulsivity experienced greater weight loss (approximately 4–7% less, depending on the measure of impulsivity) in the ABT condition than in the standard lifestyle modification condition, potentially because certain ABT strategies (e.g., urge surfing) enable people to observe and tolerate negative states (e.g., cravings and urges) rather than act upon immediate impulses (e.g., to eat high calorie foods).

In three of our trials (Butryn et al., 2017a, 2021; Forman et al., 2016) we have observed that ABT helps address the usual health disparity in efficacy of weight loss treatments for White versus Black participants. Trials of behavioral weight loss consistently find that weight losses are lower for African American/Black participants compared to non-Hispanic White participants (Goode et al., 2017). For example, in two of the largest and most rigorous behavioral weight loss trials, weight losses in White participants were found to be 40–50% higher than amongst Black participants (Diabetes Prevention Program Research Group, 2004; West et al., 2008). In contrast, ABT appears to improve weight loss outcomes for Black participants. For example, in a trial in which adults with overweight or obesity were assigned to a condition combining ABT with skills to modify the home environment, or to non-ABT conditions, Black participants lost more weight in the ABT condition than in the non-ABT conditions at post-treatment (9.4% vs. approximately 6%) and 24-month follow-up (6.3% vs. approximately 4%) (Butryn et al., 2017a, b). Similarly, in a trial targeting physical activity promotion, Black participants in the ABT condition lost more weight (14.1% of initial body weight) than in the standard behavioral weight loss condition (9.4% of initial body weight) (Butryn et al., 2021). Finally, in a trial comparing ABT to a standard lifestyle modification intervention, Black participants in the ABT condition as opposed to the standard lifestyle change condition lost more weight at follow-up (11.3% vs. 8.6% of initial body weight) and at 24-month follow-up (6.0% vs. 3.6%) (Forman et al., 2016, 2019).

These preliminary findings warrant further investigation, and the mechanism behind it is unclear. Potentially, these effects are due in part to the *valued living* component of ABTs, given that this component allows participants to personalize their motivation for weight control, and African Americans often report lower pre-existing desires to be thin (Vaughan et al., 2008). Additionally, the willingness component of ABT may be especially pertinent to African Americans, who face challenges above and beyond an obesogenic environment. For example, African Americans encounter stress due to interpersonal and systemic racism (Mays et al., 2007), and may face additional cultural (Hall et al., 2013) or environmental challenges (James et al., 2012; Lynch et al., 2007) related to health and weight control.

A general limitation of ABTs, is that it is unclear which components of treatment are active treatment ingredients, given that components are typically administered in comprehensive treatment packages. Future work would benefit from disentangling this, which could aid in the disseminability and cost-effectiveness of future interventions. Additionally, more work is needed to examine a greater variety of

process measures. Limited work has examined mechanisms of change, and the work that has largely relies upon self-report measures. Process measures examined to-date include experiential avoidance, or unwillingness to experience internal experiences, such as thoughts, feelings and sensations (Forman et al., 2013, 2016; Lillis et al., 2017; Niemeier et al., 2012; Schumacher et al., 2019), internal disinhibition (Lillis et al., 2016; Niemeier et al., 2012), physical activity intentions (Godfrey et al., 2019) and values-linked mediators, such as autonomous motivation (Forman et al., 2016; Lillis et al., 2017).

At present, the greatest body of research has examined experiential avoidance as a mechanism of change. Research has not supported general experiential avoidance, assessed with the Acceptance and Action Questionnaire (AAQ; Bond et al., 2011; Hayes et al., 2006), or weight-related experiential avoidance, assessed with the Acceptance and Action Questionnaire for Weight-Related Difficulties (AAQW; Lillis & Hayes, 2007), as mediators of treatment effects (Lillis et al., 2017; Niemeier et al., 2012; Schumacher et al., 2019). On the other hand, support has been found for the mediating role of food-related experiential avoidance (i.e., an unwillingness to experience internal experiences such as cravings) as assessed with the Food Craving Acceptance and Action Questionnaire (FAAQ; Juarascio et al., 2011; Forman et al., 2013, 2016; Schumacher et al., 2019).

Further work into potential predictors, maintenance factors, and process measures could inform the development of ABT and establish precise treatment approaches tailored to different subsets of people seeking weight loss. In addition, the generalizability of ABTs for weight loss is unknown, since participants are typically highly motivated, and clinicians administering the treatment are generally highly trained and from a limited number of research groups in the U.S.

Of critical importance, weight regain occurs following existing treatments, including ABTs. ABTs may only be effective in the long-term if treatment is continued, such as with booster sessions. Further research into how (e.g., in-person, through smart phones) and in what dose, to continue ABT treatment so as to maintain weight loss gains long-term is needed. Additionally, novel approaches to weight loss capable of producing enduring effects are needed.

Conclusions

While weight loss treatments can produce short-term weight losses, little is known about how to produce long-lasting weight change. Traditional lifestyle modification interventions for weight loss teach people how to modify their food intake, environment, and thoughts. Third Wave treatments for obesity propose that these modifications are insufficient, and that challenging internal experiences, environmental barriers, and poor recognition of physical hunger, taste satisfaction and satiety cues will remain given the tremendous difficulty of living in an environment with easy access to hyper-palatable, calorie dense foods, and with a biological preference for such foods. Third Wave treatments for obesity thus equip individuals with

mindfulness and acceptance-based strategies to observe, rather than react to or change, internal experiences (e.g. thoughts, feelings, cravings and urges), and to intentionally choose behaviors in line with biological hunger signals, goals or values, even in the face of challenging internal experiences.

In this chapter, we reviewed two main types of Third Wave treatments for obesity. The first, MBIs, focus on cultivating a general nonjudgmental, open awareness of the present moment, as well as an ability to distinguish, label and observe specific eating-related experiences, such as hunger, fullness, and taste satiety. The overarching goal of MBIs is to disrupt automatic or habitual patterns of eating, and enhance self-regulation related to eating, emotions, and behavior. ABTs teach individuals to be aware of factors that influence eating and physical activity decision-making, and then to select behaviorally based weight control strategies (e.g., calorie reduction and physical activity promotion) that are consistent with personally meaningful values, as opposed to desires to reduce or avoid unwanted experiences (e.g. cravings, negative emotions, discomfort).

Mixed research supports the efficacy of MBIs for weight loss; however, MBIs produce various eating-related benefits, including reduced stress and more regular eating patterns, suggesting that mindfulness could be a valuable component to integrate into treatments. ABTs are a viable alternate to traditional lifestyle modification, producing equivalent or superior levels of weight loss as current gold-standard weight loss treatments over intervention periods, though weight regain occurs in the absence of weight maintenance treatment. For both MBIs and ABTs, much remains to be learned regarding what exact treatment components are effective, and the process mechanisms underlying observed effects. Such research is important in increasing the effectiveness, precision, and scalability of treatments.

Of critical importance, while Third Wave treatments for obesity contribute to the field by offering novel applications of strategies for weight loss and related issues (e.g., emotional eating), little is still known about how to produce sustained, long-term weight loss. Only by attending to the complicated interplay of social, environmental, biological, and internal experiences, and by precisely examining active treatment ingredients, process measures and contextual factors, will progress on this front be made. Given the numerous and complex contributors to overweight, creative solutions to the obesity epidemic capable of producing lasting change are needed.

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First-Wave Behavior Therapies for Schizophrenia and Related Psychotic Disorders



Stephen E. Wong

If principles and techniques in this chapter can be described as the “first-wave of behavior therapy” for schizophrenia and psychotic disorders, then innovations of psychologists and other scientists leading to the development of behavioral psychology were impulses powering that wave. The roots of behavior therapy go back to twentieth century psychology and behaviorism. In *A History of Experimental Psychology*, Edwin G. Boring recounts that behaviorism emerged as an offshoot of American functional psychology, “... which has to do with success in living, with the adaptation of the organism to its environment, and with the organism’s adaptation of its environment to itself...” (Boring, 1950, p. 551).

The intellectual forebearers of this movement were illustrious. A profound influence was Darwin, whose theory of evolution explained animals’ anatomical structures by the function they served in improving organisms’ chances of survival and reproduction (Kimble, 1961). Behavior, an extension of an organism’s anatomy and nervous system, might be similarly analyzed by looking at how it facilitated animals’ successful adaptation to their environment. This analysis would later provide invaluable clinical insights into how abnormal behavior could have formed and been functional in adverse or perverse environments.

The leader of this new movement within psychology was John B. Watson (Keller & Schoenfeld, 1995), the nominal father of behaviorism. Watson rebelled against prevailing German structural psychology and its preoccupation with consciousness, sensation, imagery and other mental states. Structural psychology relied on introspection to study sensory processes and mental content, which were its primary subject matter. Watson criticized this approach as relying on subjective information that was beyond any means of independent verification. Watson also noted that during the preceding 50 years this approach had failed to produce a body of usable data or a related technology for improving human affairs. Watson argued that to become

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a scientific discipline psychology needed analyses that led to prediction and control of its subject matter, which he asserted should be objective measures of overt behavior. He promised that analyses revealing lawful relationships between behavior and its surrounding environmental stimuli were at hand, and such knowledge would allow psychology to join the ranks of the other natural sciences (Watson, 1913).

Following the model of physics and other basic sciences that were making remarkable discoveries and rapid technological advances in the early twentieth century, psychologists sought to refine their research data by operationalizing their measures. B. F. Skinner laid the cornerstone for such operational measures through his invention of an electromechanical apparatus (the “Skinner Box”) that precisely recorded response frequencies and rates in his animal subjects (Skinner, 1938, 1979). Skinner’s experimental data was obtained mainly from rats and pigeons; but, like Watson, Skinner was intensely interested in human conduct and in finding universal laws of behavior that applied both to non-humans and humans. Contrary to common belief, Skinner never questioned the existence of complex thought and feelings in human beings, a seeming division between humans and the rest of the animal kingdom. However, Skinner examined how external stimuli and history shaped these subjective experiences and thereby refuted an ancient fallacy that attributed personal agency to these private events (Skinner, 1953).

Students of Skinner who sought to ameliorate behavior problems in humans did not yet have electromechanical devices suitable for their clinical work, so they devised objective measures of behavior in the form of response definitions. Investigators wrote response definitions that clearly specified the typography of the behavior of interest (e.g., “Self-talk is defined as any vocalization not directed at another person, excluding singing, humming, and physiological functions (e.g., coughing).”). Trained observers then used these response definitions to record frequencies, durations, and other quantifiable measures of socially significant behavior, and verified the trustworthiness of this data through interobserver reliability checks (Baer et al., 1968, 1987; Cooper et al., 2007).

Early Behavioral Research with Psychotic Disorders

Reading research from the 1960s that led to behavior therapy for schizophrenia and other psychotic disorders is like taking a trip in a time machine back to a strange world without established psychological models or guidelines for professional practice with persons exhibiting severe behavior problems. These early studies sought both to prove that learning principles applied to humans and to find effective interventions for vexing clinical conditions. By today’s standards, some of the procedures used in these studies would be morally objectionable and unethical, such as delaying or withholding patients’ meals, using punishment or highly restrictive procedures for nonharmful actions, teaching arbitrary responses with minimal utility for the patient, or using cigarettes as positive reinforcers (e.g., Ayllon & Haughton, 1962; Ayllon et al., 1965).

When considered within their proper historical context, however, these were pioneering studies that demonstrated the behavior of supposedly incurable mental patients could be altered by manipulating environmental contingencies, and that this could be a practical approach for reducing patients' psychotic responses and restoring their appropriate behavior. These studies also revealed how traditional hospital practices, especially nursing staff's customary reactions to patients' behavior, could be a direct cause or reinforcing consequence maintaining problematic patient responses. These findings highlighted psychiatry's faulty conceptualization of psychotic behavior and how psychiatric hospitals were ill-suited for rehabilitating clients or preparing them for independent life in their communities. This corresponded with a growing awareness of how long-term exposure to the regimentation and custodial care of psychiatric institutions could have iatrogenic effects, leading to a *social breakdown syndrome* of, "...dependency, apathy or troublesome behavior, withdrawal, (and) lack of responsibility..." (Paul, 1969).

These early studies and current research also differed in their methodology. Most of the earlier studies involved small numbers of subjects and were uncontrolled case studies or controlled single-case experiments. Because of their small n's, the generalizability of results from such studies to other patients were limited. However, when controlled single-case experimental designs (e.g., reversal designs or multiple-baseline designs) were used, their direct replication of treatment effects more clearly demonstrated the intervention's impact on individual patient behavior than could controlled between-groups designs (i.e., randomized clinical trials).

Landmark Studies of Teodoro Ayllon and Colleagues in the State Mental Hospitals

As a doctoral student, Teodoro Ayllon was inspired by Ogden Lindsley's research on free-operant conditioning of chronic psychotic patients in a 6-ft square experimental room (Ayllon, 2021; Lindsley, 1956, 1960; Lindsley & Skinner, 1954). Ayllon subsequently conducted his dissertation project on engineering the social consequences of nursing staff to reduce problematic responses of chronic patients in a mental hospital in Saskatchewan, Canada. This resulted in one of the first systematic applications of operant learning principles to behavior problems in humans (Ayllon & Michael, 1959). In one experiment of this study, the investigators obtained moderate success in reducing a female patient's psychotic talk (i.e., concerning her illegitimate child and men pursuing her) by withholding attention for psychotic talk and only attending to sensible talk. Ayllon and Haughton (1964) would later decrease delusional statements and incessant somatic complaints in two female patients, both with diagnoses of chronic schizophrenia and lengthy hospitalizations. Delusional claims ("I'm the Queen.") by one patient and somatic complaints ("... my nerves are shot. I can't hear anymore... for weeks I don't have any sleep and I'm scared to go to bed at night.") in a second patient were substantially

reduced by ignoring inappropriate speech and reinforcing neutral (appropriate) verbalizations with attention and occasional consumable reinforcement. The frequency of neutral verbalizations was also recorded for first patient, showing that as the number of psychotic verbalizations lessened the number of neutral verbalizations rose.

Other problematic behaviors of schizophrenic patients treated by Ayllon and his colleagues fell outside of the schizophrenia profile. Ayllon and Michael (1959) reported on two female patients, probably classified with schizophrenia and with lengthy psychiatric hospitalizations, who refused to eat and were spoon-fed by nursing staff during each meal. The patients' eating disorders (one refusing to eat because her food was "poisoned") were long standing problems within this institution. Interestingly, both patients valued their neat and clean appearance. This personal preference was utilized in an escape/avoidance conditioning program that involved directing the nurses to intentionally drop a small amount of food on the patient's clothing while feeding them. Patients could avoid having food spilt on them by initiating self-feeding at any point in the meal. Avoidance conditioning was combined with reinforcement for appropriate behavior by having nursing staff sit and converse with the patients for a few minutes if they fed themselves. Within several weeks, this program resulted in a shift from dependence on nursing staff to complete self-feeding for both patients that maintained for the next 10 months.

Ayllon (1963) also described programs to modify towel hoarding and wearing excessive clothing in a 47-year-old female patient who had been diagnosed with chronic schizophrenia and hospitalized for 9 years. During a baseline phase, the patient was observed to have between 19 and 29 towels in her room, despite nursing staff removing towels from her possession throughout the day. Towel hoarding was treated with stimulus satiation, which began by giving the patient 7 towels each day and then increasing this number to 60 towels per day. As the number of towels in her room rose to over 600, the patient's verbalizations about towels changed from attraction ("Oh, you found it for me, thank you.") to revulsion ("Get these dirty towels out of here."). By the time 625 towels had accumulated in patient's room, she began removing them herself and no more towels were given to her. At the end of the program the patient kept only 1–5 towels in her room, and this behavior change maintained during a 1-year follow-up period.

The above schizophrenic patient also dressed bizarrely wearing several layers of sweaters, shawls, dresses, undergarments, and up to two dozen pairs of stockings. The patient also wrapped sheets and towels around her head and body, carried two to three cups and a bundle of clothing in one hand and a large purse in the other. The program to reduce excessive clothing consisted of contingent food reinforcement. The patient was weighed before each meal and was only allowed to enter the dining room if she weighed 2 lbs. less than her previous recorded weight (i.e., if she discarded an additional 2 lbs. of clothing or personal items at each weigh-in). Results of the program were that the 23 lbs. of excess clothing and personal items that the patient had been carrying rapidly declined until she was wearing only 3 lbs. of clothing. At the beginning of the program the patient missed a few meals and exhibited some emotional behavior (i.e., crying, shouting, and throwing chairs), which

subsided when these responses were ignored. No longer burdened by large amounts clothing and a strange appearance, the patient began participating in social events on the ward. She was later taken by her family for a home visit for the first time in 9 years (Ayllon, 1963).

By 1961, Dr. Ayllon had moved to Anna State Hospital in Illinois and had begun collaborating with Dr. Nathan Azrin, a former student of B. F. Skinner. The most significant product of this union was the token economy, a revolutionary ward-wide program for chronic mental patients (Ayllon, 2014; Ayllon & Azrin, 1965, 1968). Instead of focusing on individual patients' response excesses or deficits and applying various procedures to modify those responses, the entire hospital ward was reorganized to prompt and reinforce a wide range of adaptive behavior in all patients residing on the ward. This therapeutic milieu harnessed the motivational power of all available desired items and activities in the ward – making access to these items contingent on the performance of productive tasks, and thereby utilizing them as tangible, positive reinforcement for productive behavior. Tokens were delivered immediately after jobs were completed and later could be redeemed for desired items at a token store, thus bridging the delay between task performance and primary reinforcement. While the system for earning, delivering, and redeeming tokens was the most obvious difference between units with a token economy and a standard hospital wards, the social climate within token economies also contrasted sharply with traditional psychiatric programs. Token economies "...downplay the "illness" model and "patient" role..." and communicated staff expectations for the patients' behavioral improvements, adaptive functioning, and personal responsibility (Paul & Menditto, 1992).

Ayllon and Azrin (1965, 1968) devised a multitude of small jobs within the hospital setting (e.g., light janitorial work, assistance of other patients, setting-up of recreational equipment) and self-care tasks (e.g., personal grooming, exercising) whereby patients could earn tokens. Although these jobs were cleverly contrived, the investigators acknowledged inherent limitations in trying to create opportunities for reinforcement of functional behavior within a *total institution* that provided all the necessities of life, including food, shelter, and even recreational pastimes, merely for being present within the setting (Ayllon & Azrin, 1968, p. 3). Token economies could only simulate the complex contingencies of real economic systems in open society where skilled labor is exchanged for money to buy essential goods and services.

Numerous studies independently evaluated the effectiveness of token economies for rehabilitating chronic mental patients and reported their benefits (for example, Atthowe & Krasner, 1968; Hofmeister et al., 1979; Lloyd & Garlington, 1968; Nelson & Cone, 1979; Winkler, 1970). However, no study rivaled the precision and rigor of Paul and Lentz's (1977), which randomly assigned an initial 28 matched, schizophrenia-diagnosed patients to either a social learning/token economy program, a milieu therapy program, or a standard hospital program and intensively monitored them over a 6-year period. Outcome measures included the Inpatient Assessment Battery (IAB) Functioning Score, direct observations of patient behavior and staff-resident interactions with fine-grain response definitions tailored for

this population and setting, and global status reports at long-term follow-ups. Results were that the social learning/token economy produced significantly higher IAB scores, greater increases in functional behavior and decreases in bizarre behavior, and a higher rate of release from the hospital without rehospitalization than the two comparison programs. The social learning/token economy program was also the least costly and administered less psychotropic medications to its patients (Paul & Lentz, 1977; Paul & Menditto, 1992; Paul et al., 1997; Paul, 2000). The resounding superiority of this behavioral program championed by an eminent researcher and its subsequent dwindling usage (Boudewyns et al., 1986; Glynn, 1990) should raise doubts as to whether modern mental health practices are guided by scientific evidence. Nevertheless, the token economy remains one of only a handful of recommended, evidence-supported psychological treatments for schizophrenia (Dickerson et al., 2005; Dixon et al., 2010).

Following the path carved by Ayllon and his colleagues, early behavior therapy for schizophrenia and other psychotic disorders consisted of either group or ward programs simultaneously treating many or all patients on the unit or individual programs addressing idiosyncratic behavior problems (Stahl & Leitenberg, 1976). In the subsequent sections, we will review the work of researchers in developing and evaluating the latter category of behavioral interventions. Finally, we will discuss more recent research utilizing functional analyses that evolved directly from first-wave behavior therapies.

First-Wave Behavior Therapies for Specific Problems and Their Derivatives

Delusional Speech

Delusional verbalizations are a key symptom and quintessential feature of schizophrenia (American Psychiatric Association, 2013), and they often have been the focus of behavioral interventions. As mentioned above, Ayllon and associates (Ayllon & Michael, 1959; Ayllon & Haughton, 1964) demonstrated that delusional speech was affected by its social consequences and successfully reduced psychotic responses in three patients by curtailing nursing staff's attention for delusional verbalizations. Wincze et al. (1972) extended Ayllon's work in a rigorously designed study with 10 patients diagnosed with paranoid schizophrenia, many of whom had long histories of psychiatric hospitalizations. These investigators recorded delusional responses in therapy sessions and on the ward, and then applied verbal feedback or token reinforcement for nondelusional responses in both settings within a series of counter-balanced reversal designs. Results showed that feedback reduced delusional verbalizations in half of the 10 subjects, but also evoked some hostility in 3 of these patients. By comparison, for the 9 subjects with whom token

reinforcement was applied, token reinforcement was substantially more effective than feedback in reducing delusional responses for 4 patients, slightly more effective than feedback for 1 patient, and about equally effective as feedback for another 2 patients. Neither feedback nor token reinforcement reduced delusional verbalizations in two of the patients.

Robert P. Liberman, a research psychiatrist, and his associates replicated the efficacy of contingent staff attention, token reinforcement, and other consumable reinforcement in reducing delusional talk in a series of experiments at the Clinical Research Unit of Camarillo State Hospital in California. Liberman et al. (1973) monitored delusional speech during: 10-min daily interviews; 30-min evening chats (in which coffee and snacks were served); and, impromptu on-ward conversations with nursing staff. Their intervention consisted of the immediate termination of daily interviews at the onset of delusional speech plus making the length of the evening chat directly proportional to the duration of rational talk in the daily interviews. As the four patients were successively exposed to the intervention within a multiple-baseline design their rational speech increased and modest generalization of behavioral improvement to evening chats and impromptu conversations was reported. Patterson and Teigen (1973), working with one patient from the Liberman et al. (1973) study whose delusional statements persisted despite an increase in rational speech, used token reinforcement for correct responses to direct questions about delusional claims to successfully replace this patient's psychotic speech with factual statements.

Wallace et al. (1974) compared visual feedback (a red light signaling inappropriate speech) versus token plus consumable reinforcement for reducing two forms of repetitive inappropriate speech ("sick" and "acting" talk) in 20-year-old man diagnosed with schizophrenia. Feedback had a partial and temporary effect in reducing sick and acting talk. Token plus consumable reinforcement for appropriate speech eliminated inappropriate talk, which was replicated with both sick talk and acting talk within a reversal design. Lastly, Moss and Liberman (1975) reproduced the therapeutic effects of simple contingent attention with a 39-year-old housewife and mother of two diagnosed with schizoaffective psychosis who had undergone four psychiatric hospitalizations. The study was conducted in a day treatment unit where the patient engaged in almost continuous delusional speech concerning supernatural happenings, reincarnation, and possessing several souls. The intervention involved conversations with a therapist lasting up to 15 min that were immediately terminated when the client began speaking irrationally. Duration of appropriate speech showed large and clear gains when staff attention was only given to appropriate speech. The patient also displayed completely rational speech in the final three follow-up sessions. The previous behavioral studies demonstrated that delusional speech is much more malleable than characterized in the psychiatric literature and it can be influenced by its immediate social consequences.

Hallucinatory Behavior

Hallucinations are another defining symptom of schizophrenia (American Psychiatric Association, 2013) and have been the subject of multiple behavior therapy studies. Presence of hallucinations can be inferred from either verbal self-report or from overt behavior suggesting that a person is experiencing hallucinations (e.g., talking to oneself, gesturing at empty space). Self-report is the most common source of data on hallucinatory behavior, so self-monitoring has often been employed in conjunction with self-management procedures to reduce hallucinations.

A few early studies extended Ayllon & Houghton's approach to treating hallucinatory behavior by applying positive reinforcement for appropriate speech and extinction (e.g., ignoring, looking away) for psychotic speech. Rutner and Bugle (1969) instructed a 47-year-old female resident of a state hospital to privately record her "voices" and to later publicly post this record in highly visible place on the ward. The woman was then given praise, attention, and encouragement for reductions in reported hallucinatory behavior. Results showed the daily frequency of hallucinations dropped precipitously during private recording (from 180 to 11 per day), and then diminished to zero during public posting plus social reinforcement, remaining at that level for the next 6 months.

Nydegger (1972) described the treatment of a 20-year-old male patient in a psychiatric unit who reported auditory and visual hallucinations about God. Deducing that this patient's hallucinatory behavior functioned as a means of avoiding undesired social situations, the therapist prompted and praised the patient for making assertive decisions regarding these situations (e.g., telling his family that he did not want a home visit) and ignored or appeared disinterested whenever the patient talked about his voices. Staff on the hospital unit were also encouraged to act in a similar way when the patient exhibited hallucinatory behavior. Results showed a steady decline in outward signs of visual hallucinations from 3 to zero per day and a more variable decrease in reports of auditory hallucinations from 7 to zero per day. Follow-up contacts with this patient 2½ years after treatment indicated that he was attending college, had friends and was dating, and was no longer troubled by psychotic symptoms.

Another behavioral procedure tested during this era, but yielding minimal success were forms of punishment. Bucher and Fabricatore (1970) taught a 47-year-old man diagnosed with schizophrenic reaction, paranoid type, and 7 hospitalizations in the past 5 years to use self-shocking devices to control his auditory hallucinations. After employing a second device that administered a more powerful shock, the client reported a complete cessation of hallucinatory voices and only the persistence of non-disturbing background murmurings. Unfortunately, at a 2-week follow-up meeting after discharge the patient appeared disheveled and inebriated, and his voices seemed to have returned. Anderson and Alpert (1974) used positive reinforcement plus self-administered electric shock to reduce visual hallucinations that

precipitated ritualistic hyperventilation and hand movements in a 26-year-old man diagnosed with chronic schizophrenia. The patient received 5 days of remote-controlled shock applied contingent on hyperventilation and ritual hand movements, in addition he earned token reinforcement for completing daily living activities in a timely manner that competed with his performance of compulsive rituals. Results showed that hallucinatory behavior was substantially reduced during phases in which token reinforcement was delivered.

Effects of another punishing consequence, timeout from reinforcement (TO), on hallucinatory behavior was tested in two studies. Haynes and Geddy (1973) applied TO for hallucinatory/nondirected verbalizations (ranging in volume from mumbling to loud yelling) in a 45-year-old woman diagnosed with schizophrenia who been hospitalized for 22 years. TO involved being told to enter an empty room for a minimum of 10 min (with a requirement of 30-s of quiet before leaving the room). Data from an ABAB reversal design showed that nondirected verbalizations decreased substantially during the TO condition, but still appeared in all experimental phases. Using a sophisticated with-subject design with multiple reversal phases, Davis et al. (1976) evaluated effects of a 15-min TO on delusional and hallucinatory speech in a 33-year-old woman diagnosed with chronic undifferentiated schizophrenia with a 6-year history of psychiatric treatment. Delusional speech was defined as vocalizing any one of 30 previously catalogued false statements; hallucinatory speech was defined as any audible verbalization to an unobservable stimulus. Delusional and hallucinatory speech were recorded during 5-min sessions in a therapy room and 1-min random encounters anywhere on the unit. Results were that delusional and hallucinatory speech were suppressed by application of TO, but effects neither maintained when TO was faded to an intermittent schedule nor generalized to situations in which TO was absent.

One study with profound implications for the nature of hallucinatory behavior was conducted relatively early during this period yet had little impact on subsequent research. Weingaertner (1971) conducted a randomized controlled study involving 45 hospitalized veterans who reported experiencing auditory hallucinations. The veterans were randomly assigned to three groups: (1) a self-shock group that carried a box on a belt that delivered a shock when the switch pressed; (2) a placebo group that carried a box that delivered no shock; and, (3) a no-treatment group that only completed the pre- and post-evaluations given to all subjects. Results were that all three groups reported significant decreases in the frequency of hallucinations over a 2-week period, with no significant differences between the groups. Data from this controlled study, involving a greater number of subjects than all the previously reviewed small-n studies combined, but probably from a less impaired population, showed that self-report of hallucinations can be a fragile and ethereal condition that dissipates with minimal intervention. These findings undercut whatever previous justification might have existed for using aversive or highly restrictive procedures on this usually covert problem.

Social Skills

Although it is not a primary criterion for the diagnosis of schizophrenia, some behavioral researchers have proposed that impaired social functioning is a pivotal feature of the disorder (Brady, 1984; Liberman et al., 1985; Morrison & Bellack, 1984). Adopting the role-playing techniques of psychodrama, Wolpe and Lazarus were among the first behavior therapists to use modeling, rehearsal, and coaching to remediate lack of assertiveness and other interpersonal skill deficits in uncontrolled case studies (McFall & Marston, 1970; McFall & Lillesand, 1971). Goldsmith and McFall (1975) conducted an early controlled evaluation of these social skills training (SST) procedures with a group of 36 male psychiatric inpatients, roughly half of whom were diagnosed schizophrenic. Their investigation showed that SST was superior to pseudotherapy and assessment-only conditions for raising subjects' social competence and comfort during interpersonal encounters.

Like in its initial uses with non-psychotic clients, early applications of SST with psychiatric patients focused on teaching appropriate assertiveness (Hersen & Bellack, 1976; Hersen et al., 1975). However, SST was soon being used to teach a variety of response typographies for diverse social situations. Persons diagnosed with schizophrenia have been taught micro- and meso-interactive skills, including: eye contact and facial expression (Eisler et al., 1978), loudness and latency of speech (Finch & Wallace, 1977), simple greetings (Kale et al., 1968; Wong & Woolsey, 1989), initiating and maintaining conversations (Kelly et al., 1980; Urey et al., 1979; Wong et al., 1993; Wilder et al., 2002), and more.

Although the above studies demonstrated the effectiveness of SST for teaching schizophrenic patients a wide range of targeted skills, the behavior change produced by this training was narrow and localized. One limitation of SST was regularly evidenced in every study employing multiple-baseline-across-behavior designs, wherein untrained behaviors served as control baselines until they became trained baselines. The lack carryover from trained responses to untrained responses demonstrated the specificity of SST. Another shortcoming in SST methodology was that training effectiveness was usually evaluated in role-played interactions. A crucial facet of behavior change and a paramount clinical outcome – generalization of trained skills to more naturalistic social encounters – was often not measured. When generalization to more naturalistic encounters was assessed, some studies reported spontaneous carryover of trained skills (Goldsmith & McFall, 1975; Urey et al., 1979) while others did not (Gutride et al., 1973; Hersen et al., 1974; Wong et al., 1993). When trained skills did not automatically generalize to novel situations, Wong et al. (1993) intermittently prompted and reinforced trained skills in previous extra-therapy settings (i.e., *in-vivo* training) to effectively increase social skills performed in those contexts. This partial programming of social interactions emulated token economies by engineering reinforcement contingencies in the clients' environment to generate and maintain desired social behavior.

Personal Grooming and Hygiene

Persons with schizophrenia and related psychotic disorders often show a deterioration in personal care routines, such as bathing, grooming, and dressing. A disheveled appearance and lack of cleanliness can adversely affect social relationships, jeopardize employment, and raise health risks. First-generation behavioral programs often aimed at restoring self-care skills as one of their rehabilitation goals.

Procedures to improve clients' grooming and hygiene have been a component of token economies in psychiatric hospitals (Ayllon & Azrin, 1968; Liberman et al., 1974; Paul & Lentz, 1977) and community mental health centers (Liberman et al., 1976). As part of a token economy program, nursing staff would deliver tokens or points to patients for the completion of self-care tasks or contingent on patients' appearance during periodic visual inspections. Evaluating a token economy in a psychiatric hospital unit, Nelson and Cone (1979) found significant improvements in grooming and room care tasks as these behaviors were sequentially trained with verbal instructions, modeling, posters, and token reinforcement in a multiple-baseline-across-behaviors design. Consulting with a hospital unit for chronic mental patients that lacked a token economy, Wong et al. (1988a) reported sizable improvements in hand and face washing, hair cleaning, toothbrushing, and proper dressing using a training protocol similar to Nelson and Cone's (1979), but incorporating coffee and snacks as consumable reinforcement. The above studies demonstrated that systematic behavioral training could improve grooming and self-care skills, even in clients believed to be severely debilitated.

Vocational Skills

Work is another critical area of human functioning in which persons with schizophrenia and related psychotic disorders have impairments and need assistance. Unemployment among persons with "severe mental illness" has been reported to be as high as 80% (Bond & McDonel, 1991). The shaping and strengthening of pre-vocational skills and daily work routines in persons with severe behavior problems were integral to the token economy (Ayllon & Azrin, 1968). The first token economy provided a range of well-defined hospital jobs, such as kitchen, personal care, clerical, and housekeeping aides, requiring from 10 min to 6 h of work per day (Ayllon & Azrin, 1965, 1968). As clients showed better responsiveness to instructions, work endurance, and responsibility they were given more demanding and higher paying assignments.

In two studies preparing formerly hospitalized patients for regular employment in the community, Kelly and associates (Furman et al., 1979; Kelly et al., 1979) used SST techniques to improve the job-interviewing skills of 9 clients, 7 of whom were diagnosed with schizophrenia. Clients were taught to give positive information about their education and previous work experience, to ask questions, to use

gestures, and to express enthusiasm during interviews. Training incorporated exposure to videotaped models, behavioral rehearsal during simulated interviews, coaching to improve performance, and praise or corrective feedback. Data from these two, multiple-baseline-across-behaviors design studies showed that training significantly increased participants' skills and raised employability ratings given by an actual personnel manager.

Finding employment is a challenging endeavor of which job-interviewing is only one component. Recognizing this, Azrin and associates developed the "job club" (Azrin & Besalel, 1980; Azrin et al., 1975) as a comprehensive program to assist persons with various handicaps in this multi-faceted task. A job club provides support groups and training in preparing a resume, conducting a systematic job search, proper dressing and grooming, job interviewing, and following up on job leads. Jacobs et al. (1984) adapted the job club for persons with serious mental disorders by adding instruction in community survival skills of personal goal setting, problem solving, coping with daily problems, and maintaining one's employment. Job seeking and community survival skills were taught through lecture, programmed reading materials, role playing, and in-vivo exercises. After completing this expanded job club, 76% of their participants had found jobs or started full-time vocational training and 6 months later 67% were still employed.

In contrast to the above, Brey et al. (1989) trimmed the Azrin et al. (1975) protocol, providing a job-club without assigned "buddies," shorter job-search sessions lasting only 2 h per day, and minimal contact with families or friends for letters of recommendation. Brey et al. (1989) serviced a mixed group of 167 clients (48 with a diagnosis of schizophrenia or a psychotic disorder) including former patients from locked wards of a state hospital, residents of half-way houses, and outpatients, 95 (78%) of whom found jobs by the end of the program. Although both Jacobs et al. (1984) and Brey et al. (1989) were uncontrolled studies, the relatively high employment rates achieved by their participants were impressive outcomes.

Despite behavioral programs' success in teaching job-seeking and job-related skills, this preparatory training has been eclipsed by *supported employment programs* (SEPs) that help clients immediately find jobs and only provide training and follow-up support as needed. In a series of controlled, multi-site studies, SEPs were shown to be more effective in assisting clients with severe mental disorders to secure and to maintain regular, competitive employment than comparably resourced skills-training or psychosocial rehabilitation programs (Drake et al., 1996; Drake et al., 1999; Mueser et al., 2004). Designers of the SEPs theorized that their programs obtained superior outcomes because they were specifically organized and staffed to place clients in competitive jobs, and they did not rely on a high degree of inter-agency coordination needed to prevent clients from getting caught in transitions between training, sheltered employment, and competitive employment. Another inherent shortcoming in skills training approaches was the difficulty in predicting, training, and promoting the generalization of relevant skills to the naturalistic setting – problems parallel to those of social skills training.

Recreational Behavior

Recreation provides people with opportunities to pursue diverse personal goals, including socialization, physical fitness, relaxation, and constructive use of leisure time (Nesbitt, 1980). A secondary clinical benefit of recreational activities is that they can displace a variety of odd, repetitive behaviors such as rituals, pacing, posturing, and self-talk that are often exhibited by persons with psychotic disorders (Alevizos et al., 1978; Luchins et al., 1992; Paul & Lentz, 1977). Ayllon and Azrin (1968) reported anecdotally that many bizarre behaviors of chronic psychiatric patients vanished when they were engaged in work, self-care, and leisure activities scheduled in their token economy program. Paul and Lentz (1977) further quantified long-term reductions of bizarre behavior in chronic psychiatric patients who participated in a token program that arranged daily self-care, social, and educational tasks.

Ayllon and Roberts (1974) would later reproduce this clinical benefit in an experiment with youth exhibiting disruptive behavior, and McDowell (1982, 1988) would explain these data with the Matching Law. Matching Law was discovered in laboratory research with animals (Herrnstein, 1961, 1970) and refers to behavior maintained on concurrent schedules of reinforcement, that is, responding to two or more simultaneously present manipulanda each programmed with its own schedule of reinforcement. In such a situation, organisms will “match” or allocate their responses proportional to the amount of reinforcement that is available through each manipulandum (or response alternative). The clinical significance of this law is the prediction that a problem behavior can be reduced by raising the reinforcement density for any simultaneously available alternative behavior. This would account for reported reductions in psychotic behavior during participation in token economy programs (Ayllon & Azrin, 1968, p. 23; O’Brien & Azrin, 1972; Paul & Lentz, 1977) even in the absence of reinforcement contingencies directly connected with psychotic behavior.

Recreational behavior is commonly engaged in for lengthy periods of time without extrinsic reinforcement and therefore might exist as a *self-reinforcing* response. If so, then simply providing preferred recreational activities might be an effective means of displacing different types of undesirable or psychotic behavior. In a series of studies using alternating treatment designs (Barlow & Hayes, 1979), Wong and colleagues demonstrated that recreational activities, both with and without extrinsic token reinforcement, reduced a variety of bizarre, repetitive behavior in patients diagnosed with schizophrenia. Wong et al. (1987) found that psychotic self-talk and mumbling in two patients diagnosed as schizophrenic decreased 60–70% when the patients were engaged in preferred recreational activities (reading, handicrafts, assembling models). Similar clinical improvements were obtained for grotesque posturing by a patient diagnosed as schizophrenic and for ruminating (searching for dirt and feces) by a patient with obsessive-compulsive disorder (Corrigan et al., 1993).

Another study (Wong et al., 1988c) showed a 70% reduction in a variety of bizarre behaviors in 10 chronic psychiatric patients, 9 of whom were diagnosed with some form of schizophrenia, when they were engaged in structured leisure and work activities (e.g., team sports, art projects, housework). Results of this third study also showed large increases in socially appropriate behavior during recreation sessions – rising from less than 15% in the baseline sessions to more than 80% in the recreation sessions. Subsequent investigations have shown that physically active and passive recreation produce similar gains in appropriate behavior (Morris et al., 1997), and that recreational sessions generate more appropriate behavior than vocational rehabilitation sessions (Finnell et al., 1997). These studies suggested humane and efficient interventions for reducing bizarre responses and increasing prosocial behavior, as well as highlighting ecological factors impacting psychotic behavior.

The next section describes an intervention for problematic behavior in persons with schizophrenia and related psychoses derived from operant learning principles (therefore closely aligned with first-wave behavioral programs), but one appearing in recently published research. This is the functional analysis and treatment of bizarre and delusional speech.

Functional Analysis of Psychotic Behavior

Functional analysis (Carr, 1977; Iwata et al., 1982/1994) begins by identifying antecedent and consequential environmental stimuli that control a problem behavior, and then rearranges or modifies those stimuli to reduce the problem behavior and instead to produce appropriate responses. Functional analysis differs from first-generation behavioral interventions that used arbitrary, clinician-determined consequences to override whatever reinforcement was maintaining the problem response. For example, early behavior therapy programs applied tokens or timeout from reinforcement to reduce delusional speech with no attempt to determine what reinforcing consequences had been maintaining those delusional statements. Because preexisting reinforcement contingencies that supported psychotic speech in those settings were neither identified nor altered, these contingencies might cause recovery of the problem behavior when the program was faded or removed. In contrast, a functional analysis starts by pinpointing the specific reinforcers currently maintaining a problem behavior. The social environment is then rearranged to remove or block those reinforcers for problem behavior, and instead makes them contingent on appropriate behavior. In theory, this approach should produce better outcomes and a higher probability of long-term maintenance.

A functional analysis begins with an empirical test involving a series of brief (5- to 15-min) sessions during which various contingencies hypothesized to maintain the problem behavior are simulated and the client's behavior is recorded. These conditions are randomly alternated and the amount of problem behavior occurring in each condition is then compared. Wilder et al. (2001) assessed the contingencies maintaining bizarre, off-topic speech (e.g., about karate, God, and the FBI) in a

middle-aged man with schizophrenia by presenting four alternating conditions: (1) *escape from demands* (the therapist asked the client to work on a task, e.g., a simple household chore, until the client made a bizarre statement, after which the therapist allowed the client to take a 30-s break from the task); (2) *attention* (the therapist pretended to be preoccupied and ignored the client until the client made a bizarre statement, after which the therapist made eye contact and told the client that he “shouldn’t talk” like that); (3) *alone* (the client was left alone in the room and observed to see if bizarre statements would occur without any social consequences); (4) *control* (the therapist interacted with the client until he made a bizarre statement, after which the therapist broke eye contact and terminated all conversation for 10 s). Because these four conditions were presented in random order and the only difference between them was the social consequences, variation in the amount of psychotic behavior observed in the four conditions should have been due to the type of reinforcement delivered for bizarre speech.

In the study by Wilder et al. (2001) bizarre speech occurred in a substantially greater percentage of the scored intervals with attention (mean 26%) as compared to escape from demands (mean 2%), alone (mean 0%), and control (mean 5%) conditions. Utilizing these data, an intervention was designed consisting of differential reinforcement of appropriate verbalizations (attention for appropriate speech) plus extinction for bizarre verbalizations. When this invention was applied and evaluated within a reversal design, it was shown to nearly eliminate the client’s psychotic speech. Results of this study were later replicated with a second client also diagnosed with schizophrenia who displayed bizarre vocalizations in the form of tangential remarks (Wilder et al., 2003).

More recently, Wilder et al. (2020) reported on a functional analysis successfully applied with a 45-year-old man who was diagnosed with schizophrenia, paranoid type. This client talked non-stop throughout the day, verbalizing delusional statements (e.g., he was in the car with President John F. Kennedy before his assassination, he was a spiritual advisor to the Pope) interspersed between accurate historical facts and solitary self-talk. A functional analysis was conducted using 10-min sessions that alternated between the same four conditions: escape from demands, attention, alone, and control. Data from the functional analysis showed that the client engaged in delusional speech most often during the attention condition. Based on these results, an intervention was developed that consisted of conversational skills training, differential reinforcement of accurate speech, and extinction of delusional speech. The client was taught how to appropriately initiate a conversation, ask questions about recent events (e.g., “How was your day?”), and transition to new conversational topics (e.g., “That reminds me of ...”). During conversational training therapists attended to the client’s appropriate statements, but broke eye contact and did not ask follow-up questions to the client’s delusional statements. Training session data showed that during baseline the client’s speech was almost entirely delusional and appropriate speech was near zero; however, by the end of the training this pattern had reversed, and the client’s speech was almost completely appropriate with nearly zero delusional speech. The client’s family members were then taught to implement the treatment procedures, and they reported similar improvements at

home and satisfaction with the program. The previous studies illustrate the clinical applications and potential benefits of functional analyses of psychotic behavior.

Summary and Conclusions: Past and Present Contexts of First-Wave Behavior Therapies

A twentieth century revolution attempting to transform psychology into a scientific discipline like physics and other natural sciences led to the development of operant and social learning theories that were the foundation for first-wave behavior therapies for schizophrenia and related psychotic disorders. Severe and intractable behavior problems of patients in state mental hospitals and Veterans Administration psychiatric centers offered early opportunities to apply these psychological theories to pressing social concerns. Many innovative behavioral treatments for psychotic behavior of this era were straightforward applications of learning theory using verbal instructions, modeling, and tangible and social reinforcement for appropriate behavior, in tandem with extinction or termination of suspected reinforcement for inappropriate and psychotic behavior.

Combinations of verbal prompts and positive reinforcement for desired responses plus extinction of undesired responses proved to be an effective strategy for dealing with a wide range of psychotic behavior. These and other procedures were shown to be efficacious in reducing delusional speech and other bizarre behavior, and in teaching and increasing performance of social skills, personal grooming and hygiene, and prevocational tasks. This approach was optimized in the token economy, which restructured the entire hospital ward to require, teach, and reinforce productive behavior during all waking hours in this residential setting. These procedures had documented successes, but they also had limitations in sporadic generalization to and maintenance within extra-therapy situations. One factor probably contributing to these limited gains was the difficulty in formulating training curricula that matched naturalistic conditions, but a more likely obstacle was that real-world contingencies did not adequately support clients' recently trained behavior. A model for future behavioral programs perhaps can be found in supported employment programs (Mueser et al., 2004), which follow clients into their work settings providing immediate, relevant, and ongoing assistance for desired performances.

A line of research substantially less promising than the above and representing a dead end for behavior therapy was use of various punishment procedures for reducing hallucinatory behavior. Application of electric shock and timeout for hallucinatory behavior occurred prior to the existence of modern ethical standards and human rights review committees. Viewed through the lens of current guidelines and safeguards, these procedures likely would be judged as the unjustifiable use of highly aversive and restrictive procedures to control self-report of covert stimuli or relatively harmless overt behavior (e.g., talking to oneself). A more sophisticated clinical understanding of hallucinatory behavior would also weigh against using

punishment to suppress these psychotic responses. There is growing recognition that hallucinatory and other bizarre behavior can have varied motives, including communicative (e.g., expressing a need for attention, material goods or professional assistance, or the desire to be left alone) and self-stimulatory/self-reinforcing functions (Froján-Parga et al., 2019; Schock et al., 1998; Wilder et al., 2020; Wong, 1996). Rather than punish hallucinatory or other aberrant responses, functional analysis would seek to identify controlling reinforcers and then teach clients appropriate responses to obtain those same reinforcers. A complementary technique would apply Matching Law and provide additional reinforcement for alternative appropriate behavior or offer alternative self-reinforcing responses to displace aberrant behavior, as described in the section on [Recreational behavior](#).

When comparing the behavior problems treated by first-wave behavior therapies for schizophrenia and related psychotic disorders with those of subsequent waves, the separate waves seem to have faced different client populations and types of behavioral problems. First-wave behavior researchers dealt with a broader range of problem behaviors and adaptive skills, and treated more severely impaired, bizarre, and oppositional clients than their successors. For example, first-wave behavior therapists taught and motivated elementary skills such as simple verbal greetings and personal grooming, and managed dangerous behavior such as physical aggression and property destruction (Liberman & Wong, 1984, 1985; Wong et al., 1985; Wong et al., 1988b), issues rarely mentioned by second and third-wave behavior therapists. The first generation of behavior therapists often worked with clients whose speech and conduct were not amenable to calm and rational discussions about their cognitions, beliefs, covert sensations, or procedures that might be used to modify these inferred internal states.

The entry of behaviorally oriented psychologists into the state mental hospitals presented unique opportunities for the development of behavior therapy, but practice within these settings had major obstacles and a dim future. Mental hospitals have always been medical institutions organized to provide somatic treatments and within those facilities psychology is an ancillary profession. Given that state mental hospitals did not have the goals, administrative structure, physical layout, or personnel trained for educative and rehabilitative programming, first-wave behavior therapists' accomplishments in those settings were remarkable. However, in retrospect, most first-wave behavior therapies for schizophrenia and other psychotic disorders now appear more like pilot studies or short-lived demonstration projects showing only that learning principles *could be* successfully applied to improve the functioning of persons with severe mental disorders. Unfortunately, those advances in behavior therapy coincided with the demise of the state mental hospitals and the rise of drug treatment. A convergence of factors including state budgetary crises, psychiatric hospitalization's poor outcomes, advocacy of patients' civil rights, provision of Social Security Insurance benefits for the mentally disabled, and aggressive marketing of psychotropic drugs all drove a deinstitutionalization movement that would downsize and close state mental hospitals across the nation. Despite their many hazards and limited efficacy, so-called "antipsychotic" medications became and remain the prevailing societal response to severe and persistent behavioral problems

(Breggin, 1997; Whitaker, 2004, 2010; Wong, 2006a, b). Although it was challenging to conduct behavioral programs within inpatient psychiatric institutions, it would be even harder to conduct them in the underfunded and undeveloped community mental health systems that assumed the burden of the state mental hospitals. Presently, outside of mental hospitals there is minimal psychosocial rehabilitation and heavy reliance on psychotropic drugs (Hogan, 2010).

Pertinent to this discussion is a rapidly expanding body of psychiatric research concerning the etiology of psychoses. This research has shown increased risk of psychoses associated with a variety of traumatic experiences and adverse environmental conditions. Painful ordeals correlated with psychoses include poverty, physical abuse, bullying, domestic violence, and rape (Hudson, 2005; Shevlin et al., 2007; Wicks et al., 2005; Wong, 2014). Ironically, while research is accumulating to show that physical and psychological trauma contribute to the genesis of psychoses, the living conditions of persons with psychotic disorders within the United States has become increasingly brutal and bleak. One of the consequences of deinstitutionalization is that more persons with severe mental problems now reside in jails and prisons than in mental hospitals (Torrey et al., 2010; Torrey et al., 2014), and many homeless persons (an estimated 26%) have severe mental illness (SAMHSA, 2011). Since the decline of the state mental hospitals the circumstances of persons with psychoses has worsened, so the need to provide humane and effective therapeutic environments for these individuals is more critical than ever.

If Boring (1927) was right that in science new schools of thought build their foundations upon the older ideas they discredit and supplant, then in the case of first-wave behavior therapy this would not be progress. What will be lost is a proven psychology grounded in the natural sciences that focuses on socially significant behavior, uses objective and precise measures, and strives to restructure clients' environments to foster their adaptive functioning.

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Schizophrenia Spectrum and Other Psychotic Disorders: Second Wave Case Conceptualization



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The treatment of schizophrenia and psychosis is complex, fraught with challenges, and requires the involvement of a multidisciplinary team of professionals (Combs et al., 2018). The current best practice for the treatment of psychosis is the combination of antipsychotic medications and evidence-based psychosocial therapies (APA, 2004). Antipsychotic medications are considered the first line of treatment for most individuals with psychosis, and this is often followed by one or more psychological treatments. However, the consensus is that about half of persons continue to have persistent positive (e.g., delusions, hallucinations, disorganized speech and behaviors) and negative (anhedonia, poverty of speech, withdrawal) symptoms despite medication management (Rector, 2006). Thus, medications are not a cure all for schizophrenia, but only part of a comprehensive treatment approach needed for recovery. Individuals with schizophrenia and psychosis are often non-compliant with medication which reduces their overall effectiveness (Buchanan, 1992). In addition, there are concerns about the health consequences of long-term use of many antipsychotic medications (Stroup & Gray, 2018). Thus, in the treatment of psychosis there is a clear role for evidence-based psychological therapies. It is within this framework that Cognitive-Behavioral Therapy for Psychosis (CBTp) arose and gained traction among researchers and clinicians. CBTp is currently viewed as second wave treatment following the behavioral methods of the 1950- and 1960's.

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Overview of CBT for Psychosis

Cognitive-Behavioral Therapy for Psychosis (CBTp) is currently considered a well-established or evidence-based treatment for schizophrenia based on the strength of research support for the intervention (American Psychological Association, 2006; Combs & Mueser, 2017; Freeman & Garety, 2006; Guadiano, 2005; Rector & Beck, 2001; Wykes et al., 2008; Zimmerman et al., 2005). In fact, in the United Kingdom, CBTp is considered a front-line treatment that is routinely offered to all persons with schizophrenia (National Institute for Clinical Excellence, 2009). The goal of CBTp is to reduce the symptoms of schizophrenia by targeting the underlying deficits and biases in information processing, which lead to the formation and maintenance of delusions, hallucinations, and paranoia (Chadwick et al., 1996). In addition, secondary goals are to reduce emotional distress such as anxiety and depression associated with psychosis, and to improve social and community functioning at large (Cather et al., 2005; Roberts et al., 2004). CBTp is considered both a comprehensive and symptom-focused treatment.

Clinical Methods and Indications

Early in its development, CBTp was comprised of a loose set of techniques developed for psychosis that came from work with depressed and anxious individuals. Thus, there was great variability in what a clinician used to reduce psychosis, which made standardization a problem. However, at present there are some well written and comprehensive guides on how to conduct CBTp that have a number of practical strategies and educational materials (Chadwick et al., 1996; Combs, 2010; Kingdon & Turkington, 2005).

CBTp can be delivered in both individual and group formats with more research supporting individual CBTp (Pinkham et al., 2004). CBTp appears to be more useful in (1) adults with schizophrenia, (2) inpatient clients with both acute (onset within 2 weeks) and stabilized symptoms (no significant changes in a 72 h period) (with concurrent medication treatment), (3) outpatient clients with persistent delusions and hallucinations, and (4) individuals with paranoia and persecutory delusions (Combs, 2010). More evidence is needed for persons with prominent negative symptoms such as anhedonia, poverty of speech, and social withdrawal, first episode psychosis, unmedicated psychosis, and with the use of briefer formats of the treatment. A limiting factor in CBTp is the presence of neurocognitive deficits in attention, reasoning, language processing, and memory but their overall effect on treatment outcome is unclear (Haddock et al., 2004; Oathamshaw & Haddock, 2006). Time to complete CBTp can take between 4 months and 1 year, depending on the client's readiness to change and the type of delusion (research studies average 4–6 months in duration; see Sharp et al., 1996). Persons with paranoia and persecutory delusions can take longer to complete treatment due to the initial levels

of resistance encountered, and the amount of time needed to develop rapport (Combs, 2010; Chadwick et al., 1996).

Training in CBTp is often accomplished in a number of ways. First, there are many excellent resources available which provide detail on how to conduct CBTp (see Chadwick et al., 1996; Kingdon & Turkington, 2005). Also, conferences such as Association for Behavioral and Cognitive Therapies (ABCT) provides workshops and consultation activities on CBTp annually. Of course, in person supervision is the probably the best way to learn the ins and outs of the treatment. The cost and financing of CBTp is a challenge as many persons with schizophrenia do not have health insurance and are considered low income or indigent which means their treatment usually falls to the community mental health system.

Review of Research

Research on CBTp has been taking place since the early 2000's (Beck & Rector, 2002; Rector & Beck, 2001; Wykes et al., 2008), and has consistently demonstrated broad and robust research support (Cather et al., 2005; Guadiano, 2005). Since then, there have been a number of meta-analyses conducted to assess the efficacy of CBTp. Recently, more research is focused on special cases of CBTp (medication-resistant psychosis, first episode, or low intensity) (Burns et al., 2014; Hazell et al., 2016; van der Gaag et al., 2014). For this chapter, we will review some general research on CBTp and then move to more recent studies on modifications of the general CBTp approach. Most of the studies in this section are based on traditional CBTp approaches thus reflecting second wave treatment methods.

Wykes et al. (2008) conducted a meta-analysis of thirty-four studies on the efficacy of CBTp for schizophrenia. Regarding individual CBTp trials aimed at reducing positive symptoms, the results showed that there was a statistically significant effect on this treatment outcome, with a modest estimated overall effect size of $R = .399$ (Wykes et al., 2008) for changes in positive symptoms. Interestingly, this outcome was significantly correlated with improvements in negative symptoms ($R = .83$), and perhaps in improved functioning (Wykes et al., 2008). Surprisingly, CBTp treatment outcomes were also correlated with worsening hopelessness (Wykes et al., 2008). These data suggest that, in the act of targeting one treatment outcome, other treatment outcomes that were not intended targets may be positively or negatively affected as well (Wykes et al., 2008). Given that there were modest effects for all outcomes besides hopelessness (psychosis, positive and negative symptoms, functioning, and mood), the authors suggest that, regardless of the specific target of intervention, CBTp might have a more generalized impact on psychotic symptoms (Wykes et al., 2008).

Sarin et al. (2011) conducted a meta-analysis involving twenty-two randomized controlled trials (RCT's) of CBTp with a focus on outcomes ranging from 3 to 15 months (Sarin et al., 2011). Outcomes of interest were (a) symptoms, (b) medication use, (c) relapse, and (d) clinically important improvement (Sarin et al., 2011).

At 3-month follow-up, CBTp showed significant but small effect sizes on change in positive symptoms, negative symptoms, and general symptoms (Sarin et al., 2011). However, immediately after treatment, although there was a trend observed that appeared to favor CBT, it was not statistically significant (Sarin et al., 2011); this finding was also supported by a recent meta-analysis of CBTp compared to supportive therapies (Newton-Howes & Wood, 2013).

Turner et al. (2014) performed a comparative analysis of 48 outcome studies that assessed psychotherapeutic improvement in psychiatric symptoms of psychosis following treatment. Studies included were a mixture of individual and group-based treatments which included CBTp, social skills training, cognitive remediation, befriending, and supportive counseling (Turner et al., 2014). Using a pooled symptom outcome measure across studies, CBT was shown to be more efficacious when compared to the other treatments in reducing positive symptoms (Turner et al., 2014). Social skills training led to more improvement in negative symptoms compared to CBTp (Turner et al., 2014).

In addition to the effectiveness of CBTp for psychosis in general, research has also been conducted assessing CBTp effectiveness for psychosis over time (Sitko et al., 2020). In this most recent meta-analysis, a systematic review of the effectiveness of CBTp across time was conducted, with additional and separate analyses for positive symptoms, delusions, hallucinations, and negative symptoms (Sitko et al., 2020). Of the 28 studies looking at positive symptoms, the pooled effect size was between $-.24$ and $-.26$ (negative signifies improvement) (Sitko et al., 2020). With the pooled effect size of $-.24$, CBTp was favored over TAU in the treatment of positive symptoms, even when this effect was reduced to $-.20$ as a consequence of publication bias considerations (Sitko et al., 2020). The overall results of this meta-analysis suggest that there are small to medium effects favoring CBTp for positive symptoms, hallucinations, delusions, and negative symptoms, with an increased effectiveness of CBTp overtime for delusions only (Sitko et al., 2020).

In addition to the more general literature on CBTp for psychosis, there has also been work done on CBTp and its application to special cases (Burns et al., 2014; van der Gaag et al., 2014). For example, van der Gaag et al. (2014) conducted a meta-analysis of randomized controlled trials (RCT's) of CBTp on first episode psychosis. Participants were categorized as being at a critically high risk (CHR) for developing psychosis (van der Gaag et al., 2014). Results showed that CBTp approaches lowered the risk of individuals moving from the prodromal phase to the active phase of psychosis (pooled risk ratio of .52) (van der Gaag et al., 2014).

Medication-resistant psychosis is a significant problem in the treatment of schizophrenia, as roughly 50–70% of persons have residual symptoms despite taking antipsychotic medications (Burns et al., 2014). Burns et al. (2014) conducted a meta-analysis of 16 studies of CBT on outpatients with medication-resistant psychosis (Burns et al., 2014). At post-treatment, the mean weighted effect size for positive symptoms was .47, a medium effect size (Burns et al., 2014). At follow-up, the mean weighted effect size was maintained at .41 (Burns et al., 2014). These data seem to suggest that CBT is effective in the treatment of positive symptoms in medication-resistant psychosis in outpatients (Burns et al., 2014).

Naeem et al. (2016) conducted a meta-analysis of seven studies involving a briefer version of CBTp, of which usually involves between 6–10 sessions over a period of 4 months or less. Results showed that, at the end of treatment, brief CBTp showed a moderate effect size compared to treatment as usual (TAU) (Naeem et al., 2016). Surprisingly, there were greater improvements in negative symptoms than in positive symptoms, and greater effect sizes for delusions than for hallucinations (Naeem et al., 2016). These results were maintained at the three to six-month follow-up (Naeem et al., 2016). Hazell et al. (2016) found similar results when examining brief forms of CBTp. This area of research looks promising and may lead to improved treatment compliance.

Limitations

The research on the effectiveness of CBTp has some important limitations to mention. One important limitation is within-trial heterogeneity across studies, in which different treatments, assessments, and delivery mechanisms are used which makes it difficult to compare results across studies (Thomas, 2015). One consequence of this is that the metrics for the outcome measures are quite broad in nature, and thus reduce sensitivity in the assessment of individualized outcome variables. Another limitation that has been discussed is the level of specialization that CBTp requires (Thomas, 2015). This means that only a small number of clinicians and practitioners are able to effectively administer CBTp, which may limit generalization to real-world clinicians and settings (Thomas, 2015). It has also been claimed that brief/low intensity CBTp may not use the core elements of CBTp proper, and that it instead uses exposure techniques and behavioral activation (Thomas, 2015). Finally, Morrison and Barratt (2010) posited additional limitations of the research, a central one being that there is debate as to what degree of characterological similarity is or is not shared between CBTp, and traditional CBT and or CBT for other disorders. Relatedly, it has also been claimed that there is neither a definitive consensus as to which elements of the intervention are most important, nor one as to which elements rightly constitute it (Morrison & Barratt, 2010). These limitations seem to call for more rigorous methodology, improvements in standardization and availability, communal consensus in treatment method and method emphasis, and improvement in the clarity of outcome metrics.

Cognitive-Behavioral Therapy for Delusions

Delusions are defined as “a false belief based on an incorrect inference about external reality that is firmly sustained despite what almost everyone else believes and despite what constitutes incontrovertible and obvious proof or evidence to the contrary” (American Psychiatric Association [APA], 2013, pg. 821). Beliefs that have a

clear cultural or religious basis are not considered delusional so an attention to these factors is important in working with psychosis. Individuals with psychosis and schizophrenia form delusions based on the irrational interpretation and assignment of meaning based on “evidence” found in their lives. Although there are more rational and more adaptive explanations for events, they use this “evidence” to make faulty conclusions to support the delusional belief. It is this evidence that is addressed in CBTp. The goal is to weaken these beliefs using verbal and behavioral strategies. However, delusions are not found only in psychosis and schizophrenia, but also in severe depression, bipolar disorder, substance use, and even in normal community adults (10–15%) (van Os et al., 2000; Verdoux & van Os, 2002). By far, the most common types of delusion found in schizophrenia are persecutory delusions, in which the person strongly believes that another person or group of persons has **intentions to harm** the individual, and this harm is ongoing, or will occur in the future (Freeman & Garety, 2000). In fact, delusions are often linked to the meaning and interpretation of hallucinations. Studies estimate that about 50–80% of persons with schizophrenia hold paranoid delusions at one time or another (Appelbaum et al., 1999; Brakoulias & Starcevic, 2008). Delusions of reference, grandiosity, and somatic functioning are also common.

The measurement of delusions is a multidimensional construct, with the most common dimensions being: (1) conviction, (2) preoccupation, (3) distress, (4) pervasiveness, (5) emotionality, and (6) action/inaction (Appelbaum et al., 1999, 2004; Garety & Hemsley, 1987). CBTp attempts to weaken these dimensions as part of treatment, which provides good data for outcome tracking and measurement (Combs, 2010). In essence, persons with delusions are making erroneous, biased inferences and decisions about internal or external events, and then maintaining them in a rigid, inflexible, and rejecting manner.

The basic model used to understand delusions comes from the classic A-B-C paradigm commonly used in all CBT approaches (Beck & Rector, 2000). For persons with delusions, the A (antecedent/activating event) is usually some form of unusual sensory experience (voices), negative interpersonal interaction (person looks at you strangely), and/or a strange event (unusual car is parked outside your home; person over hears a personalized comment from strangers) (Beck & Rector, 2002; Myin-Germeys et al., 2001). These events can consist of a single salient event, or of a series of events that are all connected in an illusory, correlational-type manner. Ambiguous events in which motive or attribution is unclear are more prone to delusional thinking (Combs, Penn, et al., 2007). Following some unusual event, the person attempts to explain this event (B = Belief), but the interpretation is impacted by various biases and distortions that arise from early interactions, values, and beliefs (Garety et al., 2001; Maher, 1988; Startup et al., 2003). Persons with delusions develop schematic beliefs about social inadequacy, powerlessness, inferiority, and or a lack of achievement (Beck & Rector, 2002; Bentall & Swarbrick, 2003; Rector, 2006), and often blame others for their faults and failures. Finally, the C part of the model reflects the consequences, such as the emotional, behavioral, and social issues that result from the belief. Real life examples include paranoia, hostility, avoidance, and/or the loss of friends or a job. In reality, the social and behavioral

avoidance often serves to prevent the exposure to disconfirming evidence in many cases (this being an assumption of operant conditioning).

Cognitive Biases and Distortions

CBTp focuses on the thought processes and biases that foster and maintain the delusional belief (see Freeman et al., 2001; Freeman et al., 2002). It is these very same processes that CBTs attempts to remediate, which in turn leads to the weakening of the delusional belief (B). Examples of these biases and cognitive distortions include:

- Increased attention to social threat
- Jumping to conclusions (making rapid decisions with poor or limited data)
- Confirmation bias (looking for evidence to support delusion)
- Personalizing attributional style (blaming others for negative events)
- Cognitive rigidity
- Excessive need for closure
- Poor theory of mind abilities (problems understanding the motives and intentions of others)
- All-or-nothing thinking (everyone dislikes me)
- Hostility bias for ambiguous situations
- Emotion perception/social cognition deficits

Stages of CBTp

There are 4 stages of CBTp that are often part of treatment, although many of these are integrated and flow freely from one to the other. The stages are as follows: (1) Engagement and Assessment, (2) Education and Orientation, (3) Verbal Strategies, and (4) Behavioral Strategies (see Chadwick et al., 1996; Combs, 2010; Kingdon & Turkington, 2005).

Stage 1: Engagement and Assessment Phase

Before the verbal disputation of delusions can begin, attention must be given to developing engagement/rapport, assessing the severity of the delusion, and teaching the client about how delusions are formed (Chadwick et al., 1996; Kingdon & Turkington, 2005; Rector, 2006). This is followed by verbal and behavioral disputation methods, which are the real mechanisms of action for belief change in CBTp (Chadwick & Lowe, 1994). In the early stage of treatment, the therapist and client begin the process of becoming acquainted with one another and working on establishing rapport. The importance of a good therapeutic relationship characterized by

trust, empathy, and respect cannot be underestimated, and is especially important in the treatment of delusions and paranoia. This phase generally lasts between 3 and 6 sessions and is relatively unstructured and free flowing in terms of activities. At this point, the client is allowed to tell their story, how they came to be referred, and discuss any current problems. At some point, clients will express their delusional belief. It is important that this information be dealt with appropriately. First, if the material seems delusional, or if the clinician knows ahead of time what the delusion is (based on the referral information), then ask the client what things, events, and or experiences led to the formation of that belief. Since the client is preoccupied with the belief, this information is easily accessible. At this point, simply make notes of the important events that the client used to form the delusion. This is the same evidence that will be targeted later in the verbal intervention phase. Some evidence will be historical, and some will be more current, but both types are viewed and reinterpreted in the light of the delusional belief. When listening to the events surrounding the belief, you can try to fit the events/evidence into the ABC paradigm (as discussed in Chadwick et al., 1996). Usually, the client reports some type of ambiguous event, emotional stressor, negative social interaction, or strange physical sensation, and then uses these as reasons to support their belief (B). Pay attention to the emotional, social, and behavioral consequences as well (C), as these may provide a reason to change or modify the belief. Obtain information about what they do, how they feel, or how they act when the event (more accurately, the belief) occurs.

Potential Problems in The Early Stages

Potential issues to be aware of include confrontation and collusion with the delusional belief. Sadly, many clients have had a history of working with therapists who were overly confrontational and told them in an outright or blatant manner that they are wrong. At the beginning of treatment, we often get asked whether we believe their belief is true or not. *This is a critical point in the relationship.* Clients with paranoia do this quite often to see if you are an ally or an enemy. First, it is too early to begin disputing their belief directly. Clinicians should take the approach that beliefs are not facts, and that the support of a belief comes from the evidence that needs to be examined first, which reflects the concept of collaborative empiricism (Chadwick et al., 1996; Kingdon & Turkington, 2005). By resisting this request, we model a careful, slow, and deliberate method to examine beliefs that is different from the usual jumping-to-conclusions style found in delusional persons. In contrast to direct confrontation, it is also not a good idea to engage in collusion or buy into the idea that the belief is true (Kingdon & Turkington, 2005). If a client asks you if you believe them, simply responding that “it depends on the evidence” or “let’s test it out” will help avoid this potential trap. If you collude and agree with the client’s belief the consequences can be severe, and this makes it hard to challenge the belief in later sessions.

The proper assessment of a delusional belief is necessary for a full understanding of the nature of a delusion, its relevant dimensions, and its emotional/behavioral

consequences. It is also useful to conduct outcome assessments during therapy to ensure that there is movement and change in the dimensions of delusions following treatment. Some relevant and useful measures include: (1) Conviction of Delusional Beliefs Scale (CDBS) (Combs et al., 2006), (2) Brown Assessment of Beliefs Scale (Eisen et al., 1998), (3) Maudsley Assessment of Delusions Scale (Taylor et al., 1992), (4) Percentage Conviction Rating Scale (Hole et al., 1979), and (5) Characteristics of Delusions Rating Scale (Garety & Hemsley, 1987). All of these measures use Likert scale formats to provide numerical changes in the characteristics of delusional beliefs (see Combs, 2010).

Stage 2: Education and Orientation Phase

Stage 2 involves educating and socializing the client to ABC's of cognitive-behavioral therapy (Chadwick et al., 1996; Rector, 2006). Many CBTp resources have handouts and formal descriptions about CBTp (Kingdon & Turkington, 2005). Using an example from the client's life, it is useful to setup an ABC model to show the connections between events, beliefs, and consequences. It is important to emphasize that beliefs are not facts and need to be critically examined using the evidence for and against their belief. Once the client has grasped the ABC model, the next step is the development of specific and achievable goals. The goals usually stem from the C's – the client's emotional, social, and behavioral consequences. Finally, before moving on to the verbal disputation phase of treatment, the client and clinician share and discuss the case conceptualization. This shows the client that we have tried to understand their situation, and to demonstrate to the client that their belief is connected to a large number of events. The case conceptualization guides treatment, and without one, treatment will seem less focused. Consistent with Freeman and Garety (2006), triggers, unusual events, emotional factors, and cognitive biases that lead to the formation of the belief are presented and discussed. This is the step where the clinician lays out how the belief was formed, and how it is maintained.

Stage 3: Verbal Disputation of Delusional Beliefs

The active treatment phase of CBTp involves both verbal and behavioral methods. Research has shown that using verbal methods before behavioral ones leads to greater changes in belief conviction (Chadwick et al., 1994). The four verbal techniques used to reduce belief conviction are as follows: (1) Thought Disputation and Challenging, (2) Accommodation, (3) Reaction to Hypothetical Contradiction, and (4) Direct Challenge.

Thought Disputation and Challenging Using the standard dysfunctional thought record (DTR), the client first identifies an event (A), the belief (B), and the consequences (C), and rates their current level of conviction, preoccupation, and distress

(scale of 1–100). After this is done, the client then develops an alternative belief or explanation that is counter to the delusional interpretation. The client then re-rates their level of conviction, preoccupation, and emotional distress for the delusional belief after assessing the alternatives. To use this effectively, it is recommended that the clinician start with the least important event/evidence first, and then gradually work up to the most important (and usually the most resistant) evidence (Chadwick & Lowe, 1990, 1994; Watts et al., 1973). This forms a belief hierarchy and is developed collaboratively with the client. A limitation of the DTR is that it examines only automatic or surface thoughts elicited by events. However, CBT also provides techniques to go deeper and focus on schemas, which serve as the foundation for the delusional belief. Schemas can be accessed by using a common technique called *thought chaining* or the *downward arrow technique*. In thought chaining, the therapist moves from automatic thoughts to inferences (if, then statements) to core beliefs using Socratic questioning.

Accommodation This technique is based on the idea that clients are exposed to a wide range of information and evidence on a daily basis (Chadwick et al., 1996). Most often they ignore, do not attend to, or distort the evidence to fit their existing belief. As treatment progresses, clients may begin to notice contradictory information more frequently, and then integrate this information into their beliefs (e.g., the belief changes to include new information). Accommodation centers on the whether the client is aware of new information, and what the client does with this information. To assess accommodation, the client is simply asked, “Has anything happened since the last session to alter the belief in any way?” (Chadwick & Lowe, 1990). The response is then rated using the scale developed by Garety and Helmsley (1987), which assess change in belief content, preoccupation, and interference. Accommodation can be used as a homework assignment and is usually discussed at the beginning of the session.

Reaction to Hypothetical Contradiction (RTHC) For this technique, the client is presented with a formal challenge to their belief, which consists of an alternative explanation that directly contradicts the belief. This is a simple procedure but does require some planning ahead of time. The key is to provide a strong challenge to their belief; it might be good to brainstorm about some alternatives, and then select the best one. The therapist takes a piece of evidence from the client’s hierarchy and formulates an alternative explanation to present to the client. Client responses can be rated on a scale of 0–4, with higher scores representing more change in the belief (Garety & Helmsley, 1987).

Challenging the Belief Itself The final verbally based method to modify delusions centers on using logic and reason to undermine the foundation of the belief itself. Chadwick et al. (1996) suggest three ways to challenge the belief and accomplish this goal. First, focus on the irrationality, inconsistency, and lack of feasibility for the belief. The question “why would it make sense for things to be as you say they are?” can be used here.

Stage 4: Behavioral Challenging and Disputation Phase

Behavioral challenging (also known as behavioral experiments, reality testing, or empirical testing), has always been considered an important part of modifying delusions. Bennett-Levy et al. (2004) defines behavioral experiments as “planned experiential activities, based on experimentation or observation, which are undertaken by patients in or between sessions” (pg. 8). The goal of these behavioral experiments is to test the evidence for the belief, and subsequently lead to the formation of a new, more adaptive and realistic belief. Behavioral experiments can be of several types. First, observational-type experiments allow the person to record the behaviors of others, or ask trusted others their opinions about their beliefs, the latter exercise being similar to giving a survey (as discussed in Bennett-Levy et al., 2004). The involvement of a third party whom the client trusts can mean the inclusion of an additional observer. Second, experimental or hypothesis testing methods are utilized, and the person is asked to do something different (put their belief to the test), and then determine if the evidence supports or does not support their belief. By actively engaging the test of their belief, the client sees that alternative outcomes are possible.

Previous works have outlined the steps used to design effective behavioral experiments (Combs, 2010; Combs et al., 2007). These steps are as follows.

1. *Establish readiness to engage in experiments* – Usually after the verbal challenge phase of treatment, rapport will be enough to initiate the topic of using behavioral experiments. Anxiety is to be expected when putting their beliefs to the test.
2. *Involve the client in designing the experiment* – Behavioral experiments work best if the client has a role in designing and planning the test. Experiments are not done to prove that the belief is true, but to examine the evidence. There must be a buy in from the client for these to be effective.
3. *Test specific predictions* – Make specific testable predictions about what may happen. Usually one is the client’s delusional belief.
4. *Discuss and troubleshoot problems* – After the plan is derived and predictions are made, the client and therapist need to discuss any potential problems that may interfere with the experiment. Oftentimes, the client may come up with a flawed, incomplete, or irrelevant experiment, and the clinician is encouraged to help shape or revise the experiment if necessary. Role-playing may be useful here. The expression of negative emotion, hostility, or anger toward others during the experiment may actually lead to increased paranoia (reciprocal interaction). For persons with paranoia, observational experiments are used first to lessen the threat if they have to interact with others without practice.
5. *Refine plan and Commit* – The plan is refined or altered, and both the client and therapist should feel comfortable with the proposed experiment. Setting a date and time for when the experiment is to be completed is important in ensuring that the plan is actually carried out.

6. *Conduct, observe, and evaluate evidence* – The client (and any other person involved) should be instructed to take carefully written notes about the event, and to fully attend to the situation. Verbal reports from the client are often incomplete, less detailed, and subject to cognitive and memory biases. Compare the results to the predictions and discuss.

Cognitive-Behavioral Therapy for Hallucinations

Hallucinations can be understood using the ABC model as well. In this case, the hallucination is considered the A, or activating event, that leads to beliefs about the voice (B), which is then followed by an emotional or behavioral consequence (C). In the ABC model, the hallucination represents an odd or unusual experience that the person must make sense of or assign meaning to in order to understand. Thus, hallucinations stimulate the search for meaning about the identity, power, and purpose of the voice. Within a larger conceptual framework, hallucinations are connected to the individual's life experiences and schematic beliefs (Beck & Rector, 2002; Rector, 2006), and may stem from the persons failures, or other traumatic life events. Voices can be triggered by some event, such as a lack of sleep, drug use, stress, or highly charged emotional events (Beck & Rector, 2003). Chadwick et al. (1996) argue that the most important feature of hallucinations is not the form or content, but the meaning and beliefs assigned to the voices. Meaning is reflected in terms of their (1) identity, (2) purpose, (3) omnipotence, and (4) consequences for resisting or obeying the voice (Chadwick et al., 1996).

Overview of Cognitive-Behavioral Therapy for Hallucinations

The goals of CBTs for hallucinations are to (1) weaken the voices' activity, and (2) change the persons beliefs about the voices (i.e., omnipotence, etc.). The stages of treatment are generally the same as with delusions.

Stage 1: Engagement and Assessment Phase

Just like with delusions, the first 3 to 6 sessions are spent developing rapport, trust, and obtaining information about the voices. Along the way, the clinician begins constructing an ABC model of the hallucination experience with a focus on the beliefs about the voices (B), and the emotional and behavioral reactions (C). Useful assessments of hallucinations include the Brief Psychiatric Rating Scale (BPRS), Psychotic Symptoms Rating Scale (PSYRATS), the Positive and Negative Syndrome Scale (PANSS), and the Beliefs About Voices Questionnaire (BAVQ) (Chadwick

et al., 2000). These assessments are useful, in that they provide information about the meaning and importance of the voices to the person.

Stage 2: Education and Orientation

Again, the client is socialized and taught the basics of the cognitive model. For clients with distressing voices, a desire to terminate, control, or stop the voices is common. Negative voices may be associated with depression, anxiety, or low self – esteem. Comforting voices are often more difficult to treat, as they provide a sense of closure, emotional attachment, and meaning in the individuals life. The final activity for this phase is the construction, sharing, and refinement of the case conceptualization.

Stages 3 and 4: Cognitive and Behavioral Disputation Methods

After the education and orientation phase, the therapy becomes more focused on active interventions. In the research literature, both distraction and focusing methods may provide immediate relief for distress in hallucinations (Haddock et al., 1996). These are followed by cognitive and behavioral remediation.

Distraction Strategies Distraction or counter-stimulation methods are designed to accomplish one or more of the following: (1) interrupt the attention to the voices themselves, (2) provide competing stimuli, which the client can attend to instead of the voices, and (3) disrupt the voice itself. For auditory hallucinations, this is some type of language or listening activity, such as reading aloud, naming objects you see, listening to music, signing, or placing an earplug in the non-dominant ear (left ear for right-handed clients which reduces non dominant speech intrusions). All of these intervention methods likely distract attention away from the voices to more enjoyable or interesting activities (Haddock et al., 1996).

Focusing Methods In contrast to distraction methods, focusing methods require the client to pay more/closer attention to different aspects of their voices in order to weaken them. This is a form of self-monitoring, which can lead to a reduction in voice activity, more perceived control, and understandability of the voices (Haddock et al., 1998). These methods are based on the **gradual exposure** to features of their voices in order to lessen distress and fear. Haddock et al. (1996) suggest that focusing on the frequency, form, tone, content, emotions, and meaning of voices can be useful activities. The key is to start small, and gradually increase the amount of material that is recorded by the client. This can be done by writing out the information on paper or recording what the voices say on a phone or tape recorder (Haddock et al., 1998).

Technique #3: Using Evidence to Challenge Voices Given that the beliefs about voices are often erroneous, we can examine the evidence for and against these beliefs to help reduce their influence and power. To begin, when a client hears a voice, they typically assign meaning to the voice, and the clinician's job is to extract from the client the evidence for this interpretation. The power of this technique lies in the ability to generate alternative evidence for their interpretation (belief is all knowing and prevents harm). Questions about whether the voice has ever been wrong, about times when the voice has been inconsistent, and about whether the client ever acted against the voice are useful here. Additional techniques to use could involve eliciting the opinions of others, looking for disconfirmatory information on a daily basis (Accommodation), or setting up hypothetical contradictory situations similar to the RTHC for delusions.

Empirical Testing The goal of empirical testing for hallucinations is to get the client to act or do something different. Usually, this is acting against the voices, or doing something the client wants to do despite the voices. Attending therapy is a good action to start with, given that many voices argue that therapy is not helpful, or is ineffective. As with most experiments, having testable predictions, engaging in collaboration, gathering evidence, and employing assessments of the outcomes are core features to be included. At the end, persons are often surprised when nothing happens, or the voice does not appear, or comment on the situation.

Summary

CBTp is considered an evidence-based practice for the treatment of schizophrenia and psychosis. Second wave CBTp approaches are still widely used with great benefit to clients. In addition, CBTp has arguably the most research support of any psychological intervention for psychosis. CBTp procedures have come a long way to become more standardized, which no doubt has improved research and clinical utility. Compared to first and third wave approaches, CBTp provides practical skills to not only manage their symptoms, but also presents them with an understanding of how delusions and hallucinations are formed and maintained. More specifically, first wave approaches such as token economies and social skills training, often target a specific behavior and may not lead to overall symptom changes. Third wave approaches have focus less on psychotic symptoms and more on acceptance, normalizing symptoms and experiences, and coping with a lifelong illness. Future research needs to examine low intensity versions of CBTp and involve persons with first episode schizophrenia or those at high risk for developing the disorder. The ultimate goal of CBTp is move individuals with psychosis towards recovery in which they use the skills learned in CBTp to have productive and fulfilling lives.

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Schizophrenia Spectrum and Other Psychotic Disorders: Third Wave Case Conceptualization



Stacy Ellenberg and Brandon A. Gaudiano

Schizophrenia is listed among the top ten causes of disability worldwide (Charlson et al., 2018), with total costs of 155.7 billion USD annually (Cloutier et al., 2016). Psychosis involves a loss of contact with reality. Positive symptoms include hallucinations, delusions, and disorganized thinking/behavior, whereas negative symptoms are characterized by blunted affect, poverty of speech and thought, apathy, anhedonia, and asociality. The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition classifies several types of psychotic disorders, including schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, and brief psychotic disorder (McCutcheon et al., 2020). The various types of schizophrenia-spectrum disorders are present in 3.5% of the general population (Perälä et al., 2007). Age of onset for psychosis is generally in the late teens or early adulthood. Men and women have similar rates of psychosis, but women tend to have a later onset and better prognosis (Ochoa et al., 2012). It also should be noted that dimensions (versus purely categorical classification) of psychotic experiences, such as hallucinations and delusions, are increasingly emphasized in the assessment and treatment of these conditions (Heckers et al., 2013). Studies show that subthreshold psychotic symptoms are even more common in community samples, with 5–8% evidencing psychotic-like experiences (Kelleher & Cannon, 2011). In addition, psychosis often co-occurs in other psychiatric disorders, with 10% of individuals with

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major depressive disorder exhibiting psychotic features during a mood episode (Shen et al., 2020).

Schizophrenia and related psychotic conditions are understood to be some of the most impairing and costly to treat psychiatric illnesses (Charlson et al., 2018). Individuals with schizophrenia tend to experience significant functional impairment and high rates of relapse (Emsley et al., 2013; Fulford et al., 2013). The lifespan of patients with schizophrenia is shortened by 14.5 years compared with the general population (Hjorthøj et al., 2017), and 5–10% of these individuals die from suicide (Popovic et al., 2014).

Most etiological models emphasize the complex interaction between genetic and biological risk factors, along with environmental triggers, such as early trauma and life stressors (McCutcheon et al., 2020). Research points to the heritability of psychotic disorders; although recent genome wide association studies have found only small effects spread over a hundred possible gene candidates (Schizophrenia Working Group of the Psychiatric Genomics Consortium, 2014). In addition, winter births and perinatal complications increase the risk of developing psychosis (Ursini et al., 2018). Environmental factors are also important, with early traumatic experiences, bullying, acute stress, migration, urbanicity, and substance use increasing risk (Radua et al., 2018). Furthermore, psychosis expression varies as a function of cultural factors, such that geographical location, social norms, familial style, and local customs and rituals, can influence illness prevalence, severity, clinical features, and impact on functioning, positively or negatively (Larøi et al., 2014).

ACT for Psychosis

Psychotic disorders are most commonly treated with first or second generation anti-psychotic pharmacotherapy (Davis et al., 2003). However, research indicates that up to 50% of patients are medication nonadherent (Acosta et al., 2012), and patients who are medication adherent have an inadequate treatment response in many if not most cases (Elkis & Buckley, 2016). First and second wave behavior therapies and family therapies are recognized as an essential part of the evidence-based treatment of psychosis because they improve clinical and functional outcomes beyond medications alone (Dixon et al., 2010). Acceptance and Commitment Therapy (ACT) is one of several types of third wave therapies that also have been adapted and tested to treat psychosis in recent years.

Theoretical Rationale

ACT is based on the philosophy of functional contextualism, which emphasizes the function of behavior, rather than its form, as well as the full context in which behavior occurs, including the environment, reinforcement contingencies, and the

learning history of the organism. Experiential avoidance (EA) represents maladaptive attempts to escape unwanted internal experiences (e.g., thoughts, feelings, memories) and has been implicated in psychosis and most other forms of psychopathology (Hayes et al., 2006). Consistent with EA, researchers have found that attempts to suppress hallucinations are an ineffective means of coping with chronic symptoms (Falloon & Talbot, 1981). In addition, other scholars have noted that various forms of “resistant,” “defensive,” or “sealing-over” coping styles defined by avoidance and denial of psychotic experiences are predictive of increased psychological distress, poorer outcomes, and less treatment engagement in psychosis (Escher et al., 2003; Farhall & Gehrke, 1997; Tait et al., 2003). Research has revealed a link between the process of EA and increased distress, auditory hallucinations, paranoia, depression, and anxiety, as well as reduced cognitive functioning and insight in psychosis (Goldstone et al., 2011; Shawyer et al., 2007; Udachina et al., 2014; Valiente et al., 2015; Varese et al., 2016; Villatte et al., 2010; White et al., 2011). Taking these findings into account, Thomas (2015) proposed a model arguing that preoccupation in psychosis is driven by specific interactions among various EA-associated processes, including ruminative thinking patterns, tendencies to engage or resist voices, negative reinforcement mechanisms related to anxiety reduction, maladaptive attempts to maintain self-esteem, and efforts to withdraw from aversive environmental contingencies.

Treatment Processes

Although protocols vary, ACT for psychosis (ACTp) generally follows the same principles used in ACT for other clinical populations, with some specific adaptations (Oliver et al., 2013). Given that EA is the presumed central mechanism underlying psychosis development and maintenance, the treatment is focused on applying the ACT processes of acceptance, defusion, self-as-context, present moment awareness, values, and committed action in the service of increasing psychological flexibility. Psychotically flexibility is the inverse of EA and represents the person’s ability to adapt to changing situations as they occur, with choices being guided by the individual’s personal values instead of merely to avoid discomfort (Ciarrochi et al., 2010). When applied to psychosis, ACT attempts to help the patient to: (1) accept distress associated with psychosis, (2) notice psychotic symptoms when they occur without judgment, and (3) work toward valued goals in the presence of symptoms (Gaudio et al., 2010).

Although various components of ACT can be helpful for addressing positive and negative symptoms, certain processes may be particularly relevant to psychosis (Bach et al., 2006). Treatment typically starts with a review of the person’s history, highlighting the role of EA in interfering with valued pursuits and merely exacerbating symptoms in the long-run. As part of the early treatment process, a functional analysis of psychotic symptoms is conducted to identify what triggers and maintains these problems. It should be noted that psychotic symptoms often have

personal meaning to the individual and serve some function through reinforcement principles (Bach, 2013). For example, voices might stem from the person's learning history of criticism from others, which then come to function as a way for that individual to motivate and achieve a desired goal through self-punishment, as manifested through the voices. In other words, psychosis is understood in ACT as an attempt based on the person's particular learning history and life experiences (including trauma) to pursue important life values such as safety and meaning, but often in avoidant or maladaptive ways.

Common Strategies and Techniques

Acceptance-based strategies (e.g., "Tug of War with a Monster" "Metaphor, in which the cost of fighting a losing battle with a personal "monster" is explored and the option of giving up the struggle are practiced as ways of regaining behavioral control) are particularly useful for targeting voices (Gaudiano et al., 2010). For example, arguing with voices can simply cause them to become louder and more intrusive over time. Alternatively, increasing the person's willingness in the moment to simply notice when the voices are occurring without engaging with them or trying to block them out is explored as an alternative stance that can be taken to stay on track in the pursuit of desired goals despite symptoms being present. In addition, cognitive defusion strategies (e.g., word repetition exercises) can be helpful for addressing delusions, so as to reduce patients' general tendencies to overvalue their thoughts as the ultimate determinants of choices and behaviors (e.g., deciding not to leave the house because of paranoid ideation). In ACTp, the patient is taught to hold *all* thoughts "lightly" (i.e., not necessarily buying into them and thus remaining more agnostic), and instead to focus on values as a more useful guide for making effective and worthwhile choices in the moment. This lessens patients' defensiveness and circumvents tendencies to become engaged in argumentative exchanges with the therapist regarding delusional content. Furthermore, values clarification is particularly helpful for addressing impairing delusions through the identification of the more "workable" ways of responding to delusional beliefs, while still staying consistent with values, regardless of the perceived veracity of the belief in question. For example, a person might be encouraged to maintain important social contacts with others despite the presence of paranoid ideation at times and to recognize any delusional beliefs that are triggers as "thoughts" that one can choose to hold lightly. Consistent with this practice, research suggests that ACTp decreases the level of believability in psychotic experiences and that this change predicts clinical outcomes (Bach & Hayes, 2002; Gaudiano & Herbert, 2006). Values and committed action work (e.g., values-based goal setting) also serves as a behaviorally activating process to counteract the low motivation, social disengagement, and depression generated by negative symptoms. For example, research suggests that ACTp is particularly helpful for decreasing associated distress and mood problems related to psychosis (Gaudiano & Herbert, 2006; White et al., 2011). Finally, self-compassion

is an essential feature of the ACTp treatment process, in that patients are taught how to be kinder to themselves when experiencing symptoms. Psychotic symptoms are normalized and emphasized to be an understandable (albeit unhelpful) reaction to stress, as they fall along a continuum of experiences that anyone can have at one time or another.

Clinical Considerations

Although various mindfulness practices have been found to be safe and effective for individuals with psychotic disorders, intensive meditation practices are sometimes contraindicated during periods of acute psychosis (Chadwick et al., 2005). Certain types of meditation practices may produce iatrogenic effects via the fostering of unhelpful internal preoccupation and disengagement from reality (Sharma et al., 2019). However, this does not mean that all forms of meditation are prohibited. Exercises focusing on mindfulness applied to activities (e.g., eating, walking, listening to music) can be substituted during periods of acute psychosis as safer alternatives. Furthermore, ACTp typically is delivered in combination with pharmacotherapy, so the role of medications in the treatment of psychosis is also addressed in treatment. Issues related to nonadherence or other barriers to appropriate medication use can be discussed using ACTp strategies focused on workability, values-action consistency, and the therapeutic relationship (Moitra & Gaudiano, 2016). However, ACTp respects the patient's autonomy and presumes that any medication decisions should be carefully negotiated between the prescriber and patient based on their understanding of shared values and goals.

Supporting Research

Among third-wave approaches to psychotherapy for schizophrenia-spectrum disorders, ACTp is one of the most comprehensively studied to date (Gaudiano, 2015), leading to its designation as having “modest research support” as an empirically supported treatment by the Society of Clinical Psychology (Division 12) of the American Psychological Association (“Acceptance and commitment therapy for psychosis,” 2020). Wakefield et al. (2018) published a systematic review of ACTp evaluating 13 open trials and randomized controlled trials (RCTs). They found that ACTp was effective when delivered in brief formats (e.g., 3 sessions), including for those experiencing severe psychosis and complex comorbidities. In addition, this approach was effective for reducing rehospitalization rates, enhancing psychological flexibility, and improving psychotic symptoms and functioning, and these effects tended to continue through follow-up periods. In addition, Yıldız (2020) completed a systematic review of 11 RCTs and reported small to large effect size improvements for ACTp, relative to comparison conditions, on measures of psychotic

symptoms ($d_s = .60$), anxiety ($d_s = .60$), depression ($d_s = .43-.93$), help-seeking ($d_s = .21-.43$), satisfaction ($d = .65$), and psychological flexibility ($d = 1.87$), as well as an increased time to rehospitalization.

In addition, a meta-analysis of 4 early RCTs of ACTp concluded that the treatment was effective for reducing negative symptom severity ($SMD = .65$) and rehospitalization rates ($RR = .54$) relative to comparison conditions, which included enhanced forms of treatment as usual or “befriending” interventions for psychosis (Tonarelli et al., 2016). These authors recommended that future studies include larger samples, longer follow-up periods, improved methodological rigor (e.g., larger samples), and use of active treatment comparators. In addition, Wood et al. (2020) conducted a meta-analysis of RCTs testing second and third wave cognitive-behavioral therapies for inpatients with psychosis, which included five studies of ACTp. Third wave interventions such as ACTp had larger effects in terms of symptoms improvement compared with second wave CBTp at post-treatment ($SMD = -.276$ vs $SMD = -.207$, respectively). However, this analysis was limited by comparisons of effect sizes across studies, as no individual RCTs to date have directly compared ACTp versus second wave behavior therapy for psychosis.

Less work has been conducted to date on the effectiveness and dissemination of ACTp in typical clinical settings. An open trial ($n = 26$) of ACTp for inpatients showed that the treatment was acceptable to patients and staff and was potentially effective, when delivered by non-doctoral level, routine hospital staff (e.g., nurses, social workers, occupational therapists) with minimal training in ACT (i.e., an initial training workshop with periodic supervision and case consultation) (Gaudiano et al., 2020). Results of this trial indicated that patients’ symptoms, distress, and mindfulness significantly improved from pre- to post-treatment and through a 4-month follow-up. Another study of 69 outpatients with psychosis showed that implementation of group ACTp in routine practice as part of community psychosis teams was rated as acceptable by patients and significantly improved functioning (primary outcome), mood, and ACT processes (e.g., experiential avoidance) from baseline to follow-up (Johns et al., 2016). A recent RCT with 55 young adults tested ACTp enhanced with a mobile digital intervention to improve the reach of the intervention versus an active control. Result showed that ACTp significantly improved interviewer-rated depressive, but not psychotic symptoms (which improved similarly over time), relative to the comparison condition (van Aubel et al., 2020).

Additional research has begun to test potential mechanisms of action in ACTp. Gaudiano et al. (2010) showed that changes in the believability of hallucinations, a measure of cognitive defusion, mediated the effects of ACTp plus treatment as usual (i.e., pharmacotherapy with standard inpatient therapy) compared with enhanced treatment as usual alone on hallucination-related distress. A follow-up study using combined data from two previous RCTs of ACTp for inpatients (Bach & Hayes, 2002; Gaudiano & Herbert, 2006) showed that changes in psychotic symptom believability mediated the effect of ACTp relative to treatment as usual on reducing rehospitalization rates at follow-up (Bach et al., 2013).

Less work has been done to date investigating possible moderators of ACTp’s treatment effects. Spidel et al. (2019) found that ACTp improved symptom severity

and treatment engagement relative to treatment as usual alone provided at the clinic (i.e., case manager, psychotherapy, and pharmacotherapy), in a RCT of 50 patients with psychosis and childhood trauma who received an 8-week ACTp group. An avoidant attachment style and lower number of sessions attended predicted poorer outcomes, but trauma severity did not moderate the effects of ACTp.

Other Third Wave Interventions for Psychosis

Although the literature base for ACTp is more extensive than that of other third wave treatment approach for psychosis, emerging research also shows promising findings for related mindfulness, acceptance, and compassion-based therapies for this population. Third wave interventions aside from ACTp involve amalgamations of mindfulness- and acceptance-based treatment protocols and second wave interventions for psychosis. Much like ACTp, each approach tends to include the key features involved in third wave treatments: an emphasis on functional, not symptomatic change, acceptance, self-compassion, and mindfulness. Among these other approaches includes mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1982), mindfulness based cognitive therapy (MBCT; Segal et al., 2002), person-based cognitive therapy for distressing psychosis (PBCT; Chadwick et al., 2005), and compassion-focused therapy (CFT; Gilbert, 2009).

Typically delivered in a group format over several weeks, mindfulness programs based on MBCT and MBSR aim at reducing distress in individuals with psychosis (Chadwick et al., 2005). Using meditation techniques adapted for those with psychosis, including briefer breathing and body scan exercises, they attempt to alter the relationship between the patient's psychotic experiences and associated distress. Controlled and uncontrolled clinical trials of mindfulness groups for psychosis have demonstrated significant effects with respect to remission rates, rehospitalizations, psychiatric symptoms, functioning, insight into illness, and mindful responding to internal experiences of psychosis (Chien et al., 2017; Chien & Thompson, 2014; Langer et al., 2012; Wang et al., 2016). A meta-analysis of mindfulness-based interventions for psychosis other than ACTp, comprised primarily of trials involving variations of MBSR or MBCT, indicated small to moderate effects for overall and positive symptoms, as well as small effects for negative symptoms (Hodann-Caudevilla et al., 2020).

Person-based cognitive therapy (PBCT) is typically delivered in 12 individual or group sessions and combines second wave CBT and mindfulness-based treatment for psychosis. Unique to PBCT is the integration of an individual's negative schema of self and others (Hayward et al., 2015). Currently, one quantitative and two qualitative studies exist for PBCT for psychosis, with findings showing early support for PBCT in improving overall wellbeing, distress, and reactions to internal experiences of psychosis (Dannahy et al., 2011; Goodliffe et al., 2010; May et al., 2014).

Compassion-focused therapy (CFT) uses strategies, such as compassion-oriented meditation and focused imagery practices, to increase compassion in the interest of

“soothing” the self and increasing social affiliation to regulate perceptions of threat. CFT’s adaptation for individuals with psychosis emphasizes the importance of fostering compassion in coping with shame, depression, and stigma experienced directly and indirectly as a result of the illness (Taylor & Abba, 2015). Emerging research suggests that CFT improves compassion, shame, and negative beliefs about psychosis (Braehler et al., 2013; Laithwaite et al., 2009; Martins et al., 2017). Additional mindfulness interventions for psychosis have emerged over the years as well, including treatments targeting emotion regulation in early psychosis (Khoury et al., 2013), mindfulness and social cognition training (Mediavilla et al., 2019), and lovingkindness meditation (Johnson et al., 2011).

Case Illustration

Client Description and History of Illness

Note that details of this case example were altered to protect the identity of the patient. Claudia is a 33-year-old, single, Black/African-American, cisgender woman, who presented at the behest of her friend at an outpatient mental health clinic for worsening anxiety, paranoia, auditory hallucinations, depression, and passive suicidal ideation over the past three months. Claudia stated her symptoms were exacerbated after becoming socially isolated in her apartment due to the COVID-19 lockdown.

Prior to the lockdown, Claudia was working part time at a bakery, spending her free time with family, going to the mall, and helping her church on the weekends. In addition to being psychiatrically disabled, in recent years Claudia was working part-time at a bakery which hired individuals with serious mental illness. Prior to the COVID-19 lockdown, Claudia frequently spent evenings and weekends with her family, including her father and sister, both of whom lived within 30 minutes of her. Claudia also described being very religious (Protestant) and attending church services regularly until the lockdown began.

Claudia had no formal psychiatric history prior to her mother’s death which occurred when Claudia was 17. In the weeks following her mother’s death, Claudia developed severe symptoms of depression, anxiety, and eventually psychosis, and she experienced her first and only suicide attempt (via overdose). Claudia had four psychiatric hospitalizations total during her life, which occurred after prolonged periods of isolation and withdrawal triggered by depression. Claudia was prescribed various antipsychotic medications (e.g., Haloperidol, Aripiprazole, Olanzapine) over the years, but the medication Claudia had taken consistently for the past several years is Clozapine, with generally good effects and minimal side effects.

Claudia stated that her anxiety had significantly worsened during the lockdown, lasting most of the day nearly every day. Claudia reported distressing, paranoid thoughts that the CIA had been monitoring her video phone calls. For that reason,

she refused to communicate with any of her social supports or treatment providers via video conferencing. Because her sister was immunocompromised, Claudia was unable to make in person visits in recent months. Claudia described being “tormented” by paranoid thoughts that intruders were coming into her apartment at night, rearranging her furniture, and stealing her personal belongings. Claudia stated that to protect herself from intruders coming into her apartment, she started blockading her front door nightly before going to sleep. Claudia stated she began hearing voices around the time of her mother’s passing, characterized by derogatory, rude voices of one man and one woman, neither of whom she recognized in real life. Although she consistently experienced auditory hallucinations since age 17, the voices tended to stay relatively low in volume and intensity when they did appear, but had worsened in the past few months.

Assessment of the Client’s Problems, Goals, Strengths, and History

Claudia was administered several assessments by her therapist at the start of treatment capturing diagnostic and clinical variables of interest: the Structured Clinical Interview for DSM-5 for diagnosis, the interviewer-rated Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962) for psychiatric symptom severity, the self-report Acceptance and Action Questionnaire (AAQ; Bond et al., 2011) to measure experiential avoidance and psychological flexibility, and the self-report WHO Disability Assessment Schedule-II (WHODAS; Federici et al., 2009) to measure overall functional impairment (Andrews et al., 2009).

Claudia met diagnostic criteria for schizoaffective disorder, depressive type as determined by the SCID-5, due to symptoms including delusions (paranoia), hallucinations (derogatory voices), and negative symptoms (anhedonia), as well as the presence of multiple major depressive episodes lasting the majority of the time since her psychotic symptoms began. She also demonstrated high levels of experiential avoidance and deficits in role functioning (e.g., impairments in daily living, household, and community activities).

Claudia also possessed a number of strengths and protective factors working in her favor prognostically. Claudia was motivated, interpersonally affiliated, involved in religious activity, supported by her family, and able to live independently. Claudia stated that as part of treatment, she wanted to identify ways of coping better with her symptoms so that she could spend more time with her family again and get back to her normal activities (i.e., completing tasks outside her house, interacting with others).

Case Formulation and Treatment Plan

By the time she presented for therapy, Claudia was almost entirely isolated from her sources of social support. She was limited to seeing her father (who is elderly) and sister (who is immunocompromised) in person infrequently. Fearful of monitoring by the CIA, Claudia severely restricted her normal socializing patterns. Her church was no longer hosting in-person sermons due to COVID-19 restrictions. Claudia also was not attaining the appropriate level of care by her psychiatrist as she became unwilling to communicate via telehealth. Isolation and disengagement with treatment were antecedents to her depression, anxiety, hallucinations and paranoia. Looking to avoid further exacerbation of her symptoms, Claudia spent much of her time indoors to protect herself from life stressors. She attempted to distract and distance herself from her disturbing thoughts and berating voices; however, no matter the number of times she tried, she reported that she could not seem to escape them.

After the therapist obtained informed consent about treatment from Claudia and discussed treatment with Claudia's psychiatrist, ACTp was determined to be appropriate for her ongoing and chronic symptoms (i.e., hallucinations, paranoia). She had also received several courses of more traditional cognitive-behavioral therapy in the past with some benefit but was looking to try something different.

Treatment was aimed at increasing Claudia's psychological acceptance and flexibility in pursuing committed, valued actions. The therapist assisted Claudia in fostering a more accepting and open stance toward all her experiences, including symptoms of psychosis, to counteract her avoidance behaviors that caused functional impairment and created a vicious cycle that would ultimately worsen her symptoms. Claudia learned skills such as contacting the present moment through mindfulness, interacting with the world based on her values instead of her fears, and increasing her response flexibility so that she could remain committed and work through obstacles to pursue valued goals despite her symptoms.

Description of Therapy Course

Sessions 1–3. In these initial sessions, the therapist and Claudia worked on building a healthy working alliance, reviewing her history, constructing a preliminary shared ACTp case conceptualization, and discussing the ACTp treatment rationale. Leading therapy with an initial discussion of her values, and what she prioritized as being most important to her in life, laid a foundation for the sessions that followed. The therapist asked Claudia to consider: "If your symptoms were to go away completely in the next minute, how might you live your life differently?" Next, the therapist and Claudia worked to identify her core values, first clarifying the difference between values and goals. The therapist explained the "Compass vs Directions" metaphor, which defines values as being like points on a compass, or the direction in which she wishes to travel in life, and goals as being specific destinations along the way.

Claudia endorsed her most important values as being family, community, spirituality/religion, and physical health. She worked with the therapist to set weekly goals, broken down into smaller, more manageable steps, to immediately engage Claudia in committed action towards her values, which included going on daily walks, saying gratitude prayers, and calling her father and sister on the phone for five minutes to start. There were various goals Claudia stated she would ideally like to be able to achieve, but which were not possible without the use of video chat (e.g., seeing her family, participating in group religious activities). Claudia emphasized that incorporating her family into this process was extremely important to her culturally. The therapist coordinated with Claudia's father and sister over a telephone family therapy session after obtaining releases of information for this purpose, where the family learned how to support Claudia's treatment goals and work toward her video chat goal.

Sessions 4–9. Working toward her valued goals highlighted how Claudia's symptoms functioned to help her avoid distress in the moment, but at the cost of being disconnected with her values ("Digging a Hole" Metaphor, in which a person keeps digging a hole because they only have a shovel as a tool, and are invited to put it down and try something different). In this phase of treatment, the goal was fostering Claudia's ability to take committed action towards valued-living in the presence of symptoms, without trying to get them to go away first, but instead learning to manage them in the moment and stay on course. As treatment progressed, the therapist focused on implementation of the additional core processes of ACTp – mindfulness, acceptance, perspective taking, and cognitive defusion. In addition, visual aids, cartoons, and animated videos also were used to reinforce the concepts and to aid in the learning process.

Slowly Claudia's therapist began training her in mindfulness practices. Claudia was first guided through lessons in mindfulness using the exercises of mindful eating (raisins, Skittles), which she found highly engaging. Claudia then began listening to a guided lovingkindness meditation at least once weekly in between sessions, to help address her depressive and self-deprecating thoughts and voices. Brief (5 minute), eyes open mindfulness to breath meditation exercises also were incorporated into the start of sessions over time.

The therapist then introduced acceptance of symptoms and the notion of increasing Claudia's willingness to sit with internal experiences, such as her derogatory voices, fear of intruders, or paranoia about the CIA, without reacting to them or judging them, in the interest of actively choosing actions that moved her toward her values instead of away from them. The therapist used the "Tug of War with a Monster" metaphor as a way of helping her to visualize the difference between struggling with her thoughts and accepting her thoughts as thoughts. The therapist encouraged Claudia to increase her *willingness* as a choice to be more loving, kind, and accepting towards herself and her uncomfortable experiences. Perspective taking and cognitive defusion were further reinforced for Claudia with the notion of separating herself from her internal experience of symptoms. Defusion exercises included the "I Can't Hold This Pen" exercise, in which the person says one thing but does another, demonstrating that thoughts do not need to dictate one's actions.

Claudia proceeded to challenge herself outside of session and was encouraged to start reducing the time spent engaging in the compulsive behaviors causing her the most distress (i.e., blockading her door at night).

Next, the therapist normalized experiential avoidance as a temporarily effective, but ultimately unhelpful method for coping with challenges in life. The therapist used the “Pink Elephant” Metaphor to emphasize this point; in this metaphor, one is encouraged to “try not to think of a pink elephant,” which, of course, elicits one to think of a pink elephant immediately. Claudia reviewed the role that experiential avoidance played in her life, recently manifesting in her refusing to leave her apartment or use video chat. Because of this avoidance pattern, Claudia was no longer engaging in the activities most meaningful to her, causing her to feel disconnected and estranged from her family, culture, church, and community. Using skills to build psychological flexibility, Claudia began to demonstrate a willingness to briefly (5 minutes at a time) use video communication again because it meant she would be able to more easily communicate and connect with her family. At first this was done in session with the therapist present, with homework to eventually start to do it on her own, with family support. The therapist helped to prompt her to use acceptance and defusion skills when dealing with her negative internal experiences that arose during the video chat. After gradual completion of values consistent actions of increasing difficulty for her, Claudia found that she was able to communicate via video chat more independently, and doing so was highly rewarding, despite her occasional thoughts of being monitored by the CIA. Claudia eventually began other additional behavioral tasks which were in line with her life values, including participating in virtual religious services, completing daily walks, and starting to volunteer for a suicide hotline, something she was able to do from home.

Sessions 10–12. Claudia’s final therapy sessions were intended to be used for discharge planning, relapse prevention, and follow-up “booster” sessions. Booster sessions were provided as transitional support for Claudia and included several follow-up phone sessions after stopping in person work, to reinforce the continued application of ACTp concepts and skills. Such phone calls entailed 20- to 30-minute review of basic ACTp principles, followed by discussions of Claudia’s functioning and application of ACTp to her current situation. The therapist coordinated care with Claudia’s family to help them assist in Claudia’s continuation of care, and to support her in implementing the treatment plan she created for herself.

Therapy Monitoring and Use of Feedback Information

The therapist received ongoing case consultation from a psychologist experienced in ACTp. Assessment measures were re-administered periodically during and at the end of treatment (e.g., BPRS, AAQ, WHODAS-II) to monitor progress. Potential disruptions in the therapeutic alliance were also monitored and addressed during sessions. The therapist would check in with Claudia regularly to support her in expressing any confusion, disagreement, or uncomfortable feelings she might have

been having in the moment. The therapist offered support and empathy and emphasized that they were both “in the same boat” even though they might have different experiences. The therapist also appropriately self-disclosed her own discomfort or uncertainty when relevant. It was often helpful to discuss these situations in the content of Claudia’s values, and how the therapist could better support them.

Concluding Evaluation of the Therapy’s Process and Outcome

Learning to increase her psychological flexibility over the course of therapy allowed Claudia the freedom to separate her sense of self from her delusional thought content (e.g., being monitored by the CIA) which was her avoidance behaviors. Further, Claudia learned how to more compassionately accept that she does, indeed, experience symptoms, such as derogatory voices, at times, and will likely continue to do so. However, over time, Claudia became less reactive to these experiences because meaning shifted from the psychotic experiences to her personally valued experiences. As a result of learning to be aware but not entangled with her voices, Claudia became capable of redirecting to healthy behaviors instead in the moment. In time, Claudia began increasing her engagement in valued goals, like volunteering, exercising, and staying in contact with her family.

Claudia’s BPRS scores increased and decreased somewhat during therapy as she began working on concepts centering around activating toward her values despite symptoms. As she reflected on her symptoms in a more open and honest way, she more willingly reported hallucinations and delusions as they were occurring, instead of minimizing them or telling others what she thought they would want to hear. The therapist encouraged Claudia’s increasing self-disclosures with empathy and support. Based on the overall trajectory of change of BPRS scores, Claudia demonstrated notable improvements in overall symptomatology by end of treatment, with her symptom score decreasing by nearly half. Claudia’s scores on the AAQ-II and WHODAS-II also improved over time, signifying increased psychological flexibility and functioning. Perhaps most importantly, by the end of treatment and at the follow-up, Claudia reportedly stated she felt “more like [herself] again.”

Comparing ACT vs First and Second Wave Approaches

All waves of behavior therapy emphasize a functional analysis of behavior to understand what is maintaining maladaptive patterns and to determine how to intervene to modify them. The first wave of behavior therapy for schizophrenia emphasized principles of reinforcement and the practicing of adaptive skills, as exemplified in token economies (Dickerson et al., 2005) and social skills training (Kopelowicz et al., 2006). In these types of interventions, positive reinforcement, behavioral rehearsal, and social learning principles are used to foster desired behaviors,

including self-care, treatment adherence, social and vocational skills, and independent living. ACTp shares aspects of traditional behavioral therapy in that both rely on principles of reinforcement (instead of punishment) to foster adaptive behavior change efforts. However, ACTp differs from the first wave through its emphasis on applying learning principles via Relational Frame Theory (RFT; Barnes-Holmes & Roche, 2001) to target the negative effects of verbal behavior on the development and maintenance of psychopathology. In addition, ACTp emphasizes the clarification and mobilization of the patient's personally-defined and freely-chosen life values in directing goal setting and behavior change efforts.

In addition, ACTp and second wave CBT for psychosis share several important aspects, including: a focus on the present relative to the past in sessions, the importance of building a strong therapeutic alliance, the establishment of specific behavioral goals, the use of exposure-based techniques when appropriate, and an appreciation of how language and cognition influence the distress and impairment stemming from psychotic symptoms (although they approach changing them in different ways). However, ACTp differs from traditional CBT for psychosis in that the former does not attempt to directly change dysfunctional cognitions related to psychosis, but instead focuses on building meta-cognitive processes and modifying contextual factors to reduce stress and impairment (McLeod, 2009). For example, whereas CBT for psychosis may encourage the patient to test delusions and hallucinations to correct information processing biases (e.g., jumping to conclusions), ACT for psychosis focuses more broadly on helping people to simply "make room" for psychotic experiences when they occur while reserving judgement, to choose the more workable approach in the moment, and to do all of this in the service of pursuing one's valued goals despite ongoing symptoms. Although both strategies would ultimately result in new learning that would change pre-existing habits, they would do this through somewhat different pathways. In addition, ACTp does not focus on psychotic symptom reduction directly (as some first and second wave approaches for psychosis do), but instead on building the functional capacity of the individual. Psychotic symptom reduction is often achieved indirectly by reducing avoidance and stress. However, currently there are no direct comparisons of ACTp versus first or second wave behavior therapies in RCTs, so conclusions about the similarities versus differences among these interventions cannot be drawn at an empirical level.

Conclusion

Research has demonstrated the safety, feasibility, and acceptability of ACTp. In addition, ACTp has been found to produce significant improvements in psychotic symptoms, depression, and functioning, along with reducing rehospitalization rates compared with treatment as usual. ACTp has been used in inpatient and outpatient settings, in group and individual formats, in chronic and acute psychosis, and in emerging mHealth formats. However, clinical effects vary based on the outcome

measure used and the sample characteristics. Symptom reduction may be more variable given ACTp's lack of specific focus on this goal and encouragement of a more honest open reporting of experiences by individuals with psychosis. Larger and more rigorously controlled clinical trials of ACTp are needed to further clarify the treatment's clinical effects. At this time, it is unclear whether ACTp is more or less effective compared with other empirically-supported first or second wave approaches, or whether it works through similar or different mechanisms to achieve its outcomes, because direct tests have not been conducted in RCTs. Given its treatment model, ACTp may be most appropriate for those with chronic or acute psychosis, where reducing ineffective struggle with symptoms can help to decrease functional impairment. Overall, ACTp should be considered as a treatment option for patients who have failed other first/second wave treatments or whose clinical problems fit the ACTp model, taking into account patient preference and therapist competency.

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Substance-Related and Addictive Disorders: First Wave Case Conceptualization



Hendrik G. Roozen and Jane Ellen Smith

Introduction

The Skinnerian operant principles have been considered the lynchpin of key behavior modification strategies, such as the Token Economy (Ayllon & Azrin, 1968), Contingency Management (CM; Higgins et al., 2007), and Community Reinforcement Approach (CRA; Hunt & Azrin, 1973). In this operant perspective desired behaviors are considered malleable because of their consequences: When systematically reinforced, these desired behaviors will most likely re-occur more frequently. Skinner's student and colleague, Nathan Azrin, tested and applied this operant perspective in clinical practice embedded to treat various mental health problems, including addiction. The treatment used for alcohol problems was coined CRA (Azrin, 1976; Hunt & Azrin, 1973).

The goal of CRA is to rearrange individuals' reinforcement schedules such that they result in a healthier lifestyle that is more rewarding than the use of alcohol or drugs. CRA is a comprehensive treatment package that contains a wide range of behavioral and social interventions that focus on the management of substance-related behaviors as well as behavioral adaptation in other disrupted life-areas, such as financial, housing, vocational, social, and recreational domains. CRA readily can be used in conjunction with pharmacological interventions, such as disulfiram, acamprosate, naltrexone, methadone, buprenorphine, facilitating integrated medication-assisted treatment (e.g., Abbott et al., 1998; Azrin, 1976; Azrin et al., 1982; Bickel et al., 1997; Miller et al., 2001; Roozen et al., 2003, 2013).

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Since its inception, CRA has been demonstrated to be among the most strongly supported treatment methods for substance abuse in multiple reviews and meta-analyses (Miller et al., 2011; also see “Development and Effectiveness of CRA” section). This chapter discusses more than a century’s worth of evidence with respect to the underlying behavioral mechanisms in CRA. We also outline the effectiveness of CRA as a treatment for various substance use disorders, including comorbid psychiatric conditions, such as those commonly found in homeless individuals (Smith et al., 1998). Subsequently we present the use of CRA with adolescents in the juvenile justice system (Hunter et al., 2014), followed by the combination of CRA and CM. Furthermore, we discuss two novel variants of CRA which are considered viable approaches for treating special populations: adolescent-CRA (A-CRA; Godley et al., 2016) for adolescents with substance-related problems and Community Reinforcement and Family Training (CRAFT; Smith & Meyers, 2004) for assisting family members of treatment-resistant individuals with substance use disorders (SUDs). To do so, we first present the operant conditioning principles and its clinical applications, which is cemented in the foundation of CRA.

Operant Conditioning

The three aforementioned treatment systems: Token Economy, CM and CRA are rooted in operant conditioning. Operant conditioning is based on the assumption that environmental contingencies are key to encouraging or discouraging substance-using behavior. Operant conditioning is targeted on the modification of (maladaptive) behavior by aiming at the stimulus-response relationship. More than a century ago, Edward Lee Thorndike (1898) started to explore these stimulus-response associations, which ultimately resulted in the ‘Law of Effect’. This law states that rewards strengthen stimulus-response associations, whereas unpleasant conditions weaken these relationships (Thorndike, 1898). Based on numerous experiments, Burrhus Frederic Skinner later refined Thorndike’s theory and introduced the term ‘reinforcer’ (Skinner, 1938). The fundamental principle of reinforcement, whether positive or negative, is that responses followed by a reinforcer will increase their frequency of occurrence (Skinner, 1938).

Clinical Applications of Operant Conditioning

As part of the applied behavior modification uprise in the early 1960s, applications of operant conditioning, which more recently have been referred to as reinforcement-based therapy (Jones et al., 2005), were systematically studied by behaviorists, such as Nathan Azrin and colleagues (e.g., Azrin et al., 1982; Hunt & Azrin 1973). In general, these studies have contributed to the development of empirically validated treatments, characterized by being relatively brief, present- and problem-focused,

and employing skill-training and assigning homework. Many of these applications still have widespread usage (Chambliss & Ollendick, 2001; O'Donohue et al., 2000).

These treatments often encompass behavioral procedures such as: (1) *stimulus-control*, (2) *shaping*, (3) *chaining*, and (4) *time-out*. *Stimulus-control* characterizes a behavior that is triggered by the presence or absence of a stimulus (Baum, 2005). In other words, the behavior occurs at a higher frequency when the stimulus is present, and the behavior occurs at a lower frequency when the stimulus is absent. *Shaping* is a process that entails the differential reinforcement of *successive approximations* toward the ultimate desired behavior by reinforcing small and gradual steps (Peterson, 2004). In order to shape even more complex behaviors, a procedure known as *chaining* can be utilized (Cooper et al., 2014). In chaining, a behavior set is linked to another set by use of a discriminative stimulus, i.e., an antecedent stimulus that is associated with the next behavior being reinforced. A *time-out* from positive reinforcement occurs when an individual is separated temporarily (see Baron & Kaufman, 1966) from an enriched and pleasant environment (*time-in*). For instance, when an unacceptable or abrasive behavior has occurred, the individual is removed from that specific environment with the goal of extinguishing the undesired behavior (Smith, 1981).

It must be noted that a time-out is an extinction procedure, not punishment. Skinner considered punishment generally ineffective for modifying human behavior (Skinner, 1953), because of emotional reactions common to punishment as well as escape or avoidance behavior. One of the overarching characteristics of SUDs is the persistent acquisition and consumption of chemical substances, despite a typical rise in negative consequences in the medical, social, and/or legal domains. These negative consequences have been viewed in the past as critical for building motivation to change through the process of the individual experiencing punishment. Oftentimes this has been referred to as the individual having “hit rock bottom”. More recently, ‘negative’ approaches such as confrontational counseling and aversive therapies have been found to be ineffective in decreasing the use of alcohol and other substances (Miller et al., 1998; Miller & Wilbourne, 2002; White & Miller, 2007).

The four aforementioned complementary behavioral procedures were studied extensively by Azrin and colleagues in self-care programs for severe mentally disabled individuals, who sometimes had concurrent addiction issues. The procedures have addressed toilet training (Foxx & Azrin, 1973), nocturnal enuresis (Azrin et al., 1973, b, 1974), eating skills (Azrin & Armstrong, 1973; O'Brien & Azrin, 1972), aggression (Foxx & Azrin, 1972), and self-injury (Azrin et al., 1975, b; Favell et al., 1982). Also, behavioral programs have been devised for individuals who had problems with medication compliance (Azrin & Powell, 1969; Sisson & Azrin, 1986; Azrin & Teichner, 1998), stuttering (Azrin et al., 1968, 1979; Azrin, & Nunn, 1973;), Gilles de la Tourette (Azrin & Peterson, 1988; Peterson & Azrin, 1991), Trichotillomania (Azrin et al., 1980), marital dysfunction (Azrin et al., 1973), unemployment (Azrin et al., 1975; Azrin & Besalel, 1980), parent-youth interactions (Besalel & Azrin, 1981), and depression (Azrin & Besalel, 1981).

Neurobiological Findings

To date, the mechanisms of addiction is also studied from a neurobiological perspective, and these neurobiological findings are often translated to an operant level of analysis. From a neurobiological perspective, alcohol and/or drug intake activate reward regions in the animal and human brain by increases in dopamine release (e.g., Di Chiara & Imperato, 1988; Wise, 2008). During the progression of addiction, disruptive changes of the brain occur in the reward, emotional and executive circuits, whereby individuals initially, and for a relatively brief time-span, take drugs to have a hedonic experience or to “get high”. In operant conditioning terms this stage can be described as *positive reinforcement*. This is followed by a dysphoric phase characterized by a motivational drive to take drugs in order to obtain transient relief from stress and negative emotions (Volkow et al., 2016). This dysphoric stage resembles aspects of *negative reinforcement*. The third stage of this multi-step process is associated with dysfunctions of the prefrontal cortical regions that are implicated in executive processes, including capacities for self-regulation, decision making, flexibility and planning (Volkow et al., 2016).

Consequently, positive or negative reinforcement as a central mechanism for substance abuse implies a high level of goal-directedness. Nevertheless, recent research on chronic alcohol dependence found evidence of a shift from reward- or goal-directed behavior towards stimulus-driven habitual behavior while the reinforcing effects or associated outcomes become less relevant. More specifically, while the initiation of drug use is considered goal-directed, drug-taking behavior develops into a stimulus-driven habit, which characterized by persistent drug use irrespective of consequences (Lim et al., 2019).

Nevertheless, since addiction begins with the formation of habits through positive reinforcement (Wise & Koob, 2014), the historical model of operant conditioning (Skinner 1938) still fits well in this context. Specifically, such behavior of substance use is not primarily driven by cognitive and motivational mediators (e.g., intrinsic motivation and self-control) but rather turned into an automatic drive directly guided by stimuli in the environment (Sjoerds et al., 2013, 2014). According the dual-systems theory, the role of such automatic habitual control conflicts with deliberative modes of self-control, impairing the forecasts of long-term consequences of a given action (e.g., McClure & Bickel, 2014). In fact, there is a growing body of evidence showing that individuals with substance abuse choose an immediate reward and ignore future negative consequences as a result of neural adaptations in the brain, which are theorized to increase a greater risk for relapse (Volkow et al., 2016).

In laboratory settings, these poor decision-making processes have been extensively studied by means of neurobiological tasks, such as the Iowa Gambling task (Bechara et al., 1994). In this task it becomes evident that participants with SUDs are more prone to choose large rewards at the expense of even larger future losses (e.g., van Toor et al., 2011). This bias towards rewards has become the subject of

research of key behavioral processes that have been augmented by CRA, along with other first-wave interventions, such as token economy and CM.

Community Reinforcement Approach: An Applied Extension

The Use of Incentives: Alternative Rewards

Laboratory research has showed that the availability of unbiased (non-drug related) environmental factors can influence drug use (Higgins & Petry, 1999). For example, animal studies have shown that under restricted conditions, whereby animals can choose from drug rewards or alternative non-substance related options (such as food or sweetened water), they often preferred the non-drug option (e.g., Lenoir et al., 2007). Such choice-making has been observed between drugs and social interactions as well (Deroche-Gamonet et al., 2004). Furthermore, Solinas et al. (2009, 2010) demonstrated that enriching the environment of mice in their cages reduced the reinforcing effects of stimulants and eliminated cocaine-induced behavioral sensitization.

Early clinical trials of the use of incentives can be traced back to the ‘Token Economy’ system that was designed for individuals with various mental health problems at the Anna State Hospital in Illinois (Allyon & Azrin, 1965, 1968). At that time, ‘tokens’ could be earned contingent on desired behavior and exchanged for various merchandises and privileges, such as books, clothes, chocolate, watching a movie, playing table-tennis, having room privacy, walking with staff, and watching television (Betgem, 1982).

As an outgrowth of this behavioral approach (Petry, 2000), a more formal laboratory controlled intervention emerged that was coined “motivational incentives” or “contingency management (CM)”. In the 1970s when CM was introduced, naturally-occurring reinforcements primarily were used, such as take-home privileges for methadone. A series of experiments on CM were successfully implemented by Maxine Stitzer at the Johns Hopkins University (Stitzer et al., 1984; Stitzer & Petry, 2006a, b). In recent years, CM has been top-listed among treatments in several meta-analyses (Dutra et al., 2008; Lussier et al., 2006; Prendergast et al., 2006). Impressively, more than 500 empirical studies have been conducted on CM, with a large proportion of them showing the clinical efficacy of CM (Davis et al., 2016).

It is important to note that CM is not considered a panacea, as studies have shown that there were also non-responders. For instance, non-response were said to occur when the reinforcement schedule was insufficiently salient, or because, for a subgroup of individuals, the desired target behavior was too complex to attain. Evidence also shows that a significant challenge remains in terms of its implementation into routine clinical practice (see Roozen, 2009).

In practice, CM is employed to achieve positive behavior change by the provision of reinforcing incentives upon reaching a predefined treatment goal (e.g.,

abstinence over a seven-day period) or by withholding those incentives when patients engage in the undesired behavior (Higgins & Petry, 1999). These reinforcers typically take the form of money, prizes, or vouchers (redeemable for items and services consistent with a drug or alcohol-free lifestyle). Many programs make these reinforcers contingent upon the patient's provision of drug-free urine toxicology specimens or a well-specified target behavior.

Development and Effectiveness of CRA

In the past century, by focusing on environment-organism interactions, experiments were conducted to develop behavioral programs for tobacco-dependent individuals (Azrin & Powell, 1968) and patients with alcohol use disorders (Azrin, 1976; Azrin et al., 1982; Hunt & Azrin, 1973). More specifically, with respect to the myriad of problems associated with alcohol use disorder, Nathan Azrin and George Hunt created a comprehensive treatment in the early 1970s designated the "community-reinforcement approach to alcoholism" (Hunt & Azrin, 1973, p. 92).

Community Reinforcement Approach (CRA) focuses on the reinforcement of an alternative lifestyle that is more rewarding than a substance using one (Meyers & Smith, 1995). CRA stratifies environmental contingencies to support the pursuit of a wide range of vibrant non-substance-related behaviors, such as (high impact) sports, playing music, following educational classes, working, dining in restaurants, socializing, attending to personal care, engaging in intimacy, and hobbies. As described above, CRA also enhances individuals' ability to cope with problems in several major life areas.

CRA has been shown effective for patients with various alcohol and drug problems in severity (Roozen et al., 2013). CRA has been studied in inpatient, outpatient, and day treatment settings, as well as in both rural and urban environments. A typical length of a regular (outpatient) treatment ranges from 3–6 months, but sometimes a trajectory takes longer dependent on patients' condition, somatic/psychiatric comorbidity, mode of treatment referral (voluntary or coercive), legal involvement, and treatment modality (e.g., inpatient followed by outpatient treatment). CRA can be delivered in individual as well as group format. In several cases, multiple professionals are involved for a single clinical case. For instance, in the capital city of the Netherlands (Amsterdam), inner-city patients with complex chronic alcohol and drugs problems living at home or in shelters are treated with a CRA team that consists of approximately 40 health professionals (Nabitz & Staats, 2018).

Treatment goals of CRA have included a focus on abstinence, stabilization or controlled use, and harm reduction. Favorable effects have been observed in recent reviews and meta-analyses that compared outcomes across a wide array of psychosocial and pharmacological treatments (e.g., Finney & Monahan, 1996; Holder et al., 1991; Meyers et al., 2011; Miller et al., 1995, 1998, 2003, 2011; Miller & Wilbourne, 2002; Roozen et al., 2004). In this latter review, meta-analytic pooling

showed that the weighted mean difference regarding the number of drinking days was decreased -0.94 (95% CI; -1.60 to -0.27) in favor of CRA compared to (12-step) control conditions in a 6-month treatment window (Roozen et al., 2004).

Contextual Factors That Influence the Promotion of Healthy Alternative Reinforcers

Neuroscience studies on individuals diagnosed with SUDs have demonstrated that their prefrontal cortex is much less able to cognitively modulate strong desires and emotions, such as those that account for poor decision-making (e.g., van Toor et al., 2011) when compared to individuals without SUD diagnoses. The same is true for flexible, goal-directed action control (see Noel et al., 2013). Thus, the reduction of substance use can be promoted by enriching the environment with non-substance related rewarding alternatives (Carroll, 1996; Tucker, 2001; Vuchinich & Tucker, 1996).

From a Behavioral Choice Theory perspective (Vuchinich & Tucker, 1983, 1988), the *reinforcing valence* of substances is a contextually determined product of direct reinforcing drug effects, individual factors such as impulsivity (e.g., delay discounting), sensitivity to rewards, and the availability of alternative reinforcers (Bickel & Marsch, 2001).

Indeed, at least one study found that an increase in substance-free related behaviors was negatively related to substance use in college students (Correia et al., 2005), implying that instructions to reinforce alternative substance-free related behaviors by increasing exercise and creative activities was found to be relevant to attenuating the reinforcing valence of substances.

However, this inverse relation was less obvious in studies that used other student samples (Murphy et al., 2005; Skidmore & Murphy, 2010). Interestingly, these studies indicated that substance use is also related to substance-free social rewards. A recent non-clinical study showed that the severity of alcohol use was positively related to both substance-related activities and non-substance-related activities (although to a lesser degree). Therefore, it seems plausible that in student populations, the time spent in alcohol-related activities is not necessarily at the expense of alcohol-free activities (Delmee et al., 2018). Importantly, the results indicated that the inclusion of non-substance-related activities in the context of available substance-related activities dampened the severity of alcohol use (Delmee et al., 2018).

Another recent clinical study (Tressova-van Veldhoven et al., 2020) on patients with AUD investigated the role of *reward sensitivity* towards individuals' motivation to engage in goal-directed behavior focused on activity engagement. The activity engagement was measured by the Pleasant Activity List (PAL; Roozen et al., 2008) that include 139 different activities. This study also includes other constructs critical for reward appraisal that potentially influence activity participation, such as

delay discounting and anhedonia. Delay discounting is often viewed as a depreciation regarding the value of delayed rewards, whereby higher discount rates are associated with impulsive choices that are focused on immediate gratification (e.g., substance-using behavior) and impede the ability to work toward long-term goals (Bickel & Marsch, 2001). Anhedonia is considered the inability to experience pleasure from activities that are usually found to be enjoyable (Ribot, 1896). It was found that reward sensitivity was strongly related to non-substance-related activities. Interestingly, neither anhedonia nor delay discounting impacted this relationship in patients regarding both substance-related and non-substance-related activities (Tressova-van Veldhoven et al., 2020).

Earlier work on patients' pleasant activity preferences, defined by activities on the PAL (Roozen et al., 2008), demonstrated that highly extraverted patients typically engage in most activities more frequently and consider them more enjoyable than patients who score low on the extraversion dimension. Despite these reported differences on most subscales, both patient groups globally value the same type of activities (Roozen, Evans, Wiersema, & Meyers, 2009). Many patients with substance use disorders spend much of their time relatively inactive, which can be characterized as the absence of goal-oriented and pleasant non-substance related purposeful activities. Consequently, it seems important to explore patients' individual differences, such as in terms of their reward sensitivity and extraversion, as related to prosocial activity engagement. These findings could support therapists' efforts to promote an adequate level of reinforcement derived by alternative behaviors (Roozen et al., 2014).

Recently, McKay (2017) has advocated that: (1) treatments primarily should target patients' access to experiences that are enjoyable and rewarding, instead of focusing on reducing or eliminating substance use, and (2) efforts should be made to increase the level of incentives in the community, thereby supporting the effort needed to sustain long-term abstinence for substance using individuals. As acknowledged these ideas are not new, whereas fostering practical improvements in the patients' physical environment has been advocated within the CRA framework from the seminal studies. Nonetheless, many addiction treatment centers have been focused primarily on rather '*talking*' interactions between patient and therapist, thereby neglecting the importance of patients' '*doing*' practical pleasant and social activity engagement within their communities. To bridge the gap from office to the real-life setting aimed at bringing purpose, meaning and excitement to patients' lives, more work should be conducted to unravel the treatment mechanisms of multiple CRA procedures to facilitate this process (McKay, 2017).

Characteristics of Community Reinforcement Approach

Although the CRA procedures are well-specified and described in therapist manuals, there is still flexibility in the order in which they are introduced, as well as their spacing, number, and format of delivery (e.g., online by using video, or face-to-face

individually or in a group format) (Meyers & Smith, 1995; Roozen et al., 2012). More specifically, CRA's menu-driven approach to procedures can be tailored to the level of a patient's personal need. For example, if the patient wants to work on relationships, several procedures can be employed. These include communication skills, social/recreational counseling (e.g., to plan social activities like going to movies, restaurants, museums or walking). In addition, spouses/partners can make use of CRA relationship therapy to improve their romantic relationship. The planning of these CRA procedures would be done in conjunction with the patient. Importantly, the flexibility in treatment planning and the content of sessions allow *therapists* to retain a much-needed sense of autonomy.

CRA should be delivered by therapists who can create solid working-alliances with their patients. These therapists should be energetic, practical, empathic, engaging, non-confrontational, supportive and yet directive (Meyers & Squires, 2001). Furthermore, therapists must constantly identify a patient's reinforcers and use opportunities to reinforce the patient, even in small ways, during sessions. It is the combination of compassion and skills that appears to make CRA effective (Meyers & Squires, 2001). CRA interventions, such as home-visits and social/recreational clubs (Mallams et al., 1982; Meyers & Smith, 1995), may nicely illustrate the energy and action associated with these CRA therapists.

CRA Treatment Plan: Happiness Scale and Goals of Counseling

The CRA treatment plan is a procedure that revolves around two other CRA procedures: the *CRA-Happiness Scale* (CRA-HS) and the *Goals of Counseling* form. The CRA-HS is a multi-item questionnaire for patients to rate their perceived happiness on a 10-point Likert scale (see Meyers et al., 2011, p. 383). Across the world, the CRA-HS has been adapted to accommodate the clinical needs of diagnostic groups in their own community. For instance, in the Netherlands, this scale was clinically expanded by including new items, and the terms "happiness" and "satisfaction" were considered interchangeable, as an "adaptive translation" (see Bouten et al., 2017; Roozen et al., 2013). It was decided that the colloquial use of "satisfaction" in the Netherlands more closely approximated the original meaning of "happiness" in the U.S. Recent psychometric work, including measurement invariance across college students in five countries (i.e., U.S., Spain, Argentina, Uruguay, and the Netherlands), reduced the measure back to 10 'core' items (with eight additional optional items and one open-ended item) (Roozen et al., 2020). The core measure assesses 10 life-domains: housing, job/education, money management, social life, alcohol and/or drug use, personal habits, family, emotion, communication, and health. Information regarding patients' happiness in each category helps to set the stage for developing treatment goals.

There are multiple advantages for using the CRA-HS as an instrument in clinical practice and routine outcome measurement. First, the response-cost is low. On average it can be completed in less than 90 seconds. Second, clinical progress on each

life-domain can be easily evaluated by using the CRA-HS throughout the program. As such, this instrument may serve in a Routine Outcome Measurement (ROM) framework (Dijkstra & Roozen, 2012). Third, the patient can take the lead in choosing which life areas to work on *ad libitum*. This approach is compatible with the ‘mental health recovery orientation’¹ (Anthony, 1993) and affords the opportunity to discuss such preferences with the therapist (i.e., shared decision making). The CRA patient-focus is embodied by the commitment of the therapist to address only those topics the patient wants to address. The implication is that working directly on a substance abuse problem could be postponed in favor of another life-area that has a higher priority for the patient. Fourth, besides choosing the life areas on which to work, patients can be prompted by the therapist to explain what needs to change in their life in order to be positioned to rate the category several units higher in the near future. For instance, the therapist can ask: “What needs to be done in this ‘social life’ category over the next month so that you can change this four into a six?” Small steps with a higher likelihood of being accomplished can be built upon to eventually attain patients’ goals.

Fifth, due to the inclusion of multiple life-domains, the CRA-HS can be used in complementary frameworks such as moderation-reduction and harm-reduction focused treatments (e.g., Marlatt et al., 2011; Marlatt & Witkiewitz, 2002), instead of solely focusing on abstinence. For instance, by working on life domains other than substance use, successful increases in patients’ perception of happiness or satisfaction can be obtained, as was shown in regular treatment outcomes based on routine outcome measurement (Roozen et al., 2013). The concept of CRA-HS is closely related to other quality of life measures (Irsel et al., submitted), whereby support was obtained for internal consistency and criterion-related validity of the CRA-HS scores regarding ecologically valid subscales of rumination, personality traits, and mental health (Roozen et al., 2020). Currently, quality of life is considered essential in evaluating the accuracy and effectiveness of treatment outcome in terms of a state of well-being (Bickman & Salzer 1997; Gerharz et al., 2003; Vederhus et al., 2016). It seems viable that targeting quality of life is especially important for multi-problem diagnostic groups, such as dually diagnosed individuals. Finally, the CRA-HS can be personalized and expanded to include life areas that are identified as meaningful to the patient (Venner et al., 2016), whereas non-meaningful items can be omitted.

Sixth, a recent visualized version of CRA-HS comprises printed cards with pictograms related to the life-domains can used to target individuals with intellectual disabilities, acquired brain injury or developmental problems (Bolsius, 2020). By means of mapping out each card to three key-emoicons representing patients’ happiness, ranging from unhappy– neutral – happy, the patient is capable in making a similar selection of life domains to work on during treatment as with the regular CRA-HS.

¹In which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential (American Psychiatric Association, 2022) <https://www.psychiatry.org/psychiatrists/practice/professional-interests/recovery-oriented-care>

The same life domains that are stated on the CRA-HS are also listed on both the *Goals of Counseling* form and the *Perfect-Life* form. The *Perfect-Life* form, which was modeled after the *Perfect Relationship* form (Meyers & Smith, 1995, p. 174–176), can be used by the patient in conjunction with the CRA-HS to list out what ideally would happen on each life domain to attain a ‘perfect life’ on that specific domain, for instance as a home-work assignment.

Building upon the CRA-HS and supplementary *Perfect-Life* form, information can be assessed to make up treatment goals. The clinician works together with the patient on adhering to basic guidelines when setting goals in these areas. Goals should be (1) *positive* (what the patient *wants* as opposed to what he/she does not want anymore), (2) *specific, measurable, realistic*, and (3) under the patient’s *control*. Short-term strategies or actions that are needed to accomplish each goal are identified. These weekly steps toward a goal are essentially the homework assignment. At each session, the clinician checks on homework completion and discusses any potential barriers that may have thwarted progress.

In sum, working and updating the CRA treatment plan is fundamental to the CRA approach to improving various areas of the patient’s life. The overall objective is to introduce patient-specific substance-free reinforcement. Many of these goals, and the strategies for attaining them, require specific behavioral skills training, such as communication, problem solving, and drink/drug refusal. Research has shown that there is a relationship between patients’ exposure to the different CRA procedures and recovery at follow-up (cf. Garner et al., 2009).

CRA Procedures

Functional Analyses

CRA encompasses two types of *functional analyses*: (1) one that focuses on substance use or other maladaptive behaviors (such as violence or aggression) in order to *decrease* these behaviors (an ‘initial assessment’ version is targeted on a common episode and a ‘relapse’ version focuses on a single episode), and (2) the other one that targets healthy, pleasant, pro-social behaviors, in an effort to *increase* them and ideally compete with the substance use. Both functional analyses are characterized by a semi-structured interview that explores the antecedents and consequents of the specified target behavior. As part of this, it assesses the intra- and inter-psychological conditions that govern alternative behavior and discourage substance use (see Meyers & Smith, 1995; Roozen et al., 2012).

Perhaps the most critical information obtained from the functional analysis for substance using behavior is the list of positive consequences associated with the patient’s use, because they represent the motives that sustain the alcohol/drug use. The therapist uses this information to generate acceptable prosocial substitutes for the patient.

Sobriety Sampling

Sobriety sampling represents a process of ‘shared decision-making’ to “sample” a time-limited period of sobriety. A relatively short “trial period” of sobriety (e.g., 2 weeks, a month) is experienced by patients as more attainable than an indefinite (or even lifelong) period of time. Once the patient has agreed to sample sobriety, the length must be negotiated, and the patient’s reinforcers must be tied in strategically. For instance, a patient’s beloved daughter might agree to meet him for coffee, but only once he has been abstinent for 2 weeks. Importantly, sobriety sampling is used regardless of whether the final treatment goal is abstinence, moderation, or even harm-reduction. If the goal is abstinence, a series of brief, manageable periods of sobriety are linked together over time. If the patient desires moderate drinking, the clinician can introduce a day-to-day diary to specify the goal amounts during the sampling period. Even in a harm-reduction perspective, agreements for the duration of a sampling period can be made, for instance, to drink alcohol at home and not in public places. Additional benefits of sobriety sampling include the provision of an opportunity to experiment with new coping strategies, and increased self-efficacy through goal attainment.

The last part of the Sobriety Sampling procedure involves setting up a specific plan so that the patient can successfully reach the sobriety goal. Other CRA procedures may be utilized to assist in the process, such as by relying on the functional analysis for substance use to identify alternative rewarding behaviors, and by teaching CRA problem-solving skills to create plans for handling relapse triggers.

CRA Skill Training

Many patients experience an impaired level of reinforcement derived from the social domain. In order to target the social domain as an important source of alternative reinforcement, skills training can be employed to enhance social interaction patterns. The four main skills are: (a) communication skills (b) problem-solving, (c) drink/drug refusal training, and (d) job-finding skills. CRA’s action-oriented behavioral approach extensively employs modeling and shaping during role-plays as part of skills training (Meyers & Smith, 1995).

Communication Skills CRA highlights the value of *communication skills* training because social factors may serve as triggers for relapse (Sliedrecht et al., 2019). Furthermore, effective communication paves the way for the successful implementation of goal-related tasks, such as job interviewing, making verbal requests, and talking with loved ones about relationships. Once therapists have discussed this rationale for focusing on communication training, the communication guidelines and examples are presented, and a basic communication script is outlined (see Meyers & Smith, 1995). A series of role-plays (“practices”) follow, with the therapist providing supportive/corrective feedback each time. A homework assignment is

then made that entails the patient going out and engaging in the conversation in the real-world situation while incorporating the newly-acquired communication skills.

Problem-Solving Skills *CRA problem-solving skills* training is based on the work by D’Zurilla and Goldfried (1971). The main objective is to break down problems into manageable steps, to think creatively about possible solutions (“brainstorm”), and to assess (and overcome) potential obstacles so that the proposed solution will be successful. The seven steps are: (1) narrowly define the problem, (2) generate potential solutions (brainstorm), (3) eliminate undesired suggestions, (4) select one potential solution, (5) generate possible obstacles, (6) address these obstacles, and (7) assign the specific task (i.e., the homework). Subsequently, the clinician evaluates the outcome of the task at the start of the next therapy session. If the solution did not resolve the problem, patients are encouraged either to modify the attempted solution or to select a different potential solution that was generated. Some common problems that are targeted by this procedure include: inadequate non-using social networks, sleep difficulties, cravings, and stress.

Drink and Drug Refusal Skills Sometimes patients find themselves in unexpected situations that require them to actively refuse alcohol or drugs. *CRA’s drink/drug refusal skills* training starts with helping patients identify and prepare for high-risk situations, and proactively making requests to supportive individuals within their social network who can be available in such situations. Information that was obtained during the functional analysis can be useful for identifying personally-relevant high-risk situations.

Assertive communication skills are taught and practiced by means of role-playing (Monti et al., 1989). Patients are asked to identify verbal responses or behaviors that have helped them successfully reject offers of substances in the past. These suggestions are supplemented with additional ideas, such as: (1) saying “no, thanks” without feeling guilty, (2) using appropriate body language (eye contact, a firm stance, etc.) while delivering the verbal response, (3) suggesting alternatives (“No, thanks, but I’ll take an iced tea”), (4) changing the subject (“Did you hear the news today?”), (5) directly addressing the aggressor about the issue if needed (“Why is it so important to you that I drink?”), and ultimately (6) leaving the situation. Patients are requested to identify their own assertive response style and are assisted in its practice implementation.

Job-Finding Skills

Job-finding skills are discussed and practiced as part of CRA, since having a voluntary or paid job is generally a significant source of alternative reinforcement that commonly is incompatible with substance abuse. In addition to being a source of money, a job can boost self-esteem, support enjoyable social relationships, and

combat boredom. Based on the work of Azrin and Besalel (1980), CRA offers a step-by-step approach to obtaining and maintaining a job.

The procedure starts by assessing job preferences and suitability (e.g., avoiding jobs that present a high risk for relapse). A system is established for tracking contacts with potential employers, and patients are assisted with developing resumes and completing job applications in a manner that highlights their strengths. Role-plays are conducted to provide practice in calling potential employers and going on job interviews. In order to keep a job, the therapists help patients anticipate difficult work situations based on previous job problems. Other CRA procedures, such as problem-solving, are introduced when clinically indicated.

Social/Recreational Counseling

Social and recreational counseling helps patients: (1) sample and engage in enjoyable (substance-free) social and recreational activities, preferably in their own natural environment, and (2) discover that some of those activities can compete with drug and alcohol use without diminished life satisfaction. CRA offers a wealth of options to develop ideas and create specific plans for increasing the level of pro-social healthy activities. Some of these include relying on problem-solving to generate ideas for new, reasonable activities, or using the Goals of Counseling procedure to set goals and outline the step-by-step strategies for accomplishing them in the social/recreational domain. Furthermore, the functional analysis for pro-social, healthy behaviors (see CRA Functional Analyses) can be conducted. Finally, instruments, such as the PAL (Roozen et al., 2008) or Social Circle (Tracy & Whittaker, 1990), have proven valuable and can be employed as well. Once an activity is identified, a homework assignment is made to sample the activity, and as usual, potential obstacles (e.g., transportation, money) are discussed.

Systematic Encouragement

Systematic encouragement is a supplemental procedure for situations in which the therapist is concerned that the patient may have trouble following through with the planned activity despite being motivated to do so. This procedure is designed to increase the likelihood that patients will be successful by helping them take the first step toward actively engaging in the new activity during the session. This might take the form of making a phone call or checking a website to locate the schedule for an activity or to access transportation to it. Potential obstacles are addressed during the process. The therapist inquires at the next session as to whether the assignment was completed and whether it had been enjoyable.

Relapse Prevention

The CRA *relapse prevention* or *management* (Roozen & van de Wetering, 2007) procedure teaches patients how to identify *high-risk situations* so that the threat of a relapse can be anticipated and managed (e.g., Marlatt & Gordon, 1985). Various behavioral skills can be practiced to address such situations. For example, the functional analysis can be used to focus specifically on a relapse episode. CRA clinicians also utilize a *behavioral “chain”* by drawing and labeling the series of events that preceded the last relapse (see Marlatt & Gordon, 1985). Patients are shown how these seemingly irrelevant and unrelated small decisions throughout the day led them to a relapse. Clinicians then work with the patients to help them generate different decisions at multiple points along the chain to prevent a future relapse.

Finally, CRA relapse prevention may include the *Early Warning System*, which entails having patients set up a plan that enlists the support of a concerned other (*monitor*). The therapist helps the monitor and patient generate a list of signals which indicate that the patient is headed toward a relapse. When a certain number of these signals are manifested during 1 day, the monitor is free to contact the therapist (with the patient’s consent) to discuss the precarious situation and plan the next step.

Medication Monitoring

The National Institute on Drug Abuse (NIDA) suggests that effective treatments encompass a combination of behavioral and pharmacological aspects (NIDA, 2018). It is well known that the effect size of studies of pharmacological interventions is rather modest, partly because of problems with treatment compliance (O’Brien & McLellan, 1996). Increased adherence to treatment is associated with a reduction in therapy time, thereby reducing costs and increasing benefits (e.g., Azrin et al., 1982; Miller et al., 2001). CRA offers a pharmacotherapy–compliance procedure (Sisson & Azrin, 1986) that entails having patients agree to take their medication under the supervision of a supportive loved one. This monitor attends a session with the patient in order to learn positive communication skills for administering the medication. In line with the Early Warning System, a plan is developed regarding the steps to take if the patient refuses to take the medication. This medication monitoring procedure has been used to monitor a variety of medications, such as for individuals with attention deficit hyperactivity disorder (ADHD), bipolar disorder, and depression.

Relationship Therapy

CRA *relationship therapy* is focused on improving the overall interaction style between the patient and the partner, which typically is a valuable source of reinforcement (see Meyers & Smith, 1995). A basic part of CRA’s relationship therapy

entails teaching the couple CRA communication and problem-solving skills (which the patient may have already learned in individual sessions). These elements are essential as far as the couple communicating effectively with each other in a respectful manner, and setting reasonable goals for each other and their relationship.

In order to identify the couple's main problem areas, both individuals rate their happiness with their *partner* on a 10-point scale across multiple domains using the *CRA Relationship Happiness Scale* (CRA-RHS; see Meyers & Smith, 1995). The domains include: household responsibilities, raising the children, social activities, money management, communication, sex and affection, job or school, emotional support, partner's independence, and general happiness. Partners are asked to focus on what they would like their partner to change in several of the domains to improve the relationship satisfaction. The guidelines for specifying goals and strategies (see *CRA Treatment Plan: Happiness Scale* and *Goals of Counseling* section) are followed, and the newly learned positive *communication skills* are used to verbally convey requests to each other. The negotiated goals/strategies become the homework assignments.

Finally, another homework assignment is based on the *Daily Reminder to Be Nice* exercise (see Meyers & Smith, 1995), during which each partner commits to increasing at least one of seven partner-pleasing behaviors (e.g., expressing appreciation, giving a pleasant surprise) on a daily basis in an effort to reinstate positive behaviors. In subsequent sessions, the partners report their progress, discuss potential barriers to completing their goals, and identify future goals.

Case Illustration

Below is an exemplar case of "Joe" who underwent a CRA. The format of CRA presented in this case example is common for the outpatient treatment of an individual with a substance use problem who either does not need to participate in a detox program first, or who has already done so.

Background Information

Joe was a married, 34-year-old non-Hispanic White male who lived in the southwestern part of the United States. He attended a 2-year college and received his associates degree. It was during his college years that he met and married his wife. They engaged in a moderate amount of drinking in the early years of their marriage, but Joe's wife reduced her drinking considerably when they had their son.

In contrast, Joe's drinking increased over time, primarily while spending time with his coworkers. Joe knew that his drinking had gotten out of control, and yet it was still difficult for him to seek treatment. He finally called an outpatient clinic when he received his not-so-good annual performance review at work. Joe knew

that his hangovers had been interfering with his job motivation and his ability to focus on work tasks. Additionally, his wife had been urging him to seek treatment due to the marital strain resulting from Joe joining his coworkers to drink several evenings each week, and from Joe rarely spending time with their 7-year-old son.

Case Conceptualization

Joe presented as a subdued individual with some apprehension about treatment. He met DSM-5 criteria for Alcohol Use Disorder (Severe). Additionally, Joe reported mild symptoms of depression and anxiety, but these symptoms did not cause sufficient impairment or distress to meet DSM-5 diagnostic criteria. Joe explained that he felt undervalued at work; a job that he did not find challenging or meaningful anymore. The main pleasure he obtained from work was through socializing with his coworkers. He stated that he loved his wife and son very much and that he was worried about the strain his drinking appeared to be putting on these relationships.

Course of Treatment: Introductory Session

Joe's first CRA session started with the therapist explaining that the objective of CRA. The objective of CRA in this particular clinical case was to help Joe find a healthy and rewarding lifestyle that did not revolve around alcohol. Specifically, the therapist talked about guiding Joe in determining how to make his current job (or a new job) and his family life rewarding again so that his main source of positive reinforcement was no longer obtained from drinking. The therapist also provided an overview of the treatment components in CRA and offered ideas regarding how they would be applied to Joe's case. For example, the therapist noted that *communication skills* training might be needed to help him work on his strained relationship with his wife, and *problem-solving* might be beneficial for identifying fun non-drinking social activities for him and his family or friends.

Next, the therapist introduced the *CRA Functional Analysis* and helped Joe settle upon a common drinking episode to use for the exercise. Joe selected the Friday Happy Hour with friends from work because it occurred every week and it was "costly" in terms of missing family activities Friday evening and Saturday mornings if he woke up late. The main antecedents for the Friday Happy Hour included: driving past the bar on the way home and seeing his friends' cars (external triggers) as well as feeling exhausted and wanting to celebrate the end of the stressful week (internal triggers). Typically, Joe drank at the bar with his friends for about 3 h, and during that time he consumed about 7 beers. He reported that the salient short-term positive consequences of the Friday Happy Hour drinking were: laughing with his friends about the hectic work week and the "difficult" boss, and feeling appreciated for being a "team player" on the job. Joe also identified several long-term negative

consequences of the Friday Happy Hour drinking, which included: an increase in arguments with his wife and an overall strained relationship with her, feeling disappointed in himself for missing his son's activities, a drop in his work performance, and the loss of friends whose social activities did not center around drinking. The therapist shared with Joe that this information could be used in several ways to inform treatment. For example, conceivably Joe could establish other (non-drinking) enjoyable activities for de-stressing after a long week of work; perhaps some of these activities would involve his wife and son, whereas others might be with his old non-drinking friends. The treatment plan also could include a strategy for Joe to become enthusiastic about work again, such as through an interesting job assignment or a new job altogether.

Treatment Planning

Before adopting a treatment plan based on inputs collected during the CRA functional analysis, the therapist had Joe complete the *CRA Happiness Scale*. In reviewing the scale completed by Joe, the therapist learned that Joe primarily was unhappy about his drinking, his job, and his relationship with his wife and son. Joe decided to start by setting goals (and strategies for achieving them) in both the drinking and the family categories; the therapist tracked these on the *Goals of Counseling* form.

In terms of the drinking category, Joe stated that he wanted to become a social drinker as opposed to being abstinent. Nonetheless, the therapist asked Joe to consider sampling a period of sobriety (*Sobriety Sampling*) and explained the advantages of doing so. For example, Joe mentioned that he had missed several of his 7-year-old son's soccer games because he had instead chosen to go drinking after work with his friends. Joe's wife recently had asked him not to leave the bar early to attend games anymore because he had clearly been under the influence the last time he came. Joe reported that he would love to attend his son's big soccer tournament in a month. The therapist tied this goal (attending the soccer tournament) to a month-long period of sobriety for Joe. The therapist reasoned that both Joe's wife and son would be happy to see him attend if he had not been drinking, particularly if he had proven he could be abstinent for a month prior to the event. Although Joe was somewhat intrigued by the challenge, realistically he did not know whether he could be abstinent for a month. As a result, the period of sobriety was negotiated down to 1 week, at which time it would be assessed and renegotiated. The therapist then helped Joe identify the biggest threats to sobriety in the upcoming week (after-work gatherings at the local bar with his coworkers) and develop a plan for addressing them (meet his wife for an early dinner, meet his wife and son at the park). The therapist inquired about barriers to completing this assignment and added these plans to the *Goals of Counseling*.

Joe reported successfully skipping the Happy Hours and instead going to the park with his family and dinner with his wife, but he also reported that he really missed socializing with his friends, especially on Friday nights. The therapist

recognized that Joe's new activities with his family were not sufficiently rewarding to repeatedly compete with the bar full of boisterous friends, and so the discussion turned to methods for either increasing the reward value of the Friday evenings with his family or for identifying a new activity with other people. The therapist referred to the Short-Term Positive Consequences column of Joe's *CRA Functional Analysis* and noted that the Happy Hour socializing was rewarding to Joe because of the opportunity to laugh and to feel respected as part of a team. In examining the Long-Term Negative Consequences column, the therapist was reminded that Joe had reported missing some of his old non-drinking friends. Upon inquiry, Joe explained that within the last year he had lost contact with several friends who used to play pickle ball with him every Friday or Saturday night. Importantly, the therapist asked whether re-joining these non-drinking friends on Friday evenings would be sufficiently rewarding to enable Joe to readily choose that activity over the Happy Hour each week. Joe said that the team activity was great fun, and occasionally his wife and son used to attend as spectators. Importantly, several new skills needed to be taught before finalizing this revised plan for Friday evenings.

Skill Training

Joe was hesitant to contact his old non-drinking friends, given that he had been avoiding them for some time now and he was worried they might reject him. The therapist used this opportunity to conduct *Communication Skills* Training so that Joe could learn and practice (through role-plays) a positive conversation about re-joining the pickle ball team and explaining his disappearance from their social circle. The therapist also described how these communication skills could be applied to Joe's conversation with his wife about this change in Friday night plans and his hope that she would join him. Joe also was concerned about telling his Happy Hour drinking buddies from work that he was no longer going to be joining them. In addition to practicing a basic positive conversation about this topic, the therapist taught Joe *Drink Refusal Skills* in the event that a co-worker pressured him to drink regardless. The session ended with Joe agreeing to extend his Sobriety Sampling contract for a month.

Over the next few weeks, Joe was able to re-join the pickle ball team and bring his wife and son along on two occasions. He reported thoroughly enjoying this time with his old friends and his family, but he was still missing his social contact with his (drinking) co-workers. Since this placed Joe at risk for a relapse, the therapist introduced *Problem-Solving Skills* as a method for finding a fun, alcohol-free social activity that Joe and his coworkers might enjoy after work.

After settling on several possible activities, Joe rehearsed his *Communication Skills* again so that he felt confident about presenting the idea to his coworkers. The therapist also encouraged Joe to consider introducing a "solo" enjoyable activity that would compete with drinking after work. Joe stated that he used to enjoy playing the guitar and writing music, but he could not seem to get himself motivated to

engage in that activity lately. The therapist suggested they do a *Functional Analysis of Pro-Social Behavior* to ascertain what would set the stage for Joe to choose playing his guitar over drinking. Once these antecedents were identified and methods for enhancing the enjoyment of the activity itself were selected (e.g., obtaining new songs to learn) a goal of increasing this behavior and the strategy for accomplishing it were added to his *Goals of Counseling* form.

Treatment Plan Updating

The therapist re-administered the *CRA Happiness Scale* to gauge progress and to identify the next treatment goals/strategies. Joe indicated that he wanted to work on two areas yet: his relationship with his wife and his job. As far as his job, Joe had re-discovered some of his motivation for work once he stopped drinking, but he still wanted to approach his boss about getting assigned more challenging duties. *Communication Skills* were used to practice this conversation with the boss. Joe then said that he had been thinking about seeking additional *job-related skills* such that he would be eligible for more advanced positions. Given that Joe appeared highly interested but still hesitant to follow up on this idea, the therapist worked with Joe right in the session (*Systematic Encouragement*) to research online course options and settle on one. In discussing how to address Joe's relationship with his wife, the therapist reminded Joe that CRA offers the option of several *Relationship Therapy* sessions. Although Joe was open to the idea, he first wanted to try re-introducing pleasant social activities that he used to enjoy with his wife. However, since he felt overwhelmed at the prospect of deciding on an activity, the therapist recommended that Joe use his *Problem-Solving Skills* to identify and plan for a specific activity. The therapist suggested that some of these activities be placed during his high-risk times for drinking (e.g., right after work) since they would serve as a deterrent to drinking.

During this session, the therapist asked Joe if he would be willing to extend his *Sobriety Sampling* contract another month. The many benefits that Joe had experienced during his month of sobriety were reviewed. Some of these included: fewer arguments and more intimacy with his wife, more quality time with his wife and son, more energy and a better mood throughout the day, increased satisfaction at work, renewed relationships with old friends, and involvement in numerous fun social activities. He also reported that two of his coworkers had recently joined his pickle ball team. Joe decided that he was willing to extend his sobriety contract another month.

Treatment Plan Updating and Relapse Prevention

After another month of successfully meeting his abstinence goal, Joe agreed to add yet another month-long commitment to sobriety. Nonetheless, he remained uncertain as to whether he wanted to adopt an abstinent lifestyle indefinitely. The therapist reassured Joe that they simply would revisit the issue in a month, and in the meantime, he would teach Joe specific *relapse prevention* strategies in the event that he wanted to use them. A *Behavioral Chain* was used to map out a “close call” that Joe had experienced the previous week, given that the events had a high chance of being repeated if not addressed. As far as the reinforcers in Joe’s life, he reported on his *Happiness Scale* that he was much happier in all three main categories: drinking (which overlapped with social life), job, and relationship with family. Specifically, he had continued to substitute various healthy and fun activities (pickle ball, coffee breaks/lunches with coworkers, the park with his family, writing music) for his drinking. Furthermore, he had received a favorable response when he approached his boss as planned and Joe had registered for additional *job-related* training. In terms of his family, Joe and his wife were spending considerably more pleasant time together (antiquing, dinners out) and Joe was engaged in several ongoing activities with his son (e.g., teaching him how to play the guitar).

Case Conclusion

Throughout this case, the therapist checked on whether Joe was being positively reinforced for the lifestyle changes he adopted, since the new behaviors would not be maintained if they were not sufficiently rewarding to compete with drinking. “Non-drinking” areas (job, relationship with wife/son) were addressed as well, because they influenced his decision to drink and were significant components of Joe’s overall happiness. Importantly, Joe was taught skills that he could apply to other areas of his life once therapy ended.

Community Reinforcement Approach & Contingency Management

Earlier in this chapter, the value of CM was reported (see “Use of Incentives: Alternative Rewards”). Several studies have also delved into the effectiveness of CM in concert with CRA (see DeFuentes-Merillas, & Roozen, 2014; De Crescenzo et al., 2018; Higgins et al., 2003; Roozen et al., 2004). It was Stephen Higgins, a colleague of Maxine Stitzer, who conducted a seminal trial on a combination of CM and CRA (Higgins et al., 1991). Several studies showed that for cocaine using patients treated with CRA, the addition of CM was found to yield improved results

(García-Fernández, et al., 2011, 2013; Higgins et al., 2007; Roozen et al., 2004; Secades-Villa et al., 2008, 2011, 2013). Over the years a series of studies that have examined cocaine dependent individuals treated with a combination of CRA and CM have found highly favorable results (e.g., Garcia-Rodriguez et al., 2009; Higgins et al., 2003). A systematic review concluded strong evidence that CRA with vouchers was more effective than usual (12-step) care in achieving cocaine abstinence [with a relative risk of 5.09 (95% CI 1.63–15.86)], and more effective than CRA alone [with a relative risk of 1.73 (95% CI 1.04–2.88)] in a 4–16 week treatment window (Roozen et al., 2004).

In the study of Higgins and colleagues a comparison between CRA plus CM and CM only yielded a relative risk of 1.52 (95% CI, 1.12–2.07) during treatment, however this difference disappeared after treatment period (Higgins et al., 2003). Recently, comprehensive network meta-analytic techniques were conducted with 50 RCTs that evaluated 12 psychosocial interventions. It confirmed that the combination of CRA and CM increased the number of abstinent patients at 12 weeks [with an odds ratio of 7.60 (95% CI 2.03–28.37)] in treating stimulant users when compared to other psychosocial treatments (De Crescenzo et al., 2018). Finally, it was shown that CRA with CM was more efficacious in head-to-head comparisons with other psychosocial interventions (De Crescenzo et al., 2018).

In sum, notably, the effects of CM –just like other treatments in general – tend to dissipate slowly after discontinuation of reward administration. However, almost 30% of studies that evaluated long-term CM effects found that important benefits retained even after reinforcers were absent (Davis et al., 2016).

Adolescent Version of Community Reinforcement Approach (A-CRA)

For youth and emerging adults between the age of 12–24 years, the adolescent version of CRA (A-CRA) can be employed (see Godley et al. 2001, 2016). A-CRA entails both an elaboration and adaption with respect to CRA procedures and forms. For instance, the forms, such as CRA-HS, are age-modified and additional procedures are incorporated: (1) anger management, and (2) caregiver sessions, both alone (e.g., parents, grandparents) and with the adolescent client.

The sessions with solely caregiver(s) focus on: (1) aspects of parenting practices that support adolescents' sobriety, (2) CRA communication skills, and (3) problem-solving skills. The sessions that include both caregivers and the adolescent are similar in structure to the aforementioned CRA relationship therapy sessions, which emphasize the negotiation of goals and the required strategies for obtaining them.

Multiple randomized clinical trials of A-CRA have been published in the past two decades. A large trial on A-CRA was conducted as part of the National Cannabis Youth Treatment Study (Dennis et al., 2004). A-CRA demonstrated statistically significant pre-post improvements in days of abstinence and days in recovery (i.e., no

substance use problems and not institutionalized). Furthermore, A-CRA was the most cost-effective treatment when compared to the other treatments; namely, 12-week Multidimensional Family Therapy, 5- or 12-week Motivational Enhancement Therapy and Cognitive Behavioral Therapy, and 12-week Family Support Network plus a combination of Motivational Enhancement Therapy and Cognitive Behavioral Therapy (Dennis et al., 2004).

Another study showed that CRA was more effective than usual care (i.e., food, showers, case management) for homeless adolescents who used illegal drugs (Slesnick et al., 2007). Specifically, the CRA program (12 sessions) resulted in a reduction of substance abuse (37% vs. 17% decrease) and depression (40% vs. 23%), and improved social stability/reliance (58% vs. 13%) when compared to usual care (Slesnick et al., 2007). Moreover, it has been demonstrated that A-CRA is equally effective across ethnic groups (Godley et al., 2011).

Other randomized clinical trials have demonstrated that A-CRA is effective for adolescents with juvenile justice involvement (e.g., Henderson et al., 2016). This study used A-CRA in conjunction with a continuing care approach for adolescents, which typically has been employed after adolescents completed residential treatment (Godley et al., 2007; Godley, Godley, Dennis, Funk, Passetti & Petry, 2014). The control group received drug education and individual sessions with a counselor of the juvenile probation department or community. Adolescents receiving A-CRA decreased their problems associated with substance use more than the controls, with an effect size indicating a large treatment effect (Henderson et al., 2016). Several additional studies indicate that A-CRA proves to be an asset in transdiagnostic treatment for adolescents with co-occurring psychiatric disorders (Godley, Smith, Passetti, & Subramanian, 2014), forensic problems (Hunter et al., 2014), and opioid use disorder (Godley et al., 2017).

Community Reinforcement Approach and Family Training (CRAFT)

Research has indicated that a considerable group of patients with problematic alcohol and drug use refuse to engage in formal treatments (Kohn et al., 2004; Stinson et al., 2005; Tuithof et al., 2016). In general, it has been suggested that seeking treatment may even take up to 6–10 years after the initiation of drug use (Joe et al., 1999). The collateral damage inflicted by persons with substance use disorders profoundly plagues the general wellbeing of family members, such as partners, spouses, parents, and children (Collins et al., 1990; Fals-Stewart et al., 1999; Kahler et al., 2003; Kirby et al., 2005; Meer-Jansma et al., 2016; Winters et al., 2002).

Robert J. Meyers created Community Reinforcement and Family Training (CRAFT) in the 1970s (see Roozen et al., 2021); an early version of CRAFT was tested by Sisson and Azrin (1986). CRAFT targets substance using individuals who refuse to seek treatment. It uses the same underlying operant-based fundamentals of CRA (and A-CRA). However, rather than attempting to motivate these resistant

individuals directly, CRAFT instead works through a concerned significant other (CSO). These CSOs are taught how to improve their own wellbeing, while also learning new behavioral skills for interacting with their substance-abusing loved one (*identified patient; IP*) with the objective of getting that individual to enter treatment. CRAFT therapists work with CSOs to enable them to go home and change their IPs' social environment by removing any inadvertent reinforcement for substance using, and by reinforcing behaviors related to sobriety (Meyers & Smith, 1997). Although CRAFT is not designed for use with CSOs who have been involved in domestic violence with their IPs, nonetheless it has specific procedures that address safety issues in the event that violence threatens (Roozen, Blauw, & Meyers, 2009), or has been employed in a jail reentry program for substance abusing offenders (Miller et al., 2016). Recently, a permuted CRAFT procedure has been composed to serve CSOs of individuals associated with repeated incidents of drinking and driving (Roozen, 2019).

As noted earlier, the seminal CRAFT study was conducted by Sisson and Azrin (1986). Six of the seven women receiving CRAFT (CSOs; 86%) were able to get their problem-drinking IPs into treatment compared to none of the CSO who were in the comparison group. A larger CRAFT study that focused on IPs with alcohol problems demonstrated that CRAFT-trained CSOs were significantly more effective in engaging unmotivated problem drinkers in treatment (64%) as compared to Al-Anon (13%) and the Johnson Intervention (30%; Miller et al., 1999). The success of CRAFT was established for treatment-refusing IPs with illicit drug problems in a non-controlled study, whereby CSOs were able to get 74% of IPs into treatment (Meyers et al., 1999).

When Kirby and colleagues conducted a controlled CRAFT study in the eastern United States, they obtained treatment engagement rates of 64% for CRAFT-trained CSOs and 17% for CSOs in the 12-step condition (Kirby et al., 1999). Another randomized trial found that the average engagement rate for two CRAFT conditions (67%) was significantly better than that for the Al-Anon/Nar-Anon condition (29%). A CRAFT aftercare component did not significantly improve the CRAFT outcomes (Meyers et al., 2002). Several other studies confirmed the success of CRAFT in a community treatment agency (Dutcher et al., 2009) and with parents of drug-abusing, treatment-refusing adolescents (Kirby et al., 2015; Waldron et al. 2007). To date, two meta-analyses have confirmed the effectiveness of CRAFT (Archer et al., 2020; Roozen et al., 2010). For instance, in this latter review it was shown that CRAFT produced 3.25 (relative risk) times more patient engagement than Al-Anon/Nar-Anon (95% CI 2.11–5.02) and 2.15 times the engagement of the Johnson Institute intervention (95% CI 1.28–3.62). Overall, CRAFT encouraged approximately two-thirds of treatment-refusing IPs to attend treatment, typically after four to six CRAFT sessions (Roozen et al., 2010). A unique application of the CRAFT protocol was a study that delivered CRAFT in a group treatment format (Manuel et al., 2012). Moreover, the use of CRAFT has been expanded to serve family members of IPs with gambling problems (Hodgins et al., 2007) and other mental conditions as well, including autism-spectrum disorder (Yamamoto & Roozen, 2020), 'hikikomori' problems (social isolation; Sakai et al., 2015), early psychosis (Wood et al., 2021) and posttraumatic stress disorders in US veterans (Erbes et al., 2020).

In summary, CRAFT emerges as more effective in engaging treatment-refusing substance abusing individuals compared with traditional programs. Moreover, CRAFT has been shown effective across ethnicities, different types of CSO-IP relationships, and various drugs of choice for the IPs. Importantly, IP engagement occurs after relatively few CRAFT sessions on average, and CSOs report psychological improvement regardless of the outcome of their engagement efforts.

Conclusion

This chapter discussed the theoretical, preclinical, and clinical accumulation of evidence with respect to the underlying behavioral mechanisms employed in CRA and its novel variants. This ‘family’ of CRA (i.e. ACRA & CRAFT) targets specific populations with various substance use disorders, including comorbid psychiatric conditions and/or patients that reside in the (juvenile) justice system. Also the surplus value in term of therapeutic efficacy of the combination of CRA and CM has been highlighted in this chapter. The ‘family’ of CRA includes individuals with a wide range of ethnic populations and different age groups such as adults (CRA) and adolescents (ACRA), but also targets family members (CRAFT). Since this comprehensive and complementary treatment package does not exclusively reduce substance abuse but also addresses psychiatric and forensic problems, it has certainly transdiagnostic value. That said, it has shown efficacy in both in- and outpatient facilities and outreach teams and the dissemination of the ‘family’ of CRA is moving forward in many places throughout the world.

According to contemporary neurobiological models, addictive behaviors are considered a dynamic interplay of a sensitized reward system and a prefrontal cortex system predominantly dually-driven by automatic and controlling processes, respectively. For instance, the *Impaired Response Inhibition and Salience Attribution* (IRISA) model has been deduced from accumulating neurobiological evidence (Goldstein & Volkow, 2002; Zilverstand et al., 2018). This model suggests an exaggeration of reinforcer salience and impaired or even hijacked higher-order cognitive functions in the human brain. Therefore, this model proposes that the cognitive and motivational mediators apparently have less impact on addictive behaviors, thereby suggesting that first generation behavior therapy continues to play a significant role in the treatment of SUDs. This is consistent with the cumulating body of research confirming its high efficacy.

As has been discussed earlier, the rate at which individuals with SUDs discount future rewards (i.e., discounting rate) is associated with substance use (Bickel, et al., 2020). According to *Reinforcer Pathology* theory, reinforcers are integrated over a temporal window that determines the relative value of substances and prosocial reinforcers (Bickel, & Athamneh, 2020), whereas general poor treatment effects among individuals with SUDs can be attributed to their limited temporal window of integration (Kwako et al. 2018; Petry et al. 1998). For example, heroin dependent individuals have an average temporal window of only 9 days, while healthy controls report almost 5 years (Petry et al. 1998). It seems viable that such a short temporal

window limits the long-term effectiveness of interventions, since long-term consequences fall beyond that temporal view (Bickel et al., 2006). From this perspective, the *Reinforcer Pathology* theory predicts that interventions that expand the temporal window of integration would increase the valence or importance of reinforcers associated with future long-term outcomes (Hollis-Hansen et al., 2019).

A novel intervention, '*Episodic Future Thinking*' (EFT), comprises a projection of the self into the future to pre-experience an event (Atance & O'Neill, 2001). It has been the subject of extensive research demonstrating the efficacy to influence decision making (i.e., reducing discounting rate) and expand the temporal window (Gilbert & Wilson, 2007; Hollis-Hansen et al., 2019). Therefore, it has been argued that EFT might be a promising approach for shifting the temporal attention towards distal outcomes (Koffarnus et al., 2013). In EFT interventions, participants typically identify multiple positive future events (with different delays assigned: 1-day, 2-days, 1-week, 1-month, 6-months, etc.) that they are looking forward to and plan to attend (e.g., wedding, party, vacation). This partially resembles the rationale of the CRA *Perfect Life* form and *Goals of Counseling* form; namely, patients are encouraged to compile a list of ideas regarding upcoming events/behaviors that could significantly improve their satisfaction with prevailing life domains.

Within EFT a more structured framework is offered. Specifically, participants are asked to write/describe those events and vividly think about them when faced with future inter-temporal choices (Bickel et al., 2017). Furthermore, they are asked to rate them (e.g., 1–5 Likert scale) on variables such as personal relevance, valence, and arousal (Peters & Büchel, 2010), whereby events with a three or higher is preferable. We believe that the EFT framework may be valuable to include within CRA when developing and completing assignments. The ratings could be added into the *Goals of Counseling* plan.

In addition to focusing on methods for enhancing existing empirically-supported treatments such as CRA, attention should be paid to ongoing general therapy implementation problems, such as therapy-drift (Waller, 2009). Given the high variability of treatment outcomes among therapists, ongoing consultation while using evidence based treatments, such as CRA, is considered critical (Backer et al., 1986; McCarty et al., 2004; Simpson, 2002). The same learning principle, reinforcement oriented feedback, holds promise as far as the foundation of the supervision, since systematic feedback, when combined and compared with behavioral goals, enhances performance (Locke & Latham, 1990).

Importantly, to safeguard treatment fidelity, a certification system has been developed and internationally disseminated (Smith et al., 2014). This certification system can be employed in conjunction with electronic web-based tools such as EBTx (<https://www.chestnut.org/ebtx/>) and TxIntegrity (<https://www.txintegrity.com/>). The ratings of therapist fidelity have been based on a CRA/A-CRA comprehensive coding manual (Smith et al., 2007) that uses specific, behaviorally-anchored items (Smith et al., 2014). This system has also been the template for a CRAFT coding manual (Smith & Meyers, 2010). Using such rating system, it was determined that the more competent the therapist was in delivering the treatment, the better the adolescent's treatment outcome (Campos-Melady et al., 2017). Finally, a

description is available of the successful dissemination and implementation of A-CRA in a national study (Godley et al., 2011). This will assist program directors and health professionals in promoting their general practise more evidence-based and improve treatment-outcomes.

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Substance Use Disorders: Second Wave Approaches



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Second wave behavior therapies (e.g., cognitive behavior therapy; CBT) for substance use disorders (SUD) extended previous paradigms which focused primarily on conditioning responses and modifying behavior by altering reinforcers. These remain important components of second wave behavior therapy for SUDs, but like other disorders, integration of the cognitive model introduced more targets for treatment, particularly addressing maladaptive cognitions. Importantly, CBT for SUDs also integrated advancements in the understanding of substance use and how to change such behaviors, including the use of harm reduction, relapse prevention, and motivational interviewing (Marlatt, 1998; Marlatt & Gordon, 1985; Miller & Rollnick, 2013). CBT for SUDs and addictive behaviors is well researched and overall has strong evidence for its efficacy (for review see McHugh et al., 2010). Generally, CBT for SUDs is effective in helping individuals make changes to their substance use including reducing and/or abstaining from using substances. The purpose of this chapter is to provide an overview of the history and development of CBT for SUD, summarize the literature on its effectiveness, and discuss issues related to its dissemination and implementation.

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Social Learning Theory

CBT for SUD was influenced by the rise in prominence of Social Learning Theory, which shifted focus from purely behavioral theories and influenced initial studies in the early 1980s (Carroll, 2005). Social Learning Theory emphasized the cognitive process of learning through social contexts which was a shift from operant and classical conditioning models of learning. Early research in this area aimed to treat alcohol use disorder (AUD) by including a brief skills training procedure designed to teach inpatients with alcohol use disorder alternative behaviors for handling negative events, such as managing negative affect or social pressure (Jones et al., 1982). This study compared a skills training group to a discussion group and no treatment group. All patients attended mutual help group meetings (i.e., Alcoholic Anonymous) and weekly care meetings for the 28-day treatment period. Skills training involved patients developing strategies for dealing with anger, negative mood, interpersonal pressure, and social pressure to drink. Patients participated in discussions surrounding the nature of the problem situations that could lead to alcohol use, problem-solved for general strategies to use when dealing with those problem situations and practiced effective responses to problem situations with therapists. The discussion control group involved discussion surrounding problem situations but maintained a focus on the emotional nature of the problems and emotional factors prohibiting the patient from responding more appropriately. The no treatment control group did not receive any additional treatment. Patients in both the skills training and discussion control groups exhibited increased skill acquisition and reported less alcohol consumption and fewer days intoxicated than the no treatment comparison at 12 month-follow-up (Jones et al., 1982). It is noteworthy that lapse and relapse often occur after 12 months (Maisto et al., 2018), but such long term outcomes are often difficult to obtain in research studies.

Harm Reduction

Harm reduction is another model that has influenced CBT for SUDs, especially with regards to treatment goals (e.g., Logan & Marlatt, 2010; Marlatt & Witkiewitz, 2002). In contrast to theories and treatments that view abstinence from drugs and alcohol as the only acceptable goal, harm reduction focuses on reducing the physical, psychological, and social negative consequences of drug and alcohol use rather than focusing exclusively on use itself or complete abstinence (Marlatt, 1998). Harm reduction is employed in a range of individual and public health interventions (e.g., nicotine replacement therapy, needle exchange programs, housing first programs). In the context of CBT, harm reduction has influenced the expected outcomes of interventions and the tools used to achieve those outcomes. For example, moderation (as opposed to abstinence) as a substance use-related treatment goal can result in similar or sometimes even better alcohol use outcomes compared to

abstinence only (Larimer et al., 2012; Sobell & Sobell, 1976). These findings have influenced CBT's focus on individual goal setting by using cognitive and behavioral skills to reduce harms associated with substance use such as SUD symptoms and functional impairment rather than solely focusing on use quantity and frequency as an outcome (Logan & Marlatt, 2010; Marlatt & Witkiewitz, 2002).

Relapse Prevention

Relapse Prevention (RP), pioneered by Marlatt and Gordon (1985), is another important historical component of CBT for SUDs and has become widely influential in the treatment of alcohol use disorder (AUD) and other SUDs. RP was one of the first models and treatment approaches to diverge from the prevailing dichotomous view that one is either sober or has relapsed (Larimer et al., 1999). This approach posits that a relapse is precipitated by high risk situations and cognitive and behavioral coping skills can be used to avoid or help reduce the likelihood of future substance use. Also central to RP is the idea of the abstinence violation effect, in which an initial lapse (i.e., a one-time temporary “slip” in substance use) can contribute to a return to pre-abstinence levels of substance use (i.e., relapse or full-blown return to a pattern of behavior) due to guilt and/or shame regarding not meeting one's goals. However, relapse is not inevitable, and coping skills can be used to avoid this outcome. Specific intervention strategies have grown from this model, including identifying and coping with high-risk situations, both anticipated and unanticipated, that could contribute to substance use relapse. Therapists help patients identify coping skills (e.g., avoiding places where they are likely to drink/use drugs, engage in physical activity to manage uncomfortable emotions) that could apply to high risk situations (e.g., a party where alcohol/drugs might be present, or feeling depressed or bored). Coping skills may be more cognitive, such as using self-talk to cope with a negative emotional state, or be more behavioral, such as calling a pre-identified person who can provide recovery support. Further key skills include anticipating future high risk situations and planning when/how to implement coping skills to avoid lapse (i.e., slip) or relapse. RP can reduce substance use quantity and frequency, substance-related problems, and result in fewer relapses (Hendershot et al., 2011). It is important to note that many CBT protocols are based on this model and employ RP intervention strategies to good effect (Hendershot et al., 2011; Magill & Ray, 2009).

Motivational Interviewing

CBT for SUD was also heavily influenced by Motivational Interviewing (MI) (Miller & Rollnick, 2013). Motivational interviewing was initially developed by Miller and Rollnick in 1991 as an effort to help individuals explore and resolve

ambivalence about changing alcohol use and other health-related behaviors, with the goal of helping individuals act on making changes. Described as a patient-centered directive style of counseling, MI involves the use of specific communication techniques used strategically to help people making a case for behavior change (i.e., to help elicit and reinforce “change talk”) while minimizing arguing for the status quo (i.e., “sustain talk”). Foundational skills used in MI include open ended questions, affirmations, and reflecting and summarizing a person’s statements. Miller and Rollnick describe MI as primarily a communication style- that is, it is not an intervention in and of itself, but a set of principles and skills that can be used intentionally to promote motivation to change behaviors. Several interventions have been developed that employ MI skills including motivational enhancement therapy and brief motivational interventions. Motivational enhancement therapy originated in the Project Match Study (described in more detail in [Alcohol](#) section below) as a structured way to deliver MI and included an assessment of drinking behaviors, the results of which was presented to patients to discuss with the therapist (Miller et al., 1999). The focus of this discussion was for the patient and therapist to work collaboratively to build a behavior change plan. In contrast to the relatively lengthier Motivational Enhancement Therapy, Brief Motivational Interventions involve 1-4 sessions and incorporate motivational interviewing and motivational enhancement therapy elements (e.g., brief assessment followed by personalized feedback) to promote change in alcohol use (Dunn et al., 2001). Because of their brief nature, brief motivational interventions are commonly used in outpatient medical settings including primary and specialty care clinics and can be delivered effectively by providers from various disciplines.

Meta-analyses of MI and interventions focused on delivering MI (e.g., motivational enhancement therapy, brief motivational interventions) show that MI promotes change in substance use and health behaviors with overall effect sizes ranging from 0.28 to 0.40 (Lundahl & Burke, 2009) and produces superior effects compared to traditional advice giving in 80% of studies reviewed (Rubak et al., 2005). In light of these strong effects, MI has become an integral part of CBT for SUD through MI/CBT combinations and as a framework used within CBT treatment protocols to enhance motivation for behavior change throughout the treatment process (e.g., DeMarce et al., 2014; Steinberg et al., 2005).

Group CBT

Treatment for SUD has long involved group meetings, which are among the most common modalities of treatment for SUD (Weiss et al., 2004). This may be due in part to the widespread use of mutual help groups such as Alcoholics Anonymous in treatment settings and the community, which strongly emphasizes the role of group dynamics (e.g., receiving non substance use-related support) in the recovery process (Marcovitz et al., 2020). CBT for SUD has been evaluated as a group treatment (as opposed to individual) and shown to be effective for improving SUD outcomes.

Sobell and Sobell (2011) developed the Guided Self-Change model which incorporates a cognitive behavioral and motivational approach to group SUD treatment, highlighting harm reduction and moderation goals. This approach weaves elements of CBT and RP, with MI such that treatment is focused on eliciting ambivalence toward change as opposed to being more didactic in nature (Sobell et al., 2009). One randomized controlled trial that evaluated group Guided Self-Change found that patients reduced their alcohol and drug use post-treatment effect size and at 12-months follow-up, and that individual and group treatment outcomes did not differ significantly. This finding suggests that group treatment is an effective and potentially cost-saving way to deliver CBT for SUD.

CBT for Specific SUDs

In the following sections, we describe the treatment approach and scientific evidence related to CBT for specific SUDs.

Alcohol

CBT for AUD has been shaped greatly by Project MATCH (DiClemente et al., 2001; DiClemente, 2011; Project MATCH Research Group, 1997). Project MATCH was a large multisite trial with the overall aim of determining whether patient characteristics contributed to the success of different types of treatments for AUD (i.e., to determine if patients can be matched to ideal treatments) including CBT. In addition to this hypothesis related to treatment matching, Project Match also served as the largest randomized controlled trial of psychosocial treatment for AUD, and has been written about extensively, producing over 100 publications (DiClemente, 2011). Although there was limited support for the hypothesis related to treatment matching, a landmark finding was that all three treatments used in the study (Cognitive Behavioral Coping Skills, Twelve-Step Facilitation Therapy, and Motivational Enhancement Therapy) showed evidence for contributing to reduced drinking behaviors that were largely persistent at 3-year follow up (Project MATCH Research Group, 1998).

The CBT protocol used in Project Match (i.e., Cognitive Behavioral Coping Skills) was modified from a manual originally published by Monti et al. (1989) designed for individual therapy and consisting of 12 weekly 60-min sessions. Seven of these sessions are dedicated to core modules, and the remaining five are split between elective modules and a treatment termination session. Most sessions include home-based skills practice which is considered essential for mastery of coping skills and maintaining treatment gains. The core modules consist of psychoeducation/functional analysis, learning to cope with craving, cognitive skills to manage drinking-related thoughts, problem-solving, refusal skills, planning for

emergencies/coping with lapse/relapse, and seemingly irrelevant decisions. For the four sessions allocated for elective modules, therapist and patient may collaboratively choose from a menu of sessions that provide additional work on communication skills (e.g., assertiveness), cognitive-behavioral skills for managing negative mood/anxiety, building social support (e.g., involving partners/significant others, building non-drinking networks).

Participants in the CBT arm of Project Match reduced their alcohol use and alcohol-related problems post treatment (Project MATCH Research Group, 1997). At 3 year follow-up nearly 25% of participants who received CBT reported alcohol abstinence (Project MATCH Research Group, 1998). Taken together, findings from project Match suggest that CBT for AUD can help individuals reduce alcohol intake and maintain gains over a relatively long period of time.

Research on CBT for alcohol continued to proliferate following Project Match. For example, the COMBINE trial's primary aim was to evaluate the efficacy of medications that target AUD (i.e., naltrexone and acamprosate), behavioral therapy, or their combination (Anton et al., 2006). The behavioral treatment in this trial was a merged version of the three therapies in project Match (i.e., CBT, MET, and twelve-step facilitation). Importantly, the behavioral intervention included the core CBT sessions discussed above. Among the several combinations of medication, behavioral therapy, medication management, and placebo, naltrexone emerged as the medication with the most evidence for efficacy for reducing drinking behaviors. Interestingly, outcomes for the behavioral intervention (with placebo medication), naltrexone, and their combination produced similar outcomes. These findings suggest that interventions that include core CBT components for AUD are efficacious with or without accompanying medications.

Cannabis Use Disorder

Lack of effective treatments for cannabis use disorder and reluctance of chronic cannabis users to engage in treatment have contributed to comparably lower rates of treatment among cannabis users (Sherman & McRae-Clark, 2016). Like CBT for AUD, CBT for cannabis use disorder helps patients identify potential triggers and situations related to cannabis use and helps patients develop coping skills to avoid use in those situations (Babor et al., 2004; Sherman & McRae-Clark, 2016). Similar to core skills targeted in CBT for alcohol, CBT for cannabis includes functional analysis and coping skills training (Babor et al., 2004). Treatment for cannabis use disorder also includes motivational enhancement therapy and contingency management approaches (Babor et al., 2004). Research has indicated that motivation to change may not be sufficient enough for marijuana users, especially for those with chronic and regular use beginning in the teenage years (Stephens et al., 1993), leading to more focus on teaching of coping skills (Carroll, 2005). Contingency management approaches is are suggested to identify and reduce non substance-related

problems that affect treatment success such as housing, social support, and transportation (Babor et al., 2004).

In the first randomized controlled trial exploring CBT for cannabis use disorder, researchers evaluated the RP model, which emphasizes that relapse is a result of a failure to effectively use behavioral and cognitive coping skills. The study compared RP to a non-behavioral, group discussion based treatment condition (Stephens et al., 1994). RP focused on identifying high risk situations for relapse, acquiring coping skills, and attending to life balance. The comparison treatment focused on social support experienced during treatment as a method of therapeutic change. Inconsistent with hypothesized outcomes, no significant differences were found between the two groups with nearly two-thirds of all participants achieving abstinence at post-treatment and only 14% maintaining abstinence at 1-year follow-up.

Results from this initial study prompted authors to examine if the intensity and dose of CBT and inclusion of motivational enhancement improved treatment outcomes (Stephens et al., 2000). Thus, in a subsequent study, CBT was extended to 14 sessions over the course of 4 months and there was enhanced focus on social support and inclusion of significant others in the treatment process. CBT was compared to a brief, two-session Motivational Enhancement Therapy protocol and wait list control. Substantial reductions in marijuana use (30% at 4-months post-treatment) were found in both conditions compared to the wait list control. Consistent with other studies, findings did not fully support extended CBT or the role of enhancing motivation interventions to improve treatment outcome in this population (Budney et al., 2000; Copeland et al., 2001; Stephens et al., 2000). Similar results were confirmed in a multisite randomized controlled trial (Babor et al., 2004) which found that a nine-session combined treatment consisting of CBT, Motivational Enhancement, and case management treatment reduced marijuana smoking significantly more than a 2-session Motivational Enhancement Treatment up to 15 months posttreatment. These findings emphasize improved treatment outcomes when using a combined CBT and Motivational Enhancement approach (Babor et al., 2004).

Tobacco Cessation

Development of tobacco dependence is a complex process, determined by an interplay of individual factors, which often lead to multiple treatment attempts for users trying to quit (Shiffman & Waters, 2004) before achieving success. First wave behavioral tobacco cessation treatments such as taste aversion and rapid smoking focus on associated learning and cue exposure to increase awareness of associations of discomfort and smoking triggers through behavioral conditioning (Baker et al., 2004; Bevins & Palmatier, 2004; Hall et al., 1984). Therapies that focus on external cues that produce feelings of craving and reinforce reward yield cessation rates between 20% and 30% (Otto et al., 2005; Shiffman, 1993). In the 1980s, research findings highlighted the relationship between cessation and mood, prompting a shift in treatment approaches (Shiffman, 1982). The influence of Social Learning Theory

led to cognitive behavioral treatment approaches to better integrate coping skills and cognitive processing into treatment for tobacco cessation (Carroll, 2005). A greater focus on the importance of mood in tobacco cessation treatment resulted in more emphasis placed on behavioral and cognitive therapy components, knowledge and use of relapse prevention and coping skills, and awareness of the perceived costs and benefits of quitting (Carroll, 2005; Hall et al., 1984).

Currently, CBT is the recommended psychological approach for tobacco cessation (Denison et al., 2017; Fiore et al., 2008). CBT aims to identify and modify associations between tobacco-related cues and tobacco use (Shiffman, 1993). CBT focuses on teaching people skills to cope with and reduce internal cues to smoke. Internal cues that can lead to tobacco use are emotions, thoughts, and physiological sensations such as cravings and withdrawal (Shiffman & Waters, 2004). CBT typically focuses on helping people learn to self-monitor their smoking triggers and smoking behaviors over a period of time (Hernandez-Lopez et al., 2009). Individuals then become more aware of how their smoking is linked to certain thoughts and emotions (Hernandez-Lopez et al., 2009). Other CBT treatment components include nicotine fading or establishment of a quit date early in treatment (Hernandez-Lopez et al., 2009; Webb et al., 2010). Planning a quit date allows for preparation and prevention of distress experienced when quitting, as well as active coping with physiological and cognitive distress once quitting occurs. Techniques used to increase coping with distress during a quit attempt include cognitive restructuring, thought stopping, and mental distraction.

CBT is effective for tobacco cessation. One of the first CBT treatment studies for tobacco cessation examined coping skills training in comparison to a discussion group control (Hall et al., 1984). One treatment goal of the coping skills training was to decrease anxiety and irritability during cessation by introducing deep breathing and cognitive cue of relaxation. In addition, the coping skills training program included written exercises and physiological feedback to increase perceived costs of smoking and emphasize benefits of change. Reduction rates in the skills training group (64.36%) were higher than those of the discussion group control condition (52.97%) at 12-month follow-up. However, smokers in the skills training group did not differ in negative mood reduction compared to the control group.

More recent examinations of CBT with tobacco users have yielded similar results. CBT results in higher rates of cessation compared to supportive therapies (i.e., general education) (Fiore et al., 2008; Mueller et al., 2012). However, the effect of CBT on cessation is limited. Rates of cessation are no better among those using CBT when compared to other therapies such as supportive talk therapy and general education at long-term follow-ups (i.e., 12-month) and cessation rates are poor for those with histories of increased depression (Brown et al., 2001; Killen et al., 2008). Additionally, in efforts to sustain treatment effects, increased dosage and intensity of CBT has shown no greater effect on longer-term abstinence rates for tobacco use (Arias et al., 2014; Mueller et al., 2012). However, integrating motivational enhancement into treatment improves outcomes. Higher levels of quit motivation was positively related to smoking cessation rates (Schnoll et al., 2005),

a finding consistent with use of motivational enhancement approaches to increase successful tobacco cessation (Fiore et al., 2008).

Another approach to treatment for tobacco use has been a focus on preventing tobacco use relapse by targeting negative mood. The connection between negative mood states and tobacco use is well documented (Hall et al., 1994; Shiffman, 1993), with negative mood being one of the most commonly attributed causes of smoking relapse (Pomerleau et al., 1978; Shiffman et al., 2002). Tobacco users report more negative affect and stress than those who do not use tobacco (Shiffman, 1982). In a recent study comparing standard CBT for smoking cessation to behavioral activation enhanced CBT (greater focus on increasing pleasurable activities and non-smoking-related activities), smokers in the behavioral activation enhanced CBT condition reported higher abstinence rates (30%) than those in the standard CBT (18%) condition at 12-month follow-up (Martinez-Vispo et al., 2019). Findings from this study are consistent with those of other studies using interventions focused on improving mood for tobacco use (Brown et al., 2001; Hall et al., 1994; Niaura & Abrams, 2002).

Limitations of CBT for tobacco cessation are highlighted by the comparison of its effectiveness to third wave behavioral approaches in treating tobacco dependence, the necessary combination of nicotine replacement therapies into treatment, and accessibility of treatment options. Research examining third wave approaches for tobacco cessation has included acceptance and commitment therapy, and mindfulness-based approaches, with results supporting a combination of CBT and third wave approaches (Vinci, 2020). Furthermore, a combination of CBT and nicotine replacement therapy results in higher rates of cessation than CBT alone (Denison et al., 2017; Martinez-Vispo et al., 2019; Ramon & Bruguera, 2009), resulting in the consensus of adding nicotine replacement to CBT when treating tobacco use disorder (Vinci, 2020).

Stimulant Use Disorders

Stimulant use disorders include repeated problems experienced due to continued use of stimulants, such as methamphetamines, cocaine, or other amphetamines (American Psychiatric Association, 2013; Substance Abuse and Mental Health Services Administration, 2016). CBT for stimulant use directly focuses on problematic use and factors surrounding use of stimulants (e.g., evaluating thinking patterns, stimulus control, planning for high-risk use situations), and may also include secondary targets that underlie the etiology of the substance use itself (e.g., mood dysregulation). Today, there is good evidence for the application of CBT to the treatment for stimulant use disorders. Much of the initial research compared CBT to 12-step approaches or case management. While these approaches continue to be popular among providers and patients, naturalistic evaluations have demonstrated comparable outcomes between traditional approaches and CBT-oriented programs (Ouimette et al., 1997). RP, also based on CBT, for stimulant use targets drug use

relapse by helping the person develop self-control strategies, such as lifestyle modifications, coping plans for high-risk situations, and building skills to manage cravings. RP strategies rely both on internal (e.g., values-driven) and external motivators (e.g., spousal contingencies) to help shape and change behaviors related to problematic stimulant use (Carroll et al., 1991).

CBT may be especially helpful for persons with stimulant use and comorbid psychiatric problems. In the case of psychiatric comorbidities, research has found that for patients diagnosed with cocaine abuse who also have a history of depression CBT is more effective in terms of abstinence from cocaine compared to a 12-step approach; in a 12-step approach a history of depression did not predict treatment efficacy (Maude-Griffin et al., 1998). These results suggest that CBT may be particularly helpful for persons using stimulants and with a history of depression. CBT can also be used across a wide variety of treatment settings, from outpatient, community, inpatient, or even virtual (web-based) clinics (Carroll et al., 2004; Randall & Finkelstein, 2007), making it easy to fit within different care models to provide greater access to care for patients in need of treatment.

Opioid Use Disorder

Prescription opioid use has been steadily increasing over the past several decades, with an estimated 18 million Americans misusing a prescription opioid within the past year (National Institutes of Drug Abuse, 2020). Heroin use is also on the rise within the US according to the National Survey on Drug Use and Health (NSDUH, NIDA), with about 948,000 Americans reporting heroin use in 2016 (Substance Abuse and Mental Health Services Administration, 2018); a number that has been increasing since 2007.

Medications for Opioid Use Disorder (MOUD) are currently the first-line pharmacological treatment approved by the US Food and Drug Administration (FDA) for the treatment of opioid use disorder (Connery, 2015). MOUD may include one of three medications, including buprenorphine, methadone, or naloxone, which have been deemed safe and effective by FDA in combination with counseling interventions or psychosocial support. Much of the psychosocial support offered during the course of MOUD encourages medication adherence. Approximately 90% of opioid related deaths are not intentional (Volkow et al., 2014), and MOUD can significantly reduce mortality associated with opioid use (Ma et al., 2019), therefore, the main target of the intervention is medication adherence.

Within pharmacotherapy clinical trials for MOUD, incorporating behavioral therapies has become commonplace as these types of treatments can reduce variability in medication trials, encourage medication adherence, reduce attrition to the protocol, and can address ethical issues related to placebo-controlled trials. Such interventions may include MI (Sayegh et al., 2017), Contingency Management (CM) (Petry & Martin, 2002) or CBT (Carroll et al., 2004). While CM and MI (Carroll et al., 2004) can offer flexibility to the treatment setting (e.g., easily adapted

to specific populations), CBT has been demonstrated effective with a range of psychiatric disorders (DeRubeis & Crits-Christoph, 1998), making it especially useful for patients with mental health co-morbidities. Further, treatment effects of CBT are durable typically lasting well beyond the treatment episode, which is a relative benefit of CBT over other available behavioral interventions such as MI or CM.

Since CBT is a relatively short-term, time-limited treatment that supports a patient's recovery from opioids by providing coping skills and strategies for planning for risky situations, it holds many benefits over other behavioral treatments when combined with pharmacotherapy. Additionally Beck et al. (1993) published a CBT manual for opioid addiction, with strategies to manage drug-related beliefs, cravings, and support recovery by preventing relapse. For those who initiated opioid use due to chronic pain, CBT is often a helpful treatment strategy to manage pain and decrease opioid use (Mariano et al., 2018).

Within MOUD treatment programs, among those who are being treated for opioid use disorder associated with prescription opioids, CBT leads to better abstinence outcomes when compared to physician management alone. However, CBT appears to be less effective for persons using heroin (Moore et al., 2016). Other work supports the application of CBT concurrently with MAT, finding that adding CBT to MOUD leads to improved quality of life (Clarke et al., 2013).

The Drug Abuse Treatment Act of 2000 has allowed physicians to prescribe buprenorphine to treatment patients with OUD in office-based settings, with a recommendation to refer patients to “appropriate counseling or ancillary services as needed” (Center for Substance Abuse Treatment, 2004). While research supporting the use of office-based buprenorphine treatment without additional counseling is effective, early treatment drop out remains a significant issue (Thomas et al., 2014). The role of adding counseling or behavioral therapies to office-based buprenorphine has been controversial, with mixed findings regarding the utility of additional therapy (Copenhaver et al., 2007; Fiellin et al., 2013). In a recent commentary, authors posited that a subset of patients with particular characteristics—such as, those who have had positive experiences participating in support groups—may benefit from added therapy, and recommended that a stepped-care approach may be the answer to the question of when additional therapy is appropriate (Carroll & Weiss, 2017).

Indeed, CBT may hold more promise for specific patient groups in MOUD programs for opioid use disorder. For example, one study found that a novel application of CBT plus interoceptive exposure for drug craving cues (CBT-IC), when compared with increased therapist contact of an equal amount, yielded more positive results for women, such that illicit drug use was significantly lower for women engaged in CBT-IC (Pollack et al., 2002). However, a relative weakness of incorporating CBT in the treatment of opioid use disorder is that it can be training intensive for the provider. Additionally, CBT can be demanding on patients when compared to incentive-based treatments including contingency management. Further, CBT can be challenging or even contraindicated for persons with cognitive disabilities due to substance use (Chapman et al., 2002).

Comorbidity with Other Mental Health Disorders

An important consideration in treating CBT for SUD is the presence of comorbidities. SUD is likely to co-occur with other mental health disorders. Individuals with SUD, including drug use disorders and AUD, are 2–3 times more likely than those without these disorders to have co-occurring anxiety disorders or depressive disorders (Lai et al., 2015). Not only do SUDs and mental health disorders co-occur, but their co-occurrence leads to increased clinical severity (Blanco et al., 2012, 2013) and poorer CBT treatment outcomes (Buckner & Carroll, 2010). In recent years, there have been efforts to combine active elements of both CBT for SUD and mental health disorders into a single protocol. An advantage of this approach is that it can reduce the overall time spent in therapy by combining treatments, and can directly address unique elements of co-occurring disorders. Co-occurring SUD and anxiety disorder combined protocols often involve exposure therapy coupled with relapse prevention skills and cognitive therapy that can apply to both disorders. For example, one study examined the effectiveness of a protocol combining CBT for cannabis and CBT anxiety disorders delivered weekly for 12 sessions which found that compared to a control condition of MET-CBT for cannabis only, the combined anxiety/cannabis CBT intervention improved anxiety significantly post treatment (Buckner et al., 2019). The combined anxiety/cannabis CBT protocol produced similar outcomes on cannabis use when compared to MET-CBT. In another study, among individuals with PTSD and AUD, a single protocol combining prolonged exposure for PTSD and CBT for AUD found that combined CBT resulted in higher rates of PTSD remission compared to RP for alcohol only (Back et al., 2019). The combined treatment also resulted in greater reductions in alcohol use quantity 6 months after treatment. Overall, findings from this work is encouraging, and suggests that transdiagnostic CBT interventions can be effective for improving outcomes in persons with comorbid SUD and mental health disorders (Baker et al., 2012; Hides et al., 2010).

CBT SUD Technologies

Recent advances in technology have allowed digital delivery of CBT for SUD. These innovations allow patients to directly access treatment information and facilitate skill-building outside of a provider-led clinical encounter. There is a range of use for these programs, such as mobile applications (i.e., apps) and programs, that may be self-initiated by the patient, or suggested or prescribed by a provider to enhance ongoing treatment (Babson et al., 2015; Brief et al., 2011; Kuhn et al., 2016). In some cases, these programs can stand on their own, or can be used with limited provider support (Mohr et al., 2011).

Technology-delivered interventions have many benefits to patients and providers, such as, helping to overcome geographic barriers, allowing flexible timing to

access treatment content, and offering care with lower costs (Bennett & Glasgow, 2009). These technologies can help increase access to quality and effective care, making treatments more accessible (for review see Cucciare et al., 2009). Much of the research in this domain has focused on technology-delivered interventions as “add-ons” to standard care. In this capacity, technology-delivered interventions can be delivered in an efficacious and safe way (Carroll et al., 2009). More recent work has begun to explore innovations with limited or minimal clinical support/monitoring, where the patient takes a more self-directly role in their treatment (Carroll et al., 2014; Kiluk et al., 2018). Further, these types of web-based CBT programs can be adapted to different populations to provide a tailored fit for diverse populations. For example, CBT4CBT (a computer-delivered CBT program) has successfully been adapted for Spanish-speaking substance users (Silva et al., 2020).

CBT SUD Implementation

Given the abundance of evidence for the effectiveness of CBT for SUDs, efforts have been made to implement CBT for SUD into healthcare systems. In the Veterans Health Administration (VHA), a large scale, multi-site training in CBT improved outcomes among patients with SUD in the system (DeMarce et al., 2019). Specifically, training included a workshop and supervised practice of cases. Among patients who received CBT for SUD, reductions in substance use and improvements in quality of life were observed. One study found that among 340 substance use disorder treatment facilities throughout the United States, 90% report using CBT. However, of those that reported using CBT, 66% had providers who reported receiving any training in CBT, and 39% reported receiving training that included supervised cases (Olmstead et al., 2012). These findings suggest that even though CBT for SUDs may be commonly used in some treatment clinics, provider training may vary. Structured training in CBT is important as it may improve patient outcomes. For example, one study involving the implementation of CBT for stimulant use disorder in community treatment centers found that providers who received a didactic workshop plus supervised practice reported higher skill quality compared to providers who received a treatment manual and brief orientation to the CBT approach.

Technology-assisted training may serve to increase the availability of CBT training and supervision. Further, flexible (i.e., allowing the provider control over the sequence of topics) technology-delivered CBT training programs can increase SUD treatment providers' CBT knowledge and self-efficacy, and reduce job-related burnout (Weingardt et al., 2009). Aside from training, other factors may influence the success of CBT for SUD implementation, including treatment centers' theoretical orientation, readiness to change, and ability to provide CBT to large caseloads (Manuel et al., 2011). While there are private companies that offer training as part of a product purchase (e.g., Pear Therapeutics, Inc.; SilverCloud), there are resources that do not require a purchase for use. For example, American Telemedicine

Association (ATA) and Health Information Management Systems Society (HIMSS) routinely offer webinars that may be useful to providers interested in learning more about technology-assisted treatment approaches. Many of the tools, and corresponding trainings, may also be available to providers who are integrated into large healthcare systems, such as the Veterans Health Administration. Additionally, some health care systems may offer free or reduced cost memberships for their staff to professional societies and organizations that promote the integration of technology into clinical care (e.g., <https://www.americantelemed.org/>; <https://www.himss.org/>).

Conclusion

In the treatment of SUDs, second wave approaches such as CBT have led to several important developments that have shaped the scientific and treatment landscape. These developments include the integration of behavioral, social, and motivational approaches and a boom in empirical research, including large-scale RCTs on these treatment approaches. Overall, CBT has been found to be an efficacious approach for treating SUD. However, more scientific work, especially studies using dismantling and implementation science methods, is needed to better understand how, for whom, and in what context CBT for SUDs works best. Despite these gaps, CBT for SUD remains an important approach for reducing suffering related to SUDs.

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Third Wave Therapies and Substance Use Disorders: A Case Example



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Global substance use is high and increases every year. The United Nations Office of Drugs and Crime reported that almost 270 million people used drugs in 2018 which is a 30% increase from 2009 (United Nations, 2020a). Drug use is especially prevalent in urban, developed, and poverty-stricken areas within countries. The most frequently used substance is cannabis with almost 200 million people who reported using in each year. Opioids are considered the most harmful of substances and account for 66% of substance use-related deaths (United Nations, 2020b).

A 2018 survey of the U.S. population indicated that over 60% of Americans reported using alcohol or other drugs in the past month, where 140 million people drank alcohol, 58.8 million used tobacco products, and over 30 million reported illicit drug use (Lipari & Park-Lee, 2019). Substance use disorders (SUD) are characterized by recurrent use of alcohol and/or drugs in a manner that causes significant clinical and functional impairment, such as health problems, disability, and failure to meet major responsibilities at work, school, or home (American Psychiatric Association, 2013). In the U.S., 20.3 million people aged 12 or older have a SUD, 14.8 million have an alcohol use disorder, and 8.1 million with a drug use disorder (Lipari & Park-Lee, 2019).

There are a number of social and behavioral treatments for SUDs that are based on evidence, however, of varying levels and quality (Substance Abuse and Mental Health Services Administration, 2020). The National Institute for Health and Care Excellence (2012) lists six formal treatments that require specific competencies, training, and supervision. Most of the identified treatments, such as contingency management (Prendergast et al., 2006) and cognitive-behavioral relapse prevention therapy (McHugh et al., 2010), originated several decades ago and therefore have been well-studied, with the largest volume of support. No third wave behavioral

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therapy is on the list of formal treatments likely due to a more recent genesis. Nevertheless, mindfulness and acceptance-based behavioral treatments as a collective are accruing a solid evidence base. Specifically, acceptance and commitment therapy (ACT), dialectical behavioral therapy (DBT) and mindfulness-based treatments have been developed and tested with substance use disorders as well as other addictive behaviors (e.g., gambling), with encouraging results (Gloster et al., 2020). To date, second vs third wave comparison studies have resulted in mixed findings with no clear superiority of one over the other (e.g., Lee et al., 2015), as discussed in more detail below.

Third wave cognitive behavioral therapies differ from their predecessors in several important ways, which have implications for addiction treatment. The newer behavioral therapies are based in contextual science (Hayes et al., 2012) which broadly attempts to identify basic principles linked to processes. Processes, in turn, form the basis of specific treatment techniques and components, with an emphasis on mechanisms and moderators (Hayes et al., 2006). Acceptance and mindfulness therapies comprise an empirical, principle-driven approach to distressing or unwanted internal psychological and physical experiences, common precipitants to substance use (Hayes & Levin, 2012). The emphasis is placed on the *context* and *function* of these experiences rather than their content as emphasized in traditional cognitive and cognitive behavioral therapy treatments. In third wave therapies internal content (thoughts, feelings, and physical sensations) is not presumed to be causal, and thus the emphasis is not on changing the content of thoughts or related feelings. Rather, the context in which these internal experiences occur is altered in order to change the function of the unpleasant or distressing experiences (Hayes et al., 1999).

The functional contextual perspective is particularly relevant and applicable to SUDs and other addictive behaviors. Unpleasant and unwanted internal thoughts and feelings are ubiquitous, especially among individuals struggling with alcohol or drug use (Newman, 2001). Common feelings include sadness and anxiety; thoughts such as, “I’m a loser for getting high again,” or “I need a drink,” or “What is wrong with me?” and physical sensations associated with alcohol and/or drug withdrawal symptoms (Beck, 1993). Perhaps more salient in addiction is that these internal experiences can be both precipitants (i.e., occurring contiguously with drug use) and consequences, meaning that substances are used to both eliminate/control unpleasant thoughts and feelings as well as to manage the physical and psychological consequences resulting from the excessive use of substances. The use of substances in this way can lead to a “revolving door” of experiential avoidance (Hayes & Levin, 2012), or repeated attempts to change the form, frequency, and/or intensity of these distressing internal experiences, even when ineffective and in the face of disastrous consequences. A repeated reliance on experiential avoidance via substance use paradoxically exacerbates the experiences which are attempting to be avoided (Hayes et al., 1999). Experiential avoidance overlaps with other third wave processes, such as lack of distress tolerance (Brown et al., 2002).

Based on this conceptualization, third wave treatments for SUDs use varying processes to target three broad concepts: Openness/Awareness, Acceptance, and

Engagement (Hayes et al., 2011a). Experiential exercises are commonly used to engage the various processes rather than only discussing them. Openness involves slowing down and observing what is happening both internally and within one's environment (Hayes, 2011). Persons struggling with the use of substances and stuck in the experiential avoidance loop are often not observing the precipitants or triggers of drug use, nor are they fully open to and aware of drug use consequences (Hayes, 2011; Stotts & Northrup, 2015). Mindfulness-based strategies are typically used by most of the major third wave therapies in this context to increase openness and awareness (Barner & Barner, 2011). Experiential exercises typically start with just "noticing" internal thoughts and experiences, both inside and outside of the therapy room (Hayes et al., 2011b; Villarreal et al., 2020). Mindfulness practice assists clients' awareness of natural environmental contingencies in a more flexible and objective manner, which in turn theoretically should lead to a wider range of more adaptive behavioral choices (Roemer et al., 2015). In ACT there is also a related process, defusion, which further promotes distance from difficult thoughts, feelings and physical sensations (Hayes et al., 2011b). Recognizing and "de-fusing" from ingrained, repetitive, and seemingly automatic distressing thoughts and feelings are often addressed using experiential exercises designed to loosen the grip of these internal experiences (especially as they relate to behavioral choices), and to hold them more lightly or take them less seriously (Assaz et al., 2018).

Most third wave therapies eventually lead to implicit or explicit "acceptance" of distressing or unwanted internal experiences (Vujanovic et al., 2017). Hayes et al. define acceptance as, "...adoption of an intentionally open, receptive, and flexible posture with respect to moment-to-moment experience" (Hayes et al., 2013). Generally speaking, once clients reach sufficient awareness and openness to their internal experiences they can start to practice allowing their thoughts and feelings to occur without having to act to remove or alter them in some way, e.g., using substances (Hayes, 2011; Villarreal et al., 2020). This is not to suggest the therapy process is linear, however. Practicing these skills is necessary and their implementation will wax and wane just as with any newly learned behavior. Ideally, gaining distance and reducing the struggle with unpleasant private experiences will lessen their impact and allow for the identification or development of new behaviors in this challenging context (Assaz et al., 2018; Hayes, 2011; Stotts & Northrup, 2015).

The concept of Engagement involves strategies most similar to traditional behavioral therapy in which the therapist works with the client on identifying concrete behaviors to change and developing a plan to implement change. This might entail small goals to reduce the impact of substance use, such as seen in harm reduction models of SUD treatment (Marlatt et al., 2011), e.g., controlled drinking, or successive approximations, such as reducing substance use gradually over time until abstinence or some other milestone is reached; or the goal might be a much larger change such as complete and immediate cessation, often referred to as the "cold turkey" approach (Henssler et al., 2020). While perhaps more implicit in other approaches, ACT explicitly ties behavior change to valued life directions (Stotts et al., 2009; Wilson & Murrell, 2004). Rather than focusing exclusively on the reduction of substance use or abstinence, the therapist focuses more on living a meaningful life and

the values encompassing that life and less directly on the end goal of reduction or abstinence. Behaviors that serve to avoid or control distressing private experiences are often in conflict with values. For example, avoiding conflict with a spouse by drinking alcohol in the evenings moves one in the opposite direction from having a loving and satisfying marriage. Having a focus on what is important helps to dignify the inevitable suffering involved in changing the powerful and effective avoidance behaviors such as drinking alcohol or using drugs (Wilson & Murrell, 2004). One of the primary goals of therapy is to broaden the client's response repertoire in the face of unpleasant internal experiences, such that these experiences do not only and narrowly lead to addictive behaviors, and thus can be associated with other more adaptive behaviors (Stotts & Northrup, 2015). Continued, excessive involvement in substance use tends to push clients far from their values, sometimes making it difficult to identify what is important or to build motivation to quit (Luoma et al., 2012; Wilson & Murrell, 2004). In fact, the very definition of SUD involves disruption in functioning related to relationships, employment, school and/or health.

Third wave therapies have differing models yet with many similar and overlapping processes. For simplicity, we will focus on the Acceptance and Commitment Therapy model as it is comprehensive with well-delineated processes, and along with mindfulness-based therapies, has the largest evidence base for SUDs (Ii et al., 2019; Lee et al., 2015). In ACT, the overarching construct or guiding process is psychological flexibility, i.e., patterns of behavior regulated by the six, interrelated ACT processes involved in either expanding or narrowing behavioral repertoires (Hayes et al., 2013).

The six processes, as broadly discussed above, include (1) *acceptance*, as opposed to avoidance, of distressing internal and external events; (2) *cognitive defusion*, a disconnection from distressing thoughts that often become connected with self and identity; (3) *contact with the present moment*, non-judgmental awareness and connection with internal and external experiences; (4) *self-as-context*, or perspective taking, viewing oneself within a context of experiences (internal and external); (5) *values*, guiding beliefs as to what is important; (6) *committed action*, behaviors directed by identified values. In the following sections, we introduce a recent, substance abuse intervention trial and 3-session protocol; present a study client, "Norma" (with some details altered to protect confidentiality); and illustrate ACT processes with actual excerpts from therapy sessions.

Clinical Trial for Mothers of Neonatal ICU (NICU) Infants to Promote Substance Use Treatment and Contraception Maternal substance abuse is a significant public health problem with devastating consequences (Substance Abuse and Mental Health Services Administration, 2013). Unfortunately, many pregnant substance users receive sporadic, late, or no prenatal care, making identification, referral and treatment unlikely or impossible prior to hospital delivery (Olah et al., 2013; Wells et al., 2002). With funding from the National Institute on Drug Abuse, we developed and tested a 3-session, hospital-initiated intervention using both motivational interviewing (MI; (Miller & Rollnick, 2002) and ACT, which we named MIACT, for mothers who used substances during pregnancy and had an infant admitted to the NICU, with the goals of reducing substance use, increasing treat-

Table 1 MIACT intervention protocol

	Topic	Description
Session 1 Openness/ awareness	Introduction and rapport building	Introduce the client to therapy; discuss current NICU infant pregnancy & birth
	Awareness raising	Increase openness and awareness with defusion and mindfulness strategies
	Substance use & reproductive histories	Obtain a substance use history & help the client identify their reliance on substances to avoid distressing thoughts and emotions (experiential avoidance; fusion).
Session 2 Acceptance & engagement	Values identification Identify actions that are aligned or misaligned with values	Highlight function of substance use and impact on values; highlight impact of not using contraception in the future.
	Control is a problem	Attempts to ignore, avoid, control unwanted thoughts and feelings will ultimately fail.
	Willingness	Present willingness to experience distressing internal experiences that are most common triggers to substance use. <i>Fish hook metaphor</i> .
	Valued vs. avoidant-directed behaviors	Define specific actions/goals to move toward a chosen value. <i>Telescope</i> and/or <i>magic pill metaphors</i> .
	Readiness for substance Use treatment and reproductive care	Assess for readiness to speak with a professional about substance use treatment and reproductive care. Make referrals, if ready.
Session 3 Awareness, acceptance & engagement	Continued practice of all skills	Identify/review client-specific ACT processes related to engaging in substance use treatment and obtaining reproductive care.
	Short vs. long-term effectiveness of substance use	Identify the effectiveness and consequences of engaging and getting stuck in avoidance-driven behavior.
	Raising awareness	Review mindfulness/defusion around distressing thought/feelings and related avoidant-directed behaviors.
	Acceptance vs fighting Internal experiences	Review of willingness to have difficult thoughts and feelings. <i>Purple unicorn metaphor</i> .
	Commitment to valued-driven behavior	Review client’s commitment to chosen goals encourage value-directed action. <i>Riding the wave metaphor</i> .

NOTE: This protocol is based on content from multiple books and protocols (Hayes et al., 1999; Polk et al., 2016; Stotts et al., 2012)

ment initiation, and starting effective contraception (Villarreal et al., 2020) (NCT03165565). The intervention was primarily ACT-driven given its rich theoretical basis, with MI strategies woven in. For illustrative purposes aligned with the goals of this chapter, we will primarily limit our discussion to the ACT components of the intervention (Table 1).

Case Description

Norma is a 28-year old, Black female with a high school education. She lives in a house with extended family members in a large Southern U.S. City. Norma has two biological children with two different men, one of whom is a newborn infant admitted to a NICU and a second child who is 5 years of age and was removed from her custody by Child Protective Services. Norma previously considered herself married via common-law but considers herself unmarried currently. Neither of the biological fathers are involved in her nor the children's lives. Norma has a history of poly-substance use and mental health disorders. She has a high school education and is currently unemployed.

Intake screening with the Mini-International Neuropsychiatric Interview (MINI) (Sheehan et al., 1998) reveals that Norma has a history of depression, reporting over 10 depressive episodes over her life. She also meets DSM 5 criteria for panic disorder (current), and substance use disorder (current: cocaine and cannabis). She reports using cocaine and marijuana during her most recent pregnancy. She also reports a history of physical and emotional trauma. She recently fled from a physically and emotionally abusive relationship and is living in a shelter where she became pregnant. Her infant's birth was medically induced at the hospital as she had hyperemesis gravidarum (i.e., severe nausea, vomiting, weight loss, and dehydration) throughout her pregnancy as well as pre-eclampsia and her baby was born early at 34 weeks. Norma's primary coping seems to be limited to avoidance and control-oriented strategies, such as distraction (including use of substances) or positive self-talk—strategies functioning to control or escape negative thoughts, feelings and physical sensations.

Session 1: Awareness and Openness

Introduction and Rapport. Session 1 begins with rapport building and describing treatment goals and expectations. Treatment is presented as a new program being developed to help new mothers who used substances during pregnancy to manage with their current situation and to provide them with resources. The therapist asks Norma to describe her pregnancy story and begins to introduce and incorporate ACT processes (e.g., defusion, present moment awareness).

Awareness Raising via Mindfulness and Defusion. To draw attention to Norma's fusion with internal distressing experiences (e.g. thoughts, emotions, and bodily sensations) the therapist introduces the idea of mindfulness/awareness. The therapist promotes defusion from thoughts by asking her to expand on distressing thoughts mentioned earlier in the study visit.

Therapist: I'm remembering earlier you mentioned having thoughts or feelings of worthlessness, like our minds kind of tell us these thoughts [ACT: Defusion,

present moment focus]. What would you say are some of those feelings or thoughts?

Norma: Oh, like: This is all of your fault, it's because you're ugly, it's because you're not good enough. Gosh, now I think that is kind of stupid. I had no reason to think that way about myself. How could I ever let me think that? I had no reason to think that. I should have never stooped that low.

Therapist: Your mind would bring you these thoughts [ACT: Defusion]. That sentence, "Oh I should have never stooped that low" it's another way our minds are being hard on us [ACT: Defusion], beating yourself up for beating yourself up.

Norma: I'm still downing myself when I'm saying that basically. You're right, you're right. I never caught that before. And those little things like that is what build up and you know depression comes. I never noticed that. I never noticed that before, it starts with me.

Therapist: Well, we are all kind of hard on ourselves. If we could take a magic wand and never have to feel that again, we all would, [ACT: Self-as-context, defusion] but it doesn't work that way, because it finds a sneaky way of coming back in [ACT: Acceptance, present moment]. And sometimes you have to get really still and kind of quiet to be able to notice that you are even operating that way [ACT: Present moment, self-as-context].

Substance Use and Reproductive Histories. The therapist asks about the first time Norma used substances. The primary goal during this portion of the session is to help her identify the function of her substance use, i.e., to avoid distressing thoughts and emotions. The therapist highlights acceptance/experiential avoidance and the futility of using substances to manage internal experiences.

Therapist: So you were angry the first time you tried cocaine, what happened?

Norma: After my dad died, I was using it as a crutch to make me feel better.

Therapist: You can really look back and see a time where you were struggling [ACT: Self-as-context], and you used [cocaine] to escape that pain [ACT: Experiential avoidance, self-as-context].

Norma: Yeah ... let's say like some fucked up shit really happened, like I'm just like, I'm not going to say anything, I'm going to be like, you know what, I'm just gonna go get a bag [of cocaine], I'm not gonna speak on it, let me just go, do a bump to get my head straight and yeah, that was a problem. That was a problem I had.

Therapist: What did it take your attention away from? [ACT: Self-as-context; experiential avoidance].

Norma: Ugggh, a lot...from being raped, a lot from my father not being there, a lot from me having a horrible relationship with my husband, with it going sour. Feelings of not being good enough.

Therapist: So in some ways you would have this yucky stuff that would come up, these feelings, these thoughts, these memories and you used cocaine [ACT: Defusion, self-as-context, experiential avoidance].

Norma: And I would use cocaine...ummmhmmm...yeah.

Therapist: And it would be wonderful if using cocaine worked, right? [ACT: Creative hopelessness].

Norma: Yeah, you know it took me a long time to realize it was never working for me, I never, it never made me feel better. It just masked the problem, it just temporarily covered them up. It took me a long time to realize that.

Therapist: So temporary, because thoughts and feelings would just come back up ...like trying to hold a bunch of beach balls under water (Stoddard & Afari, 2014). And I wonder if it turned your attention away from other things that were also important to you? [ACT: Values]. Yes it turned your attention from the yucky stuff, but what did it cost you?

Norma: My family. It cost me my family. Ugh my family was looking at me differently. My family began not to trust me. They didn't understand what I was going through and neither did I at that time.

The therapist introduces a mindfulness exercise that invites Norma to notice sounds in the environment and to focus on her body, (e.g., feet on the floor, tingling in hands, etc.) and her breathing. After a few moments, the therapist asks Norma to notice if her mind is wandering, either ahead or to the past, normalizes the mind's tendency to wander and prompts her to gently notice it and bring attention back to her breath. After ending the mindfulness exercise, Norma reports she did notice that her mind wandered but that when prompted she could bring her attention back. The therapist reminds her that mindfulness is a skill that can be practiced to increase awareness of internal activity [ACT: Present moment, self-as-context].

Toward the end of Session 1 the therapist asks Norma how ready she is to speak to someone about entering a substance use treatment program. When she mentions she is not ready the therapist uses defusion strategies while summarizing what she shared regarding substance use, highlighting discrepancies between behaviors and values/goals.

Session 2: Acceptance and Engagement

Values. The therapist begins the session by inquiring what has happened since the prior session, probing for whether Norma began substance use treatment or attended an obstetrician/gynecologist (OB/GYN) visit to obtain birth control in the prior 2 weeks. The therapist then leads her through a mindfulness exercise similar to the one introduced during Session 1. Upon completion the therapist inquires, "What did you notice about your mind's tendency to wander away from the present moment?" This portion of the session allows Norma the opportunity to continue practicing noticing when internal thoughts arise and turning her attention away from these distracting thoughts and back to the present moment.

During the next component of this session, the therapist begins to help Norma identify her values, as well as values-driven and avoidant-driven behaviors. The therapist asks, "Who or what is important to you?" Norma shares that, "her

children, and being a good mother is important.” The therapist then asks in exaggerated fashion if, “*every single second of every single day she is able to be a ‘good mother.’*” When Norma says no, the therapist expresses relief to normalize that it is challenging, and often impossible, to always act from ones’ values. The therapist asks her to identify what internal thoughts and emotions come up and get in the way of being a good mother [ACT: Defusion, mindfulness]. Norma mentions she has thoughts such as “*I really want that [cocaine], why can’t I have it? Just do it, who cares about what anyone else thinks or says.*” She also identifies that certain emotions, such as anger and frustration, turn her attention away from being a good mother.

Identifying Actions Misaligned with Values. The therapist uses the Telescope metaphor (Stoddard & Afari, 2014) to ask Norma what she could be seen doing when she was having these internal distressing thoughts and emotions.

Therapist: If I was looking at you from afar through a telescope and you were feeling and thinking these distressing thoughts how would you be moving your body, what could you be seen doing [ACT: Self-as-context, committed action, mindfulness]?

Norma: I would be yelling, arguing, maybe even fighting with someone, I would be snorting cocaine, drinking alcohol.

Therapist: Would you say snorting cocaine, and getting into arguments and fights with people you care about is moving you toward or away from those things and people that are important to you?

Norma: Yeah, umm, away.

Therapist: These things you are sharing with me, they are things that you can be seen doing when this internal yucky stuff comes up. You feel angry, frustrated, you feel sadness, you have these thoughts of “I’m so mad, this is too much, I’m so overwhelmed...”, and if I were watching you through a telescope I could maybe see you arguing and using cocaine. Do you think you do them to try to make you feel a little better or to avoid feeling that yucky stuff [ACT: Self-as-context, defusion, mindfulness]?

C: Yeah, *Norma nods expressively.*

The therapist and Norma confirm that these actions are undertaken to bring “relief” or to “escape” from distressing internal thoughts and emotions. The therapist reflects that these behaviors move her away from things that are important to her and that her mind brings in these thoughts [ACT: Defusion] that seem to turn her attention away [ACT: Self-as-context, present moment] from what is important [ACT: Values]. The therapist then elicits the idea that trying to escape these unpleasant thoughts and feelings can interfere with what she considers most important [ACT: Defusion, values].

Identifying Actions Aligned with Values. The therapist uses the same telescope metaphor to ask Norma how she would be moving her body if she was choosing behaviors based on her values [ACT: Committed Action, self-as-context]. She states that if she was engaged in values-directed behaviors she would be “*spending time with her babies, exercising, cooking and eating healthy food, and writing, drawing,*

and painting.” The therapist elicits that these actions would bring about feelings of “*satisfaction*” as they are behaviors that move Norma toward the people and activities that are important to her [ACT: Values, committed action].

Control Is the Problem and Willingness to Have Distress. To assist in moving toward acceptance the therapist discusses the futility of attempting to control internal thoughts, emotions, and physical sensations and offers the alternative of willingness.

Therapist: There doesn’t seem to be a magic pill that makes all of this (internal distressing thoughts and emotions) go away. What are we going to do?

Norma: I don’t know.

Therapist: Is it possible that your values are so important, they bring you satisfaction, and are so valuable that you might choose to move your body in a way that is aligned with them even if distressing thoughts and emotions are present? Can they just come along for the ride like background noise? [ACT: Acceptance, values, defusion].

Norma expresses a desire to be able to do this and the therapist reminds her about the importance of noticing [ACT: Mindfulness, self-as-context]. The therapist also uses the fish hook metaphor (Polk et al., 2016; Stoddard & Afari, 2014) to describe how unpleasant thoughts and emotions are like hooks that pull us away from the things that we value and we are often hooked before we can notice. The therapist invites Norma to see the hook, notice it, and keep on swimming, with the hooks dangling in the water and says, “*Hooks can be there and we don’t have to bite them. Like how thoughts and feelings can come up but we don’t have to buy into or act on them.*” Norma expresses, “*I like how you put that!*” The therapist reminds Norma that mindfulness exercises can improve our ability to notice internal experiences or “hooks.”

However, Norma continues to discuss how difficult it is to not use cocaine when she feels that her life is stressful. She says that having a baby in the NICU adds even more stress and she is struggling to cope. The therapist listens empathically and uses the ACT process of Acceptance, as well as others, and discusses “dead people goals”, to normalize the idea that stress is a part of all of our lives [ACT: Acceptance, mindfulness] and encourages her to move toward value-directed action [ACT: Committed action] even in the face of stress.

Norma: I’m just, I know what I want, and I know what I need to do.

Therapist: What do you want?

Norma: I want to live that life we’ve talked about but ... stress-free.

Therapist: Oh you want a stress-free life? You want to not have conflict or anger or ever have painful thoughts again? Do you know what that means? That means you have dead people goals. Dead people are the only people who don’t have stress in their lives, and don’t have bad things happen to them [ACT: Acceptance].

Norma: *Laughs to herself*, you are too much.

Therapist: We all have stress, it is a human part of life. We are alive and so we have stress [ACT: Acceptance]. Luckily we have others things that are so important to live for [ACT: Values].

Norma: Yes, my son.

Therapist: Yes, your son. And what does living for him look like? What does your body do when you are focused on your son [ACT: Defusion, self-as-context]? If I was across the room and saw you, how would you be moving your arms and legs when you were focused on your son [ACT: Committed action]?

Norma: I would be holding him, giving him a bath, getting his bottle.

Therapist: That is important stuff [ACT: Values]. Is it important enough for you to do even if you have stress, even when you have the urge and craving to go use cocaine again? Is it important enough to hold him and take care of him and put those thoughts and feelings in your back pocket so they aren't taking a lead [ACT: Acceptance, Values]?

Norma: Yes it is.

The therapist summarizes what was shared during this session, probes for any questions from Norma and assesses her readiness to seek additional substance use treatment and reproductive care. The therapist identifies additional resistance to engage in these behaviors and schedules the third and final intervention session.

Session 3: Awareness, Acceptance, and Engagement

Continued Practice. The session begins with the therapist checking in with Norma to see what has happened in the prior 2 weeks. The therapist asks her if she initiated substance-use treatment or began reproductive care. Norma had not, so the therapist once again leads her through a mindfulness exercise providing another opportunity to practice awareness and turning her attention away from internal thoughts and sensations and onto the present moment.

Short and Long-Term Effectiveness. The therapist helps Norma review and process the material discussed during the prior session. Together they identify and label Norma's experiences over the prior 2 weeks, raising awareness of whether she was engaging in valued-directed as opposed to avoidance-driven behaviors. The therapist again refers to the magic pill metaphor (Stoddard & Afari, 2014) to initiate a discussion on the short-term versus long-term effectiveness of the previously identified avoidant-driven behaviors.

Therapist: Like we said earlier, if I could give you a magic pill that would make all of this [distressing thoughts and emotions] go away, I would, I would take it myself even. But unfortunately, no one has developed one yet, so we are here feeling this stuff [anger, frustration], we have these thoughts, 'I don't want to feel this' so we escape, maybe with cocaine, to try to bring relief. But then they come back, 'I don't want to think this, I don't want to feel this,' this brings us relief and

then it wears off, and we go on and on and get stuck in a loop [ACT: Creative hopelessness, experiential avoidance].

The therapist then asks about the impact of getting stuck in this loop of distress and avoidant-driven behaviors.

Therapist: Let me ask you, when we are stuck over here in a loop, what is happening to the other part of our life, to those things and people we value, what gets left behind? [ACT: Values].

Norma: You're not really paying attention to what is important, and being a good mom, your baby, all of that is on the back burner.

During this portion of the treatment it is difficult for Norma to accept the realization that she has been stuck in avoidant-driven behavior (e.g., cocaine use) to suppress difficult thoughts and feelings about the neglect of her child's welfare; cocaine use then leads to more child neglect, in revolving door fashion. She begins to express self-blame, the therapist uses her own experience in the session to remind her that she is not alone in engaging in this behavior.

Therapist: I have my own list of things that I do when I am avoiding this internal stuff, we all do. And yet, which of these two lives do you really want to live [avoidant-driven behaviors led by escaping from distressing internal processes or valued-directed behaviors led by things that are important]?"

Commitment to Valued-Driven Behavior. Norma states that she would like to live the value-directed life. The therapist uses the "Riding the Wave" metaphor (Stoddard & Afari, 2014) to explain the concept of engaging in committed action even in the face of distressing internal experiences.

Therapist: We kind of get into patterns, I know I do. Like hard stuff happens, really hard stuff, stuff that's beyond our control, including cocaine cravings [ACT: Acceptance, mindfulness]. I can just almost imagine a tsunami, a giant wave of this stuff coming right at us right now. Have you ever seen a picture or a video of someone surfing one of those giant waves? What do you think would happen if the surfer was trying to control the direction of that wave? What's going to happen to that surfer? What's the wave going to do?

Norma: It's going to take him down.

Therapist: Right, it's going to crush him it's going to pull him into the undertow. So trying to control the wave doesn't work and fighting against the wave is probably going to get the same result. And yet I've seen pictures of people surfing those gigantic ocean waves. What did they do, how did they do it?

Norma: *Moves hand in a wave motion.*

Therapist: Right, they found the current of the wave and rode it [ACT: Acceptance]. I am not a surfer but I can imagine that it must be pretty terrifying. Can you imagine? To see a wave and your idea is to get out on your little tiny surfboard and paddle out to it and get on a board and ride it? That is scary right? Why would they do it?

Norma: Because they enjoy it.

Therapist: Yes, I think so too. It is scary, but they love it so much that to them it is worth it. Maybe is it possible for *you* to do that in the waves you experience in your life [ACT: Acceptance, committed action]. When you notice you have drug cravings or thoughts of wanting to use again, that you notice them and then turn your attention to doing something aligned with what's important. Because just like that surfer who is fighting the wave and trying to control the wave and trying to run from the wave...you can't run fast enough, can't fight hard enough, those cravings, emotions and thoughts are going to come [ACT: Acceptance, mindfulness]. But could you ride through them? What would that look like [ACT: Self-as-context]?

Norma: I guess it would look like not using?

Therapist: Right, and a dead person could, "not use!" What would it actually look like? What would you be doing? [ACT: Committed action].

Norma: Yea, I could do that, go on a walk with my kids, or make sure they are ready for school.

Therapist: And just like the surfer, you would do it because...? [ACT: Values].

Norma: Because they are my kids, and they are the most important things in my life. Will I miss the drugs? Of course I will, but my kids mean more to me than the drugs.

Therapist: Your children are so important to you that you're really willing to do a lot of things to make sure that you're a good mom to them [ACT: Values]. And that might mean dealing with thoughts of using, with cravings and urges [ACT: Acceptance]. When it happens, it will be uncomfortable, but whoever said we are supposed to be happy all the time [ACT: Self-as-context]? Earlier you said to me 'I can't be happy right now.' I mean I understand, of course you can't... but you can still hold your baby even if you are not all the way happy.

Norma: He makes me happy, holding him makes me happy.

Therapist: What's a bold move you could take today that would bring you closer to who or what is important to you [ACT: Committed action]?

Norma: I can go visit my baby in the hospital, I can take my children to the park and I can fill out a few more job applications [ACT: Committed action].

Because Norma doesn't mention beginning substance use treatment as a bold move, the therapist asks how seeking treatment might be linked to values and discusses internal barriers: "*What comes up inside and gets in the way when you think about seeking treatment* [ACT: Mindfulness, defusion]?" Norma shares that she has thoughts of "I just don't want to" and that she feels really afraid of what beginning treatment means. The therapist and Norma work together using defusion strategies to identify instances when she got hooked by these distressing internal processes and stuck in avoidant-driven behaviors of the past. Willingness to have these distressing internal processes and to move toward values is again reviewed.

Acceptance vs Fighting Internal Experiences. When Norma again mentions that she wishes she could stop having these stressful thoughts entirely the therapist uses the Purple Unicorn metaphor, highlighting in a different way the futility of trying to control these internal experiences (Stoddard & Afari, 2014).

Therapist: So, what does it look and feel like when you are hooked [ACT: Defusion, self-as-context] by these thoughts and feelings?

Norma: My mind gets racing to, “you don’t have time to go to treatment, you need to do all this other stuff, you need to go to work, you have been off work too long.” My work takes my mind off of stuff, I need to be doing something.

Therapist: And really when we try to control these thoughts or we buy into them what comes up?

Norma: the anxiety, the depression... that’s what comes up.

Therapist: I’m going to give you a million dollars, right now, if you don’t think of a purple unicorn... no matter what don’t think of a purple unicorn [ACT: Acceptance] ... don’t do it, don’t think of it, ready?

Norma: It already popped up because you said it.

Therapist: Could you control your thoughts?

Norma: No.

Therapist: Even if I gave you a million dollars you couldn’t control your thoughts ... those thoughts just come – and a million dollars is a really big incentive, and even with that, you can’t control your thoughts.

Norma: Yeah.

Therapist: So what are some things you can control?

Norma: My actions.

Therapist: Yeah that is something you can control, you can leave here and go take care of your kids, or you can leave here and go use [drugs]. But your thoughts and your feelings, you really can’t do much there, they just come along [ACT: Committed action, values, acceptance].

The session ends with Norma requesting to be scheduled for an intake at our partnering substance use treatment center and an appointment to receive reproductive care. At a follow-up assessment we confirmed that Norma showed large reductions in psychological inflexibility, as measured by the Acceptance and Action Questionnaire II (Bond et al., 2011), from a total score of 24 at baseline to a 7 at the 2-month and a 10 at the 6-month follow-up. Scores on the Acceptance and Action Questionnaire – Substance Use, Values and Defusion Subscales (Luoma et al., 2011) showed a higher commitment to values from baseline (Total score = 47) to follow-up (F2: 63; F6: 60) as well as increased defusion between baseline (Total score = 32) and follow-up visits (F2: 45; F6: 57). Norma also achieved nearly a 50% reduction in overall depressive symptomatology across time-points, as measured by the Center for Epidemiologic Studies Depression Scale (Radloff, 1977). Importantly, after the third session Norma began substance use treatment and met with a health professional for reproductive care, where she received an intrauterine device (IUD: long-acting contraception). While she reported using marijuana and cocaine during her pregnancy she was abstinent via urine drug screen at both follow-up time points.

An exit interview with the participant found her to be highly satisfied with the treatment. Specifically she stated, “... [the therapist] asked me so many questions that I had no choice but to really just look at myself. I don’t really know how to explain it ... but I gradually began changing my mind about what’s best for me and

my children.” When queried about the intervention’s utility in linking her with substance use treatment and reproductive care the participant stated, *“I definitely think it [the therapy] helped me with that. I wouldn’t have done it on my own.”*

Empirical Support

The foundational study of ACT for SUD, conducted by Hayes and colleagues, tested ACT against two conditions: an intensive 12-step facilitation (ITSF) and methadone maintenance only (MMO) (Hayes et al., 2004). The sample of individuals received treatment in a methadone clinic for polysubstance abuse and opioid dependence. Results indicated that participants in the ACT and the time-matched ITSF conditions were more likely to be abstinent from opioids and all other drugs at the end-of-treatment (EOT), compared to the MMO group. By the 6-month follow-up, the ACT and ITSF conditions continued to demonstrate favorable abstinence outcomes relative to MMO. Also, ACT participants were abstinent (from opioids and all other drugs) at double the proportions relative to ITSF participants (e.g., 42% vs 19%, respectively, at 6-month follow-up). Follow-on work by other researchers and with SUD samples and protocols, has predominantly favored ACT over passive control groups (i.e., treatment as usual) (González-Menéndez et al., 2014; Hayes et al., 2004; Luoma et al., 2012; Stotts & Northrup, 2015; Villagrà et al., 2014) with mixed results when comparing ACT over time-matched, active control groups, such as CBT (González-Menéndez et al., 2014; Hayes et al., 2004; Lee et al., 2015; Stotts et al., 2012; Stotts & Northrup, 2015; Villagrà et al., 2014). For example, Stotts et al. (2012) evaluated a 24-week ACT treatment for individuals detoxifying from methadone in an outpatient setting and reported 36.7% abstinence from opioids at the end of treatment, compared to 19.2% for participants in a time-matched drug counseling control condition (Stotts et al., 2012). However, Smout et al. (2010) found no difference between ACT and CBT but experienced significant study attrition (Smout et al., 2010).

Meta-analytic Findings and Reviews of ACT and Other Third Wave Therapies.

ACT was designated as an evidence-based practice in 2011 on the Substance Abuse and Mental Health Administration (SAMHSA), National Registry for Evidence-based Programs and Practices (NREPP) (Hayes, 2011). The NREPP was later terminated by SAMHSA in 2018 due in part to an effort to increase rigor around evidence-based practice designations and other limitations of the registry (Throckmorton, 2018). While ACT is not currently listed on SAMHSA’s Evidence-Based Practice Resource Center (Substance Abuse and Mental Health Services

Administration, 2020), published reviews and meta-analyses highlight potential efficacy of ACT and other mindfulness-based therapies' for treating myriad SUD and other addictive behaviors. More large-scale, rigorous research is needed, however.

From 2010 to 2020, at least a dozen meta-analyses or reviews of acceptance and mindfulness-based approaches have focused exclusively on or included addiction studies as a part of a broader meta-analysis (Bautista et al., 2019; Byrne et al., 2019; Garland & Howard, 2018; Gloster et al., 2020; Goldberg et al., 2018; Grant et al., 2017; Ii et al., 2019; Lee et al., 2015; Öst, 2014; Ruiz, 2012; Sancho et al., 2018; Stotts & Northrup, 2015). A large meta-analysis of 60 ACT studies conducted by Öst in 2014 reported a small effect size across all comparisons (Hedge's g : 0.42), and included five RCTs of ACT for SUDs. Öst concluded that ACT was, "possibly efficacious" for drug abuse (Öst, 2014), which was similar to efficacy determinations reached by SUD-focused and contemporaneous reviews (Lee et al., 2015; Stotts & Northrup, 2015). Lee and colleagues reported small-to-moderate effect sizes ($g = 0.45$, 95% CI = 0.15, 0.74, $z = 2.95$, $p = 0.003$, $k = 5$) favoring ACT over active control conditions (e.g., CBT, drug counseling) at post-treatment for drug-use outcomes (Lee et al., 2015). Also in 2015, A-Tjak and colleagues published a meta-analysis that included 8 SUD studies (503 participants) with results favoring ACT over control conditions that included treatment as usual (TAU), waitlist, and active therapies such as cognitive therapy (Hedges' $g = 0.40$, SE = 0.13, 95% CI: 0.15–0.66, $p = 0.002$) (A-tjak et al., 2015). Recent reviews by Byrne and colleagues included third wave studies addressing alcohol use disorders (AUDs) and indicated promise for ACT and other mindfulness approaches in treating AUD, noting a need for research with first-line comparison conditions, such as cognitive behavioral relapse prevention and contingency management (Byrne et al., 2019). In 2019, Ii and colleagues adopted a mechanism-based approach and broadly analyzed studies of treatments that targeted psychological flexibility. These psychological flexibility-based third wave treatments were associated with almost a 10% increase in substance discontinuation compared to first-line interventions (e.g., brief MI, 12-step groups), i.e., 33.6% vs. 24.8%, respectively (Ii et al., 2019). Reviews of other third wave therapies (e.g., mindfulness-based approaches) also have reported favorable findings for these therapies, (Garland & Howard, 2018; Goldberg et al., 2018; Grant et al., 2017; Sancho et al., 2018) while cautiously noting limitations (e.g., need for longer follow-ups and research with younger, vulnerable populations) (Sancho et al., 2018).

In 2015 we completed a review of evidence for treating SUDs with ACT ($n = 5$ studies) and Dialectical Behavior Therapy ($n = 2$) across a range of populations and substances (Stotts & Northrup, 2015). Specifically, we evaluated efficacy (i.e., the percentage abstinent) at the end-of-treatment (EOT) and during follow-up periods spanning 3–6 months for ACT conditions relative to passive and active control groups. Effect sizes (expressed as relative risk ratios [RR]) were generally largest in RCTs comparing ACT to passive controls and ranged from 1.58 (95% CI: 0.86–2.92); (Hayes et al., 2004) to a high (at EOT) of 3.61 (95% CI: 0.48–27.4) and a high (at follow-up) of 4.17 (1.31–13.26); (González-Menéndez et al., 2014; Villagrà et al.,

2014)). Effect sizes were generally smaller (or favored CBT) when ACT was compared to CBT (RR range: 0.64 [95% CI: 0.34–1.19; (Smout et al., 2010)] to 1.76 [95% CI: 0.49–6.31; (González-Menéndez et al., 2014; Villagrà et al., 2014)] and other active controls (RR range: 1.04 [95% CI: 0.59–1.85; (Hayes et al., 2004)] to 1.91 [95% CI: 0.76–4.77; (Stotts et al., 2012)]).

Additional treatment development studies using ACT for co-occurring psychiatric comorbidities (e.g., PTSD) (Hermann et al., 2016) and related issues (e.g., preventing substance-exposed pregnancies) (Villarreal et al., 2020) are in progress and will result in subsequent randomized controlled trials (RCTs). While few additional RCTs of ACT for SUDs have been published since 2015, ACT and other third wave intervention studies for AUDs (Byrne et al., 2019), smoking cessation (Bricker et al., 2017; Heffner et al., 2020; Lee et al., 2015) and other addictive behaviors (e.g., self-perceived problematic pornography use) (Crosby & Twohig, 2016) have been conducted.

Alcohol Use Disorders

Byrne et al.'s (2019) review of ACT and mindfulness-based interventions for AUDs identified 6 studies testing ACT protocols ($n = 4$ RCTs [$n = 3$ with an active control group]; (Byrne et al., 2019; George & de Guzman, 2015; Petersen & Zettle, 2009; Stappenbeck et al., 2015; Vernig & Orsillo, 2009). RCTs of ACT for AUD were modest in size (N range: 24–78) and were often delivered in a brief format (most often 1–5 sessions). Only 1 RCT (Stappenbeck et al., 2015) reported a reduction in alcohol consumption. Stappenbeck et al. (2015) randomized 78 individuals with comorbid AUD and PTSD to experiential acceptance (EA; $n = 29$), cognitive restructuring (CR; $n = 31$), or an attention-control group ($n = 20$) (Stappenbeck et al., 2015). The study therapist randomized participants so that other study team members remained blinded. Excellent treatment retention (93% of EA group received treatment) and follow-up rates (i.e., $\geq 86\%$ for all 3 conditions) were reported. The CR group had a significant incidence rate ratio (IRR) for predicting daily alcohol consumption across the follow-up period (IRR = 0.59 [95% CI: 0.47–0.73]); the EA condition was associated with lower daily alcohol consumption but was not significant (IRR = 0.83 [95% CI: 0.69–1.00]). The other 3 RCTs of ACT for AUD focused on non-alcohol-related outcomes or did not measure alcohol use (e.g., due to an inpatient recruitment setting (Petersen & Zettle, 2009). Two of these 3 studies reported reductions in primary outcome variables (i.e., depression (Petersen & Zettle, 2009), and stress and emotion regulation outcomes (George & de Guzman, 2015; Vernig & Orsillo, 2009) found no differences on any outcomes. Future research with ACT on AUDs should measure and compare differences on abstinence from alcohol relative to control groups.

Third-wave therapies characterized as mindfulness-based interventions reviewed by Byrne and colleagues ($n = 11$ [$n = 6$ RCTs]) were associated with significant reductions in alcohol use. For example, Kamboj et al. (2017) conducted a study with

68 drinkers at risk for harm from alcohol, who were randomized to 11 minutes of mindfulness instruction (active treatment) versus a matched-relaxation control group (Kamboj et al., 2017). Alcohol cravings declined in both groups but the mindfulness group had a greater reduction in alcohol use over the previous 7 days at follow-up (i.e., $M = -9.31$ units or 74.5 g of alcohol, $d = 0.593$, $p < 0.001$) compared to the relaxation group ($M = -3.00$ units or 24 g of alcohol, $P > .1$, $d = 0.268$). Stasiewicz et al. (2013) randomized 77 alcohol-dependent outpatients (who reported drinking during negative affective states) to either CBT with affect regulation training (ART; active condition) versus CBT and health lifestyle training (HLI; control) (Stasiewicz et al., 2013). The authors retained $\geq 64\%$ of participants at all time points and the CBT+ART reported significantly greater treatment satisfaction than the CBT+HLI. The CBT+ART group had significantly greater reductions in alcohol use. Specifically, CBT+ART participants demonstrated greater days abstinent at EOT compared to CBT+HLI (74% vs 59%), fewer average drinks/day at 3 months (4.6 [$SD = 4.0$] vs 6.2 [7.0] drinks), and fewer heavy drinking days from baseline to EOT (i.e., simple slope; $b = -26.9$, $p < 0.001$, *Cohen d* = 0.89) compared to CBT+HLI.

Byrne et al. (2019) noted promise of third-wave approaches (ACT and mindfulness-based interventions in this review) but called attention to the methodological limitations (e.g., small sample sizes, limited follow-up, lacking first-line treatments [e.g., CBT] for comparisons) that need to be addressed in future work (Byrne et al., 2019). Other mindfulness-based interventions studies with non-randomized designs have also demonstrated reductions in alcohol abstinence (e.g., Zgierska et al., 2008), reduced “binge episodes” (Mermelstein & Garske, 2015) and reduced risk of relapse (e.g., Crescentini et al., 2015).

Smoking Cessation Research

Research targeting smoking cessation with ACT and other third wave therapies (e.g., MBAT) (Vidrine et al., 2016) has an impressive and growing literature, particularly from 2014 and after (Bricker et al., 2014b, 2017; Hooper et al., 2018; Lee et al., 2015; Spears et al., 2017; Vidrine et al., 2016). Gifford and colleagues (Gifford et al., 2004) first demonstrated the promise of ACT (compared to nicotine-replacement therapy [NRT]) in 2004 with a moderate-to-large effect size as determined by expired carbon monoxide (CO) collection at 12-months ($g = 0.61$, 95% CI = 0.11–1.12, 0.71, $z = 2.37$, $p = 0.02$) (Lee et al., 2015). Lee and colleagues (2015) analyzed Gifford’s foundational work, along with 4 other studies examining ACT for smoking cessation (Bricker et al., 2013, 2014a, b; Gifford et al., 2011). When smoking-cessation studies were examined alone, small-to-moderate effect sizes favored ACT over a variety of control conditions (i.e., phone apps, websites, CBT, NRT, and Bupropion; $g = 0.42$, 95% CI = 0.19, 0.64, $z = 3.64$, $p < 0.001$, $k = 5$) (Lee et al., 2015). In 2016, Vidrine and colleagues found no effect of mindfulness-based addiction treatment (MBAT) on overall abstinence but reported large MBAT

effect sizes for recovery from lapses compared to CBT (MBAT vs. CBT: OR = 4.94, 95% CI: 1.47 to 16.59, $p = 0.010$, Effect Size = 0.88) and usual care (UC; MBAT vs. UC: OR = 4.18, 95% CI: 1.04 to 16.75, $p = 0.043$, Effect Size = 0.79) (Vidrine et al., 2016). Bricker and colleagues have continued to develop smartphone technology using ACT-based applications (i.e., SmartQuit 2.0) and report encouraging participant receptivity and usefulness data, along with favorable abstinence data (e.g., 21% 7-day point prevalence; 23%, at a 2-month follow-up time point) (Bricker et al., 2017), comparable to other evidence-based treatments for smoking cessation (e.g., NRT, Varenicline) (Baker et al., 2016).

Other Addictive Behaviors Research

ACT and mindfulness-based interventions have shown promising results for treating other addictive behaviors and disorders (e.g., treating internet (Lee et al., 2019) and sex addictions (Van Gordon et al., 2016)), and we highlight a few recent findings to demonstrate their potential in these additional areas. For example, a mindfulness-based cognitive-behavioral intervention for smartphone addiction found significant reductions in smartphone use among university students, compared to participants randomized to a control group (Lan et al., 2018). Twohig and Crosby first piloted ACT to target problematic internet pornography use in a small sample of six adult males with no control group and reported dramatic reductions of 85% in self-reported time spent viewing pornography (Twohig & Crosby, 2010). Crosby and Twohig (2016) next conducted an RCT with 28 adult males and again reported large reductions in pornography viewing for participants who received 12 sessions of individual ACT compared to participants who were first randomized to a waitlist control and later completed treatment with ACT (93% vs 21%). After all participants had received the ACT treatment, 54% of participants at the end-of-treatment and 35% of participants at a 3-month follow-up assessment self-reported that they had completely stopped viewing Internet pornography using a daily pornography viewing questionnaire reported weekly to therapists (Crosby & Twohig, 2016). Others have also written about the potential benefits of ACT for treating problematic pornography use (Sniewski et al., 2018), particularly in a one-on-one format (Fraumeni-McBride, 2019).

Third Wave and Second-Wave Therapy Comparisons

In the area of addiction, few studies have tested ACT against traditional CBT protocols, with these studies yielding mixed results (González-Menéndez et al., 2014; Smout et al., 2010; Villagrà et al., 2014). For example, at the end-of-treatment ACT compared favorably to CBT (risk ratio: 1.76 [95% CI: 0.49, 6.31] for abstinence, as measured by random urinalyses and self-reported use, in a sample of women who

were incarcerated and had a SUD diagnosis. Furthermore, this effect remained stable across an 18-month follow-up period, but the trial experienced 50% attrition by the final assessment, limiting confidence in group comparisons and outcomes (González-Menéndez et al., 2014; Villagrà et al., 2014). Conversely, work by Smout and colleagues, found that CBT participants were more likely to be abstinent at EOT and follow-up, relative to ACT participants (e.g., 42.9% vs. 33.3% abstinence for methamphetamine at EOT) (Smout et al., 2010), with the exception of ACT demonstrating greater abstinence at a 3-month follow-up assessment (50.0% vs. 36.3%) (Smout et al., 2010). Again, however, attrition was extensive, making conclusions based on the study tenuous. Across three studies, Lee and colleagues compared ACT and traditional CBT on substance abstinence and reported no significant differences between the two at follow-up ($g = 0.34$, 95% CI = $-0.04, 0.71$, $z = 1.75$, $p = 0.08$, $k = 3$) (Lee et al., 2015). This comparison included both SUD studies (described above) (González-Menéndez et al., 2014; Smout et al., 2010; Villagrà et al., 2014) and a small pilot RCT targeting smoking cessation by Bricker et al. (2014a). Noteworthy, Mindfulness-Based Addiction Treatment (MBAT) has been found more effective than traditional CBT for promoting recovery from smoking lapses (Vidrine et al., 2016). More work is needed to test third-wave against second-wave CBT (active) control groups, although this has been questioned as a fruitful endeavor.

Understanding Mechanisms of Action

Mediational analyses to explore mechanisms of behavior change for ACT and other third-wave therapies for treating SUDs is a prominent shortcoming of the literature (Bautista et al., 2019; Byrne et al., 2019; Ii et al., 2019; Lee et al., 2015; Roos & Witkiewitz, 2017; Shonin & Van Gordon, 2016; Stotts & Northrup, 2015). Across disorders, Ruiz and colleagues (2012) indicated that ACT tends to work through its proposed mechanisms, whereas second-wave CBT does not (Ruiz, 2012). Specifically, in a meta-analysis of studies comparing ACT and CBT, ACT demonstrated greater impact ($g = 0.38$) on its putative processes of change (e.g., defusion and experiential avoidance) but CBT showed little to no impact on its proposed processes (e.g., automatic thoughts and dysfunctional attitudes; $g = 0.05$). However, this early work only included studies ($n = 16$) which compared ACT to traditional CBT protocols, spanned diverse areas and populations, and included only a single study on a SUD (i.e., methamphetamine dependence) and one study on smoking cessation (Ruiz, 2012). Partially addressing this critique of the literature, the previously mentioned 2019 review by Ii and colleagues on “psychological flexibility-based” versus first-line psychosocial interventions for SUD was conducted to explore interventions based on theoretical mechanisms vs techniques or strategies only. As noted above, the key finding was that psychologically flexible interventions were more likely to generate better SUD outcomes (e.g., substance discontinuation;

33.6% vs. 24.8%) (Ii et al., 2019). Notably, this meta-analytic review comparing psychologically flexible interventions to first line treatments included several ACT and DBT studies, as well as an ACT study on AUDs, and additional studies with CBT and other third-wave therapies targeting SUDs which were not included in other reviews or meta-analyses.

To date, however, studies attempting to explore ACT-related constructs for reducing addictive behaviors have generally been small-n designs limiting conclusions. For example, a small smoking-cessation 3-arm design found that participants taught defusion techniques smoked less than participants in either a control condition or in an experiential avoidance condition (Hooper et al., 2018). ACT has also been piloted for cannabis dependence with three participants, and significant drops in levels of experiential avoidance and other constructs (e.g., depressive symptoms) were reported but deserves further inquiry with a larger sample (Twhohig et al., 2007). An 8-session ACT protocol developed to treat problematic internet pornography viewing identified large increases in psychological flexibility and small reductions in thought-action fusion and thought control as potential mediators of change (Twhohig & Crosby, 2010). Future ACT SUD research with larger sample sizes is needed in order to conduct credible mediational analyses on behavior change mechanisms.

Conclusions

Support for ACT, mindfulness-based, and other third wave therapies to treat addiction is growing (Bautista et al., 2019; Byrne et al., 2019; Garland & Howard, 2018; Goldberg et al., 2018; Grant et al., 2017; Ii et al., 2019; Lee et al., 2015; Öst, 2014; Ruiz, 2012; Sancho et al., 2018; Stotts & Northrup, 2015), with recent support for treating AUDs (Byrne et al., 2019), and additional data demonstrating efficacy for smoking cessation (Bricker et al., 2010, 2013, 2014b 2017; Heffner et al., 2020; Lee et al., 2015; Vidrine et al., 2016). Several third-wave interventions with AUDs or SUDs have also shown significant promise for treating comorbid psychiatric conditions (e.g., depression)(Petersen & Zettle, 2009), borderline personality disorder (Linehan et al., 1999, 2002), and PTSD (Hermann et al., 2016)). However, more large-scale research with acceptance and mindfulness-based therapies is needed on substance use and relapse prevention outcomes, ideally with limited study attrition and treatment dropout, increased effect sizes, comparisons with first line treatments (including traditional CBT), and rigorous study designs (e.g., double blinded). Additionally, more research is needed on the cultural appropriateness of these therapies with diverse samples from substance use and other addictive behavior populations. The budding interest in and preliminary efficacy for acceptance and mindfulness therapies to treat a host of addictive disorders (e.g., internet and phone addictions) make them highly attractive to therapists, providing broad application and significant potential for improved outcomes.

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Attention Deficit Hyperactivity Disorder: First Wave Case Conceptualization



Michele D. Wallace and Justin Han

Recall that first wave behavior therapy uses the principles of operant and respondent conditioning to address behavioral deficits (e.g., unacquired skills) and behavioral excesses (e.g., challenging behavior). Moreover, it is based on the notion that behavior is subject to the laws of nature and as such, is a result of both a person's ontogeny and phylogeny. When addressing specific challenges (i.e., behaviors missing or displayed from a person diagnosed with a disorder) within this first wave approach, practitioners cannot change the ontogeny or past – phylogeny of the client, but they can and do address current environmental contingencies to change behavior. Clinicians working as behavior analysts or clinical behavior therapists, manipulate environment-behavior relations to change client behaviors.

First Wave Behavior Therapy: An Overview

Historically, a first wave behavior therapy approach was based upon a behavior deficiency model of deviant behavior, and group homes were developed to establish and support the behavioral competencies for both kids and parents in social, academic, and family living skills (Wolf et al., 1976). However, this approach is now more broad and is an evidence-based method of examining and changing what people say and do by altering the environment-behavior relation. It should be pointed out that within this approach, a client's diagnosis does not change the clinical approach taken to create lasting behavior change. Instead, the approach and the procedures based upon this *behavioral model* cross diagnosis categories [e.g.,

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obesity, substance-related and addictive disorders, Autism, Attention Deficit Hyperactivity Disorder (ADHD), to name a few]. Specifically, antecedents and consequences are manipulated to change behavior, both to teach and increase desirable behavior, as well as, to eliminate or decrease undesirable behavior. With that said, this chapter will address first wave behavior therapy approaches to specifically address common behavioral concerns exhibited by individuals with ADHD. More specifically, this chapter will provide a general overview of how to approach behavioral concerns, as well as, a brief summary of current research pertaining to addressing behavioral deficits and behavioral excesses of clients diagnosed with ADHD.

The general assumption in the first wave behavior therapy approach to behavior is that if a behavior is not occurring, it is either a skills deficit or is not being adequately evoked and reinforced. Given this approach, treatment intervention targeting behavioral deficits are two-fold: (a) develop and implement a program to teach the behavior or (b) arrange sufficient antecedents to evoke the behavior and reinforcement to maintain the behavior. Similarly, if a behavior excess is occurring, the assumption is the behavior is being evoked and reinforced. Thus, in order to treat the behavior excess, the reason(s) why the person is engaging in the behavior (the reinforcing function the behavior serves) must first be identified (i.e., conducting a Functional Behavior Assessment) and then used to modify the antecedents and consequences to eliminate the behavior.

Attention Deficit Hyperactivity Disorder: An Overview

Individuals are diagnosed with ADHD based upon a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development (American Psychiatric Association, 2013). Behaviors associated and addressed for inattention generally include: not paying attention to details or making careless mistakes; trouble staying focused on a task, especially non-preferred tasks; non-compliance or lack of follow through on tasks, especially schoolwork or homework; disorganization and difficulty prioritizing tasks; and forgetfulness. Behaviors associated and addressed for hyperactivity-impulsivity generally include: fidgeting, elopement, social skills (e.g., unable to play quietly, talking excessively, waiting their turn, interrupting); and blurting. It is also common for individuals diagnosed with ADHD to engage in comorbid problem behavior (e.g., aggression, disruption, self-injury; Biederman, 2005 and adulthood (Biederman, 2004). In fact, children diagnosed with ADHD are at a higher risk for displaying behavioral difficulties, including defiance, lying, stealing, and fighting (Barkley, 2006). In addition, children diagnosed with ADHD frequently struggle with academics (DuPaul & Stoner, 2003). As these children become teenagers and young adults, they tend to have lower high school grade point averages and enrollment in college degree programs (Barkley et al., 2008). Thus, interventions for individuals with ADHD must not only address the attention, hyperactivity, and behavioral issues, but must address specific academic skills.

Intervention Approach for Behavioral Deficits

When an individual presents with a behavioral deficit, we know that the behavior is either not in the individual's repertoire (e.g., a skill deficit) or is not being triggered and supported by their environment. A number of behavioral procedures can be utilized to teach new behavior or arrange the environment to evoke and support behavior that is not being exhibited by individuals. Behaviorally based interventions have a long documented history of producing socially significant behavior change across a wide range of behaviors, populations, and settings (Mayer et al., 2019). Generally, some combination of the following procedures are utilized when taking a first wave behavior therapeutic approach to achieve change: differential reinforcement, shaping, task analysis and chaining, prompting and transferring of stimulus control, modeling and imitation, discrimination training, contingency contracting, and self-management (Mayer et al., 2019). It should be noted, these first wave behavioral procedures are not tied to diagnosis or age of clients, but are designed and implemented based upon the target behavior in need of change. With that said, with adults as clients the behavior change agent (the person who implements the behavior change program) is the client themselves, while with children clients the behavior change agents are usually caregivers or teachers.

It is beyond the scope of this chapter to provide a detailed description of these above-mentioned behavioral procedures. However, a brief summary of the recent research literature of the use of these procedures with individuals with ADHD for specific behavioral deficits is warranted.

Reinforcer Identification

Regardless if the reason for the behavioral deficit is a skill deficit or unresponsive environment, the first step in addressing challenges faced by individuals with ADHD will be to identify functional reinforcers (i.e., effective reinforcers). If you want behavior to occur, we know, it must result in effective reinforcement. In fact, reinforcement occurs naturally in the course of life and is responsible in most circumstances for what we learn, how we learn, and how long we retain the learning. Thus, it should be no surprise that identifying effective reinforcers is paramount to addressing behavioral deficits in individuals diagnosed with ADHD.

A number of procedures are commonly used to identify effective reinforcers to use in behavior analytic and clinical behavior therapy interventions. These include surveys, preference assessments (e.g., paired stimulus assessments, multiple stimulus assessments, single operant assessments), and reinforcer assessments (Mayer et al., 2019). Research has shown that utilizing these reinforcer identification practices has been successful (Ringdahl et al., 1997).

One interesting phenomenon pertaining to the identification and use of reinforcers with individuals diagnosed with ADHD is that a significant percentage of clients

who receive first wave interventions also conjointly receive pharmacological interventions (Danielson et al., 2018). In practice, it is important to understand the influence of these pharmacological interventions on the identification and use of reinforcers. For example, Northup et al. (1997) demonstrated that Methylphenidate (MPH) can influence the effectiveness of common classroom reinforcers. Specifically, they evaluated the influence of MPH on the number of math problems completed during a reinforcement based intervention. They compared the number of math problems completed when the children were receiving MPH versus a placebo while utilizing a reinforcement based intervention. Results demonstrated that while receiving MPH, preference for food or activities and the number of math problems completed differed than when participants were receiving placebo.

Similarly, Ellsworth (2005) demonstrated that the time since medication administration and when preference and reinforcer assessments were conducted affected the efficacy of reinforcers. Specifically, preference assessments conducted during medication full effect status predicted responding during the reinforcer assessment conducted during both full effect and partial effect status. However, the preference assessment conducted during the partial effect status did not predict responding during either reinforcer assessment status.

Based upon this literature, it would be advised to conduct preference assessments to identify reinforcers under the same medication status one wishes to use those reinforcers. If at the start of intervention, the individual is not taking pharmacological interventions, but at some part starts, it is advisable to re-do reinforcer assessments.

After completing reinforcer assessments, the next step in addressing behavioral deficits is to determine how those reinforcers will be used and what other procedures will be incorporated into a comprehensive treatment plan. Given that reinforcement is the bases of most interventions designed to address behavioral deficits for individuals with ADHD, next we look at specific interventions based upon the type of behavioral deficit most commonly encountered. Specifically, individuals with ADHD commonly exhibit difficulty in maintaining attention as well as not demonstrating self-control (i.e., engaging in impulsive behavior). Likewise, individuals with ADHD tend to need interventions related to academic and social skills. The First Wave of behavior therapy is not focused on ridding clients of their diagnosis. Instead, interventions are developed and implemented to address common behavioral deficits that are impeding the client's functioning.

Self-Control

One behavioral deficit addressed by first wave behavior therapist is teaching individuals with ADHD self-control. Impulsivity, or the behavioral deficit in self-control, is a common behavior pattern displayed by individuals with ADHD (American Psychiatric Association, 2013). Impulsivity is the behavior of choosing (or engaging in behavior that results in) a smaller-immediate-reward as opposed to

the larger-delayed-reward (Ainslie, 1974). The severity of impulsivity can vary between individuals, for some individuals it can look like turning in work late for school or work, while for others it can result in impulsive aggression (Dowson & Blackwell, 2010). The assessment of impulsivity, a vital part of an ADHD diagnosis, is usually conducted by way of verbal narratives, written narrative, questionnaires (American Academy of Pediatrics, 2000). One behavioral approach to assessing impulsivity in individuals with ADHD is to conduct a choice assessment (i.e., examine if an individual chooses a smaller immediate reinforcer over a larger delayed reinforcer; Neef et al., 2001).

Subsequent to the assessment of self-control/impulsivity, behavioral procedures are then utilized to switch an individual's propensity of engaging in an impulsive response (engaging in the behavior that results in the smaller immediate reinforcer) to a self-controlled response (engaging in the behavior that results in the larger delayed reinforcer). This has been accomplished by analyzing and understanding the influence of the dimensions of reinforcement that affect behavior (e.g., rate, timing, quality, quantity, etc.; see Mayer et al., 2019 for detailed analysis of the effects of reinforcer dimensions). Neef and colleagues (2001, 2005) demonstrated that the self-control behavior of individuals with ADHD can be malleable, but that immediacy of reinforcer delivery tended to override the effects of rate, response effort, and quality of the reinforcer. Thus, it is important to bridge the gap or teach delay to gratification. Binder et al. (2000) taught children with ADHD self-control by gradually manipulating the delay to reinforcement for the larger delayed reinforcer. Initially, both the smaller and larger reinforcer were made immediately available. Then, delays were progressively increased for the larger reinforcer, until the participants selected the larger, delayed reinforcers. Recent research has extended this approach to task completion (Gadaire et al., 2014), developing a computerized assessment (Hoerger & Mace, 2006) as well as a brief format within an outpatient clinic (Falcomata et al., 2010).

In summary, the combination of identifying a high-quality reinforcer along with the systematic introduction of a delay to that reinforcer has been very effective in shifting impulsive behavior to self-control. Initially, the goal is to teach clients these skills in contrived situations in hopes that they will engage in self-control when it matters. These techniques can also be adapted outside of contrived situations by first identifying a highly preferred reward then slowly increasing the wait time to obtain that reward. It is important to note that reinforcement is not a singular thing or concept, and the way one presents a specific reinforcement will change the value of the reinforcer. However, with that said, future research is needed to programming for generalization rather than just hoping for its occurrence with respect to self-control and impulsivity.

Academic Performance

Common behaviors displayed by those diagnosed with ADHD (e.g., inattention, hyperactivity) comorbidly affect their academic performance. For example, an individual with ADHD might have a more difficult time attending to teachers in the classroom when the teacher is presenting a new topic or providing instructions for homework, thus resulting in that individual not performing well on that assignment or concept. For an individual who struggles with maintaining focus during prolonged instructions, missing a key component of an assignment or a question on an exam can adversely impact their academic performance. First wave behavior therapists have looked into different training methods to increase both level of responding and maintenance of correct responding to address academic problems in individuals with ADHD.

Early research within the field of behavior therapy focused on fluency training. Fluency-based training are training protocols that are designed to increase rate of correct responding in a short amount of time. These trainings result in faster, and more accurate responses to instructions. Researchers found that if a learner attained fluency on a topic, they performed better academically when faced with distractions (Binder 1996). Fluency training can be done through different methodologies. One popular method to develop academic fluency is precision teaching (PT). PT is an individualized teaching method used to build and support lasting response fluency and generally involves repeated practice, error-correction, timed drills, and analysis of data through the usage of a specialized tool for fluency data collection called standard celeration chart (Lindsley, 1991; Potts et al., 1993). PT or generative instruction has received much popularity in the recent decade, for a detailed description please see Johnson et al., 2021.

In a recent example, McDowell and Keenan (2001) successfully used PT to increase both on-task behavior as well as increased phonological awareness (i.e., letter sounds) in a 9-year-old boy diagnosed with ADHD. Prior to PT, the participant was only on-task half of the time and could not correctly state the sound of letters. The intervention resulted in an immediate increase in correct responses, decreases in incorrect responses, and on-task behavior for the entire learning session. After achieving fluency, these improvements were maintained even when the intervention was removed.

Besides using PT to teach academics skills, one recommendation has been to reinforce academic performance itself, as well as, on-task behavior. However, sometimes the delivery of reinforcement can in and of itself prove to be a distraction, as it takes time out of a person's routine to deliver a reinforcer to an individual (Robinson & St. Peter, 2019). For example, if a teacher needs to reinforcer a student's on-task behavior or correct performance in the middle of teaching or if a student stops working to consume their earned reinforcer. To combat such an issue, Robinson and St. Peter (2019) demonstrated increases in academic engagement (on-task behavior) and reduction in problem behavior for 3 students with ADHD when the students were allowed to accumulate reinforcement (i.e., save 15 seconds

of play for each correct answer) over the course of the session and play at the end of the session. This study demonstrates that the utilization of reinforcement for academic performance or engagement does not have to be disruptive to the flow of the learning environment.

Inattention or disruption in academic engagement can be a common concern with students with ADHD. Besides reinforcing active academic engagement, others have tried to provide white noise (continuous sound from 20 to 20,000 Hz) during academic work. In a recent study, Cook et al. (2014) allowed three students with ADHD to wear headphones that played white noise during academics. They compared the effects of headphones that played white noise, with headphones alone, and no headphones. For all three participants, headphones with white noise were associated with increases in on-task behavior.

Academic deficits can be effectively targeted with behavioral interventions not only to improve a specific academic performance, but to increase academic engagement. Future research needs to focus on the broader application, as well as, generalization of these behavioral interventions targeting academic performance and engagement.

Social Skills

Although deficits in social skills are not part of the criteria, per say, for obtaining a diagnosis of ADHD. Individuals diagnosed with ADHD tend to have difficulty in this area. One approach that has been useful to teach a number of adaptive skills is behavioral skills training (BST; Mayer et al., 2019). BST includes instructions, modeling, rehearsal, and feedback (Miltenberger, 2019). Generally, the instruction component describes the response criteria as well as the conditions under which the behavior should occur; modeling, involves a demonstration of the correct response; rehearsal, requires the learner to engage in the behavior; and feedback is provided contingent on the rehearsal (e.g., specific praise for correct response or error-correction for the inaccurate responses). The process is repeated until a mastery criterion is achieved. Peters and Thompson (2015) utilized BST to teach conversational skills. Two of the 10 participants were diagnosed with ADHD along with Autism. Specially the researchers trained students to identify if a listener was interested or uninterested, ask a question, or change the topic if the listener was uninterested.

When addressing social skills deficits, a powerful tool in any therapist bag would be to develop a specific social skill program by first operationally defining the target social skill and then utilizing BST to teach it. Future research should look at both generalization from the training situation to the natural environment and generalization across social skills (i.e., does teaching one skill using BST influence use of other skills).

Take Home Points

First wave behavior therapy is a direct derivative from a behavior analytic approach to behavior change. As such, treatment focuses on environmental manipulations to overcome behavioral deficits experienced by someone regardless of diagnosis. There is rich history of the application of behavioral interventions to address behavioral deficits among a wide variety of clients in a number of settings. In particular, first wave behavior therapy approaches have been utilized to address behavioral deficits that are caused by both skill deficits, as well as, unsupportive environments. In particular, the use of reinforcer assessments and reinforcement based interventions are important tools for helping those with ADHD overcome their behavioral deficits. It is important to remember that other interventions, namely, pharmacological, can alter the efficacy of reinforcement based interventions. Given that impulsivity is one of the diagnostic criteria used to evaluate an individual to determine if they have ADHD, it is important to understand how self-control can be evaluated and targeted. Teaching individuals with ADHD how to engage in self-control is paramount to their functioning and should be explicitly targeted during intervention.

Although behavioral interventions have a long history of being utilized to teach and address both academic and social skills, with respect to their application with individuals with ADHD more research is needed. More importantly, the generalization of effects must be addressed to determine their global effects. It should be noted that these interventions, which are based upon the principles of behavior analysis (e.g., differential reinforcement, shaping, task analysis and chaining, prompting and transfer of stimulus control, modeling and imitation, discrimination training, contingency contracting and self-management), produce gradual rather than immediate changes in behavior. In fact, there are no quick fixes with respect to the use of first wave behavior therapy approached to behavioral deficits and these interventions require extended implementation.

The goal for the use of first wave of behavior therapy in the treatment of clients with ADHD is to grant our clients autonomy and provide them the opportunity to live their lives to their full potential. The literature is full of examples of how to do so when targeting behavioral deficits, now let's turn to interventions designed to reduce or eliminate behavioral excesses.

Intervention Approach for Behavioral Excesses

Similar to when an individual presents with a behavioral deficit, when they present with a behavioral excess (e.g., problem behavior), we know something. We know that if a behavior is occurring it is being reinforced. Thus, the first step to treating a behavioral excess from a first wave behavior therapy approach is to conduct a functional behavior assessment (FBA) to determine what is reinforcing the behavior (Mayer et al., 2019). The FBA methodology has been shown to be an effective tool

in assessing problem behaviors for not only individuals with ADHD, but also other diagnoses and age groups (Beavers et al., 2013). This is true when working with an individual with ADHD, just as much as when working with individuals with _____ (insert any diagnosis). Engaging in comorbid problem behavior (e.g., aggression, disruption, self-injury) is often associated with the diagnosis of ADHD (Barkley, 2003). Although diagnosis of ADHD and displaying problem behavior can co-occur in an individual, it is important to understand that diagnosis of ADHD is not the cause of the problem behavior. In fact, all too often therapist erroneously rely on faulty explanations for problem behavior (i.e., problem behavior is a function of a diagnosis). Besides being faulty, arguably it does not lead to effective interventions (e.g., one cannot remove the ADHD) and is not a helpful approach. Utilizing a FBA and intervention approach to identify and manipulate the environmental determinants of problem behavior with individuals with ADHD has been an effective approach taken by first wave behavior therapists (e.g., Miller & Lee, 2013).

FBA's consist of interviews and record reviews (indirect assessment), observations (descriptive assessment), and most importantly, a functional analysis (Iwata et al., 1994a) to identify why an individual is engaging in problem behavior (see Mayer et al., 2019 for a detailed description of FBA procedures). The creation of functional analysis methodology has allowed behavior therapist to develop more effective interventions for problem behavior while minimizing the usage of punishment-based procedures (Pelios et al., 1999). Both the effectiveness, as well as the importance, of an FBA approach can be recognized through its adaptation into the Individuals with Disabilities Act (IDEA) in 1990 and reauthorized within Individuals with Disabilities Education Improvement Act (IDEIA) in 2004. Within the two laws, schools are recommended to conduct an FBA of problem behaviors for individuals with a disability or in the case of students with ADHD through Section 504 of the Rehabilitation Act of 1973 (U.S. Department of Education, 2020).

Effective interventions aimed at reducing problem behavior exhibited by individuals with ADHD will necessitate an FBA to identify the “why” behind the behavior. Is the person engaging in the problem behavior to get something or get out of something? Is the behavior a byproduct of the behavior itself, or does someone actually reinforce the behavior (be it accidentally)? Research has shown that the identification of the specific function is crucial to effective interventions. Specifically, it has been demonstrated that a nonfunctional intervention, can result in further harm to the individual or others (Iwata et al., 1994b).

Once behavioral function has been identified via an FBA, behavior therapists can use that information to develop behavior interventions to reduce problem behavior and increase replacement behavior by including antecedent manipulations, extinction, and differential reinforcement (Mayer et al., 2019). Antecedent manipulations include the removal of discriminative stimuli for the problem behavior, presentation and development of effective discriminative stimuli for the replacement behavior, abolishment of motivating operations for the problem behavior, establishing motivating operations for the replacement behavior, and manipulation of the response effort for both the problem and replacement behavior. The extinction component of the intervention eliminates the reinforcer contingency by ensuring the problem

behavior is not reinforced (e.g., attention is not provided, delay to work completion doesn't occur, attenuation of stimulation produced by the response itself). Generally, differential reinforcement is utilized to increase replacement behavior (e.g., a communication response or some other adaptive behavior), as well as, to reinforce the absence of the problem behavior.

Given that the function of the problem behavior dictates how these interventions are procedurally executed, the following discussion will be based on the functions of behavior (social-positive, social-negative, and automatic). Again a detailed description of all the possible behavioral interventions based upon the function of the problem behavior is beyond the scope of this chapter.

Behavioral Excesses Maintained by Social Positive Reinforcement

The two most common social positive reinforcers maintaining problem behavior are attention (e.g., comments of concern, reprimands, etc.) and tangibles (e.g., access to computers, iPads, iPhones, etc.). With respect to individuals with ADHD, a common social positive reinforcer maintaining problem behavior is access to peer attention. Jones et al. (2000) demonstrated that an 8-year-old boy diagnosed with ADHD engaged in disruptive behavior maintained by peer attention. To address this problem, researchers implemented noncontingent reinforcement (NCR) to abolish the motivating operation. Specially, peers were instructed to interact with Sam every 90-s for 30 s. Substantial decreases in Sam's disruptive behavior were observed during this intervention.

Grauvoguel-MacAleese and Wallace (2010) also identified peer attention as the functional reinforcer maintaining three children, diagnosed with ADHD, problem behavior. During treatment, the researchers implemented a differential reinforcement program in conjunction with extinction. Specifically, peers provided attention and praise if the participants engaged in appropriate replacement behavior (on-task) during homework time in an after school program. Moreover, the peers were trained to discontinue attention contingent on the problem behavior until the participant regained focus on the task. Similar results were achieved in a classroom when Flood et al. (2002) used peer-mediated reinforcement plus prompting to decrease off-task behavior of 3 students diagnosed with ADHD. Interestingly, these two studies demonstrate the need for functional analysis rather than developing a treatment based upon the activity in which problem behavior occurs. Although in both these studies the participants engaged in problem behavior during work (e.g., homework or class-work), all of them engaged in problem behavior to gain peer attention rather than escape or avoid their work.

In a more straight-forward demonstration of the use of interventions aimed at reducing social positive reinforced problem behavior, Kodak et al. (2004) successfully treated elopement displayed by a 5-year old girl diagnosed with ADHD during

a summer program. A functional analysis determined that the child engaged in elopement during program games (e.g., kickball) to gain attention from the staff. Subsequently, NCR and time-out were utilized during the intervention. Specifically, staff provided attention to the girl on a time based schedule and contingent on elopement time-out consisted of the girl spending 30 s in a penalty box.

Despite whose attention or what item or activity is determined to maintain someone's problem behavior, developing an intervention that manipulates the discriminative stimuli that set the occasion to respond and the motivating operations; removing the contingency between the response and the reinforcer; and providing the functional reinforcer for adaptive responding is essential in eliminating the behavioral excess and establishing a functional replacement behavior. Again, although the behavioral literature has many examples of the utilization of this approach to treat behavioral excess maintained by social positive reinforcement, there is a great need for more research with respect to generalization across populations and settings, specifically, with clients diagnosed with ADHD.

Behavioral Excesses Maintained by Social Negative Reinforcement

The functional reinforcer for behavior maintained by social negative reinforcement tends to be escape or avoidance of task demands (Hanley et al., 2003). It is not to say that all problem behavior maintained by social negative reinforcement falls into this category, there are situations like escape or avoidance from loud noises or social situations; however, arguably the aversive properties of task demands will result in escape maintained behavior if reinforced and/or the person does not have a more adaptive way of getting a break. The treatment approach to behavior maintained by social negative reinforcement is similar to how we treat other functions categorically, although the actual implementation of the procedures are different. The best interventions will again tackle the antecedents (i.e., discriminative stimuli, motivating operations, and effort), the reinforcer contingency (e.g., extinction), and differential reinforcement.

Although most research on escape maintained behavior requires some sort of extinction (e.g., follow through with the task demand), Wilder et al. (2019) demonstrated a unique intervention in which they not only addressed the functional reinforcer (social negative reinforcement), but added nonfunctional reinforcer (social positive reinforcer) without the use of extinction to treat problem behavior. Specifically, they utilized a combined treatment in which the participant could earn a break and access to an iPad contingent on compliance, all while still providing escape from the demand contingent on aggression. Not only was the intervention successful in eliminating the 4-year-old boy's aggression, but compliance was maxed out at 100%. This study highlights the notion that other forms of reinforcement can be combined with a function based intervention.

Behavioral Excesses Maintained by Automatic Reinforcements

Generally, a determination that a problem behavior serves an automatic reinforcement function is determined by default, in that the behavior is not maintained by social reinforcers (Vaughan & Michael, 1982). However, another perspective states that automatic reinforcement is assumed when a person continues to engage in a behavior in the absence of any known reinforcer (Hagopian et al., 2015). Regardless of which perspective one takes when approaching developing treatment for behavioral excesses maintained by automatic reinforcement the approach is the same: include antecedent manipulations, extinction (if possible), and differential reinforcement.

In 1998, Rapp, Miltenberger, and Long developed an automated device called awareness enhancement device (AED) to treat hand-to-head habit behaviors like thumb sucking. The AED produces a tone every time an individual raises their hand to their head, and signals to the wearer that they are engaging in the behavior. As a continuation, Sticker et al. (2001) utilized the device to treat automatically maintained thumb-sucking for two participants diagnosed with ADHD. As a result of the treatment, both participants' thumb sucking behavior reduced to zero level when the device was active, extending and validating the effectiveness of the device. There are two differing hypotheses argued for the mechanisms responsible for the devices effectiveness: (1) the tone produced by AED increases the wearer's awareness of their behavior and (2) the onset of the tone acts as an aversive stimulus for the thumb-sucking and the termination of the tone acted as negative reinforcement for moving the hand away from the mouth.

Chronic tic disorders (CTDs) are considered childhood-onset neurobehavior disorders that can potentially cause substantial functional impairment and distress (Conelea et al., 2011). Woods and Himiele (2004) utilized verbal instruction enhanced differential reinforcement of other behavior (DRO) to reduce tic behavior of 4 children with Tourette's syndrome (2 of which were also diagnosed with ADHD). Capriotti et al. (2017) were able to achieve the same results for the 2 participants who also had a diagnosis of ADHD in their demonstration of utilizing a DRO for the treatment of CTDs.

The combination of these two approaches (awareness training and differential reinforcement), known as habit reversal training (HRT), has become a go to approach for first wave behavior therapist in the treatment of behavioral excesses maintained by automatic reinforcement. In a recent study, Wiskow and Klatt (2013) demonstrated the effects of awareness training alone in the treatment of tics in a 9-year old boy who was diagnosed with Asperger syndrome, Tourette syndrome and ADHD. Results demonstrated that the awareness training was sufficient to eliminate the boy's tics.

Take Home Point

The conceptualization of FBA has made significance contribution to the first wave of behavior therapy with respect to treating problem behavior. The behavior excesses exhibited by individuals with ADHD are not a symptom of their diagnosis, but a byproduct of the environmental contingencies. Therefore, identifying the function of the behavior is paramount in effectively treating said behavior.

Another important point to be made is that the diagnoses of behavioral disorders like ADHD are partly based upon behavioral indicators. And diagnostic tools typically include stakeholder reports of observable behaviors. For example, descriptions like “forgetful” and “having trouble focusing” are examples of inattention. And descriptions of “have trouble staying in the seat during class-time” are used to qualify diagnostic criteria of hyperactivity (Arnett et al., 2013). In 1997, DuPaul and colleagues concluded within their discussion that “one size does not fit all” when developing interventions for individuals diagnosed with ADHD, suggesting that although there are topographical similarities between descriptions of behavior deficits and behavior excess, it is more important to know that these behaviors addressed from individuals with ADHD must be treated functionally.

Case Application: A Case of Mark

Overview

Mark, a 10-year-old boy, who lives with his mother (Tymerie, 45-year old) and sister (Karen, 13-year-old) has been referred for home behavior therapy due to his aggression and impulse control issues. Mark’s mother and father (Jack, 46-year old) got divorced when Mark was 2. Jack moved out of state when Mark was 5. Mark only spends 4 weeks in the summer and 1 week over winter break with his father. Mark was diagnosed with ADHD at the age of 8. Although his pediatrician has suggested multiple times to have Mark placed on ADHD medication, both his mother and father do not want to put him on medicine at this time. The family has gone to family counseling and Mark has received school counseling off and on in the past. Tymerie says that Mark has been aggressive since he was 5, but he is now getting bigger and she does not know how to handle him. She says Mark will go off for no reason and that her and Mark argue and yell a lot. One of the issues is that Tymerie has a really hard time getting Mark to do his homework or help around the house. She also says that if things don’t go smoothly, Mark will get frustrated and then things spin out of control. Tymerie says she has tried taking things away and grounding, but nothing works. Tymerie says that all Mark wants to do is sit in his room and play video games. Karen says that her home sounds like a war zone and that her mom is always fighting with Mark and then Mark hits their mom.

Step 1: Assessments

Mark has a number of behavioral deficits (he lacks self-control and social skills) as well as a behavioral excess (aggression). The behavior therapists (BT) has identified a number of behaviors to work on: (1) self-control, (2) appropriate frustration tolerance (Social Skills), (3) compliance with homework and household chores, and (4) aggression. The first thing that must be done is to conduct a preference assessment to identify reinforcers that can be used to support the appropriate behaviors targeted. Similarly, an FBA on the aggression must be completed. The BT recommends biweekly sessions to work with both Mark and Tymerie, each consisting of 2 h in duration.

During the first session, the BT met with Tymerie and Mark and discussed the scope of the services she would provide and built rapport with both Tymerie and Mark. Then the BT met individually with Tymerie and asked her to describe the issues she has been having with Mark and conducted an indirect assessment (step 1 of an FBA), where she asked Tymerie a set of questions regarding the possible reasons why Mark engages in aggression. Then the BT met individually with Mark and asked him to describe how he views things working or not working at home. In addition, the BT also conducted an indirect assessment on Mark's aggression with Mark. The BT also asked Mark what kinds of things he likes to do. The BT then met with Karen and conducted another indirect assessment regarding Mark's aggression. Afterwards, the BT set up a time when she could observe how things typically work in the home. Results from these initial assessments indicated that Mark engages in aggression to avoid or escape having to do homework, to get out of doing any chores, and because all he wants to do is play video games. In addition, Mark says he likes video games, sour candy, jumping in the trampoline, playing board games, and building legos.

During the next session, the behavior therapists does a descriptive assessment on Mark's aggression, while doing naturalistic observations of how the family interacts with each other after school until dinner time. The results suggest that Mark's aggression usually results in getting out of doing his homework or chores and being able to continue to play video games. It was observed when Mark went to ride his bike that when his chain popped off, he threw his bike down, kicked it, and walked away. Another example of not dealing with frustration well came when Tymerie finally got Mark to take out the trash and the trash bag broke. Mark started yelling at Tymerie and saying that he hated his life. Tymerie said he could not play video games for the remainder of the night and Mark just ignored her and went back to playing video games while Tymerie and Karen picked up the trash and Karen took it outside. The BT scheduled a time to come back and conduct a Trial – Based FA.

During the next session, the BT brought a bug-in-the-ear device and had mom conduct a trial-based FA on Mark's aggression. It was very clear that Mark engaged in aggression to get out of doing his homework and chores, and to get to continue to play video games. After the FA, the BT conducted a multiple-stimulus preference assessment to identify possible reinforcers to use during the Behavior Intervention

Plan. Marks reinforcers were: access to video games (1st), sour candy (2nd), access to legos (3rd), jumping on the trampoline (4th), and chips (5th). Based upon the results of these assessments the BT developed a BIP to address the self-control, frustration tolerance, compliance and aggression.

Step 2: Development of Behavior Intervention Plan and Parent Training

The BT compiled the information from the assessments and informed Tymerie of the results. Basically, the assessments indicated that Mark engages in aggression to avoid or escape situations he finds aversive and to gain access to playing video games (i.e., social-negative and social-positive reinforcement). Moreover, he lacks the skills to deal with frustrating situations in an appropriate manner and needs to develop some self-control. The BT summarized the assessment results and provided an overview of the proposed behavior intervention plan. She also reminded Tymerie that if her and Mark's dad decided to put Mark on medication she would need to inform her right away because it could change the assessment results and the efficacy of the intervention. Namely, the behavior intervention plan consists of running some self-control sessions (these will be conducted during therapy sessions); using some visuals and BST to teach Mark how to respond to frustrating situations (the BT will do this during therapy session); and setting up a homework/chore and video game schedule and contingency plan (this will be implemented by mom every day). In the homework/chore and video schedule, Mark earned minutes to play video games for every minute he engaged in homework/chores without engaging in problem behavior. For example, if Tymerie asked Mark to do his math homework and Mark did his homework without engaging in problem behavior, Tymerie started the timer and recorded how long he engaged in his homework. The same procedure occurred for asking him to do chores. Mark could then use his earned time to play video games. After he depleted his earned video game time, Mark had to engage in other activities (e.g., going on a bike ride, playing basketball outside, etc). Mark also earned minutes to play video games by doing these other activities on a 1-to-1 ratio. If at any time, Mark engaged in aggression (verbal or physical), he lost 1 min of video game play. Tymerie was instructed to just deduct the time and not say anything to Mark in the moment. The BT presented the plan to the family and utilized BST to train everyone on the plan. In addition, the BT met with the family together and individually to check on what was working and what was not working every other week. After 3 months, everyone in the family stated that things were much better and the yelling and aggression had stopped. Moreover, Karen and Mark stated that they started riding bikes to the park together. Mark is still working with the BT on learning how to engage in self-control and they are trying to generalize the skill to when he is faced with these type of choices (e.g., when his friends want to ride their bikes to go get an icy, but he has a project due in school the next day for which

his mom already told him she would give him v-bucks if he got a good grade on it). Mark and the BT are still role-playing frustrating situations and how to handle them. Tymerie gave an example of how the other day when Mark lost a skin in the video game that he had bought and there was no way to retrieve it, he cried and was upset, but that they talked and she gave him a hug and he took a break from the video game. All in all, things are going well.

Summary & Conclusions

An overview of first wave of behavior therapy approach to the treatment of individuals with a diagnosis of ADHD draws focus towards the importance of environmental contingencies of an individual. With antecedent and consequence manipulations, behavior therapists can address multitude of behavior deficits and excesses for individuals with ADHD. Behavioral interventions are conceptualized based on the functionality of the behavior to be changed instead of the diagnosis of the individual. The generality of first wave of behavioral therapy approach to the treatment of behavior deficit and excess allows for effective behavior change regardless of diagnosis.

Behavior deficits can be addressed by either teaching a new behavior or re-arranging unsupportive environments. With that said, prior to developing an intervention, it is important to ensure the reinforcer one uses is a reinforcer. Thus, it is paramount for the success of first wave behavior therapy to conduct preference assessments prior to treatment development and implementation. Given the number of individuals who receive pharmacological interventions along-side of behavioral interventions, understanding the mediating effects of these drugs is important. First wave behavioral interventions have demonstrated to be effective in the treatment of a number of behavioral deficit concerns including self-control, academic performance, and social skills. It would be amiss to overlook the need for extending this approach to other behavioral deficits faced by individuals diagnosed with ADHD, as well as, evaluate the generalization and maintenances of these effects.

Similarly, behavioral excesses exhibited by individuals with ADHD can be eliminated by tackling the antecedents and consequences relevant to the problem behavior. Like behavioral deficits, it is necessary to first conduct an assessment to determine what variables are responsible for maintaining the problem behavior. Thus, prior to developing and implementing a first wave behavioral intervention, one must first conduct an FBA. More specifically, it is important to determine the functional relationship between the behavior and its controlling variables (e.g., FA). After conducting an FA, it is possible to manipulate the discriminative stimuli and motivating operations, the maintaining reinforcer contingency (i.e., extinction), and utilize differential reinforcement to reinforcer either alternative behavior or the absences of the problem behavior. Again, developing and implementing interventions to eliminate problem behavior for individuals diagnosed with ADHD does not, in and of itself, pose differences in how one approaches treatment. In fact, there are

a number of examples in the literature demonstrating the use of first wave behavioral interventions to treat problem behavior exhibited by individuals with ADHD. There is a calling, however, to extend this research both in the amount of research conducted, as well as, with respect to generalization and maintenance.

According to a parent survey conducted in 2016, while 77% of the respondents said their child under the age of 18 was receiving treatment for the diagnosis of ADHD, 15% received only behavioral treatments, and 32% received both behavioral and medication treatment (Danielson et al., 2018). These data suggest that there is more to be done to assist individuals with ADHD through increasing awareness to behavioral therapy and multidisciplinary research to increase treatment efficacy of behavioral therapy in conjunction with medications. The current guideline for treatment of ADHD recommends that the first line of treatment for children 4–6 years old should include behavioral therapy and parent training in behavior management, while medications like methylphenidate should be considered if behavioral intervention is ineffective alone (Wolraich et al., 2019). Future research should include further examination of the interactions between medications and behavioral variables like reinforcer preference, sensitivity to consequence procedures, and response criteria for target behaviors. For example, individual consuming medications that alters their appetite can potentially shift preference to edible reinforcers after taking the medication.

One area of dissemination of first wave behavior therapy for individuals diagnosed with ADHD more globally, compared to idiosyncratic applications, is in parent education. Parent training or educational approaches have started to teach parents how to effectively manage contingencies to address specific concerns (e.g., sleep issues, homework issues). Parent training, per say, is a more global way to addresses behavioral concerns for children diagnosed with ADHD. Lequian et al. (2013) were able to utilize a BST approach to teach parents how to “handle” homework time. Results indicated that parent training on how to manage contingencies resulted in reductions in challenging behavior exhibited by their child during homework. Similarly, Hiscock et al. (2019) was able to train parents by way of their pediatrician or psychologists to implement behavioral interventions to reduce sleep problems.

First wave behavior therapeutic approaches for treating behavioral deficits and excesses has had tremendous efficacy; however, the question remains as to why this approach has not received more attention or been employed more globally. Interestingly, within the last decade there has been an explosion of utilization of this approach to treat individuals diagnosed with Autism, in fact, there are practice guidelines on Applied Behavior Analysis (ABA) treatment of Autism Spectrum Disorder (CASP, 2014, 2020). Moreover, due to insurance mandates, clients with a diagnosis of Autism are entitled to ABA services via their healthcare insurance. Although this adoption of first wave behavior therapies to individuals diagnosed with Autism is phenomenal and timely given the increase in occurrence; this same type of movement and widespread adoption of first wave behavior therapy needs to occur for individuals diagnosed with ADHD.

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Attention Deficit Hyperactivity Disorder: Second Wave Conceptualization and Intervention



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Attention-deficit/hyperactivity disorder (ADHD) emerges in childhood or early adolescence, with extensive review of worldwide epidemiological studies suggesting a prevalence of approximately 5.9–7.1% in this population. While there are substantially fewer studies tapping the presence of ADHD in adults, this more limited knowledge base suggests a prevalence of around 5% in adults (Willcutt, 2012). ADHD manifests primary traits such as impulsivity, disorganization, and inattention (American Psychiatric Association, APA, 2013), and emotion dysregulation vies to be a central symptom of the disorder as well (see review in Shaw et al., 2014). As with many other psychological disorders, patients with ADHD often present clinically with comorbidities; this disorder is associated with increased risk for disruptive behavior, learning, mood, anxiety, and substance use disorders (Anastopoulos et al., 2018; Kessler et al., 2006; Pliszka, 2000). Given these features, it is unsurprising to note that impairment related to ADHD extends across a wide range of life domains, including but not limited to academic outcomes (e.g., Martin, 2014; McConaughy et al., 2011); social, romantic, and family relationships (e.g., Ben-Naim et al., 2017; Canu et al., 2014; Hoza et al., 2005; Young & Gudjonsson, 2006); work (e.g., Barkley et al., 2006; Kuriyan et al., 2013); and risky behavior and physical health (Rooney et al., 2015; Swensen et al., 2004).

The history of ADHD as a condition of medical and/or adaptive concern is long, and etiological conceptualizations have varied substantially (see reviews by Barkley, 2015a; Lange et al., 2010). Early theories ranged from poor child rearing (e.g., Weikard, 1775) to defects in moral control (e.g., Still, 1902) to post-encephalitic sequelae (e.g., Bender, 1942). The latter drew the field nearer to the modern conceptualization of ADHD being a neurodevelopmental disorder with biological

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underpinnings, but reflected the tendency in that era to label children with ADHD traits with “minimal brain damage” or “minimal brain dysfunction” (Eisenberg, 2007). It was in the second edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM; APA, 1968) that the ADHD syndrome was first formally recognized, in the form of “hyperkinetic reaction of childhood,” which was a reflection of a shift toward a definition of the disorder more based on specific behavioral observations rather than what, at the time, was a rather speculative etiological assumption of generic brain abnormalities (Lange et al., 2010).

Even at that early stage, however, the fundamentals for a cognitive-behavioral conceptualization of this disorder were there, and prominent current-day ADHD researchers have built upon that foundation. One of the most prominent, cognitive etiological frameworks regarding ADHD has to do with executive functioning (EF). EF encompasses a broad range of metacognitive abilities that enable goal-directed behavior and self-control (Geurts et al., 2004), such as working memory, self-monitoring, cognitive flexibility, inhibitory control, set-shifting, organization, planning, and attention to tasks (Castellanos et al., 2006; Corbett et al., 2009; Stuss & Alexander, 2000). Review and meta-analytic papers examining the relatively deep pool of existent research of EF in both children and adults with ADHD have consistently indicated deficits in these populations that are medium-to-large in effect size, as compared to non-diagnosed peers (e.g., Huang-Pollock et al., 2012; Sonuga-Barke et al., 2008; Willcutt et al., 2005; Willcutt, 2015), and EF and related adaptive behaviors are an important factor in current theoretical and psychosocial treatment models of ADHD (e.g., Barkley, 2015b; Chacko et al., 2014; Hartung et al., 2020; Knouse & Fleming, 2016; Kofler et al., 2018; Pauli-Pott et al., 2020; Safren et al., 2005; Sibley et al., 2016; Solanto et al., 2010).

While EF differences may be the most widely recognized in ADHD, there is clear evidence for other cognitive factors being in play. Delay aversion, which could be largely characterized as a strong preference for immediate over delayed rewards and high delay-related frustration and irritation (Sonuga-Barke et al., 2003), is also observed in both children and adults with ADHD much more than in those without the disorder (Bitsakou et al., 2009; Wilbertz et al., 2013). A further cognitive aspect that has clear evidence for differences related to ADHD is a sort of emotional dysregulation, described by Barkley (2015c) as a propensity to have a “hair-trigger” for intense, primarily negative emotions such as frustration, impatience, and anger that are evoked in environmental interactions and that are slow to de-escalate (Bodalski et al., 2019; Bunford et al., 2015; Shaw et al., 2014). Working memory deficits are also well documented in both children and adults with ADHD (Alderson et al., 2013; Kasper et al., 2012; Kofler et al., 2011).

What is more, there is ample evidence these sorts of cognitive differences that are associated with ADHD in turn exacerbate problematic behavior or thought patterns and overall maladjustment. For instance, executive dysfunction in this population has been linked to academic problems (e.g., disinterest in academics, low grades; Sibley et al., 2019), reading and writing problems and unemployment (Halleland et al., 2019), greater dysfunction related to alcohol use (Langberg et al., 2015), and social problems in childhood (Bunford et al., 2015). Delay aversion in children with

ADHD has been linked to poor decision making (Sørensen et al., 2017), and emotional dysregulation has been linked to parent-observed deficits in their children's daily living skills, more prominent aggression, and other conduct problems (Anastopoulos et al., 2011), problematic reactions to negative emotion and general social dysfunction in adolescents (Bunford et al., 2018; Cleminshaw et al., 2020), and dissatisfaction in adult romantic relationships (Bodalski et al., 2019).

The cumulative experience of a lifetime of dealing with the sequelae of ADHD and associated cognitive and behavioral dysfunctions engenders a perspective on the world, life, and oneself that digs an even deeper hole. Adults with ADHD often report the negative automatic thoughts associated with depression and anxiety disorders (Mitchell et al., 2013). More specifically, poor self-regulatory efficacy—or lack of belief in one's own ability to self-regulate—has been described by Ramsay (2020) as a core cognitive theme in adult ADHD, and self-mistrust is identified as a key schema. Interestingly, overly positive thinking has also been noted in adults with ADHD (Knouse et al., 2019), which can lead to trouble, as well. Someone with ADHD might need to complete an important task but think that they have plenty of time to work on it or get to it later, and then get off-track and pay the price. Such thinking may temporarily assuage negative emotions, such as anxiety or discomfort, leading to negative reinforcement of this pattern of thinking despite its related task avoidance and subsequent problems (Knouse & Mitchell, 2015).

Cognitive Behavioral Conceptualization of ADHD

Safren et al. (2005), the first to empirically validate a psychosocial intervention for adults with ADHD, summarize the cognitive-behavioral rationale model as it applies to the disorder as (a) core ADHD impairments that originate in childhood prevent effective coping, (b) this lack of coping leads to experiences of failure and underachievement, (c) these same experiences further lead to negative thoughts and beliefs, and (d) negative self-schema drive mood disturbances and distress and also maladaptive avoidance. In short, there is ample evidence that ADHD involves both cognitive and behavioral problems which at least theoretically lend themselves to the sorts of interventions that can be described as “second-wave” behavioral therapy. Furthermore, the high rates of comorbid mood and anxiety symptoms and disorders experienced by adults with ADHD (Kessler et al., 2006) speaks to the potential appropriateness of such interventions.

The “Waves” of Therapy for ADHD

Before examining second wave interventions for ADHD, it is necessary to frame these approaches within the context of first and third wave interventions. The following section will briefly operationalize second wave for the purposes of this

chapter, then review interventions that would fall under the first wave and third wave umbrellas. Interventions for ADHD across the three waves often include similarities and conceptual overlap, so our goal will be to clarify the primary differences between the other waves and those that will be the focus of our second wave review.

As discussed elsewhere in this volume, the primary difference between the first and second waves of behavior therapy is the recognition and inclusion of cognitive processes in the assessment and treatment of pathology. While first wave treatments rely on basic behavioral principles to engage in functional assessment and change maladaptive patterns, behavior therapy's second wave layers onto that conceptualization the metacognitive nature of humanity: behavior is often in response to thought processes and emotional experiences. The difference between second and third waves of behavior therapy is slightly more nuanced, in that both approaches utilize metacognitive strategies to change behavioral and functional outcomes. While similar in many ways, third wave therapies include a greater focus on themes of acceptance, mindfulness, and spirituality, and the focus of metacognition is not necessarily to change the content of thoughts, but rather to change the relationship to thoughts and emotions (Kahl et al., 2012). For the purposes of this chapter, second wave behavior therapy will be defined as those therapies which include an emphasis on metacognitive strategies to examine and change thoughts, the use of direct skills training to compensate for metacognitive or skills-related deficits, and the use of self-directed behavioral principles to change behavior patterns (e.g., the use of metacognition to engage in contingency management).

The research on interventions for ADHD across the three waves of behavior therapy varies with developmental period, with first wave interventions well-established and considered the treatment of choice for children (Evans et al., 2018), and second and third wave interventions primarily researched in adult populations with varying degrees of empirical support (Mitchell et al., 2015; Young et al., 2020). Research on ADHD interventions for the transitional period of adolescence spans across the three waves, with possibly efficacious first wave evidence (Evans et al., 2018), well-established second wave support (Evans et al., 2018), and increasing empirical examinations of third wave interventions (Davis & Mitchell, 2019; Zylowska et al., 2008). In the sections below, we will outline the interventions we are conceptualizing as primarily first or third wave and briefly differentiate these from the second wave treatments on which we will focus our attention for the remainder of the chapter.

First Wave Therapy for ADHD ADHD is primarily conceptualized as a neurodevelopmental disorder (APA, 2013), and the empirical intervention literature generally reflects this conceptualization in terms of number of studies as well as types of intervention. Much of the early literature focused on implementing the behavioral processes of consistent and immediate reinforcement, effective punishment strategies, and adaptive structuring of the environment in the school and home settings (Barkley, 2015a). Indeed, a recent review of the psychosocial intervention literature for children and adolescents with ADHD shows that four out of the five “well-established” interventions are largely first wave, including behavioral parent train-

ing, behavioral classroom management, behavioral peer interventions, and combined behavior management interventions (Evans et al., 2018). We conceptualize these interventions as first wave, as they rely primarily on changing behavioral contingencies in specific environments (e.g., home, school) to increase desired behaviors and decrease problematic behaviors while, and they do not engage in the training of any metacognitive strategies, the direct acknowledgement or evaluation of thoughts and feelings, or the training of coping skills to make up for deficits foundational to the disorder.

Third Wave Therapy for ADHD Examination of treatments considered third wave for ADHD started initially within the broader context of “alternative treatments,” and these interventions were lumped together with things like supplements, homeopathic remedies, and Chinese medicine (Arnold, 1999). As understanding of the neurocognitive mechanisms underlying ADHD has improved and “alternative treatments,” such as meditation, have received more rigorous empirical examination, the literature on third wave interventions for ADHD has grown considerably. The rationale behind third wave metacognitive techniques like meditation and acceptance for ADHD includes evidence that meditation can impact various aspects of cognition (Bishop et al., 2004; Lazar et al., 2005), reduce reactivity, and improve emotional regulation (Brown & Ryan, 2003; Teasdale et al., 1995).

Clear third wave interventions for ADHD include those that primarily focus on meditation, including the Mindfulness Awareness Practices (MAPs) for ADHD developed by Zylowska et al. (2008) further examined by Mitchell et al. (2017). In addition, a growing body of evidence has examined the use of dialectical-behavior therapy (DBT) for ADHD (Hirvikoski et al., 2011; Nasri et al., 2020). Many aspects of DBT are fairly second wave in nature, including skills training and direct examination of maladaptive thought patterns; however, DBT also heavily employs the use of mindfulness and acceptance approaches. For this reason, mindfulness-based interventions and DBT-informed interventions will not be covered in this chapter.

Review of Second Wave Interventions for ADHD

In the following sections, we will review the second wave behavior therapies for ADHD with a primary goal of summarizing intervention effectiveness. We will also examine available evidence of variables that may impact or moderate treatments, including medication status, demographic characteristics, and comorbidity. As stated earlier in this chapter, the evidence for second wave treatments varies considerably across developmental stage. With this in mind, the following section will examine interventions in children and adolescents separately from adults. For children and adolescents, we will examine CBT and Training Interventions. For adults, the focus of our review will be traditional and adapted CBT interventions.

Interventions for Children and Adolescents

Cognitive-Behavioral Therapy The empirical treatment literature for childhood ADHD offers mixed support, at best, for cognitive or cognitive-behavioral interventions. In the broad context, Fabiano et al. (2015) conducted a systematic review of meta-analyses on psychosocial interventions for ADHD and concluded that psychosocial treatments for youth with ADHD are efficacious. However, several reviews have concluded that cognitive-behavioral therapy (CBT) for children with ADHD does not meet the criteria for well-established¹ or probably efficacious treatment (Evans et al., 2018; Pelham et al., 1998; Pelham & Fabiano, 2008). In the seminal review of psychosocial treatments for ADHD by Pelham et al. (1998), the authors found that despite significant research aimed at examining CBT for ADHD, even well-controlled studies found no clinically significant changes in either behavior or academics. Pelham and colleagues (1998) did note some evidence for certain cognitive interventions when paired with “intensive, multicomponent, behavioral treatment packages” (p. 193); however, no research had examined the incremental utility or long-term maintenance of these intensive packages. In their follow-up review, Pelham and Fabiano (2008) focused primarily on behavioral interventions (e.g., BPT, behavioral classroom management) and did not provide any updated examination of cognitive behavioral interventions for ADHD other than to confirm that there is no evidence for these therapies.

In contrast, a meta-analysis by Van der Oord et al. (2008) found that psychosocial treatments were effective in reducing ADHD, but with smaller effects compared to methylphenidate. They noted no significant difference between interventions coded as “behavioral” versus “cognitive-behavioral”, and suggested that one possible reason for the range of effect-sizes in CBT may be due to their heterogeneous nature (Van der Oord et al., 2008). While behavioral treatments consistently apply techniques like direct contingency management or clinical behavior therapy techniques (Pelham et al., 1998), cognitive-behavioral interventions may use any mix of second wave techniques like self-instruction, problem-solving, or self-reinforcement to a greater or lesser degree, in combination with first wave strategies (Whalen & Henker, 1991). One meta-analysis focused exclusively on school-based interventions for ADHD did find evidence for cognitive-behavioral interventions for ADHD on both academic and behavioral outcomes, which the authors attributed to a shift away from cognitive approaches outside the classroom to self-regulation approaches delivered inside the classroom (DuPaul et al., 2012).

Evans et al. (2014) conducted an updated review of psychosocial treatments since the Pelham & Fabiano, (2008) review. Their review did not include any studies that would be considered cognitive behavioral, instead they focused on behavioral and “training” interventions, the latter of which included cognitive training,

¹See Evans et al., 2018 for evidence-based treatment evaluation criteria and labels (e.g., well-established, probably efficacious).

neurofeedback, organization training, and combined training studies (Evans et al., 2014). In the 2017 follow-up review, Evans and colleagues examined several studies that included “CBT” in their intervention title; however, the researchers argued that because these studies did not use traditional aspects of cognitive therapy (e.g., cognitive restructuring) and they focused on teaching skills, they should be classified under the umbrella of “training” interventions.

In short, while the empirical literature on CBT for ADHD has clearly concluded that this intervention approach is not an evidence-based therapy, the story is slightly more nuanced. The aforementioned reviews provide strong support for the evidence-base of behavioral interventions and question the efficacy of CBT for ADHD. However, while the stringent inclusion and exclusion criteria employed in these meta-analyses and reviews winnows the existent literature down to what could be argued as the highest quality studies, a lot of possibly informative data is lost. For example, of 122 studies identified by Evans et al. (2014), only 21 were selected as meeting criteria for review. Similarly, Sonuga-Barke et al. (2013) only analyzed 15 studies in reviewing the literature since 1973, a period of almost 40 years. As noted by Fabiano et al. (2015), there is also a high degree of heterogeneity in the studies reviewed across the various meta-analyses, and although this has provided a consistent story for behavioral treatments, the evidence for CBT may get muddled.

On top of this, the issue of how exactly CBT is defined might contribute to the mixed evidence. Some researchers classify CBT as “training interventions” (Evans et al., 2018) while others classify these same interventions (e.g., social skills training, self-instructions) as “cognitive-behavioral” (Van der Oord et al., 2008). A brief review of the literature will reveal several individual studies that have found significant benefits of CBT for ADHD (e.g., Coelho et al., 2015; Miranda & Presentación, 2000) and even meta-analytic evidence of significant benefit (Battagliese et al., 2015; Van der Oord et al., 2008). While the evidence for behavioral interventions is quite robust and CBT may be unlikely to result in outcomes that rival the large effects of behavior therapy for children with ADHD, there may still be a place for further evaluation.

One important fact that is often overlooked in the CBT treatment approaches that have been tested to date is that ADHD is highly comorbid with other disorders, both internalizing and externalizing (Chronis-Tuscano et al., 2010; Jarrett & Ollendick, 2008; Jensen et al., 2001). In fact, ADHD comorbidity is the rule rather than the exception (Jarrett & Ollendick, 2008). The scant available research has shown that adapted ADHD interventions for children that include family-based CBT components can be effective in reducing internalizing symptoms as well as core ADHD symptoms (Jarrett & Ollendick, 2012; Maric et al., 2018). While perhaps this points to a subgroup of children with ADHD that might benefit more from CBT-oriented interventions (i.e., those with comorbid anxiety or mood disorders), more research is needed to test whether this is consistently the case.

Training Interventions As researchers have looked to expand psychosocial treatment options for children with ADHD, a growing body of evidence has accumulated for “training” interventions. Training intervention is an umbrella category similar in

breadth to “behavioral intervention,” as it defines a conceptual approach to treatment that can include several more specific techniques. As defined by Evans et al. (2014), training interventions do not attempt to reinforce a certain behavior within the context that the skill will be employed as is done in behavior management, but rather focus on training specific skills that are intended to be generalized to other settings, (e.g., social skills training in a therapy context, to be used in social interactions with peers). Of the many training interventions, organizational skills training has the most consistent empirical support. In both the Evans et al. (2014) and (2018) reviews, organizational training studies were found to be statistically superior to waitlist or no treatment control with positive effects across several outcome measures. Compared to other non-behavioral interventions, the consistently beneficial findings for organizational training across independent research groups make it the only training intervention to earn the well-established designation for level of support, both for elementary school children and adolescents.

Another heavily researched training intervention is cognitive training, which attempts to improve core cognitive deficits found in ADHD (e.g., working memory, inhibition, attention) through regular practice of these skills in game-like computerized or face-to-face environments. In addition to a review of these interventions by Evan and colleagues (2014, 2017), Rapport et al. (2013) conducted a large meta-analysis examining the impact of cognitive training programs on children with ADHD. With few exceptions, these studies have found very little evidence for any significant or sustainable improvements in academic, behavioral, or cognitive functioning in children with ADHD following cognitive training (Evans et al., 2018; Rapport et al., 2013). In addition, a consistent finding across cognitive training studies is lack of significant improvement reported by blinded raters (e.g., teachers), whereas unblinded raters more often report improvement (e.g., parents, treating clinicians; Evans et al., 2018; Rapport et al., 2013). One cognitive training program by Tamm et al. (2013) was notably different from the others, in that clinicians delivered the treatment directly to children rather than use a computer-delivered format. While this study still found a “Hawthorne” or bias effect between those aware of the treatment and teachers who were unaware of the treatment, they did report improvements on various facets of attention on both neuropsychological and computer tasks (Tamm et al., 2013).

Combined training interventions, which are treatments that include a focus on training a variety of skills (e.g., social, academic, organizational), have also been evaluated for adolescents with ADHD and found to have mixed levels of support. Some combined treatments rely more heavily on practicing skills and providing feedback (e.g., Challenging Horizons Program [CHP]; Evans et al., 2011; Molina et al., 2008) and have met the threshold of probably efficacious, while others have provided skills training with little repetition or feedback and have typically resulted in less improvement and an “experimental treatment” designation (Sprich et al., 2016; Vidal et al., 2015). Finally, there have been a few high quality studies that attempt to use feedback from physiological systems (e.g., biofeedback, EEG) to improve deficits in children with ADHD. Studies of these interventions, typically

called neurofeedback, have found mixed results. One study of children receiving neurofeedback compared to an attention training group resulted in positive post-intervention report by both parents and teacher on ADHD ratings for neurofeedback; however, no differences between groups were found for social, home, or academic functioning (Gevensleben et al., 2009). A study of EEG neurofeedback vs EMG biofeedback in a small sample of children with ADHD found a positive effect for both treatments across parent and teacher ratings of behavior; however, this study did not have a control group, limiting the conclusions that can be drawn (Maurizio et al., 2014). One combined treatment of methylphenidate and EEG feedback compared to a matched attention control group found no significant effects after 40 sessions on parent- or teacher-rated ADHD symptoms, but significant effects *were* found at a 6-month follow-up (Li et al., 2013). As noted by Evans et al., 2018, there is no previous example of such a “sleeper effect” in the literature, nor was there a proposed mechanism for this delayed effect, indicating a need for replication before any conclusions should be drawn from the study.

Interventions for Adults

Up until the 1990s and early 2000s it was not uncommonly believed that ADHD was a childhood-limited disorder that tended to wane in adolescence (Barkley, 2015a). However, research has conclusively shown such remittance to be more the exception than the rule, with a majority of children with ADHD continuing to suffer from the disorder later in life or to at least have clinically meaningful impairment due to residual symptoms (Biederman et al., 2010; Faraone & Biederman, 2005; Barkley et al., 2002; Kessler et al., 2005). In turn, the advent of effective psychosocial interventions to address ADHD-related maladjustment in adults was significantly delayed, compared to that for affected children, corresponding to relatively thin literature base for second wave behavioral (i.e., CBT) treatment, with the first widely available treatment manual published in 2005 (Safren et al.). As with treatment for children, there are a variety of specific interventions for adults that fall under the CBT umbrella, but commonly these involve techniques to mitigate ADHD symptoms, poor EF and other cognitive deficits, and the cumulative effects of life with ADHD. This can specifically include components such as skills training to improve organization, time management, planning (OTMP), and reduce distractibility, cognitive restructuring techniques, study and other academic skills training (i.e., for college students), and/or psychoeducation about ADHD and related topics.

In a recent review of *all* published non-pharmacological intervention studies for adult ADHD, Nimmo-Smith et al. (2020) found just 32 that included randomization to treatment or control groups. While those fitting the CBT model were the most common ($n = 14$), it is a mark of just how limited the research is. Still, the existent work generally indicates promise for this type of intervention being effective for ADHD-related problems in adulthood.

Review and meta-analytic papers that specifically focus on CBT for adults with ADHD generally cast its efficacy of CBT as promising, contrasting those examining the corresponding child population. Knouse et al. (2017) conducted a meta-analysis of cognitive and behavioral therapy studies that aimed to reduce ADHD symptoms or impairment in adults and included pre- and post-treatment measures and a requirement that any ADHD medication use be held constant over the trial. Notably, this examination included both controlled and open designs; 32 studies met their inclusion criteria, and these included skills training, mindfulness, combination, and DBT-based approaches. The findings supported efficacy of cognitive and behavioral therapy for adults with ADHD, with large effect sizes for self- and blind assessor-rated symptom reduction and functioning which were clinically meaningful when possible publication bias was factored in. Treatment effect was larger for skills training and mindfulness than DBT. Medication status (i.e., unmedicated or medicated) did not significantly alter ratings of improvement. Comparisons of control type indicated that larger effects were noted in comparison to no-treatment control versus active treatment. The researchers conclude that there is “reason for cautious optimism among clinicians and their adult clients with ADHD regarding cognitive-behavioral interventions” (p. 747).

More recently still, Young et al. (2020) completed a meta-analytic review of peer-reviewed, published, randomized controlled trials of CBT for adults with ADHD. Only nine studies were identified for inclusion with a total of 386 participants, many of whom had prior pharmacological treatment that was continued during their psychosocial trial. Designs included comparison to wait-list ($n = 5$) and active control groups ($n = 4$); separate meta-analyses were used to examine the effects of these different approaches. Efforts were made to account for publication bias and other possible design flaws. Results in this more focused review mirrored those of Knouse et al. (2017); CBT was generally superior to wait-list and to active comparison groups (e.g., supportive therapy, relaxation training with psychoeducation) from pre-to-post treatment with regards to symptom reduction, with approximately large and moderate effect sizes, respectively. Improvements were also noted in comorbid anxiety and depressive symptoms in some but not all studies in which these variables were included, and organization, self-esteem, and anger management also were shown to improve when measured. Across studies, when treatment effects are detected for ADHD symptoms, inattention appears the more responsive of the cardinal ADHD characteristics.

One of the shortcomings of these reviews and, indeed, the RCT designs for adult ADHD CBT interventions is that data are scant regarding long-term (vs. pre-post) impacts Lopez-Pinar and colleagues (2018) recent review and meta-analysis offers a first systematic examination of 3-to-12 month follow-up outcomes in psychosocial interventions for adults with ADHD. Twelve studies met the inclusion criteria; 9 were RCT designs and 3 were open trials, and half, overall, included CBT (alone) as the experimental condition. Self-reported reductions in ADHD symptoms and global functioning were sustained in a within-subjects meta-analysis, and medium

treatment effects, compared to control groups, persisted at follow-up in a separate meta-analysis of the RCT. Compared to DBT and biofeedback, CBT was shown to have more positive effect on the key outcome variables.

There are understandably few CBT trials for adult ADHD that have emerged since the publication of these recent reviews. However, one subpopulation of adults that has garnered significant attention in the literature in the past several years is college students, and it is notable that a handful of studies documenting newly conceived interventions for this population have been published in that short interval that generally fit under the CBT umbrella (Anastopoulos et al., 2020, 2021; Hartung et al., 2020; Meinzer et al., 2020). All focus to a large degree on OTMP skills training and psychoeducation regarding ADHD with additional focus on study skills and/or cognitive restructuring or related techniques to address comorbidity, utilize a combined group and individual approach with tailored coaching, and are short-term, with active treatment fitting in the span of one college semester. It should be noted that across the work of these three different research groups only Anastopoulos et al. (2021) utilized an RCT design, but collectively their findings show ADHD symptoms to decrease and OTMP skills (or executive functioning) to improve, pre-to-post. Further, anxious and depressive symptoms were also reduced (Anastopoulos et al., 2020; Meinzer et al., 2020) or stabilized (Anastopoulos et al., 2021), and self-concept was improved (Hartung et al., 2020). Five-to-seven month follow up in one study also suggests that such improvements are maintained over time (Anastopoulos et al., 2020).

While all of this is quite promising, the body of results should be interpreted with limitations in mind. Many participants, if not most, in the adult ADHD interventions that have been documented to date have been using previously prescribed stimulant or other psychotropic medication(s). Interestingly, Knouse et al. (2017) noted in mediator analyses that treatment effect sizes were similar when *all* participants were medicated or *all* were not, but when the sample's medication status was mixed the results were not as favorable. The authors suggest that perhaps interventions that are tailored to *either* medicated *or* unmedicated clients may be most effective, although that remains to be established. Ethnic and socioeconomic diversity in these initial trials have been limited, and participants have tended to be middle-aged or younger, suggesting that the generalizability of CBT to all groups in the adult population is not certain. Finally, many of the studies rely on self-report for key outcomes, and particularly in studies without an active "placebo" control condition this may be subject to expectancy bias. However, in sum, while the existent literature regarding the cognitive-behavioral treatment of adults with ADHD is not nearly as deep as that for children and adolescents, signs point clearly to CBT interventions being useful with the former. A few manualized treatment protocols are readily available (e.g., Safren et al., 2017; Solanto, 2013), and others are forthcoming, which should provide practitioners with the know-how and materials to implement CBT with their adult clients who have ADHD.

Conclusion

Psychosocial interventions for ADHD are well-established (Fabiano et al., 2015); however, the evidence-base varies considerably across the waves of behavior therapy and developmental age of those being treated. For children, the most effective interventions are first wave interventions such as behavioral parent training and behavioral classroom management (Evans et al., 2018). Training interventions (e.g., organizational skills training) are the only second wave treatment that have earned the designation of well-established for children and adolescents with ADHD. While CBT has not shown consistent benefits for children with ADHD, the somewhat mixed and nuanced nature of the literature suggests further examination may reveal components of these interventions that are beneficial. In addition, the fact that ADHD has high comorbidity rates (Jarrett & Ollendick, 2008), CBT-based interventions that target both core ADHD symptoms as well as comorbid internalizing or externalizing symptoms may still have a place in the ADHD treatment toolbox.

Although there was initially high expectation for second wave interventions, especially CBT, in treating childhood ADHD, more modern conceptualizations of ADHD as having deficits or delays in certain metacognitive skills and self-regulatory processes help provide some explanation as to why metacognitive interventions like CBT have fared poorly under empirical examination. This also helps explain why CBT for adult ADHD has shown more positive results in the literature. While adults with ADHD may still possess certain executive or functional skills deficits, they are developmentally more capable of engaging in metacognition and thus, more likely to benefit from the skills taught in CBT. Further, established trends for ADHD-related hyperactivity to wane in adolescence and beyond and for inattention to remain relatively more stable (Biederman et al., 2000) suggest that attentional difficulties are more central to the adult manifestation of ADHD, which may logically be more amenable to cognitively-oriented interventions than overactivity and disinhibition.

While there are several well-established treatments for ADHD, considerable research is needed to further improve outcomes for those with ADHD across the lifespan, and there is much that could be discovered that could improve the efficacy of second wave behavioral interventions. ADHD is now being recognized as a fairly heterogeneous diagnostic group (Nigg et al., 2020), and improved understanding of the core mechanisms driving dysfunction, comorbidity, and impairment will inform ongoing efforts to provide effective intervention. Given the focus on cognitions and emotions, second wave interventions may become more relevant as emerging research uncovers the role of mechanisms in “pure” ADHD and those with additional comorbidities, such as high negative affect (Karalunas et al., 2019), emotional dysregulation (Bodalski et al., 2019; Bunford et al., 2015), and cognitive-behavioral avoidance (Knouse et al., 2013).

In addition, even where there has been relative success for second wave behavioral therapy in addressing ADHD-related issues (e.g., in adults), one direction that has not been adequately explored is dismantling studies. Indeed, authors of

important reviews noted herein are unanimous in calling for further research to determine the relative effects of components of current interventions (Knouse et al., 2017; Lopez-Pinar et al., 2018; Nimmo-Smith et al., 2020; Young et al., 2020), which could lead to both more effective and more portable treatment that would more easily lend itself to widespread implementation. Further, future research across both child and adult populations would benefit from larger studies that would facilitate mediator analyses; in particular, it is critical that we satisfactorily document for whom second wave interventions are likely to work and those who we might expect to not benefit (Knouse et al., 2017). Such work could, for instance, identify groups of children and adolescents that *do* benefit, such that they might selectively be targeted. Finally, relatively few studies employ long-term follow-up designs of second wave interventions for ADHD, which represents a significant weakness, both for appreciating the durability of “successful” interventions and also for detecting possible delayed effects, as have been seen elsewhere with second wave interventions (Jarrett & Ollendick, 2012; Li et al., 2013).

Conflicts of Interest We have no known conflicts of interest to report.

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Attention Deficit Hyperactivity Disorder: Third-Wave Behavior Therapy Conceptualization



Bridget R. Beachy, David E. Bauman, and Melissa D. Baker

During a 2015 TEDMED talk, Dr. Nadine Burke Harris, a pediatrician and the current surgeon general of California, implores listeners to consider the impact of Adverse Childhood Events (ACEs) on child development. Dr. Burke Harris explains how she noticed an interesting phenomenon when she went to work with children in a severely impoverished and underserved area near San Francisco, CA. Essentially, she was receiving an inordinate number of referrals for Attention Deficit / Hyperactivity Disorder (ADHD). Dr. Burke Harris explains she started to uncover a “disturbing trend” after doing thorough history and physicals for these referrals. Specifically, a large proportion of these children, “...had experienced such severe trauma that it felt like something else was going on...somehow, I was missing something important” (TEDMED, 2015, 3:24). After researching the ACE’s study, Dr. Burke Harris started to put the issue into context, and she conjectured that this childhood trauma had devastating consequences to children’s brain and body development.

ACEs are just one example of potential contextual factors that may prompt behavior and symptoms that are congruent with ADHD symptomology. Surprisingly, and as Brown et al. (2017) pointed out, “despite evidence that suggests that specific psychosocial risks and accumulation of risk factors exert strong influence on child development and behavior, the family and social context of ADHD has not been well studied” (p. 352). Many of the behaviors that are in line with symptoms of ADHD are the very behaviors one would expect to be present after learning the patients’ contexts. This assertion is best explained by a third-wave behavioral

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theoretical underpinning called functional contextualism, which suggests that symptoms are not inherently problematic, dysfunctional, or pathological: rather, may be the expected result a specific context. In other words, symptomatic behaviors “make sense” once clinicians understand patients’ contexts. From a third-wave behavioral approach (or any therapeutic orientation that considers an individual’s larger system), the external context as well as the internal context of the individual presenting with ADHD symptomology is of paramount consideration in assessment and intervention. Fundamentally, ADHD symptomology cannot (and should not) be assessed, diagnosed, or treated in a vacuum. Instead, presenting symptoms should be *placed into context*, which may include biological (e.g., family heredity factors), social (e.g., ACEs), and psychological (e.g., negative self-talk) contextual factors.

This chapter is organized into several sections as the authors aim to demonstrate how clinicians, trained in third-wave behavior therapy, approach ADHD. First, the authors provide definitions of major third-wave therapies (e.g., Acceptance and Commitment Therapy [ACT], Dialectical Behavior Therapy [DBT] and Mindfulness Based Interventions [MBIs]). A description of the reality of where most individuals receive treatment for ADHD (i.e., primary care) and treatment implications of this setting is then discussed. Next, the authors briefly review the core aspects of ADHD, accompanying etiology, research outcomes, and implications this may have for clinicians who practice from a third-wave perspective. Additionally, case conceptualization will be discussed, and case illustrations will be offered within the clinical context of primary care. We hope readers will have their assumptions challenged regarding the presentation of ADHD, and this chapter will offer an additional lens from which to view patients presenting with typical ADHD symptomology. Additionally, we hope a context is created that propels clinicians to be curious (or more curious) about the contexts their patients live. We further hope clinicians take the additional steps with their patients to create a clinical context that inspires love, compassion, and grace within their patients. Even with ADHD, “Love isn’t everything, it is the only thing” (TEDx Talks, 2016, 19:26).

Setting the Stage: Third-wave Behaviorism and Primary Care

Although third-wave behaviorism encompasses a variety of orientations; most well-known include ACT, DBT and MBIs. Due to the increased focus of ADHD treatment being in primary care, focused ACT or fACT (Strosahl et al., 2012) which was developed for use in settings where briefer interventions are needed will also be defined. ACT is a transdiagnostic therapeutic framework that uses acceptance, present moment and values strategies to increase psychological flexibility (Hayes et al., 2011). With increased psychological flexibility, people can adapt to myriad circumstances to help them stay in touch with valued living (Hayes et al.). DBT and those who use DBT based skills aim to help support patients with the skills of mindfulness, distress tolerance, emotion regulation and interpersonal effectiveness (Linehan, 2015). Further, MBIs are designed to help people learn skills to attune to the present

moment in a nonjudgmental way (Kabat-Zinn, 2013). Focused ACT is a therapeutic approach that condenses the six core principles of ACT into three pillars to streamline case conceptualization while highlighting the interconnectedness of the processes (Strosahl et al., 2012). The authors of this chapter have extensive training in the ACT and fACT philosophy, which will underlie much of this chapter. However, the processes and research that are discussed are congruent with DBT, MBIs or other third-wave principles.

Readers of this chapter may be familiar with ACT's philosophy that incorporates a radical behavioral philosophy (i.e., first-wave behaviorism) with eastern philosophy (e.g., mindfulness, acceptance, etc.—see chapters “[What Is Second Wave Behavior Therapy?](#)”, “[What Is Third Wave Behavior Therapy?](#)”, in this volume). In a sense, ACT posits individuals do not necessarily struggle or have functional impairment because of symptomology that accompanies typical human experience, rather, it comes from the efforts people make to rid themselves of these symptoms (Hayes et al., 2011). Thus, and contrary to second-wave behavioral approaches that work to change cognitive schemas, ACT strives to encourage patients to take an observer approach to what the mind is informing the individual of and to have a compassionate willingness to bring all of themselves (even unwanted symptoms) while moving towards their identified values. The ACT hexaflex includes the six core processes that underlie the treatment goal of psychological flexibility and include acceptance or willingness, cognitive defusion, present moment focus, the observer self, values clarification, and committed action. Briefly, these core processes are described below and please refer to chapter “[What Is Third Wave Behavior Therapy?](#)” for a more detailed overview.

Psychological Flexibility Psychological flexibility is defined as an individual's ability to be flexible with their internal process and/or thoughts, emotions, associations, memories, sensations (TEAMS) while enacting behaviors that move the individual closer to their life values (Hayes et al., 2011).

Acceptance or Willingness Acceptance or willingness is described as one's ability to create a space for their TEAMS. Further, rather than suppressing or avoiding these internal processes through behavioral responses (i.e., avoidance), acceptance encourages individuals to be open and present with these experiences while moving towards a meaningful life (Hayes et al., 2011).

Cognitive Defusion Cognitive defusion refers to one's ability to create a space with their internal processes and notice thoughts as thoughts, feelings as feelings, etc. Described often as a fish jumping out of water for the first time and noticing the water surrounding them, individuals demonstrate defusing by noticing the constant and automatic cognitive process that surrounds individuals (Hayes et al., 2011).

Present Moment Contact Present moment or *mindfulness* is defined as one's ability to bring full awareness to the here-and-now experience, with openness, interest, and receptiveness; focusing on, and engaging fully in whatever the individual is currently doing (Hayes et al., 2011).

The Observer Self The observer self or self as context or perspective is described by one's ability to notice the transcendent sense of self; a continuity of consciousness that is unchanging, ever-present, and impervious to harm. This concept teaches individuals to view their identity as separate from the content of their experience (Hayes et al., 2011).

Values Clarification Values clarification is described by one's ability to clarify the aspects of one's life that are of utmost importance. The combination of values is often described as one's *North Star*, which can serve as a consistent guiding force in peoples' lives (Hayes et al., 2011).

Committed Action Committed action is described as one's ability to move, behaviorally, towards their identified values. In service of striving towards values, this committed action is unrelenting and intentionally chosen (Hayes et al., 2011).

It should also be noted that in addition to having a basic understanding of ACT's hexaflex, there are the important concepts of functional contextualism and Relational Frame Theory that underlie the ACT approach and are relevant to understanding how context impacts behavior. Functional contextualism is a pragmatic philosophy that promotes (1) behavior arises from a context and (2) truth is determined solely by the behavior's ability to accomplish an identified goal (Gifford & Hayes, 1999). While seemingly simple, these two principles have profound impact on how the clinician approaches and interacts with patients, which will be discussed in proceeding sections. Second, the growing cognitive science of Relational Frame Theory (RFT) details how language shapes humans' interactions with their internal and external world often through derived relational pairings (Hayes et al., 2001). According to RFT, individuals can derive relationships between events, join them in vast relational networks, and transfer functions between related events, which is known as "relational framing." RFT allows humans to analyze, talk, plan, imagine, compare, invent, and problem solve (Hayes et al., 2001). This chapter's goals do not include an in depth look at RFT; however, its implications, influence, and presence underlays much of the proceeding sections.

Before discussing ADHD and other third-wave approaches to treatment, it would behoove us to discuss the context of where ADHD typically presents and the implications of such. While mental health providers around the United States provide humbling and inspiring services to the patients they see, only 7% of the United States adult population will meet with a mental health provider in an outpatient mental health setting in a given year (SAMHSA, 2018). Instead, the majority of patients with any mental health concern will receive no care and those receiving care will most likely receive care within a primary care medicine or outpatient ambulatory medical setting (Wang et al., 2005). ADHD is not immune to this reality and point of care resources, such as UpToDate, encourage primary care providers (PCPs) to treat ADHD within the primary care setting and only recommend referring to a specialist when there are comorbidities (Krull, 2020b). Children ages 4–18 years old with non-comorbid ADHD will most likely only receive care by

their PCPs (Krull, 2020b). Additionally, for the close to a third of patients who have comorbidities associated with their ADHD (American Psychiatric Association [APA], 2013), it is not guaranteed they will meet with a mental health professional, even when referred. Research has repeatedly demonstrated simply receiving a referral to a mental health agency does not ensure the patient will receive treatment (Friedman et al., 1995). In fact, mental health referrals are the least likely to be completed by patients amongst medical specialties (Friedman et al.). And, the oft cited statistic that demonstrates the mode number of psychotherapy visit a patient will attend is one (Gibbons et al., 2011). Thus, it can be extrapolated that many patients with ADHD concerns will never even meet with a mental health professional, and for many who do, it may be a “one and done” situation. Even more concerning and as Brown and colleagues (2017) pointed out, PCPs, such as pediatricians, are often unfamiliar with or do not have the time nor expertise to identify contextual factors (e.g., ACEs) that have been associated with higher rates of the diagnosing of ADHD. With these realities in mind, taking a pragmatic approach to addressing ADHD symptomology is very important, which, in our opinion, aligns harmoniously with a third-wave behavioral approach.

Overview of ADHD and Implications for Clinicians

Briefly, the DSM-V identifies ADHD’s essential feature as “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning and or development” (APA, 2013, p. 61). ADHD, which manifests in childhood, impacts cognitive, academic, behavioral, emotional, and social functioning. In order to meet DSM-V criteria, several of the symptoms must be present prior to age 12, occur in more than one setting, and as was highlighted previously, not be better explained by another mental disorder. Often, people with ADHD experience pervasive impairment into adulthood. Symptoms of inattention include problems making careless mistakes, sustaining attention, listening, following through, staying organized, managing time, engaging in tasks that require sustained mental effort, losing items, avoiding distraction, and being forgetful with everyday tasks. Symptoms of hyperactivity and impulsivity include fidgeting, restlessness, problems being too loud, appearing to be “driven by motor,” talking excessively, impatience, interrupting and intruding on others and inappropriately leaving their seat, running or climbing. Patients with ADHD might also present with low frustration tolerance, irritability, mood difficulties as well as mild delays in language, motor or social development (APA, 2013).

It is also important for any clinician to understand the comorbidities that come with ADHD. Of children with ADHD, up to a third have at least one comorbid condition (Krull, 2020a). These include oppositional defiant disorder, conduct disorder, disruptive mood dysregulation disorder and specific learning disorders. Although in a minority of patients with ADHD, there is a higher rate than the general population for anxiety disorders, major depressive disorder and intermittent explosive disorder.

Adults with ADHD are more likely to have antisocial and other personality disorders (Krull, 2020a). Obsessive compulsive disorder, tic disorders, and autism spectrum disorders also occur with ADHD. There is increased risk of suicide attempts for those with ADHD, especially in patients with comorbid mood, conduct or substance use disorders (Krull, 2020a). The DSM-V outlined several consequences associated with ADHD, including, reduced academic achievement, social rejection, poor work performance, unemployment, interpersonal conflict, increased substance use, incarceration, and higher likelihood of injury and traffic accidents (APA, 2013).

The etiology of ADHD continues to be a challenge for researchers. Like many mental health disorders, there have been attempts to attribute the cause of ADHD to purely biological mechanisms (Krull, 2020a; Syme & Hagen, 2020). This viewpoint is often promoted and accepted in healthcare settings with the accompanying message being delivered erroneously to patients; however, research has not demonstrated that ADHD is able to be quantified through a siloed, biological lens. To this day, there is no biomarker that can be used to diagnose or differentiate those who have ADHD versus those who do not have this diagnosis (Krull, 2020a). Further, while biological processes, such as brain structures and heritability amongst first degree relatives, may be implicated in ADHD, a causal relationship has yet to be determined (Krull, 2020a). Also, environmental factors, including the recent recognition of correlational relationships between ADHD and ACEs (Brown et al., 2017), appear to have a profound effect on ADHD symptomology and accompanying ADHD diagnoses, as well (Krull, 2020a). It should be noted that in most cultures, ADHD impacts about 5% of children and 2.5% of adults (APA, 2013). ADHD is diagnosed more frequently in males than females, at a 2:1 ratio in children, and at 1.6:1 ratio in adults (APA, 2013). In line with burgeoning complexity science research, ADHD continues to be complex and consist of interconnected, dynamic, nonlinear processes that cannot be reduced to solely a nature versus nurture debate (Valeras, 2019). Not only are there not clearly delineated causes of ADHD, the diagnostic process is not any more straightforward.

Prevalence rates of ADHD vary greatly dependent on interpretation of diagnostic criteria and populations studied (Krull, 2020a). Specifically, prevalence rates in studies vary considerably and are estimated to be as low as 2% and upwards to 18% (Krull, 2020a). The fact that black and Latinx populations tend to have lower identification rates in the United States compared with Caucasian populations may demonstrate there are cultural factors that impact ADHD diagnostics (APA, 2013). Further, the prevalence of ADHD appears to have increased over the past two decades, with one study showing a 4% increase from 1997 (i.e., 6% prevalence rate) and 2016 (i.e., 10% prevalence rate) in ADHD diagnoses (Krull, 2020a). This increase could be due to a variety of factors, including greater awareness and identification, as well as contextual factors including processed food-based diets and worsening environmental influences (e.g., lack of access to parks or places to exercise), among others (Krull, 2020a). Multiple studies have found inconsistent assessment of ADHD symptoms and the presence of other comorbidities (e.g., depression,

anxiety, etc.) have led to the potential overdiagnosis of ADHD. For example, Thomas et al. (2015) found clinicians often assigned a diagnosis of ADHD to children before ruling out more appropriate diagnoses, such as anxiety and depression. Handler and DuPaul (2005) and Epstein et al. (2014) found psychologists and pediatricians, respectively, often do not follow recommended diagnostic procedures when arriving at an accurate diagnosis of ADHD. Epstein et al. (2014) further found only half of pediatricians assess symptoms of ADHD across two settings, which is fundamental to the diagnostic criteria. Even with this lack of adherence to appropriate assessment procedures, 93% of pediatricians still prescribed a medication (Epstein et al., 2014). Syme and Hagen (2020) also discussed recent evidence from large studies that revealed there was an increase in ADHD diagnoses in children whose birthdates fall in months that make them younger compared to their classmates, which demonstrates at the very least a contextual variable that has been left unchecked in clinicians. Contextual factors not only impact the presentation of ADHD symptomology in patients but appear to impact the diagnosing procedures in clinicians. This happens despite the DSM-V informing clinicians that one cannot diagnose ADHD if the symptomology is better explained by another mental disorder or is normative of the developmental stage a child is in (APA, 2013).

Perhaps, there are other explanations for the difficulty in determining the pathogenesis of ADHD and the growing rates of ADHD. Functional contextualists, which include both first wave and third-wave clinicians, ask questions aimed to help them understand how presenting symptoms may *make sense* given one's context. Additionally, ACT has long embraced evolutionary science and other scientific disciplines to inform its theory and subsequent assessment and intervention. Along this vein, the pair of anthropologists, Syme and Hagen (2020), recently offered that ADHD could potentially be a "mismatch" of biological evolution with societal evolution. They specifically pose the question of whether our ancestors would have identified ADHD symptoms during their hunter and gather context, whereas the modern environment of classrooms and work places "sets tighter restrictions on what is normal or acceptable" (p. 21). There is not clear evidence related to how problematic ADHD symptomology are in unstructured environments. Could, and as Syme and Hagen proposed, ADHD be a representation of our biology not fitting our current societal context, which is resulting in ever increasing diagnoses? At the very least, Syme and Hagen demonstrate that normal behavior may often be pathologized.

Regardless, the most current research has not been able to identify a clear etiology of ADHD. ADHD is a complex issue and its etiology is likely multifactorial and influenced by interconnected biological, social, environmental, and psychological contexts. From a functional contextualist standpoint, this reinforces the idea of remaining curious when individuals are presenting with ADHD symptoms, and to work to clarify and determine what combination of contextual influences might be influencing symptoms. And, similarly, it is important for clinicians to strive to determine what combination of treatment factors might be most useful in helping the patient to gain a higher level of functioning.

Research Related to Third-Wave Interventions and ADHD

According to the APA's Division 12, Clinical Psychology (Society of Clinical Psychology, 2016), which details evidence-based treatments for common mental health concerns, only second wave-cognitive behavioral therapy (CBT) has been identified as having "strong research support" for treating adults with ADHD. Further, DuPaul et al. (2020) posited, based on available research, psychosocial interventions for children with ADHD should include a combination of behavioral modifications, cognitive strategies, parenting training, self-management strategies, and school interventions. In addition to the implementation of such interventions being based on the environment and context the children is coming from, DuPaul et al. (2020) encouraged a longitudinal and continuous application of these interventions throughout the child's development. It is important to note, however, that this distinction for second-wave CBT, as well as more traditional first and second wave interventions (e.g., behavioral modification, cognitive strategies, etc.) does not necessarily mean there is no utility of third-wave approaches. As stated earlier and promoted by a functional contextualist framework, clinicians are often working with patients on skill sets that help patients achieve self-identified goals. Meaning, first and second-wave interventions identified by Division 12 and DuPaul et al. (2020), including psychoeducation, problem solving skills, time management and planning training, increasing attention span, etc., may very well be utilized by third-wave behavior clinicians when the context indicates the use of such interventions. ACT clinicians are widely known to promote the idea that a clinician should use what works within the presenting context. Thus, inherently, there is not necessarily a need for third-wave clinicians to "throw out" other interventions from other philosophies, "waves," or schools of thought in the pursuit of helping the patient with ADHD. One could imagine a third-wave clinician educating a patient who is struggling with time management and being easily distracted on stimulus control and problem solving to set up the patient's environment to promote better contingency management. For a child who struggling with homework completion and the parent uncertain of how to support the child, one might imagine a clinician teaching the parent about the use of a token economy to reward desired behaviors and increase the child's sense of self-efficacy. In a sense, growing evidence for first and second-wave behavioral interventions are welcomed and appreciated by third-wave clinician. The difference, though, may be the intentionality of applying a specific intervention. The third-wave clinician may be more inclined to assess the context of the presenting symptom and initiate an intervention that fits the context, rather than following a standard first or second-wave behavioral protocol.

Numerous meta-analyses have been completed on the efficacy of ACT on a number of conditions; and, recently, Fang and Ding (2020) summarized 14 ACT meta-analyses done with 1189 children on a variety of different presenting concerns. They found ACT showed significant improvements in reducing specific symptoms including anxiety ($SMD = -.31, p < 0.05$), depression ($SMD = -.74, p < 0.001$), behavioral problems ($SMD = -.76, p < 0.001$), and other mental health problems

($SMD = -.89, p < 0.006$), as well as showing significant improvements in quality of life and well-being ($SMD = 1.74, p < 0.001$). Additionally, Gloster et al. (2020) reviewed 20 ACT related meta-analyses that included 12,477 total participants. They found similar results when reviewing meta-analyses related to ACT, finding small effect sizes for depression ($g = 0.33$), anxiety ($g = 0.24$), substance use ($g = .41$), chronic pain ($g = 0.44$), and transdiagnostic combinations of conditions ($g = 0.46$). Gloster et al. (2020) also found a small overall effect size ($g = 0.46$) in improving quality of life. The importance of the seemingly broad reach of third-wave behavioral interventions for multiple conditions is vital when discussing its use with a complex, multi-faceted, and often presenting with comorbidities diagnosis like ADHD.

While these summaries of the growing transdiagnostic research for third-wave approaches, such as ACT, are vital and promising, it is important to acknowledge the apparent dearth of standardized third-wave behavioral treatment protocols or subsequent research studies specifically conducted for ADHD. While the authors believe a more transdiagnostic, process-based, and contextual influenced approach to ADHD is needed and discussed next, it is important to note this obvious lack of research and encourage readers to take up the effort on evaluating the efficacy and effectiveness of ACT and other third-wave behavioral approaches with ADHD.

With the third-wave behavior approaches adopting a philosophy of functional contextualism, which prompts a more transdiagnostic and pragmatic approach to many presenting concerns, including ADHD, clinicians are beginning to replace *protocol-based* approaches with *process-based* approaches. Specifically, Hayes and Hofmann (2017) advocated for the field of psychology to shift "...toward a process-based field that seeks to integrate the full range of psychosocial and contextual biological processes" (p. 245). This process-based focus frees up clinicians to home in on incorporating first, second, and third-wave processes that aligns and moves patients to their identified goals and desired outcomes, rather than a treatment algorithm dependent on subjective symptoms and often problematic diagnostic criteria. Additionally, a process-based approach recognizes the humanness of psychological and behavioral interventions and considers the uniqueness of each patient's presenting context and adapts to it accordingly. Hayes and Hofmann summarize this call well:

Researchers and practitioners alike seem ready for a turn toward process-based therapy (PBT), in which processes, procedures and their linkage are evidence-based, and are used to alleviate the problems and promote the prosperity of people. Similar to the trend toward personalized and precision medicine, focusing on changeable processes that can make a difference in the behavioral and mental health of individuals provides a way for evidence-based care and person-centered care to merge under a single umbrella of process-based care. Orienting the field in that direction may ultimately be the most important "changed shore" produced by the third-wave of CBT (pp. 245–246).

Within the limited third-wave studies for ADHD, there are a number of them that address key symptoms that are implicated in ADHD including inattention, focus, impulsivity, etc., which are discussed next. The lack of ADHD treatment protocols in conjunction with the shift in context and philosophy (i.e., moving from a

protocol-based approach to a process-based approach), the question also shifts from which treatment protocols work to which processes might address ADHD symptomatology? Below is an overview of third-wave processes and the impact on ADHD symptomatology related outcomes.

Psychological Flexibility While not a stated unified goal of third-wave behavioral interventions, third-wave approaches, such as ACT, DBT, MBI, fACT, etc., commonly strive to change the relationship an individual has with their internal processes, such as their thoughts, emotions, associations, memories and sensations (TEAMS). Whether by being a mindful observer, or by promoting a willingness and acceptance of internal processes, it can be said that third-wave behavioral techniques are congruent with ACT's aspirations to promote psychological flexibility.

While no known studies have looked at the direct impact of psychological flexibility on ADHD outcomes as a whole, multiple studies have looked at psychological flexibility and the impact on symptoms and topics related to ADHD. Specifically, studies have shown that individuals who are more psychologically flexible are less likely to have stigma related to mental health (Masuda et al., 2009) and learned hopelessness (Trindade et al., 2020), more adherent to medication regimens (Moitra & Gaudiano, 2016), less impulsive (Marcowski et al., 2017; Sairanen et al., 2017) and less likely to procrastinate in academic settings (Glick et al., 2014), and able to delay gratification (Levin et al., 2018). Further, parents that demonstrate greater psychological flexibility are more accepting of their children's health conditions (Benjamin et al., 2020) and have children score higher on well-being measures (Brassell et al., 2016). Additionally, and affirming an oft theorized concept, individuals that are less inflexible appear to be more impacted by negative environmental influences (e.g., ACEs) when compared to individuals demonstrating more psychological flexibility (Makriyianis et al., 2019). While these studies are promising and signal the inclusion of the process of psychological flexibility, there are numerous limitations to these studies, and due to being single studies that were mostly completed in adults, additional research is needed to replicate the findings and determine true efficacy and effectiveness.

Mindfulness Another common and more explicitly shared process amongst the major third-wave behavioral approaches is mindfulness, or the ability to be present with one's internal context. Research has shown that the process of mindfulness may be most impactful for reducing ADHD symptoms. Specifically, Cairncross and Miller's (2020) recent meta-analysis evaluated 10 mindfulness-based treatments (MBTs) for individuals with ADHD aged as young as 8 years old to individuals 50 years of age. Overall, Cairncross and Miller found an overall medium effect size in MBTs in reducing inattention symptoms ($d = -0.66$) and reducing hyperactivity/impulsivity ($d = -.053$). While promising, a number of limitations were identified in the 10 included studies, including small number of participants within the studies and the heterogeneity of the studies included.

Research is also growing regarding the impact of meditation and mindfulness interventions on ADHD related symptoms. Specifically, mindfulness interventions

show changes in fMRI in areas of the brain related to self-awareness, impulsiveness, emotional regulation, and interoception (Gotink et al., 2016; Kral et al., 2018; Marusak et al., 2018; Tang et al., 2016; Young et al., 2018). Krull (2020b) concluded that medication and behavioral interventions are recommended for the treatment of ADHD; however, mindfulness skills may have an added benefit if supplemented to these regimens. Again, while promising, these studies have small numbers of participants, have largely been done with adults (only Marusak et al. was done with children and adolescents), and provide correlational findings, rather than causal. Thus, additional research is undoubtedly needed to replicate these findings, as well as show a causal relationship with these brain changes and behavioral improvements (e.g., better self-awareness, impulse control, etc.)

While promising research is emerging for mindfulness as an effective process intervention for ADHD, Krisanaprakornkit et al. (2010) conveyed meditation therapies for ADHD need to be further researched due to small sample sizes and potential for bias, similar to research findings regarding the commonly prescribed amphetamines for ADHD in children and adolescents (Punja et al., 2016) and social skills training for children with ADHD (Storebø et al., 2011).

Third-Wave Conceptualization of ADHD

While treatment protocols have dominated second-wave CBT approaches to common psychopathology, third-wave approaches, largely due to the influence of functional contextualism and RFT, are focusing more on process-based interventions. Thus, it is integral that third-wave clinicians have strong conceptualizations skills. If a patient with ADHD is presenting in specialty mental health settings, the patient most likely has comorbidities. This reality does not create a barrier for the transdiagnostic ACT clinician, and in fact, the ACT clinician (and many third-wave behavior therapists) embrace the idea that pain is an inevitable part of living. There is less focus on psychopathology and more attention towards helping patients to thrive and live a life that is meaningful despite painful and inevitable internal experiences. As stated previously, the authors are largely coming from an ACT and fACT perspective; thus, this will be the main therapeutic orientation used in the following case illustrations.

In ACT case conceptualization, one must realize it is a non-linear process. The six core processes work together in an interconnected fashion to produce psychological flexibility, and is often the case, the lack of psychological flexibility. We can “dance” as it is often referred to in the ACT literature, around the hexaflex in a nonlinear fashion. Again, we must remember that this is for illustrative purposes, as there is not a one size fits all approach.

ADHD Case Illustration and Conceptualization

To demonstrate the impact third-wave clinicians can have when helping patients with ADHD, two examples of the same patient are explored along with clinical implications. First, is a clinical example of John, who is a 28-year-old Caucasian male who is presenting to his PCP with complaints of concentration and attention difficulties that are impacting his relationship and work. Then another case example of John is provided; however, 20 years earlier, where John and his mother are presenting to their pediatrician after John's school psychologist suggested he receive medication therapy for his ADHD. During both case examples, readers should consider how the contextual information is impacting John's symptomology. Further, an ACT conceptualization is incorporated, along with potential treatment directions that were derived from a functional contextualism perspective. The six core processes we are working to upskill and subsequently impact psychological flexibility will be identified during the conceptualization sections. Although not specifically identified in the conceptualization sections, we remind readers that the six core processes are condensed into three pillars (values and committed action to engaged; present moment and self as context to aware; acceptance and defusion to open) in a fACT conceptualization. This is important to note as the authors are heavily influenced by the fACT approach.

Case Example One: John at Age 28 John is a 28-year-old Caucasian man who presents to his PCP with complaints of difficulty with attention and focus and hopes to start a medication to address his concerns. He explains to his PCP that he was diagnosed by a school psychologist when he was 8 years old and was subsequently started on a stimulant medication, which past medical records confirmed. While he has not been on medications since his mid-teenage years, he currently is having significant difficulty completing his work responsibilities, as well as effectively communicating in his relationship, which he explains, "because I cannot pay attention or complete things my girlfriend wants me to do."

The same day he comes in for his medical appointment, the PCP has John meet with one of the integrated behavioral health consultants (BHCs) who was able to see John immediately after his 15-minute primary care visit. The PCP specifically asks the BHC to help determine if John has ADHD and relevant comorbidities, as well as offer and implement any behavioral interventions that may support John. The BHC can also help determine if a future referral to a higher level of care (specialty mental health) is appropriate and/or feasible.

As the BHC (Dr. Smith), who comes from a third-wave behavioral approach and was trained in both ACT and fACT, enters the room, John informs her that he only has 20 min to meet due to needing to get to work. The BHC conveys that this will not be a problem and after explaining her role and discussing informed consent, begins gathering John's contextual information. The *Contextual Interview* (Table 1) was first introduced in Robinson et al.'s (2010) "Love-Work-Play" interview and was iterated in Bauman et al. (2018). Using the first visit to gather relevant

Table 1 Contextual interview

Contextual interview
Love (identify the patient’s social relationships)
Living situation
Relationship status
Family
Friends
Spiritual life
Work (identify the patient’s work and financial situation)
Work
Source of income
Play (identify meaningful activities to patient)
Hobbies
Fun activities
Health Risk & Behaviors
Caffeine use
Tobacco use
Alcohol use
Marijuana use
Street drugs use
Diet/supplements
Exercise
Sleep
Sexual activity

contextual information is central to a FACT approach, which is often utilized in medical settings where time is more limited (Strosahl et al., 2012). A Contextual Interview can be said to be similar to a behavioral functional analysis, as a clinician is able to get a “snapshot” of a day in life of John and see the antecedents, behaviors, and outcomes of symptoms of concern.

Dr. Smith intentionally prioritizes her time doing the contextual interview in order to focus on learning John’s context, rather than symptomology, as she knows John’s symptom presentation will be embedded within his context as she learns it. Within the first 12 minutes of the visit, Dr. Smith learns John lives with his “on again and off again” girlfriend of the past 10 years. Also living with John are two children, who are 9 and 7 years old. John explains he is the biological father of the 9-year-old; however, the 7-year-old is his girlfriend’s child from a relationship when they separated. John describes his relationship as “strained” with a lot of yelling from both sides. John also struggles with his “anger” and “patience” towards the kids and admits he is not always proud of how he behaves towards them. When asked who he is close to in his family, John offers that he had a difficult childhood and when he was 4 years old, his parents divorced due to domestic violence towards his mother. Since the divorce, John has had minimal to no contact with his biological father. John further explains his mom had numerous relationships growing up, causing John to move frequently with his mother. Currently, John reported he has a distant relationship with his mother and while he knows his mother went through a lot and “did the best she could,” it is easier to just keep to himself. John also has an

older sister and three half siblings that he rarely communicates with. John further explained that he only has one or two close friends who have been friends throughout his lifetime, explaining, "I know who I can trust, and I keep to them." John currently works as a gas station clerk and explained he has been having a difficult time focusing and completing his responsibilities, commenting his boss recently informed him he may lose his job if he is unable to complete his basic responsibilities. He further explains this is nothing new to him, as he struggled regularly through school, both behaviorally and academically, was placed in special education classes, and eventually dropped out of high school when he was 17-years old and obtained his GED. John has a few hobbies, such as video games and working on cars; however, he has not been engaging in them recently due to the stress of his work, as well as ongoing relational stress at home. John explains he drinks energy drinks regularly throughout the day, indicating it is the only thing that can keep him "focused." John also smokes one pack of cigarettes per day as it helps him with his stress. He discloses he drinks most nights to help him, "relax and shut my mind off." His alcohol use has been a point of contention with his girlfriend due to it causing him to disengage from his family. While John indicated he has tried many substances when he was a teenager and younger adult, he denies all other substance use currently. John remarked he is quite proud of himself for not using any substances, other than alcohol, for the past 3 years and states he is dedicated to never relapsing. He eats a convenience diet, consisting of food he picks up from the gas station where he works. He does not engage in regular physical activity and his sleep has been difficult for some time. Specifically, John conveyed, "I can't shut my mind off," before he goes to bed and while he is physically exhausted, it takes him usually 1–2 hours before he is able to fall asleep. Once asleep, John wakes up regularly throughout the night and has difficulty falling back asleep.

Congruent with what he told the PCP, when Dr. Smith asks specifically about his diagnosis of ADHD, he stated he was diagnosed by a school psychologist in third grade. John explained he was regularly getting in trouble at school and doing poorly academically. At that time, John was prescribed a stimulant medication by his pediatrician and although he thinks it helped him focus, he was inconsistent in taking it and eventually stopped taking it completely when he was a teenager.

Questions for the Reader After reviewing the information from John's *Contextual Interview*, what symptoms do we anticipate being present? Do we anticipate John to have inattention, impulsivity, and focusing concerns? How has John's context potentially shaped how he sees himself, as well as his world? Would we anticipate John to meet criteria for ADHD? Would we expect John to meet criteria for other mental health concerns?

ACT conceptualization After completing the *Contextual Interview*, Dr. Smith confirms, "John, based on what we've just discussed, it seems as though your relationship with your girlfriend and family (values) are most important to you...is that what we want to start addressing today, or is there something else we want to focus on?" John shrugged and said, "I just want help. I am tired of dealing with all of this,

I just want to be normal. I feel like I am going to lose my girlfriend and my job, and my kids will end up hating me if I don't figure out how to focus better and get things done like a normal person."

Dr. Smith reflects to John it appears his struggle with concentration and focusing has been present for some time, and, Dr. Smith suspects, is accompanied by a great deal of other symptoms, such as worry, anxiety, self-doubt, insecurities, etc. John responds, "now that you say that, yes, man, I must be really messed up." Dr. Smith recognizes John not only is not present (present moment) nor aware of what his internal process (i.e., thoughts, emotions, associations, memories, and body sensations [TEAMS]) are, he is fused (defusion) with the assumption that something is *wrong* with him. In a sense, John does not see himself as a reflection of his context, rather John sees himself independent of his context, thus, internalizing his ever-present and expected symptoms (self as context). While Dr. Smith can trace his symptoms back through his context, John appears to attribute his symptoms due to just simply "not being good enough" (defusion, self as context). Dr. Smith can also conceptualize after the *Contextual Interview* that many of his behaviors are attempts to rid himself of his uncomfortable symptoms (e.g., alcohol use, caffeine, cigarettes, isolation, etc.; acceptance). These avoidance behaviors, which provide John a momentary glimpse of relief via negative reinforcement, actually takes him further away from engaging in behaviors (committed action) that would line up with his stated values (values) and nurture his relationship with his family.

Using a metaphor of trying to put together a puzzle that was missing pieces, Dr. Smith begins to explain to John that she was asking him those questions to find those missing pieces. Dr. Smith explains when we gather more puzzle pieces and we start putting them together the image becomes clearer. And, based on what she has learned from John, his situation is becoming more and more clear. In fact, Dr. Smith explains, to her, it would be peculiar if John did not have symptoms congruent with ADHD, as his current and past contexts appear to be a soil from where such symptoms would grow, as well as other mental health diagnoses and symptoms. John with growing interests, inquires, "so, are you saying I *do not* have ADHD?" Dr. Smith replies, "truthfully John, it is probably going to be really difficult to tell, as there are many potential reasons for your symptoms. Honestly though, what we call it might not matter much.... What if instead we focus on getting you to where you want to be and I have some ideas on where we might start." John, with as a sigh of relief responds and a chuckle, "so I'm not too messed up after all, doc?"

A byproduct of a functional contextualism approach is there is no one right intervention, treatment option, or skill to work on. Rather, the goal is to find avenues to accomplish or achieve identified goals or values. For John, this may be improving his relationship with his girlfriend and children, which may result in Dr. Smith and John discussing a plan to reduce his alcohol use through stimulus control or daily routine and structure. Or, it might be via implementation of meditation exercises that could help John be present (present moment) with his uncomfortable TEAMS (acceptance) that he usually avoids through consuming alcohol. Interestingly, if the latter is decided to be implemented, and as indicated earlier, these mindfulness

exercises may have a desired side effect of improving his overall attention and concentration. Maybe, John decides what is most important to him is improving his job performance, which may result in Dr. Smith and John discussing sleep hygiene and restriction interventions to improve John's sleep, resulting in him being able to have more energy and focus throughout the day. Potentially this focus on improving his work situation could result in Dr. Smith and John making plans around the use of daily planners, identifying moments of potential distraction and brainstorming potential solutions, and pharmacological interventions to help promote attention. Again, meditation and mindfulness exercises may also be indicated with the goal being to improve work performance. Maybe, John conveys he feels his overall social interactions are most important, particularly with his children and estranged family members. However, preventing this from being accomplished are his uncomfortable TEAMS that prompts him to be cautious of others, resentful towards his mom and extended family, and easily frustrated when his children do not engage with him. Dr. Smith may then introduce experiential exercises that prompt willingness (acceptance) and help John defuse (defusion) from what his mind is telling him in hopes he will be able to gently and compassionately carry these uncomfortable TEAMS while engaging in actional behaviors (committed action) that line up with his value of family (values). Potentially, exercises such as the Program (<https://youtu.be/wrdZQDOo6EQ>) and Movie Metaphors (<https://www.youtube.com/watch?v=M2cUHdIoaLU&t>) could be initiated to help create more flexibility and compassion with John's internal context, resulting in more engagement in his defined values.

From an ACT and functional contextualism perspective, the right intervention is solely dependent on whether a behavior helps to achieve a desired outcome. First, second, and third-wave behavioral principles, as well as other psychological techniques, may be applied when the context prompts its use. And, the intention of applying respective interventions, whether it be one of ACT's six hexaflex principles or a cognitive distortion exercise, is only implemented when it is in service of an identified value. These principals will guide Dr. Smith and John's future work together.

Summary of John at 28 Years Old Although some may think this is a complex patient scenario, in our experience, this is a very common scenario in primary care. Patients come with complex psychosocial histories that are often prompting the very symptoms we are identifying as the problem and striving to eradicate. While patients may eventually enter the specialty mental health system (if appropriate, accessible, feasible, etc.) and receive standardized, evidence informed treatment protocols, more likely, patients will not move past a primary care office and are looking for explanations for their experience and pragmatic plans where they can see noticeable improvement. To us, third-wave behavioral and functional contextual approaches serves this reality well. Using ACT and fACT conceptualization allows the clinician to operate from a transdiagnostic standpoint. Instead of the goals being symptom reduction per se, the goals are to improve the functioning of the patient, based on what they are identifying as important to them.

The question of, “does John have ADHD?” may still arise from John and the PCP. From a purely diagnostic and protocol dependent context, we could easily come up with enough support to say, “yes,” John has ADHD. However, from a functional, process-based context that underlie third-wave behavioral philosophy, the question may not be of priority as the focus shifts to helping John clarify and move towards his overall values.

Now, let us consider a third-wave approach to a pediatric case. In fact, let us imagine what it could have looked like if Dr. Smith had met John (and his mother) during a pediatric visit 20 years earlier.

Case Example Two: John at Age 8 John is an 8-year-old Caucasian male that presents to his pediatrician with his mother, Sally. Sally explains to the pediatrician that John has been struggling regularly in school, as well as at home. His behavior, which includes acting out, not being able to be redirected, an inability to sit still for long periods of time, being easily distracted, among others, appears pervasive across both home and at school. Recently, Sally explains, John’s teacher made a referral to a school psychologist who felt John likely met criteria for ADHD and should be considered for pharmacological interventions.

Similar to the clinic described in Case Example One, after the 15-minute medical visit, John’s pediatrician requests Dr. Smith, the clinic’s integrated BHC, to visit with John and Sally to help with diagnostic clarifications and potential behavioral interventions and recommendations. Again, the BHC can also help determine if a future referral to a higher level of care (specialty mental health) is appropriate and/or feasible.

Upon entering the room, Dr. Smith is greeted by Sally and John and John immediately begins spinning on the exam room chair, resulting in Sally asserts, “stop doing that!” Dr. Smith introduces herself, gains informed consent, and proceeds to gather the *Contextual Interview* questions geared towards Sally and John. While John responds to some questions addressed to him, he is easily distracted by all the interesting exam room instruments, resulting again in Sally, this time more escalated, responding, “stop doing that!” Due to this, Dr. Smith offers John crayons and specific directions to sit and color on provided paper and coloring books. John can color on his own for a few minutes before he interrupts Sally and Dr. Smith, exclaiming, “look what I drew!” Sally, responds, “Johnny, be quiet,” and saying to Dr. Smith, “he just never stops wanting attention.” This pattern of interruption and acting out, as well as Sally responding each time, is seen repeatedly throughout the visit.

Dr. Smith gathers that Sally, John, and John’s older sister live with Sally’s current boyfriend of 4 months. Sally goes on to describe they recently moved in with the boyfriend after having financial difficulty. Also in the home is Sally’s boyfriend’s brother and sister-in-law, as well as their three children. When asked about John’s biological father, Sally begins to tear up and states they divorced 4 years ago after significant domestic violence in the family. Sally stated she finally left after her ex-husband began to escalate, stating, “I was okay with him doing that to me but not to my kids.” Sally adds that John’s father is incarcerated and has no contact with John,

nor any parental rights. Sally goes on to comment John and his older sister do not get along, as John constantly “annoys her.” Further, while John is mostly able to get along with Sally’s significant other’s children, they often fight over toys. Sally stated she is currently looking for work and is often not home due to her helping her boyfriend with his business. When she is not at home, John is watched by Sally’s boyfriend’s sister-in-law or friends of Sally. John commented he does not like many of Sally’s friends but does like the sister-in-law because she “is nice to me.” Since divorcing John’s father, Sally stated they have moved at least three different times and John has been to two different schools; although, the recent move to boyfriend’s home did not result in a school change for John. At school, Sally stated John has always struggled with socializing with others because “he annoys them.” Sally adds that teachers say he is easily distracted and has a difficult time being redirected. Sally did convey that John has unfortunately missed numerous days of school due to moves and John not wanting to go. When asked directly, John stated he enjoys playing video games and spending time with his mom watching movies, although, Sally said she rarely gets one on one time with John. Dr. Smith learns John consumes at least one soda a day and most adults in the home use cigarettes and alcohol; however, Sally denied any other substance use by members in the home. Sally said John is always active and he has a good appetite. Due to her busy schedule, however, she mentioned his diet is mostly “whatever is available.” Lastly, Sally said it is difficult getting John to bed every night. John shares a bedroom with his older sister and receives only 6–7 hours of sleep a night due to refusing to go to bed.

Dr. Smith also receives from the PCP the Vanderbilt Assessment Scale screeners (Wolraich et al., 2003) that score John positive for ADHD symptoms from both teachers and Sally. Through the visit, Sally regularly describes John as her “problem child,” and that he “takes after his father.”

Questions for the Reader After reviewing the information from John’s *Contextual Interview*, what symptoms do we anticipate being present? Do we hypothesize John to have inattention, impulsivity, and focusing concerns? How has John’s context potentially shaped how he sees himself and his world? Would we anticipate John to meet criteria of ADHD? Would we expect John to meet criteria for other mental health concerns? How does Sally see herself and her world and how does this impact John?

ACT Conceptualization Clearly, John is having symptomology that aligns with ADHD criteria and Dr. Smith is observing behaviors in the visit that reinforce this notion. However, Dr. Smith is also curious if much of what John is presenting with is a reflection of his context. While Dr. Smith believes Sally is doing the very best she can, essentially all reinforcement and attention is given to John’s poor behavior. Contrarily, when Dr. Smith asks Sally what does John do well, Sally has a difficult time identifying behaviors that John does well, eventually saying, “I guess he helps me cook when I let him.” Additionally, Dr. Smith is very keen to the budding relational frames that are being reinforced and built within John. Specifically, Dr. Smith sees how perceptive John is to the conversation they are having. Dr. Smith wonders

about the impact that Sally describing John as her “problem child” and stating he “takes after his father” has on him. Dr. Smith also starts to extrapolate about the messages he is receiving from his teachers and peers at school. Is he being delivered the message daily that he is annoying or a “bad kid?” Literally happening before her eyes, Dr. Smith sees the relational frames building that could potentially define John’s internal context for years to come.

Interventions for 8-year-old John will most likely reflect what is commonly seen in first-wave and second wave behavioral approaches to ADHD and pharmacological interventions may be indicated. John may also benefit from mindfulness and meditation exercises to strengthen his ability to self-regulate, focus, and shift attention from stimuli to stimuli. That being said, for a third-wave clinician, they will be equipped with a lens to organize the patient’s context and budding relational frames. They will be able to gauge progress via the lens of the six core processes that impact psychological flexibility.

This may spur Dr. Smith giving concerted focus and effort to educating Sally on contextual influences of John’s behavior and the importance of framing John’s behavior within the context from where they are coming from (self as context). Dr. Smith may explain to Sally that John seeks her attention and affection, like all kids seek from their parent. Providing Sally observed examples from the visit, Dr. Smith would explain how Sally unintentionally reinforced John’s acting out behavior and suggest to Sally alternative responses to John. Essentially, Dr. Smith may strive to help Sally see John’s behaviors in context and to help her adjust her behaviors to get a different outcome. She might also use psychoeducation to help her handle her reactions to John’s behavior with compassion and grace (present moment, acceptance, defusion). This will be a difficult ask as Sally is coming from her own context, one that Dr. Smith hypothesizes may have been filled with similar psychosocial strife. Indeed, asking Sally to provide John with stability, unconditional love and compassion, and constant attention may be hard for Sally to do within her current context. Thus, interventions aimed at helping Sally with her psychological flexibility may also be utilized. Clinicians should keep in mind that putting too much pressure on Sally to change her behavior without taking into account her context may cause Sally to disengage, which could be attributed to an avoidance process where she might have uncomfortable TEAMS regarding not being a good mother. Thus, Dr. Smith may need to work with Sally on becoming defused with her own TEAMS and compassionately move towards her value of being a loving parent towards John. Further, Dr. Smith may want to work with the medical clinic and potentially the school to fortify Sally and John’s support network. A referral for more specialized mental or behavioral health resources and/or treatment may be initiated as well.

Summary of John at 8 Years Old The unfortunate reality of John at 8 years old is that it will be very difficult to improve his symptom presentation without tangible changes to his environment and context. Clearly, being in chaos will produce chaotic symptoms and while a ADHD diagnosis may be warranted, interventions may be futile if the context from where the symptoms are derived is left unchanged. However, this speaks to even more reason for a third-wave approach that utilizes

functional contextualism to be utilized with John, even if the observed interventions reflect more first-wave behaviorism. Taking this approach may allow Dr. Smith, as well as the pediatrician and medical staff, to validate John's symptoms, create relational frames with John of love and support, as well as support Sally in her endeavors of achieving a more loving and stable environment. While a third-wave clinician may clearly work on impacting the immediate and present symptoms of ADHD, Dr. Smith will also be ever mindful of how her approach, interactions, and engagement shapes both John's and Sally's relational frames.

Summary

We end our journey where we began with Dr. Burke Harris detailing the influence of ACEs and the potential impact these contextual factors have on presenting symptomatology, such as ADHD. She ends her talk with a provocative statement, "The single most important thing that we need today is the courage to look this problem in the face and say, this is real and this is all of us" (TEDMED, 2015, 15:48). Whether it is ADHD, whether it is depression, whether it is obesity or diabetes, it would behoove healthcare to take a functional contextualism viewpoint and approach signs and symptoms with curiosity. Further, while first, second, and third-wave behavioral interventions may be indicated, mental health providers would benefit from looking at the realities of ADHD through a macro lens. Meaning, instead of solely developing interventions for the identified patient and their family, we need to identify interventions that address macrosystems, such as our communities, to create contexts where symptom presentations such as ADHD are less disruptive, not because they do not exist, rather, because the context helps to ameliorate them. Reflecting on John, what would his outcome have been if community resources, trainings, and support were made available for him and his mother, Sally? What would have happened if the entire community approached Sally and John with kindness, curiosity, and compassion? What happens when we create contexts of support, validation, and love? We hope, at the very least, this chapter inspires the reader to explore and, maybe, answer these questions.

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Chronic Pain: Perspective on the Second Wave



Leah M. Adams and Dennis C. Turk

Chronic pain, typically assessed as pain that persists for longer than 6 months, remains a significant public health issue affecting millions of people worldwide (Goldberg & McGee, 2011). Based on epidemiologic data from the 2016 National Health Interview Survey (NHIS), the Center for Disease Control and Prevention (CDC) estimated that approximately 20% of adults had chronic pain and 8% had high impact chronic pain (i.e., chronic pain that inhibited daily functioning). Chronic pain has been linked to anxiety, depression, disability, dependence on opioids, as well as poor perceived health and health-related quality of life. In the United States chronic pain is one of the most common reasons adults seek medical care (Rasu et al., 2013).

Chronic pain is not a single, cohesive disorder. Instead, it is a generic classification that includes a wide range of disorders. Individuals with chronic pain comprise a disparate group, with varying underlying pathophysiology, and widely diverse impacts on quality of life, function, and demands on the healthcare provider and society (Turk & Okifuji, 2002). It is a mistake to characterize all individuals with chronic pain as chronic pain patients, as for the majority of the time they are simply people living with chronic pain. It is only when they are in the office of healthcare providers that they become “patients,” just as a person with diabetes has to self-manage and cope with the impact of the disease on their lives and do not refer to themselves as “diabetic patients.” Unfortunately, for many people as pain becomes more chronic, they often come to develop an identity as a disabled chronic pain patient (Gatchel et al., 2007). This belief can set the individual with pain up for passivity, a “sick person” role, withdrawal, helplessness, and the downward spiral

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continues. These self-perceptions contribute to greater demoralization, passivity and ultimately, disability (Flor & Turk, 2011).

The relationship between the subjective experience of pain and pathoanatomic findings is often poor (Brinjiki et al., 2014). Moreover, for many chronic pain disorders (e.g., low back pain, fibromyalgia, headache) there usually is no objective evidence of underlying pathology that explains the symptoms making the diagnosis often somewhat challenging.

Despite truly impressive advances in medical and surgical interventions, including the development of novel drug treatments, chronic pain persists, as do its psychological, emotional, and social impacts (Turk et al., 2011). This is not to say that improvement in chronic pain management and reduction of its impact on quality of life is impossible (Gatchel et al., 2007).

There is a growing consensus that all chronic pain conditions reflect an amalgam of biologic, psychological, and social factors that is best assessed with a multidimensional perspective to determine further evaluation and treatment options. The International Association for the Study of Pain has recently updated the original 1979 definition to reflect advancements in the understanding of pain and to acknowledge that pain may exist even in the absence of objective physical pathology (Raja et al., 2020). The revised definition states that pain is “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage,” and is expanded upon by the addition of six key notes and the etymology of the word “pain” for further valuable context:

- Pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors.
- Pain and nociception are different phenomena. Pain cannot be inferred solely from activity in sensory neurons (i.e., nociception).
- Through their life experiences, individuals learn the concept of pain.
- A person’s report of an experience as pain should be respected.
- Although pain usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being.

International guidelines have proliferated for treating chronic pain using nonpharmaceutical, noninvasive, biopsychosocial therapies, as well as traditional medical modalities (e.g., Almeida et al., 2018; Qaseem et al., 2017; Van Wamneke et al., 2017).

The primary foci of treatments recommended for patients with chronic pain emphasize physical and functional improvements and gains in health-related quality of life, rather than an exclusive focus on “cure” or the complete elimination of pain (Flor & Turk, 2011; McCracken & Marin, 2014). There is support for the effectiveness of these multidisciplinary and multimodal treatments across several pain conditions (e.g., lower-back pain, fibromyalgia) (Guzmán et al., 2001; Hauser et al., 2009; Kamper et al., 2014). However, the results of these treatments have not always been consistent as evidence by meta-analyses (e.g., NICE, 2020; Williams et al., 2012). The NICE draft guideline does support the beneficial effects of

Cognitive-Behavioral Therapy (CBT, i.e., “second-wave”) and Acceptance and Commitment Therapy (ACT, a “third-wave” approach).

Much like chronic pain, psychological intervention has many manifestations with specific practices emanating from varied sources (i.e., theoretical orientations). Even though these conceptualizations and practices can be further categorized by psychotherapeutic paradigm (e.g., behavior therapy, psychoanalytic therapy), there are key differences within a paradigm that have emerged over time. In this chapter, we aim to highlight the contributions of CBT, the second wave of behavior therapy, namely, to the treatment of individuals experiencing chronic pain. We accomplish this by identifying primary distinctions between the approaches (i.e., conceptualizations, goals, practices) of the second wave and the first and third waves of behavior therapy, applying a CBT conceptualization to a sample case, and ending with an examination of the evidence base for each of the three waves. We believe that moving towards an understanding of *under which circumstances* and *for whom* each wave’s perspective and tools provide maximum benefit is a more fruitful endeavor than simply choosing a “top contender” across all conditions or all patients.

Variations in Chronic Pain Treatment Across Waves of Behavior Therapy

Although we emphasize differences in this chapter, it is evident that the three “waves” of behavior therapy share some common components, such as building a working alliance between therapist and patient, engaging patient motivation, and promoting self-management through patients’ actions (Table 1). In this section, we provide a brief overview of each wave’s foundational principles and discuss how they conceptualize the maintenance of chronic pain and pain interference. We also note the goals of psychological intervention for chronic pain according to each paradigm.

First Wave

First wave approaches to pain treatment focus on the roles of classical conditioning, operant conditioning, and social learning (de Jong et al., 2005; Goubert et al., 2011; Morley, 2011). First wave clinicians conceptualize behaviors like activity-restriction, avoidance of pain-exacerbating experiences, and visible pain behaviors (e.g., verbal reports, gestures, medical visits) using these concepts. Classical conditioning principles can help explain activity-restriction and avoidance of subsequent pain. For example, a person who experiences a pain flare-up while engaging in a favorite activity (e.g., gardening) may become “conditioned” (learn) to experience a negative emotional reaction the next time they are tending to their garden. Eventually, they

Table 1 Comparisons of three waves of behavior therapy approaches to chronic pain treatment

	First-wave	Second-wave	Third-wave
Assumptions regarding what maintains pain & pain-behaviors?	Reinforcement for pain behaviors Lack of positive reinforcement for “well” behaviors	Negative beliefs about pain Catastrophic thinking Low perceived control Low self-efficacy Reinforcement of pain behaviors Lack of positive reinforcement for “well behaviors”	Futile attempts to control one’s thoughts, feelings, and sensations Constant seeking of symptom relief, rather than striving for personal life goals and values
Goals for treatment	Modify pain-related behaviors	Promote self-management of pain Reduce pain-related distress Reduce pain-related interference Modify pain-related behaviors Correct maladaptive and unhelpful thoughts and beliefs related to pain Increase self-efficacy for pain management	Promote self-management of pain Reduce prominent role of pain Acceptance of pain Increase personal goal- and values-directed behavior
Techniques used in treatment	Engaging patient motivation Exposure Changing environmental contingencies	Alliance building Engaging patient motivation Guided training and practice with techniques Cognitive restructuring Relaxation training Activity pacing Assertiveness training Out-of-session practice	Alliance building Engaging patient motivation Values identification Mindfulness practice Metaphor Paradox

may avoid gardening entirely out of fear that they will experience more pain in the future. Notably, anticipatory fear acquired through such conditioning is used to explain why avoidance behavior is maintained.

Although practitioners of the first wave acknowledge that pain is largely a private experience, they emphasize that pain plays an important communication role and that publicly observable expressions of pain are reinforced by one’s environment (hence, operant conditioning), noting that pain interference persists due to reinforced pain-related behaviors (e.g., reduced physical activity, medication use, limited social interactions) and lack of positive reinforcement for “well” behaviors (Morley, 2011). The maintenance of pain behaviors can be understood through operant conditioning and social learning principles in which people directly

experience or learn from viewing others that some pain behaviors are reinforced. For example, a person whose partner provides more caring attention when they verbalize their pain experience or is able to briefly escape pain by resting will be reinforced to continue to speak up about their pain and to continue to avoid activity. Importantly, these behaviors may continue to occur despite potential disruption caused in the relationship (e.g., caregiver burden) or further physical deconditioning that contributes to subsequent pain.

Within the first-wave conceptualization of chronic pain treatment, intervention focuses on modifying pain-related behaviors (Morley, 2011). From a classical conditioning perspective, exposure to the feared and avoided behavior (e.g., physical activity) is key. Repeatedly engaging in the behavior produces progressively less pain than anticipated, which leads to reduced anticipatory fear, anxiety, and avoidance associated with the behavior (Boersma et al., 2004; de Jong et al., 2005). Operant conditioning and social learning principles are used in first wave interventions for chronic pain by changing environmental contingencies and settings where pain behaviors take place (Flor & Turk, 2011). For example, families can be taught to ignore pain behaviors in their loved ones, and instead reinforce wellness behaviors (e.g., Thieme et al. 2005). Operating in tandem, the combination of exposure to more activities and revised patterns of reinforcement can help move the attention away from pain and its associated behaviors to improved functioning and better quality of life.

Second Wave – Cognitive-Behavioral Therapy

First wave approaches emphasize overt behaviors largely to the exclusion of the interior workings (e.g., thoughts, emotions) of the person (Morley & Williams, 2015). The development of cognitive therapy in the 1960s, with its focus on the mediational role play by an individual's interpretation of their events, such as their beliefs about the situation and expectations about what may come, on their emotional and behavioral responses provided a new perspective to the treatment of chronic pain. The integration of the behavioral perspective and cognitive perspective into the cognitive-behavioral (CB) perspective is a hallmark of second wave approaches to chronic pain treatment. The CB perspective has a set of key assumptions (Turk & Meichenbaum, 1984). These include:

- Individuals are active processors of information rather than passive reactors.
- Individuals' thoughts (e.g., appraisals, attributions, expectancies) can elicit or modulate their affect and physiological arousal, both of which may serve as impetuses for behaviors. Conversely affect, physiological processes, and behavior can instigate or influence individuals thinking processes and the content of their thoughts.
- Behavior is reciprocally determined by the environment, contextual factors, and individuals.

- Individuals have learned maladaptive ways of thinking, feeling, and responding based on their experiences.
- In the same way as individuals are instrumental in developing and maintaining maladaptive thoughts, feelings, and behavior; they can, are, and should be considered as active agents of change of their own maladaptive modes of responding.

Although the American Psychological Association has deleted the hyphen from the original formulation (Meichenbaum, 1995), we believe the hyphen is important as it underscores the interaction of behavioral and cognitive principles. As we discuss later, it is important to distinguish between the general CB perspective and the particular techniques used within it; specific practices often reflect a single component (i.e., cognitive technique, behavioral technique), but are used jointly to reflect the contributions and interactions of both perspectives.

Applied to the treatment of chronic pain, CBT incorporated elements from the Gate Control Theory (GCT) of pain, which integrated psychological with physiological factors to understand the experience of pain (Melzack & Wall, 1965). According to GCT, a trio of systems, sensory-discriminative, motivational-affective, and cognitive-evaluative, are involved in the subjective experience of pain. Notably, the theory not only highlighted the presence of psychological processes in the interpretation of pain, but also postulated that both physiological and psychological factors can each amplify, attenuate, and moderate the perception of pain. This theory continues to provide a strong foundation for understanding and intervening upon chronic pain, spurring the development of subsequent frameworks that incorporate the influence of psychological factors into the pain experience, hence the biopsychosocial model (Gatchel et al., 2007; Jensen & Turk, 2014), under which many practitioners of second wave approaches to pain treatment operate.

The CBT perspective maintains the importance of pain behaviors, conditioning, and social learning indicative of the first wave approaches, but supplemented this conceptualization with the role of cognition and emotion. That is, second wave clinicians recognize that while specific behaviors are critical targets of pain treatment, how a person thinks about their pain and about their life in the presence of pain can have a significant impact on their quality of life. While the CBT conceptualization promotes the importance of psychological factors such as beliefs, expectations, and emotions [] in chronic pain, it is critical to note that it does not presume that pain is *caused* by psychological factors alone. Instead, these features are viewed as necessary to the understanding of how pain is experienced. There is an extensive literature examining the cognitive factors that contribute to the maintenance and progression of chronic pain and disability (Burns et al., 2003; Ehde et al., 2014). We highlight several primary cognitive factors that frequently emerge in this literature, including beliefs about pain, catastrophic thinking, self-efficacy, and perceived control.

Beliefs About Pain

Beliefs about pain develop over time, incorporating the individual's unique learning history (Adams & Turk, 2015; Flor & Turk, 2011). In this way, the combination of reinforced behaviors and conditioned responses contribute to the way in which people with pain interpret their pain experiences. Beliefs about pain play a key role in how people appraise their pain, including its perceived severity and impact, and on how they respond to pain. In an interesting study, Benedetti et al. (2013) induced pain in a group of pain-free adults. They found that when participants were told that the pain indicated that there was an "adverse event," they expressed a lower pain tolerance than those who were told that pain experienced was "beneficial to the muscles," highlighting the role that beliefs play in the subjective experience of pain. Experience of the same event (e.g., pain) can vary widely, in part, because of individual differences in interpretation of the event; these interpretations will lead to drastically different emotional (e.g., fear, anger) and behavioral (e.g., activity, rest) responses. This point reifies the significance of the CBT approach relative to the first wave – because behavior and emotions are influenced by one's interpretation of events, and not just the objective, observable characteristics of the event, an approach that fails to incorporate beliefs may misattribute and or miss-specify the relationships between pain experience and pain behavior.

Catastrophic Thinking

Catastrophic thinking is a cognitive style in which a person expects the worst possible outcome to occur due to a distorted negative view of their problems. As may be clear, this thinking style is particularly unhelpful in the context of chronic pain, with an abundance of evidence suggesting that it is often detrimental (Gatchel et al., 2007). Research highlights that people who endorse more catastrophizing thoughts report more intense pain, more pain-related interference, greater psychological dysfunction, and declines in social support relative to those who do not use this thinking style (Edwards et al., 2006; Quartana et al., 2009; Sullivan et al., 2001; Turner and Aaron, 2001).

In the Fear-Avoidance Model of pain, catastrophic and overly negative thoughts and beliefs about pain promote disabling fear and avoidance of the activity because people misinterpret their pain as a sign of significant injury or pathology, even though this is rarely the case for those with chronic pain (Crombez et al. 2012; Turk & Wilson, 2010). This catastrophic thinking leads to pain-related fear, hypervigilance, and then avoidance, disability, and distress. Importantly, the Fear Avoidance Model incorporates both cognitive (e.g., catastrophic thinking) and behavioral (e.g., activity avoidance) components to explain pain interference. A key benefit of explicitly noting the role of catastrophic thinking is that it represents a robust and modifiable mediator between the behavioral manifestations of activity restriction and avoidance described by conditioning processes mentioned above. In hundreds of

studies, catastrophizing has emerged as both a predictor of poor adjustment to pain and a specific target of intervention [e.g., Edwards et al, 2006].

Reduction of pain catastrophizing may moderate and mediate the outcome of both physical and psychologically focused rehabilitation for chronic low back pain (Bunzil et al. 2006; Goodin et al., 2009; Treharme et al., 2005). Therapies for chronic low back pain that explicitly target pain-related cognitions including, but not limited to, pain catastrophizing appear to be able to modify these cognitions (Bunzil et al, 2006; Goodin et al., 2009). There is also some preliminary data that those who benefit most in terms of pain and disability display the most significant changes in pain-related cognitions (Trompetter et al., 2015). It is important to note that other techniques not targeting catastrophizing thoughts per se, such as (but not limited to) third-wave approaches including mindfulness-based therapies (Day, 2017) and ACT (Feliu-Soler et al., 2018), have also reported decreases in pain catastrophizing after treatment (Vowles et al., 2007).

Perceived Control

When individuals believe that they cannot predict when they will experience pain or that they have no control over its impact, they may lose motivation to engage in self-management strategies needed to function well in the presence of pain. If one cannot control any aspects of experience related to pain, then what use would it be to try anything at all (e.g., medication, psychotherapy, physical therapy) - learned helplessness? Perceived control, then, is another important cognitive contributor that second wave behavioral therapists address in their conceptualization of chronic pain. Data suggest that, in general, people who are low in perceived control over their pain are more likely to feel helpless and report worse pain-related outcomes such as poorer satisfaction with life, worse adaptation to pain, and greater pain intensity (Keefe et al., 2004; Turner et al., 2007). In considering the role of perceived control in pain management, caution is warranted. Within the CBT perspective, practitioners acknowledge that a degree of perceived control over one's life and how it unfolds is relevant to stimulate action, but they also recognize that not all elements of the pain experience are under an individual's direct control. Evidence suggests that when actual control over a situation is low, repeated attempts to control pain or eliminate it may be iatrogenic (Crombez et al., 2008; Gilliam et al., 2010). In the case of chronic pain management from the CBT perspective, the Serenity Prayer provides appropriate guidance: "Grant me the serenity to accept the things I cannot change, courage to change the things I can, and wisdom to know the difference." Indeed, recognizing this difference between that which is under control and that which is not, supports the CBT approach's focus on reducing pain interference, rather than eliminating pain itself (McCracken & Turk, 2002; Turner & Romano, 2001).

Self-Efficacy

If perceived control represents a person's thoughts about the degree to which they can exert influence over their pain experience, self-efficacy represents the extent to which they view themselves as having the skills necessary to successfully perform the tasks needed to effectively do so in a given situation (Bandura, 1978). Within the CBT perspective, self-efficacy is another key cognitive component to target to maximize the benefit of pain treatment. A person's self-efficacy beliefs dictate in which activities they choose to engage, how much effort they put forth, and their degree of persistence in those activities. Self-efficacy can be modified through intervention, and research demonstrates that for people with chronic pain, improvements in self-efficacy can lead to reductions in pain interference, better physical functioning, and improved psychological adjustment (Keefe et al., 2004; Marks, 2001). The principal strategies proposed to increase self-efficacy are performance accomplishments, vicarious experience, verbal persuasion, and awareness of physiological states (Bandura, 1978). Attention to each of these sources of information is integrated into CBT.

Chronic Pain Treatment Within the CBT Approach

The goals of CBT for chronic pain map onto the emphasis on the roles of behavioral, cognitive, and affective factors in the maintenance and progression of chronic pain interference. Importantly, as mentioned above, CBT does not have an explicit focus on reducing or eliminating the experience of pain in and of itself. Instead, emotional distress related to pain and pain-interference are targets (Flor & Turk, 2011; Skinner et al., 2012). Behavioral goals within the CBT paradigm focus on improving physical function and social role function by helping individuals decrease maladaptive behaviors that do not serve their life goals. Affective and cognitive goals focus on identifying and correcting maladaptive thoughts and beliefs, especially related to fear, avoidance, and catastrophizing. Further, CBT for chronic pain emphasize building a person's self-efficacy (a personal judgment of how well one can execute courses of action required to deal with prospective situations, Bandura, 1978) for pain management, including encouraging adaptive levels of perceived control that recognize the potential to exert some influence over one's experience, while maintaining an awareness that some things exist beyond our control. Moreover, the CBT emphasis is not just on suppressing uncontrollable thoughts, which, as noted previously, can have negative unintentional consequences, but importantly on attending to maladaptive thoughts and attempting to restructure these by exploring their validity and considering alternative and more adaptive constructions.

Given the multiple aims of CBT for chronic pain, the techniques within it vary. Notably, CBT represent a variety of specific techniques, with some having origins in behavior therapy and others in cognitive therapy and hence the importance of the *hyphen* between cognitive and behavioral. There is no single, definitive CBT protocol, and most efforts under the generic CBT labelled several components in order to

accomplish the behavioral, cognitive, and affective goals of treatment (Ehde et al., 2014; Morley & Williams, 2015). What is common across CBT approaches are the inclusion of a structured and guided training; clinic and home practice of a variety of pain self-management skills, including relaxation techniques for stress management, activity pacing, assertiveness training; and cognitive restructuring as importance of thoughts as a key process.

Treatment of A Chronic Pain Patient: Ms. M

Ms. M was a 40-year old woman who presented to treatment with a 20-year history of chronic pain. Over the course of her pain diagnosis, she had tried many different medications for pain management. Though some medications helped initially, over time they were less effective. Ms. M acknowledged a negative relationship with her primary medical provider, noting that “they think I’m just making it all up”. Ms. M reported that her pain prevented her from maintaining a romantic relationship (though she endorsed desperately wanting to be in a relationship), strained her friendships, and disrupted her productivity at work. She described her evenings and weekends as “mostly spent on the couch, watching show after show on Netflix.” Ms. M presented to the first session of therapy stating that her life and her potential were “wasted” and with little hope that her circumstances could be improved.

Many of our thoughts throughout the day arise somewhat spontaneously and provide a running commentary of environmental events. These “automatic thoughts” often occur in response to or in anticipation of pain. In cognitive restructuring, patients are guided to become aware of negative thoughts that work against them and then examine whether the thought is true, partly true, or partly false, along with the degree to which the thought, even if partly true, is helpful to them in meeting their goals. Early on, Ms. M identified that many of her thoughts about pain focused on her feelings of helplessness, and contributed to her “giving up” and “giving in” with regard to engaging in efforts to reduce its impact. After identifying how such thoughts not only made her feel worse, but also guaranteed that she would “waste my [her] time,” Ms. M was taught how to come up more realistic, helpful, and less negative thoughts. Notably, Ms. M’s restructured thoughts acknowledged that she may not eliminate pain, but highlighted the ways in which she could still engage in meaningful activity and not waste her time, even in the face of pain. Thus, the emphasis was neither on crafting overly positive, unrealistic thoughts nor on suppressing maladaptive thinking.

By the time Ms. M began attending therapy, she engaged in very few routine activities throughout the day. Common to many chronic pain patients, she reported getting stuck in a “boom or bust” cycle in which she would maximize her activity in a given day, experience a pain flare-up following the activity, attribute that pain flare-up to new injury and then “rest” for the subsequent days, resulting in almost no activity, further reinforcing activity restriction, and strengthening her feelings of helplessness. Using graded exposure to physical movement, Ms. M learned that appropriately paced physical activity using proper body mechanics does not create

injury or pain exacerbations. She learned to pace her behaviors to avoid getting stuck in the “boom or bust” cycle, and ultimately changed her judgment that physical activity causes injury to the body. This is an illustration of using behavioral strategies to reduce feeling of helplessness. By the end of her time in CBT (approximately 12 weeks), Ms. M had reinitiated dating, reconnected with two of her closest friends, and had developed a daily routine, which included regular, mild physical activity. She reported improved mood, and though she still acknowledged mild to moderate pain intensity on many days, she noted that it rarely got in the way of her daily tasks.

Table 2 shows common components of CBT which includes exposure to activity that may have been avoided or restricted, with an emphasis on attending to and engaging with one’s thoughts to address cognitive errors or unhelpful thinking patterns that contribute to lowered quality of life. A key component is the provision of activities to be performed between sessions (i.e., homework); this work provides the opportunity to practice applying new skills and time to reflect upon their impact. CBT efforts also vary in the number of sessions and format of treatment, as it can be successfully delivered in various formats including in individual, group, or technologically-enhanced formats (Ehde et al., 2014).

Some criticisms raised about CBT are that it requires patients to engage in abstract reasoning, to have comfort with reading and writing, and written homework adherence. However, the content of CBT has been shown to be readily adapted and simplified for those with lower reading and cognitive function (Thorn et al. 2018). Moreover, CBT has been shown to be successful and readily adaptable for use with children and adolescents with chronic pain (Eccleston et al., 2014).

Table 2 Common components in second-wave behavior therapy approaches for chronic pain treatment

Practices
Motivational enhancement, patient engagement
Education: Pain, self-management, communication with significant others including health-care providers, adherence to treatment components, resilience
Cognitive restructuring, self-reinforcement
Problem solving
Activity pacing
Goal-setting
Cognitive and behavioral skills training
Relaxation training
Exposure (e.g., behavioral experiments)
Management of flare-ups
Home practice
Relapse prevention

Third Wave

Third-wave behavior therapy is grounded in relational frame theory and functional contextualistic philosophy in which suffering is viewed as the result of futile attempts to control and fight against one's thoughts and feelings (Feliu Soler et al., 2018). Third wave approaches are also known as acceptance-based and mindfulness-based strategies, sometimes employed together with commitment and behavior change strategies, known cohesively as ACT (Hayes, 2004). Importantly, mindfulness-based stress reduction (MBSR) interventions exist as standalone treatments outside of ACT, and Dialectical Behavior Therapy (DBT) is also a third-wave behavior therapy. However, much of the literature on the effectiveness of third-wave approaches for chronic pain focus on ACT (Feliu Soler et al., 2018; McCracken & Vowles, 2006). As such, much of our discussion will center on ACT.

Psychological flexibility is a central tenet of ACT, and refers to the ability to act in accordance with one's own values, even in the midst of interfering or uncomfortable thoughts, feelings or bodily sensations (Hayes et al., 2006). This idea is a development from cognitive therapy (McCracken & Marin, 2014), but rather than being *an* important element as in CBT, it is viewed as *the* key to maximized functioning. Psychological flexibility is conceptualized as having six subcategories: (1) acceptance, (2) cognitive defusion, (3) flexible present-focused attention, (4) self-as-context, (5) values, and (6) committed action (Feliu Soler et al., 2018). Acceptance represents not only acknowledging that unwanted experiences (e.g., painful sensations, negative thoughts, negative feelings, painful memories) are inevitable parts of life, but also that these unwanted experiences may be necessary to the extent that they are connected to one's goals (e.g., to engage in a pleasurable activity such as hiking, you may experience pain). Cognitive defusion is the practice of differentiating between one's thoughts and experiences related to thoughts. While this is similar to cognitive restructuring within the CB perspective, the distinction is that in CBT, thoughts are analyzed for distortions and maladaptive patterns in which their validity and alternative interpretations are addressed, whereas the focus in cognitive defusion is solely to label thoughts as entities that may come and go, rather than actively engage with rational disputation of them. Flexible present-focused attention encourages a connection with the present and a tracking of moment-to-moment experience; this may mean recognizing painful sensations, but also noticing other experiences in the moment too, rather than exclusively focus on pain. This focusing on pain is contradictory to CBT where focusing on pain directly is seen as maladaptive and can exacerbate the experience.

Within ACT, self-as-context highlights a distinction between thoughts, feelings, and the person who observes them; while this idea also has ties to cognitive restructuring from CBT, the same distinction as above applies. The last two components of psychological flexibility, values and committed action, are concerned with the identification of and purposeful action towards one's idiographic values and goals (Feliu Soler et al., 2018; McCracken & Vowles, 2006) despite pain, which is viewed as largely uncontrollable so is simply accepted as a fact. Though the naming

conventions of these two components of psychological flexibility are different, they appear to share significant amount of overlap with goal-setting, self-efficacy, and positive activity planning seen in CBT.

With regard to pain, ACT conceptualizes pain interference as the result of people's constant search for immediate symptom relief, rather than learning to live with discomfort. Attempts to control pain and pain-related difficult experiences are conceptualized as the cause of suffering, rather than an effective remedy. As such, goals for chronic pain treatment within ACT focus on reducing the dominant role that pain plays in their life and helping patients act in accordance with their self-defined goals and values. Notably, ACT does not focus on symptom reduction, including pain intensity or emotional symptoms associated with pain. In fact, the labeling of difficult thoughts or behaviors as "symptoms" is viewed as problematic because it is the label that creates the internal struggle, rather than the experience itself. Treatment from an ACT perspective is considered successful when a person reports improved daily functioning, not necessarily a change in pain intensity or other emotions; that is, a person may continue to experience moderate pain and may continue to experience symptoms of anxiety associated with it, but no longer feel compelled to fight against them, and can instead recognize these sensations/feelings and still work toward their goals.

Specific intervention techniques within ACT share overlap with earlier waves of behavior therapy, though the implementation differs. For example, while exposure is an important treatment technique within ACT, practices such as measuring one's subjective units of distress or other active engagement with their thoughts or feelings are not included. Key concepts are frequently communicated through the use of metaphor and paradox. Other exercises and techniques within ACT are tied to the subcomponent of psychological flexibility they are aimed at enhancing. Similar to CBT, ACT can be delivered in various modalities, including individual, group, and technologically-aided formats (Feliu Soler et al., 2018; Hughes et al., 2017).

Evidence Base for Chronic Pain Treatment Across Waves of Behavior Therapy

In this section, we outline the evidence base for chronic pain treatment across the three waves of behavior therapy. We argue that at this time, the CBT and third waves have comparable levels of empirical support for their use in chronic pain treatment. Rather than seek to find the "best" approach, we highlight continuing limitations in the literature that are applicable across waves. We conclude with a call for researchers and practitioners to move towards building an evidence base for when and how to tailor each wave's approach to the unique needs of clients with chronic pain, and outline some possible circumstances in which second wave approaches may be preferable to others.

There have been few efforts to compare the efficacy and effectiveness of chronic pain treatment across the first-wave, behavioral treatments, and CBT. When they have been compared the results suggest that these two approaches appear to have different outcomes for patients with different pre-treatment characteristics. For example, Theime et al. (2007) found that at baseline fibromyalgia patients who responded to an operant behavioral treatment displayed higher levels of pain behaviors, physical impairment, physician visits, solicitous spouse behaviors, and level of catastrophizing; whereas responders to CBT had higher levels of affective distress, lower coping, less solicitous spouse behavior, and lower pain numbers of behaviors.

Across much of the research on clinical trials, CBT produces small effect sizes for pain intensity and disability, and moderate effect sizes for mood and catastrophic thinking across pain conditions when compared to controls (Williams et al., 2012). These effects are strongest immediately following treatment, and by 6–12 months post-treatment, most effects only remain for mood (Ehde et al., 2014; Williams et al., 2012); whereas conditioning based behavior therapy produced only small improvements in mood immediately after treatment when compared to control (Williams et al., 2012). Although the authors commented on CBT's strongest effects against treatment as usual/waiting list conditions, rather than active controls, they highlighted an absence of evidence for behavior therapy on most outcomes (Williams et al., 2012).

The evidence base developed for CBT is considerably longer than that of third-wave treatment, with over 30 years of RCTs testing its efficacy, though most trials focus on back pain, headache, or arthritis-related pain (Ehde et al., 2014). Direct comparisons between CBT and ACT are more plentiful than those between first wave behavioral treatments and CBT, but not particularly revelatory. As McCracken and Vowles (2006) point out, despite some differences in terminology and areas of emphasis, one of the problems inherent in comparing ACT to CBT is that ACT *is* CBT. The authors go on to note that in order to meaningfully demonstrate one approach's superiority over the other, given the significant overlap in methods used, studies would require very large sample sizes that are not currently available (McCracken & Vowles, 2006).

Both CBT and ACT have the classification of “well-established treatment” for chronic pain by the American Psychological Association (Feliu Soler et al., 2018). Recently the draft guideline for the National Institute of Clinical Excellence (NICE) in the United Kingdom recommends CBT and ACT for the treatment of patients with chronic pain (NICE, 2020). Although some have challenged the methodological shortcomings of the work supporting this classification for third-wave treatment (Öst, 2014), several systematic reviews and meta-analysis support the efficacy and effectiveness of both CBT and third-wave approaches (Ehde et al., 2014; Hann & McCracken, 2014; Hughes et al., 2017; Veehof et al., 2011, 2016; Williams et al., 2012). At this time, there is no strong, consistent evidence that either CBT or third-wave approaches are superior over the other, though some individual studies demonstrate better results for CBT relative to ACT (e.g., Hughes et al., 2017). Hughes et al. (2017) found that CBT produced larger improvements in quality of life, depression, and pain intensity than did ACT in their review of 11 RCTs; however,

they tempered these conclusions because all effect sizes were small, the sample sizes of the trials were also small, treatment fidelity was not assessed, and concerns about researchers' expressed "allegiance" to particular approaches were not addressed. A meta-analysis of 28 studies of mindfulness and acceptance-based interventions found no significant pattern of differences in treatment effect between ACT and CBT (Veehof et al., 2016). Interestingly, as Veehof and colleagues note, some of the mindfulness-based studies assessed incorporated elements traditionally associated with cognitive and behavioral approaches, highlighting the significant overlap present between waves.

Beyond overlapping in the specific techniques used in the studies comparing CBT and third-wave treatment for chronic pain, there is also evidence of conceptual overlap in the proposed mechanisms of action that produce effects on pain-related interference for both second and third wave approaches. For example, even though psychological flexibility is not explicitly named as a target of CBT, changes in pain-related outcomes in a CBT intervention were mediated by changes in pain acceptance (Åkerblom et al., 2015). In a follow-up study published this year, these researchers found that several ACT concepts, including psychological flexibility, acceptance, committed action, and values-based action mediated pain treatment outcomes in a traditional multicomponent CBT intervention (Åkerblom et al., 2020). This is not a unidirectional finding; indeed, Trompetter et al. (2015) demonstrated that although the hypothesized mechanism of action, changes in psychological inflexibility, mediated the relationship between an online ACT program and pain outcomes, so did catastrophizing, a critical element of second wave approaches not directly targeted in third-wave treatment; notably, reductions in catastrophic thinking remained a significant, independent mediator of pain-related improvement. Taken together, the current state of the literature suggests that non-specific commonalities across modalities may be more important than the specific details that distinguish between the second and third-waves of behavior therapy.

Challenges in Evaluating Efficacy and Effectiveness of Waves of Behavior Therapy for Chronic Pain

Despite a wealth of literature examining psychological interventions, especially those emanating from the waves of behavior therapy, on chronic pain, there are considerable limitations to the extant work. To date, one of the biggest challenges in evaluating the relative impact of various waves of behavior therapy is that most RCTs employ inactive, rather than active, controls. Although demonstrating an improvement against treatment as usual is a critical first step in establishing support for a novel approach, we believe that we are well beyond that phase, particularly given the over 30-year history of RCTs for CBT's impact on pain.

Studies inconsistently specify and assess theoretically-driven mechanisms of action in much of this literature (Ehde et al., 2014). Hypothesized drivers of change

in CBT, such as pain-related beliefs, catastrophic thinking, and fear avoidance are frequently assessed at baseline and demonstrate expected relationships with pain at the start of these interventions (Gatchel et al., 2007; Thieme et al., 2007), but are inconsistently measured as mediators during the course of treatment. Trials of third-wave approaches on chronic pain share a similar problem, but also have an added concern of an almost exclusive focus on psychological flexibility, to the near exclusion of other critical components of ACT. For example, while self-as-context is conceptualized as an active therapeutic process in ACT, there were no validated measures of the construct prior to 2016 (Yu et al., 2017). Unfortunately, this failure to adequately assess proposed mediators or the exclusion of them altogether makes it difficult to know when specific effects take hold or how mediators are temporally related to each other. This knowledge could help to not only distinguish between the waves of behavioral therapy, highlighting common and unique mechanisms of action, but could also help identify primary versus secondary mediators, or sufficient versus necessary targets of treatment.

We have highlighted how varied the specific techniques used across waves of behavior therapy are, and have noted the overlap present in their delivery. More detail about trials that assess the impact of these interventions on pain are needed in order to improve our knowledge base about how these therapies work. For example, explicit assessment of and inclusion in publication of treatment fidelity, information regarding clinicians' training and competence, assessment of client engagement, and clear delineation of the intervention techniques used would clarify important details about the effects of individual trials (Ehde et al., 2014). It is heartening to know that the quality and reporting of methods for trials focused on CBT have improved over time given the long history of this work (Williams et al., 2012). Hopefully, the same trajectory will hold for third-wave approaches given that Veehof et al. (2016) did not find evidence of improvement in the quality of studies between their initial meta-analysis (Veehof et al., 2011) and their subsequent one of acceptance and mindfulness-based interventions for chronic pain.

For Whom and Under Which Circumstances Are Second Wave Treatments Superior?

Interventions emanating from behavior therapy are efficacious for chronic pain management, with stronger evidence for second (i.e., CBT) and third (e.g., ACT) wave modalities than first (e.g. behavior therapy). However, both later waves would benefit from continued evaluation of the proposed and actual mechanisms of action (e.g., mediators) for change in pain-related outcomes. Despite head-to-head matchups, it appears that CBT and third-wave approaches are generally evenly matched when it comes to pain-related outcomes (e.g., Cherkin et al., 2016; Turner et al., 2016). Given this knowledge, we believe that it is a better use of time and resources for researchers to work to identify moderators of each wave of therapy's effects to

understand for whom and under which circumstances either approach may be most beneficial. For example, Wetherell et al. (2016) found that though there were no differences in credibility, attrition, satisfaction, or expectations of positive outcome across treatment groups, older adults randomly assigned to 8 weeks of group-based treatment responded more favorably to ACT than to CBT. Younger adults were more likely to respond to CBT. The authors speculated on the cause of this effect, but work aimed at clarifying these differences could help better target and calibrate treatment.

Importantly, third-wave approaches emphasize psychological functioning and de-emphasize psychological symptoms, while CBT focuses on both maximizing positive function and minimizing negative, especially in the context of chronic pain treatment. Given the high comorbidity between chronic pain and other mental health disorders (e.g., sleep disorders, anxiety, depression; Asmundson & Katz, 2009) and the effectiveness of CBT in treating those conditions too, it may be the case that second-wave approaches to pain management are preferable to third-wave ones when a patient has comorbid pain and psychological disorder (Ehde et al., 2014). This is not to say that third-wave approaches do not have an effect on these problems, rather it is not in its mission to reduce psychological symptoms, potentially making it a less attractive option.

An important caveat is that both CBT and ACT rely heavily on motivational approaches and a strong therapeutic alliance and supportive environment are essential. Regardless of the waves of behavioral treatments, it is important that patients are provided with a rationale that is understandable and makes sense, likely instilling positive outcome expectancy.

Future Directions

Subgroups There is growing interest in going beyond the “patient-uniformity myth” (Kissler, 1995) and general treatment benefits to identifying the subgroups of individuals with chronic pain who are most likely to benefit from treatments with different approaches (e.g., Rusu et al., 2012; Thieme et al., 2007; Thorn, 2020; Turk, 1990). Treatments could then be individualized and matched to important patient subgroup differences identified.

There is wide variability in individual responses to comparable levels of physical trauma and diseases. Thus, in addition to identifying treatment responders, it is important for research to identify subgroups based on their responses to such experiences. For example, are there particular predisposition factors that predict responses to trauma and disease (i.e., the diathesis-stress model, Turk, 2002)? If these can be identified, then it will be possible to target treatments to those most likely to need some form of behavioral intervention in order to prevent disability.

Utilization of Advanced Technologies Treating patients in a health care setting is not convenient for many patients who are employed, reside in rural areas, or who

have difficulty traveling. The availability of the internet and smart phone applications are providing increasing opportunities to make behavioral treatments, in general, more readily accessible. Although there have been some demonstration projects evaluating the potential value of these modalities (e.g., Macea et al., 2010) and there are many smart-phone applications that have not be systematically evaluated (e.g., Dario et al., 2017) the potential of these modalities for the delivery of behavioral pain treatments will continue to grow and systematic evaluation is warranted to not only identify the patients who benefit but also to identify the necessary and sufficient components for various subgroups, and how machine learning will permit customizing treatments based on information acquired during treatments.

Specificity of Treatment Components Research is needed to identify the specific versus nonspecific components of successful treatments. Given the overlap in the behavioral treatments described it is reasonable to raise the question of whether such nonspecific factors as motivation, therapeutic alliance, patient confidence in their ability to benefit might account for the greatest amount of the variance in successful treatment that any particular techniques used within the treatment (e.g., Thorn & Burns, 2011).

Conclusion

There is a substantial body of research published over the past 30 years to support the benefits of CBT in the treatment of patients with diverse chronic pain conditions. More recently there have been studies supporting the benefits of ACT. Although both these perspectives are recommended by different guidelines (e.g., APA, NICE), it is important to acknowledge that overall the results have been relatively modest (e.g., NICE, 2020; Williams et al., 2012). In this respect they are not that different from most of the more traditional pharmacological and medical treatments of chronic patients (Turk et al., 2011). Inspection of the perspectives and approaches of CBT and third-wave approaches reveal that the similarities among these may be greater than the differences. The CB perspective that superimposes CBT, similar to ACT, has always considered acceptance as an important component, that is accepting that a person who has a chronic pain condition may not be able to eliminate the physiological basis for the pain; however, from the CB perspective individuals with chronic pain do not have to accept they can do nothing, this leads to feelings of helplessness or hopelessness, a potential consequence and danger of the third-wave interventions. They may not be able to do anything to alter the neurophysiological causes of their pain, but they can self-manage their lives and the impact that pain has. In contrast to the first-wave focus on activity despite pain and third-wave emphasis on total acceptance and getting involved with more engaging objectives, CBT does provide some guidance as to things those with chronic pain can do “when they hurt.” Moreover, they may have the capacity to reduce the severity of the pain by pacing their activities to prevent exacerbation of their pain and engaging in

activities that can build up their strength, endurance, and flexibility. When they have flare ups they can modify activities as necessary and reinitiate activities when pain subsides. When they do experience pain, they can engage in distracting activities and practice relaxation and controlled breathing. They do not have to focus on the presence of pain as this can increase stress and accompanying physical changes that may contribute to the magnification of pain. To reiterate the key concepts of the Serenity Prayer, these individuals need to accept the things that cannot change [physical impairments associated with pain], the courage to change the things than can [self-manage pain severity itself and the impact on pain on their lives], and the wisdom to know the difference. Thus like the third-wave, CBT is designed to contribute to resilience in the face of chronic pain (Turk & Winter, 2020).

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Chronic Pain: Third Wave Case Conceptualizations



Kevin E. Vowles

Pain: An Overview

Pain has been referred to as a ubiquitous human experience. With the exception of those with a rare congenital insensitivity to pain, all humans will have multiple pain experiences over the course of their lifetime (Lumley et al., 2011; Vowles et al., 2014a). A recently published international consensus statement defined pain as a multifactorial experience with sensory and emotional components that can be associated with actual or potential tissue damage (Raja et al., 2020). There are several aspects of the pain experience that are relevant in clinical situations.

First, the duration of pain is important. In their 1999 article providing an overview of pain, Loeser and Melzack described three types of pain: Transient, acute, and chronic. They noted that most pain experiences are transient in nature and are rarely a significantly disruptive experience or of clinical concern.

Acute pain was defined as a more substantial experience, associated with greater discomfort, as well as more significant actual or potential tissue damage. Acutely painful experiences are often associated with seeking medical care, although pain can be expected to subside with the passage of time, typically on the order of days or weeks. While the experience of acute pain can be associated with significant distress or disruptions in activity, these difficulties tend to also resolve over time as pain subsides (e.g., Grotle et al., 2005; McLean et al., 2007).

Pain that persists for longer than 3 months was defined as chronic pain (Loeser & Melzack, 1999; Nicholas et al., 2019). Chronic pain is reliably associated with healthcare appointments and with significant emotional and physical impacts,

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including depression, anxiety, and disability (Gatchel et al., 2007; Turk et al., 2016). The significant impact of pain on functioning and the body's apparent inability to restore the body to homeostatic levels of activity have also been identified as distinctive characteristics of chronic pain (Loeser & Melzack, 1999; McCracken & Vowles, 2009). The adverse emotional and physical impacts of chronic pain tend to persist over the longer term alongside continued pain.

As a second important consideration, the purpose and utility of pain can also be discussed with regard to pain's function. While transient or acute pain are typically regarded as unpleasant experiences, they can serve a useful purpose – that of drawing attention to danger or injury. In the case of chronic pain, however, this utility is often not present as pain is no longer signaling danger or an injury and has, in a sense, lost its effectiveness as an alarm. Furthermore, when tissue damage is associated with the onset of chronic pain, the pain persists even after healing has occurred. The exact reason why pain persists longer than it should is not known, although issues of central sensitization (Woolf & Salter, 2000), learning history (Chapman, 1983), and biopsychosocial context (Gracely et al., 2004) all appear relevant to its chronicity.

This perspective regarding the function of pain has direct implications when it comes to the goals of treatment, the third and final clinical consideration noted here. In episodes of acute pain, the goals of treatment are often to reduce pain and discomfort to alleviate needless suffering while healing occurs. As pain decreases, the assumption is that its disruptive effect on functioning also reduces. In short, as pain goes down, normal functioning resumes. For chronic pain, however, the goals of treatment must be more than pain reduction alone – the impact of pain on physical and emotional functioning also needs to be addressed (Dworkin et al., 2005). Thus, *responses to pain* are a viable treatment target, as these responses can have a direct and independent impact on functioning. In other words, chronic pain can be viewed as a problem that is directly relevant to the behavior of the individual.

In the 50 years since behavioral treatments were first investigated for chronic pain (Fordyce et al., 1968), the evidence base has grown, the methods have matured, and these interventions have been disseminated across the globe (Gatchel et al., 2014). The present chapter will briefly review this history through a discussion of the three “waves” of behavioral therapy. The focus will be on the most recent third wave with an emphasis on Acceptance and Commitment Therapy (ACT; Hayes et al., 2012), the most established and well-researched example from this latter wave with regard to chronic pain assessment and treatment. The discussion of ACT will include assessment considerations, a case conceptualization discussion and example, and a review of treatment effectiveness and mechanism data. The chapter concludes with a comparison of behavioral treatments across the three waves with a view towards their shared and distinct aspects and a consideration of some of the challenges they face in the present healthcare environment.

The ‘Waves’ of a Behavioral Approach to Chronic Pain

First Wave

The first wave of behavioral therapies for chronic pain was based on operant principles (Fordyce et al., 1973). The maturation of this approach occurred with the publication of Fordyce’s textbook, *Behavioral Methods for Chronic Pain and Illness*, in 1976. This book introduced several key ideas in relation to the behavioral treatment of chronic pain. First, pain was conceptualized as more than a physical experience alone, as cognitive and emotional factors were also involved (Melzack & Wall, 1965). Fordyce discussed pain behaviors (i.e., responses to pain) as a topic worthy of investigation and intervention by themselves. Second, pain responses were described as learned behaviors, which could themselves be adaptive or maladaptive, in that they could contribute to increases or decreases in distress and disability. Overuse of analgesics could, for example, contribute to problems with sedation, substance use disorders, or impairments in role functioning (Fordyce, 1992; Fordyce et al., 1973). Third and finally, maladaptive pain behavior was contrasted with what Fordyce referred to as “well behavior” – for example, engagement in physical exercise could contribute to improved physical capabilities. Therefore, treatment focused on decreasing maladaptive pain behaviors and increasing adaptive well behaviors. Further, treatment used a graded approach to behavior change, akin to shaping and fading procedures successfully used in other operant approaches (Ince, 1976). Overall, these programs worked at reducing disability and distress, reducing sick leave and unemployment, and improving function (Fordyce, 1976; Fordyce et al., 1973, 1985; Lindström et al., 1992). More recently, Fordyce’s 1976 seminal text was republished with commentary from several leaders in the field of behavioral treatments for chronic pain (Main et al., 2014). Many of the commentators noted the continued relevance of the operant approach in the treatment of chronic pain.

This operant approach also formed the basis of interdisciplinary interventions for chronic pain (Gatchel et al., 2014). These interdisciplinary interventions make use of the expertise of various disciplines involved in the treatment of chronic pain, often including physicians, psychologists, and physical or occupational therapists (Chapman et al., 2010; Gatchel et al., 2014; Vowles et al., 2020c). These programs have persisted throughout the waves of behavior therapy and continue to have a robust evidence base (Flor et al., 1992; Gatchel et al., 2014; Kamper et al., 2014, 2015; Stanos, 2012; Turk & Burwinkle, 2005).

Second Wave

As was the case in psychology more broadly, cognitive behavioral therapies (CBT) became increasingly common in the treatment of chronic pain from the 1980s onwards (Hofmann et al., 2013; Turk et al., 1983). These approaches were based on

evidence that thoughts and other forms of private behavior were often correlated with physical activity (Turk & Rudy, 1986). Thus, CBT focuses on the problem of maladaptive cognition, and assumes that human thinking has a uniquely causal influence on human behavior (Beck, 1993; Hofmann et al., 2013). Further, models of attention were hypothesized that the experience of pain was a drain on available attentional resources and thereby impeded effective action (Eccleston, 1994).

Treatments from the second wave hypothesized that these maladaptive cognitions were an important lynchpin in the relation between pain experience and pain impact. They therefore sought to alter cognitive content so that it was less irrational, maladaptive, and inaccurate and more rationale, adaptive, and accurate. Across the modern instantiations of CBT, there is often a focus on altering pain catastrophizing, a set of cognitive responses to pain that view it as uncontrollable, ruinous, and unending (Sullivan et al., 1995). The focus in modern CBT on pain catastrophizing stems from evidence indicating it is reliably associated with pain-related distress and disability (Cook et al., 2006; Leeuw et al., 2007; Turner et al., 2000).

The second wave also continued with a focus on pain behavior, although pain behavior was generally discussed in terms of coping responses (Turner et al., 2000). Thus, second wave treatment programs generally sought to reduce pain catastrophizing and integrate coping skills training (Jensen et al., 1994a). While the literature indicated broad support for the role of coping in adaptation to chronic pain, the strongest evidence was for coping behaviors that were problematic, while the evidence was more equivocal for positive coping (Blumenstiel et al., 2006; Jensen et al., 1994a; McCracken & Eccleston, 2003; McCracken et al., 2007b; Vowles & McCracken, 2010) and the measurement of coping was at times confounded with the measurement of beliefs and knowledge (Jensen et al., 1991).

As was the case with the first wave approaches, psychological and behavioral models of treatment continued to underpin interdisciplinary work in this area (Gatchel et al., 2007). Cognitive interventions were integrated into interdisciplinary interventions, with a focus on challenging problematic cognitions and supplementing them with more rational, logical, and adaptive cognitions (Morley, 2011). The second wave also focused on methods of pain management, which included skills such as progressive muscle relaxation, coping skills training, and cognitive change to minimize pain intensity and thereby reduce pain-related distress and disability (Ehde et al., 2014; Jensen et al., 1994b; Thorn, 2017; Turner et al., 1995).

Third Wave

As noted, the most well-established third wave approach to chronic pain is ACT, which will be the focus of the remainder of this chapter. While other approaches, such as mindfulness interventions alone (Kabat-Zinn, 1982; McCracken & Vowles, 2014), can be discussed in relation to the third wave, ACT is a more direct descendent of the first and second waves in the treatment for chronic pain. The evolution from the first and second waves to the third wave can be summarized as follows.

The third wave integrated important aspects of the preceding waves. One of the first wave's most significant contributions pertained to the idea that pain behavior was learned and could therefore be more completely understood through operant principles. Further, interventions could make use of these principles to provide a helpful intervention for those with persistent pain. In a similar vein, perhaps the second wave's most significant contribution was its view of cognition as an important and influential human experience. An assessment of thoughts could therefore inform treatment on pertinent issues in relation to individual patients. If significant pain catastrophizing was indicated, for example, then treatment could address this issue by providing accurate information regarding these fears alongside exposure-based interventions to provide opportunities for learning. The third wave is an integration of both aspects of the first and second waves – specifically, both operant principles and human cognition are important from an assessment and treatment perspective.

The third wave approach to chronic pain was also based on three significant assumptions (see McCracken, 2005 for a further discussion). First, it was assumed that pain will persist in most people who have chronic pain and that it will, at times, be unpredictable in its intensity. Thus, effective intervention must address the problem of continued and changeable pain. Second, it was assumed that improved focus on the present moment would allow for treatment-related benefits. For example, present focused exercises such as mindfulness training should allow for more effective responses to both pain and the wider behavioral and environmental context on an ongoing and moment-to-moment basis. Third, it was assumed that engagement in valued activities was a core treatment objective. Thus, all aspects of intervention could be conceptualized as being directed at increasing clarity, awareness, and engagement in activities deemed meaningful, salient, and important to the individual with pain. As was the case with the previous two waves, interdisciplinary interventions continued to use behavioral models as their theoretical basis. There are many examples of interdisciplinary ACT interventions for chronic pain (Vowles et al., 2020c).

ACT Case Conceptualization

Conceptual Issues

From within the ACT framework, effective action can be understood as the primary goal of treatment. In a clinical sense, effective action is defined as using clinical methods to occasion behavior change in the individual experiencing pain such that their actions are more effective at achieving desired outcomes. For example, an ACT practitioner works to occasion behavior change such that engagement in personally meaningful activity occurs at a level that is sufficient to the person in pain. If effective functioning is the ultimate goal, there are three key overarching issues

that are relevant at the assessment and case conceptualization phase. These areas comport with the “open, aware, and active” focus of ACT (Hayes et al., 2011). The statements made in the next few paragraphs come primarily from clinical experience, although the section on assessment measures that follows provides supportive research evidence and the statements made are consistent with the extant evidence base.

First, an individual can present with significant unwillingness to experience pain. They may make statements such as, “My life cannot go on until this pain goes away” or “I’d give anything to get rid of this pain.” Such unwillingness may indicate a significant narrowing of behavioral responses to pain, such that pain avoidance predominates. Substantial pain avoidance is reliably related to greater pain-related disruptions in functioning (Lethem et al., 1983; Vlaeyen & Linton, 2000). Further, it is often associated with failure to achieve pain relief – persistent efforts to avoid pain in those with chronic pain tends to result only in the continued experience of pain. Such *persistently failing* behavior can be a clinically relevant sign of ineffective avoidance and may indicate the need for exercises to facilitate pain willingness, enhance flexible responses to it, or decrease its frequency or intensity. Finally, persistent avoidance behavior impedes on learning new behaviors as no new contingencies are contacted.

Second, preoccupation with the past or the future can unhelpfully dominate and occlude the present. Anecdotally, such preoccupation can take the form of regrets about the past or anxiety about the future. Both of these experiences can be present in those with chronic pain. They can regret past accidents that gave rise to chronic pain or fear the impact that continued pain will have on future quality of life. This loss of contact with the present moment can also interfere with the individual’s ability to take effective action in the moment, as opportunities for behavior change or to engage in valued actions may be missed. Individuals who are experiencing significant loss of contact with the present may benefit from structured exercises to assist them in orienting to it. For example, mindfulness exercises or noticing present sensations in addition to pain can help orient to the moment and highlight experiences that are occurring more broadly.

Third, problems in relation to valued activity can occur. Individuals may present with a lack of clarity in what is valued, insufficient engagement in valued activities, or both. Clinical experience suggests that a lack of values clarity can be indicated by statements such as, “This pain has been around so long, I don’t even know what matters to me anymore” or “The important things in my life seem so far away right now.” These statements can also be accompanied by clinically significant anhedonia, hopelessness, or helplessness. If a lack of values clarity is indicated, the early parts of treatment can benefit from clarification exercises, such as a values card sort or a values questionnaire (Hayes et al., 2012; Lundgren et al., 2012; Wilson & Sandoz, 2010). Clinical discussions regarding what *could* matter or *used to* matter before pain began can also be useful, as individuals may be able to imagine what was previously of value, which may provide clinical guidance in relation to what is of value *now*.

Regarding insufficient engagement in valued activity, these deficits are common, as individuals are unlikely to be seeking treatment from a behavioral health provider if valued activity is sufficient. Increasing engagement in valued activity can take advantage of established operant methods, such as shaping and modeling, imaginal practice, such as visualizing successful engagement, as well as *in vivo* skills training and practice. Further, within ACT-based interdisciplinary treatments, other disciplines can utilize their clinical skills to facilitate increases in valued activity. For example, physical therapists can focus on increasing physical activity for the purpose of achieving greater success in valued activity, while occupational therapists can incorporate accommodation adjustments in work or home activities in a manner that promotes engagement in valued activity.

Questionnaire Assessment

There are several standard areas to assess generally in those with chronic pain irrespective of the particular “wave” of behavioral treatment that one is utilizing. Briefly, these include aspects of the pain experience (e.g., intensity and interference), emotional and psychosocial functioning (e.g., depression, pain-related anxiety), and physical and role functioning (e.g., disability, independence). Several well-established and validated measures exist to assess these domains (see Dworkin et al., 2005; Nicholas et al., 2008; Vowles et al., 2007 for reviews).

With regard to the third wave approaches specifically, it can be important to evaluate aspects of openness to the pain experience, awareness of the present moment, and activity in relation to valued domains, as assessment of these domains may help inform subsequent treatment direction. Questionnaire responses in these domains may be used to inform intervention selection or guide treatment progression. If one is significantly closed to the experience of pain, that can take the form of substantial unwillingness to put oneself in potentially painful situations, persistent pain avoidance behavior, and impaired engagement in activity. The report of these difficulties may indicate a lack of openness to the pain experience. If one is significantly pre-occupied with the past or worried about the future, that can indicate that the facilitation of present-focused awareness or other aspects of mindfulness, may be useful in grounding the individual in the present so that they may respond more effectively in the now. Finally, if there is a deficit in awareness of what is valued or a failure to consistently engaged in valued activity, that may indicate a need for values clarification, behavioral methods to increase engagement in valued activity, or both.

The most widely used measure of ACT-related processes is the Chronic Pain Acceptance Questionnaire (CPAQ). The measure was originally developed as part of an unpublished doctoral dissertation (Geiser, 1992) and subsequent psychometric and factor analyses revised it to include a 20 items across two subscales, Activity Engagement and Pain Willingness (McCracken et al., 2004). The items of the Activity Engagement subscale evaluate participation in activity with pain present,

while the items of the Pain Willingness subscale evaluate openness to the experience of pain without attempts to control it. Confirmatory factor analysis has supported the factor structure of the CPAQ (Vowles et al., 2008; Wicksell et al., 2009) and its two subscales are reliably related to pain-related distress and disability (Reneman et al., 2010). Further, the CPAQ is sensitive to intervention and has been shown to mediate chronic pain treatment outcomes (Vowles et al., 2014d, 2020c). In addition to the 20 item measure, there are two briefer versions of the CPAQ, one with eight items derived via factor analysis (Fish et al., 2010) and a more recent two item version derived via item response theory (Vowles et al., 2020b).

The Psychological Inflexibility in Pain Scale (PIPS; Wicksell et al., 2008) has also been used as a broader measure of ACT processes. The PIPS has 12 items and was designed to measure psychological flexibility, a broad behavioral process that entails acting effectively in a manner consistent with one's values even in the presence of unwanted thoughts, feelings, and sensations (Hayes et al., 2006). Cross-sectional studies of the PIPS have indicated acceptable relations with other measures of pain-related functioning (Rodero et al., 2013; Terhorst et al., 2020; Wicksell et al., 2008, 2010a). The PIPS has been shown to change over the course of ACT treatment and one study of whiplash injury related pain found that it mediated outcomes (Kemani et al., 2016; Wicksell et al., 2013, 2010b).

There are three measures assessing aspects of valued activity in those with chronic pain. The most widely used is the Chronic Pain Values Inventory (CPVI; McCracken & Yang, 2006). The CPVI assesses importance and perceived success in six valued domains, including family, intimate relations, friends, work, health, and growth/learning. Three scores can be calculated from the CPVI, average importance, average success, and the average discrepancy between importance and success. The importance score is often positively skewed, as the majority of respondents rate all domains as highly important (e.g., McCracken & Yang, 2006). Previous studies have shown that the values success score is associated with pain acceptance, pain-related distress, and disability (McCracken & Vowles, 2008; Scott et al., 2016; Vowles et al., 2014c, e). Further, both success and discrepancy scores have been shown to be sensitive to intervention, as they improve over the course of ACT treatment (Vowles et al., 2011, 2014d, 2019; Vowles & McCracken, 2008).

More recently, the Valued Living Scale (VLS; Jensen et al., 2015) was developed for use in chronic pain. The VLS includes eight broad valued domains and 26 specific valued goals within these domains. The eight broad domains include keeping physically healthy, feeling emotionally healthy, productivity, parenting, spirituality, spousal/partner relationships, friendships, and community citizenship. The specific valued goals were intended to be used as a guide for improving engagement in valued activity. If a respondent indicated a particular goal as having high importance but low success, then it could be a plausible target for intervention. Like the CPVI, the VLS assesses importance and success in values domains; it also assesses respondent's confidence in each domain as well. The initial factor analysis indicated two subscales, Health and Productivity activities and Social and Relational activities and subscale scores were correlated with pain intensity, depression, and pain interference (Jensen et al., 2015). A follow-up study replicated these findings in a large

sample of individuals with long-term health conditions (Jensen et al., 2019). There are no published data examining the VLS longitudinally or its sensitivity to ACT or values-based intervention.

Finally, a brief two item values measure has also been developed, the Values Tracker (VT; Pielech et al., 2016). The original development paper indicated strong cross-sectional relations with pain-related distress and disability. More recently, latent trajectories of change in the VT across a 4 week interdisciplinary program of ACT for chronic pain have been investigated (Vowles et al., 2019). A single class of change with increasing slope was indicated. Slope of change was associated with amount of change in psychosocial functioning at the end of treatment, but not at 3 month follow-up.

With regard to aspects of present focused awareness and mindfulness, there are a number of self-report measures of mindfulness that have been used in those with chronic pain. The two most commonly used measures have been the Five Factor Mindfulness Questionnaire (FFMQ, Baer et al., 2008) and the Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003). These measures of mindfulness are generally correlated with important clinical factors, such as pain intensity, pain interference, physical disability, and psychosocial functioning (McCracken et al., 2007a; Trompetter et al., 2014), as well as with other measures related to the ACT model (Scott et al., 2016; Vowles et al., 2014c, e). The Self-Compassion Scale (SCS; Neff, 2003), which also assesses several aspects of mindfulness, has also been used in those with chronic pain and has been shown to correlate cross-sectionally with pain-related distress and disability, change with interdisciplinary ACT treatment, and mediate some aspects of treatment ACT treatment outcomes (Edwards et al., 2019; Vowles et al., 2014d)

Finally, there are measures of ACT-consistent coping and persistence in valued action. Specifically, the Brief Pain Coping Inventory-2 (BPCI-2; McCracken & Vowles, 2007) and Brief Pain Response Inventory (McCracken et al., 2010) assess pain responses that entail aspects of psychological flexibility. Both measures are correlated with pain-related functioning and are sensitive to intervention (Vowles et al., 2014b; Vowles & McCracken, 2010). The Committed Action Questionnaire (CAQ; McCracken, 2013) evaluates activity patterns in relation to a persistent flexibility in the pursuit of goals. The CAQ also has evidence of significant relations with important aspects of pain-related emotional and physical functioning (Bailey et al., 2016; Scott et al., 2016).

Case Conceptualization Example

Gloria was a 59 year old female presenting to treatment with a diagnosis of Rheumatoid Arthritis (RA). She was originally referred to clinical psychology for anxiety in relation to choking on her medications, a specific phobia. At assessment, she noted that her diagnosis of RA was recent and that the size of her prescribed medications was concerning. She noted a history of concerns related to choking and

one incident approximately a decade earlier of having a piece of hard candy stuck in her throat. She was not taking her medications at all due to these fears.

At assessment, it was clear that an exposure-based treatment could be appropriate, given the evidence supporting exposure in cases of specific phobias (Wolitzky-Taylor et al., 2008). A systematic desensitization procedure was explained to Gloria to educate her on the treatment process and its likely progression. It was noted that such an intervention would involve building a hierarchy of activities related to swallowing and that shaping procedures would successively aid her in behavior change. The evidence underlying this approach was briefly reviewed and the therapist noted that the probability of successful treatment was high.

Following the explanation of this procedure, the therapist asked Gloria if her pain and anxiety-associated limitations were associated with her prescribed medication taking behavior alone. The therapist noted that it was rare for these limitations to be circumscribed in such a way and noted concern that other important areas were being negatively impacted. Immediately following this question, Gloria became tearful and noted a number of other important areas that were being adversely affected. Gloria noted that relations with her husband were problematic, as she felt like a burden and that her ability to spend quality time with him was significantly restricted by pain. For example, she noted that she had not been out to dinner with him for almost a year. Further, Gloria noted a number of concerns in relation to her ability to be a mother for her two adult daughters. One daughter had recently moved to a large city, which was about 1.5 hours away, and Gloria felt guilty that she had not been able to help her daughter move and decorate her new apartment and that also that she had not yet visited due to pain and anxiety-related restrictions. Furthermore, Gloria noted that she was too anxious to drive due to the pain in her hands and that she relied on her husband and her other daughter, who lived locally, for transportation to and from medical appointments. Gloria also reported significant limitations in physical activity and felt restricted to her home. For example, her independence was reduced as she did not feel she could walk alone in the countryside where she lived and that she was no longer seeing the wildlife around her home. These limitations were discussed in relation to potential valued areas for treatment to focus upon. Gloria reported good clarity in what was of valued, but noted clinically relevant failures in valued behaviors in the domains of marital and family relations, independence, and self-care.

The brief assessment of values performed by the therapist served as an initial definition of potential treatment goals should Gloria elect to pursue outcomes beyond her specific phobia alone. Thus, the therapist was able to determine two possible courses of intervention – an exposure based approach designed to reduce medication taking anxiety and increase medication taking behavior and an ACT-based approach to pursue improvement in valued activity. At the conclusion of the first assessment session, these treatment options were discussed with Gloria and it was noted that both had reasonable evidence to indicate a good probability of success. The therapist noted that the exposure based approach would likely result in increasing her ability to take her prescribed medications, but that it would not necessarily help in regard to the other valued domains she identified. Further, it was noted that

an approach focused on improving engagement in valued activities would likely be longer and would ask her to change in more areas of her life, but that it would also be more likely to result in improvement in these areas. The therapist then asked Gloria which approach she would prefer to pursue first – she noted that the values-based approach was her preference as it focused directly on the important areas of her life that she missed. She noted that medication consumption was important and that she would also like to improve her ability in this regard as well.

From an ACT case conceptualization perspective, Gloria was experiencing difficulties in her ability to effectively pursue her values. Pain and anxiety were imposing unhelpful limitations in this regard. In her case, there was no issue with regard to values clarity, as she was able to easily report on meaningful areas of her life. Thus, values clarification exercises were deemed unnecessary at the early stages of treatment.

At this point in treatment the therapist and patient had a shared initial definition of treatment success. Treatment would aim to improve Gloria's engagement in her marriage and with her daughters, improve her independence in relation to travel and mobility (e.g., she desired to drive independently again), and increase her ability to walk in the countryside that surrounded her home so that she could re-engage with her local landscape and its wildlife. Both the therapist and Gloria would also keep an eye on her consumption of prescribed medication as the medication would likely help her symptoms. The initial assessment session concluded with a discussion of these shared goals of treatment and the therapist asked Gloria to both think about it herself and discuss with her family before the next session.

Thus, there were several objectives for Gloria's next session. The first was to determine the views of her family on the treatment plan that had been outlined. If her family was supportive of the plan, they could be a source of support, problem solving, and reinforcement. The second goal was to evaluate willingness to potentially experience pain in the pursuit of her values. If Gloria was significantly *unwilling* to experience pain, then treatment could incorporate pain acceptance and willingness exercises. For example, creative hopelessness exercises could be included to determine if Gloria's previous pain control efforts had been helpful in achieving reduced pain intensity and pain interference over the longer term. Further, if she noted significant difficulty with pain related cognitions, then the therapist could include cognitive control exercises into treatment sessions to determine if these activities had a helpful effect on frequency or intensity of difficult cognitions. These exercises can be useful in illuminating the general failure of pain control efforts to control pain, as well as illustrate that pain control efforts can actually impede activity in important areas.

Effectiveness and Mechanism Data

The evidence regarding ACT for chronic pain is reasonably well-established. At present, there are two recent meta-analyses examining the efficacy of ACT for chronic pain (Hughes et al., 2017; Veehof et al., 2016) and one comparative

meta-analysis examining the relative effectiveness of unidisciplinary (psychology only) and interdisciplinary ACT for chronic pain (Vowles et al., 2020c). The efficacy meta-analyses concluded that there was supportive evidence of ACT for chronic pain across key outcome domains including emotional functioning, disability, pain interference, and pain acceptance. While the size of effect varied from small (for disability) to large (for pain interference) across the studies reviewed, this variability is consistent with other meta-analyses of psychological interventions for chronic pain (Hoffman et al., 2007; Williams et al., 2012). The comparative meta-analysis of Vowles and colleagues (2020a, b, c) indicated that interdisciplinary ACT resulted in larger effect sizes than psychology alone ACT for disability, psychosocial impact, and depression at post-treatment and follow-up, while there was no difference for pain-related anxiety, pain intensity, or pain acceptance. Composition of the interdisciplinary ACT treatment teams included clinical psychology, plus at least one other discipline operating within the ACT model (e.g., physical therapy, nursing/physicians, occupational therapy). Furthermore, there were significant associations between treatment duration and outcome for many of these outcome domains. While the magnitude of the correlations were generally modest, longer treatments were associated with greater improvement.

Further, the American Psychological Association's Division of Clinical Psychology (Division 12) identifies ACT as having "strong" research support for chronic or persistent pain in general, the highest possible grading (Society of Clinical Psychology, 2018). This grading provides broader support for the utility of psychological approaches for chronic pain generally, as CBT is also graded by APA's Division 12 as having strong support for low back pain, headache, fibromyalgia, and rheumatologic pain.

With regard to treatment mechanisms, ACT self-report measures (e.g., CPAQ, PIPS, CPVI) have generally been related to treatment outcomes following ACT. There are several correlational studies that have indicated that change in single measures of the ACT model are positively correlated with the magnitude of change in pain-related outcome measures. For example, the first study to examine change over the course of treatment indicated that increases in the CPAQ over a 3–4 week interdisciplinary intervention were significantly correlated with improvement in pain intensity, depression, pain-related anxiety, physical and psychosocial disability, daily rest due to pain, and observed physical performance on a sit-to-stand task (McCracken et al., 2005). This pattern of findings has been replicated across several studies using single or groups of ACT process measures. For example, changes in the CPAQ and PIPS account for significant variance in improvements in pain-related distress and disability through follow-up periods up to 3 years (Kemani et al., 2016; Luciano et al., 2014; Vowles et al., 2011; Wicksell et al., 2011).

Because of the limitations inherent in correlational studies of process and treatment relations (Aggarwal & Ranganathan, 2016), more comprehensive analyses of the ACT model have been performed as well. These studies have also indicated statistically significant relations across pain acceptance, psychological flexibility,

valued activity, present-focused awareness, and aspects of mindfulness (Scott et al., 2016; Vowles et al., 2014c, e). Furthermore, and as noted above, slope of change in the Values Tracker (Pielech et al., 2016) over 4 weeks of treatment was associated with magnitude of change in psychosocial outcomes, including depression, psychosocial disability, pain anxiety, and the discrepancy between values importance and success at the conclusion of treatment, but not at 3 month follow-up (Vowles et al., 2019). Finally, mediation analyses have indicated that ACT measures, including the CPAQ and PIPS primarily, mediate treatment outcomes (Kemani et al., 2016; Vowles et al., 2014d; Wicksell et al., 2010b).

The ‘Waves’ – Comparisons and Challenges

While much can be made of the perceived differences between the three waves of behavior therapy, they are also bound together by their similarities. For example, the operant principles of the first wave form the foundation of both the second and third waves – the notion that ongoing responses to pain are influenced by learning history continues to be highly relevant in both the assessment and treatment of chronic pain. For example, both the fear-avoidance model of chronic pain and the in vivo exposure-based interventions that seek to reduce significant pain avoidance behaviors are based on operant models (Leeuw et al., 2007; Vlaeyen & Linton, 2000; Vlaeyen et al., 2001; Woods & Asmundson, 2008).

Further, the waves are concordant in their view that the goals of intervention are not restricted to pain intensity alone. While they may differ in the degree to which they seek to reduce pain as a goal of treatment, all three waves include an emphasis on altering responses to pain so that the quality of functioning is maximized.

Finally, each of these waves conceptualizes pain from the biopsychosocial model, where pain intensity and pain responding are understood as a complex interplay biological, psychological, and social factors in relation to both learning history and current experiences. For an expanded discussion, see Morley (2011) and Jensen (2011).

Even bearing these similarities in mind, there are differences. Two primary differences are key. First, the waves differ in the degree to which they view cognitions as uniquely causal in the determination of behavior. Second, the waves differ in the degree to which they prioritize engagement in valued living as the goal of treatment.

Regarding cognitions, the first wave was relatively silent on the role of private behaviors, such as cognitions and emotions, in pain behavior. The second wave prioritized the role of private behaviors and substantial clinical attention is paid to cognitive change as a key goal. In fact, the key development in the second wave was its focus on cognition and emotion – while CBT retains its foundation in operant learning, its focus is on altering problematic cognition and emotion. Much like the cognitive-oriented approach in psychology more broadly (Beck, 1993; Hofmann

et al., 2013), CBT for chronic pain views problematic pain-related cognitions as a crucial causal influence on maladaptive pain behaviors (Ehde et al., 2014; Jensen, 2011). The third wave views cognition as an important aspect of human functioning, but that thoughts do not have a uniquely causal influence on behavior. Thus, the focus of ACT is not on changing cognitions as a prerequisite of behavior change, but on changing responses to cognitions (and other private experiences) as that *is* behavior change.

With regard to values-based action, all waves focus on this issue to some degree, but they differ with regard the centrality of this focus. In ACT, the facilitation of values based action can be understood as the primary indicator of successful treatment. Thus, values are a central and distinctive focus of all aspects of intervention. This distinctive focus is not present in the other waves. Fordyce's (1976) well behaviors could be conceptualized as engagement in values-based action to a degree, but the personal nature of these behaviors was not discussed, nor focused upon in intervention. Furthermore, the specification of well behaviors, including how to assess, establish, and reinforce them was relatively under-developed in the original 1976 text (McCracken, 2014). In CBT, there is a clear focus historically on goal setting (Gatchel & Rollings, 2008), although this focus is not necessarily in relation to valued actions, nor is it as central in CBT as it is in ACT.

Future Objectives for a Behavioral Approach to Chronic Pain

There are key challenges with regard to psychological approaches for chronic pain, regardless of particular wave. These challenges, and potential methods of addressing them, are discussed below.

First, several recent meta-analyses published by the Cochrane Collaboration indicate that psychological treatments for chronic pain writ large achieve only modest treatment outcomes and that efficacy appears to have gotten weaker over time (Eccleston et al., 2014; Williams et al., 2012). Therefore, the research support for these approaches is not as strong as it has been historically (e.g., Flor et al., 1992; Morley et al., 1999) and may be decreasing over time. Therefore, high quality examinations of psychological interventions for chronic pain are needed to address why recent findings differ from the historic evidence base. Furthermore, few studies of ACT for chronic pain have been included in these meta-analyses and there is a continuing need for ACT studies that are of sufficient methodological quality to warrant their inclusion in future meta-analytic work (Öst, 2014).

Second, the required components of treatment and required dose of intervention remain unclear across all the waves (Morley, 2011). There is a range of intervention complexity and duration, from online only to intensive interdisciplinary treatment and there is also a range in how people with pain are living with their pain (Vowles et al., 2017). There are few studies that have attempted to match treatment intensity

with severity of pain's impact (Hill et al., 2011), or examine specific treatment components or mechanisms (Burns et al., 2020). In addition, there are few guidelines in place regarding training or experiences necessary for clinicians to adequately provide ACT for chronic pain.

Third, in some healthcare settings, funding for intensive treatments can be difficult to secure and reimbursement rates can be prohibitive (Gatchel & Okifuji, 2006; Schatman, 2007). Effectiveness and cost-effectiveness evaluations are needed (Sletten et al., 2015).

A final issue is that of comorbidity between chronic pain and substance use. Exponential increases in opioid prescribing in some countries preceded significant increases in opioid-related morbidity and mortality (Bailey & Vowles, 2015; Jamison et al., 2011). In turn, there is a pressing clinical issue regarding co-morbid chronic pain and opioid misuse (Ballantyne, 2015; Becker et al., 2008; Manchikanti et al., 2010; M. Sullivan, 2013; Vowles et al., 2015), with only a few behavioral treatment options available that have at least preliminary evidence of effect (Garland et al., 2014, 2019; Vowles et al., 2020a). Thus, there is an urgent need for efficacious integrated interventions that seek to reduce the problematic effects of chronic pain and address problematic opioid use. On a related note, co-morbid alcohol or sedative use disorders and chronic pain continue to be under-researched areas even with evidence indicating that they co-occur (Booker et al., 2003; Dhingra et al., 2015; Egli et al., 2012; Nielsen et al., 2015; Votaw et al., 2019; Vowles et al., 2018; Witkiewitz & Vowles, 2018).

Conclusion

The three “waves” of behavioral therapy have each considered chronic pain as a relevant and treatable clinical problem. These treatments have a longstanding and well-established evidence base. As the prime example of a third wave behavioral treatment, ACT for chronic pain seeks to enhance willingness to have chronic pain in the service of engaging in personally meaningful activity. Several studies have examined willingness to have pain (e.g., pain acceptance) in the service of engagement in meaningful activity (e.g., values-based action) and there is strong support for their relevance in those who are living with chronic pain. Treatments using the ACT model have been successful at improving pain acceptance, values-based action, emotional distress, physical ability, healthcare utilization, and engagement in role functioning up through follow-ups of as long as 3 years. As with the other behavioral treatments from preceding waves, ACT for chronic pain seeks to reduce the deleterious effects of pain on functioning. That being said, ACT is distinctive from the previous two behavioral waves with regard to its view of cognition as an important and relevant, but not uniquely causal, aspect of human behavior and in its specification that increasing engagement in valued activities is the principal goal of intervention.

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Part V
CBT from International Perspectives

The History of Behavior Therapy in Brazil and Its Relationship with the Three Waves



Jan Luiz Leonardi and Gabriel Vieira Cândido

Proposing a chapter on the three waves of behavior therapy in Brazil raises a first reflection: how do we compare beach waves bathed by different oceans? As the wave metaphor describes changes in cultural practices under the label *behavior therapy* – which occurred mainly (but not exclusively) in the US – transposing this metaphor directly to other cultural contexts may be inaccurate. In this sense, we must outline unique aspects of the development of behavior therapy in Brazil.

The debate about waves in behavior therapy has been widely addressed in Brazil, and there seems to be a consensus among numerous authors that the wave metaphor cannot be directly transposed from the English speaking world to Brazil (Guilhardi, 2012; Leonardi, 2015; Malavazzi, 2011; Pavan-Cândido & Neufeld, 2019). This stems from the fact that the path taken in Brazil to build knowledge regarding behavior therapy differed in several key aspects. Initially, we should note that the logic of behavior therapy in Brazil equates to the rest of the world's: extrapolating empirically validated principles in basic research to solve human problems (Kazdin, 1978; O'Donohue et al., 2001). However, the history of the so-called three waves of behavior therapy in Brazil followed a different path.

The expression *behavior therapy* was first published on a report by Lindsley et al. (1953). However, behavior therapy was presented by Lazarus and Rachman (1957) and Eysenck (1959a, b) independently. All of this occurred in the English speaking world in just two countries. This way, the origin of the name *behavior therapy* is related to (1) a different set of techniques to change behavior (2) in different countries, and (3) different ways to explain behavior.

In Brazil, behavior therapy was initiated in the late 1960s by a group of researchers with a solid background in experimental behavior analysis gradually developed

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a way to treat verbally competent patients who presented typical psychotherapy problems through verbal interactions in clinical settings. For decades, approximately between 1970 and 2000, several terminologies were used to refer to this Brazilian clinical practice with a radical behaviorist base, such as *behavior psychotherapy*, *behavior therapy*, and *clinical behavior psychology*. However, in the 1990s and 2000s, Brazilian behavior analysts questioned whether these categories sufficed to represent their practice, with a Skinnerian base, especially because they were often confused with cognitive-behavior therapists (Costa, 2011; Tourinho & Cavalcante, 2001; Zamignani et al., 2008).

For this reason, Tourinho and Cavalcante proposed, in 2001, the use of the term *behavior-analytic therapy* (TAC, from the original in Portuguese, *terapia analítico-comportamental*), which has become widely accepted among therapists from different regions in Brazil as the best name to describe their professional practice. This term was chosen because it specifies, already in its name, its philosophical, conceptual and methodological bases of support – behavior analysis. Notably, the term was not intended to propose a new modality of psychotherapy, but rather to standardize the name of a Skinnerian-based clinical practice that had been practiced in Brazil since the early 1970s (Zamignani et al., 2008). In short, TAC refers to a form of clinical behavior analysis (cf. Kohlenberg et al., 1993) originated and developed in Brazil, which can be defined as:

a form of service that uses the theoretical framework of behavior analysis and the knowledge of basic and applied research to solve human problems. Interventions by behavior-analytic therapists are based on philosophy, principles, concepts, and methods of the behavior science and focus on the client's relation with their environment, including those that define their feelings and cognitions, with the participation of public and private events (stimuli and responses). For this, contingency analysis is a basic and indispensable instrument, whether in the evaluation of the client's complaint, or in the design, application and evaluation of the intervention itself. The intervention can propose changes in different components of the three-term contingency, that is, antecedents, responses, or consequences (Meyer et al., 2010, p. 172).

As can be seen so far, TAC is a model of behavior therapy with its own identity, which differs from the third wave ones. This chapter thus aims to describe the historical development of behavior therapy in Brazil, outline its underlying features, examine the relationship between TAC and third wave therapies, as well as present evidence of its efficacy.

Behavior Therapy in Brazil: A Historical Construction

Psychology as field of knowledge and occupation was regulated in Brazil in 1962. From a practical standpoint, such regulation established the playing field for psychologists and methods available for use. Since then, in Brazil, five-year undergrad courses allow professionals to work as clinical practitioners, whose services can be paid for by the client, private health care providers, or the government. Until 1962,

those who identified as “psychologists” in Brazil had graduated overseas or became interested in psychology through undergrad courses mainly in medicine, pedagogy, philosophy, and engineering (Antunes, 2014; Baptista, 2010; Massimi, 2016).

Thus, talking about the Brazilian history of behavior therapy necessarily implies understanding that psychology, in Brazil, was experiencing an expansion. While behavior therapy developed in and outside of universities, mainly in England and the United States, few psychologists identified as clinicians in Brazil. Psychotherapy (or at least the objects and methods that were closer to current psychotherapy) happened in the medical context, mainly in psychiatric hospitals and nursing homes, based on psychoanalysis or with an organicist bias. The behaviorist movement, its main actors, and theoretical propositions were scarcely known in Brazil.

Behavior analysis was introduced in Brazil in 1961 with the arrival of Dr. Fred Keller, a student as well as a good friend of B. F. Skinner, as a professor of experimental psychology at the University of São Paulo (USP). Founded in 1936, USP is one of the oldest, most renowned Brazilian universities.

After this, a first group began to form, dedicated to research and intervention based on behavior principles. The group based their theoretical framework on the “reinforcement theory”, as presented by Dr. Keller (e.g., Azzi et al., 1963; Keller, 1962a). During his sabbatical year in Brazil, he taught basic concepts of operant behavior (Keller & Schoenfeld, 1950; Skinner, 1953), which included the use of a laboratory equipped with Skinner boxes. In addition to a theoretical approach, the laboratory setting allowed for the study of real behaviors, manipulation of variables, and direct observation of target behaviors.

Two epistemological aspects presented in Dr. Keller’s publications derived from his work in Brazil are: (1) the progressive perspective of science and (2) the search to redefine the problems of psychology in terms of Skinnerian radical behaviorism. These can be seen in at least two of his publications in Brazil. In Keller (1962b), when talking about “historical problems” of psychology, he stated that the “reinforcement theory” was the “reigning” standpoint in psychology. In Keller (1962a), he presented the advantages of frequency measures of behavior and the concept of reinforcement for “redesigning modern psychology” present in early behavior interventions in Brazil.

The historiography of behavior analysis in Brazil has identified the origin of early behavioral interventions also in this period (Cândido, 2017; Matos, 1998; Souza Jr et al., 2018; Todorov, 2006; Todorov & Hanna, 2010). The first behavior intervention publication found in Brazil was written by Isaias Pessotti – Dr. Keller’s student in 1961. Due to a military intervention of the Brazil’s 1964 political regime, Pessotti was forced to move to Italy, where he was granted a scholarship.

Pessotti (1966) proposed to discuss technical problems in the scope of “reinforcement therapy”, understood as “an application of principles of the experimental analysis of learning for the correction and conditioning of response repertoires in human subjects” (p. 91). He presented six cases whose patients were so-called “retarded children”. “Pathological behaviors” presented by the subjects included the lack of sphincter control, phobias, and motor defects – regarded as “the effects of inadequate reinforcement”.

Using treatment strategies such as modeling, chaining, and reinforcement schedules (and the “use of a light diuretic” in one case), Pessotti (1966) taught different types of behavior. In one case, he conditioned a child with a phobia of spherical foods to request and ingest spherically shaped foods and pills. In another case, for a child with a phobia of darkness, he had to turn off the lights in the room, lie down, and fall asleep. For a child with hydrocephalus and atrophied limbs, he conditioned him to walk on crutches. Thus, the author states that “correcting and replacing the effects of such contingencies constitute the essence of the reinforcement therapy processes, whose effects are ensured as long as the subject is not reconditioned by the healing institution or the family” (Pessotti, 1966, p. 104–105).

As for technical problems, Pessotti (1966) sorted them into three groups. The first included difficulties with deprivation, as it is “indispensable and preliminary to any reinforcement” (p. 97). The second regarded difficulties in defining the contingency terms to which the patient was submitted in therapy. The third referred to contingencies extraneous to therapy, whether “incidental or intentional”. In any case, the author states that, despite the failure in two of the six cases, results may have shown the importance of adequate control of reinforcement contingencies.

In parallel, throughout the 1960s, two therapists and professors from Rio de Janeiro – Geraldo da Costa Lanna and Otávio Soares Leite – applied Wolpe’s systematic desensitization and Jacobson’s progressive relaxation, among other procedures (Lima, 1997; Pavan-Cândido, 2019). Chronologically, then, the end of the first wave described by Hayes (2004) thus coincides with the first uses of behavior therapy in Brazil.

However, little was known in Brazil about behavioral interventions in general. Guilhardi (2012), a behavior therapist in Brazil since 1969, summarizes this moment historically: “there was no conceptual knowledge, no clinical or technological expertise with the behavior model, no models of clinical practice for such.” (p. 2). Throughout this path, several events supported Brazilian therapists in their training and practice. The release of the *Journal of Applied Behavior Analysis* in 1968 and *Behavior Therapy* in 1970, along with other behavior modification publications, are some examples.

Possibly, the first publication in Brazil to use the term *behavior therapy* was Rosamilha (1969), in an article that proposed to discuss the use of behavior technology in pre-schoolers. In the same year, senior students from the first class of psychology at the Catholic University of Campinas (PUC-Campinas) expressed their interest in applying the principles of experimental behavior analysis in the clinical setting, which led professor Luiz Otávio de Seixas Queiroz to create a supervised internship entitled *Behavior Modification*. At the end of that year, professor Queiroz and his students founded the first behavior-analysis-based clinic in Brazil (Batista et al., 2005; Guilhardi, 2003).

A group headed by Dr. Thereza Pontual de Lemos Mettel offered different training opportunities in behavior therapy. For example, in 1973, a behavior modification program took place in a psychiatric hospital, aiming to “increase the rate of appropriate behaviors and decrease inappropriate ones in the following classes: hygiene, eating habits, and sociability” (Zucoloto et al., 1973, p. 391).

Dr. Mettel's group trained mothers to act as therapeutic agents, thus aiding the modification of their children's behavior. Their training included discussing daily records (rate, location, and sequence of the child's behaviors that occurred at home), presenting concepts (e.g., modeling), role-playing, defining individualized procedures, and programming the records of subsequent meetings. Several problem behaviors were eliminated (e.g., pain complaints), others remained (e.g., disobeying), and new ones emerged (e.g., cooperation) (Gorayeb et al., 1974; Otero et al., 1974).

The studies cited here have not been selected due to their pioneering role as attributed to the studies by Wolpe (1958), Lazarus (1958), and Eysenck (1959a, b), for instance. They mostly consist of abstracts published in conference proceedings. However, they signal a change in *zeitgeist* from the early 1970s in Brazil, in which behavioral interventions to establish new and eliminate undesired behaviors arose both in academic and applied settings.

In the early 1970s, the first landmark of integration between the cognitive and behavioral models emerged, when Raquel Rodrigues Kerbauy and Luiz Otávio de Seixas Queiroz began to emphasize in their courses the role of private events and cognitions as mediators of behavior (Rangé et al., 2007; Rangé & Guilhardi, 1995). In 1973, Kerbauy and Queiroz brought Dr. Michael Mahoney to the Pontifical Catholic University of São Paulo (PUC-SP), where he taught a year-long course on cognitive modification. Little is known about the content of such course, but part of it is known to have served as the basis for his book "Cognition & Behavior Modification" (Mahoney, 1974), in which the author discusses the inadequacy of non-mediational models, stating that individual's responses occur in a perceived or interpreted environment, rather than in a real one.

That same year, Garry Martin offered a course on behavior modification to Psychology undergrads at Pontifical Catholic University of São Paulo (PUC-SP) (Queiroz et al., 1976). In November 1974, these students' initiative created the *Behavior Modification Association*. Among its contributions, we highlight the implementation of a scientific journal in Portuguese – *Journal of Behavior Modification* –, which helped disseminating research in the area. In its 2 years of existence, the journal published 11 articles on different topics: teacher and student behavior, environmental effects on study behavior, placing objects in series, academic responses, enuresis, isolation, and teacher training. Among the most cited authors by the group are Montrose Wolf, Vance Hall and Charles Ferster (Torres et al., 2020).

In 1974, during a brief visit to Brazil, Dr. Donald Baer, another student of Skinner, spoke about creativity and offered a course on single-subject experimental design, where each participant provides his or her own experimental control (Associação de Modificação do Comportamento, 1975; Kerbauy, 1975). Dr. Charles Ferster, another student of Skinner, also in Brazil, spoke about experimental research and functional analysis of clinical problems (Associação de Modificação do Comportamento, 1975). It is important to note that all these lectures from visiting professors in Brazil were placed in different cities, all held in São Paulo state.

In general, the studies in the 1970s feature the definition of both problem and target behaviors. Many therapists defined the reinforcers to be presented and responses to be reinforced. The population ranged from inpatients and patients from private clinics. Studies reported decreased anxiety due to systematic desensitization aiming at increasing school performance and socialization; use of reinforcement to implement new behaviors; extinction to eliminate tantrums; modification of leaving objects out of place; application of behavior therapy in the treatment of couples; etc. Also, those dedicated to behavior therapy in Brazil during this period kept close contact with the experimental behavior analysis lab. Many of them even had exclusive training in basic research with non-human subjects when in the early stages of their career as therapists.

The proceedings of the *Ribeirão Preto Psychology Society* annual meetings document a part of the development of behavior therapy in the 1970s. From 1971 to 1977, the first seven events featured 33 studies that fall under the behavior therapy umbrella, based on authors such as Wolpe, Jacobson, Suinn, Cheery-Sayers, Lovaas, Iñesta, and Bijou (*Sociedade Brasileira de Psicologia*, n.d.). These papers include a number of case studies, as well as supervision and training sessions on behavior modification and behavior therapy.

The 1970s also featured the first translations into Portuguese of books originally written by representatives of the 1st wave, like Krasner and Ullman (1965), Bandura (1965), Lazarus (1972), Wolpe (1973), Whaley and Malott (1971), among others, and began circulating more easily among universities, clinics, and hospitals, contributing enormously to the formation of new behavioral therapists.

Brazilian scientific literature, at the turn of the 1980s, ceased to have an almost exclusively applied research character and began to generate reflections about the therapeutic process and the evaluation of therapy outcomes (e.g., Kerbaux, 1981a, b) as well as the role of the therapeutic relationship on the client's responsiveness (e.g., Mettel, 1980, 1987). Thus, behavior therapy in Brazil expanded in the number of practitioners and intervention procedures, featuring a theoretical and technical dispersion. Kerbaux (1981b), for instance, states that, in addition to widely known techniques such as systematic desensitization, operant and aversive techniques, others were being employed such as assertiveness training, covert awareness, cognitive restructuring, and self-control. She stated: "Certainly, some basic assumptions are being changed by the incorporation of new concepts that are more descriptive of the observed phenomena. Certain principles – rather than techniques – is what characterizes behavior therapy" (Kerbaux, 1981b, p. 181).

The principles outlined by Kerbaux (1981b) relate to general aspects of the therapist's behavior: (1) using experimental analysis of behavior as a reference; (2) rejecting the notion of mental illness of the medical model; (3) assessing the effectiveness of the therapy; (4) using functional analysis both in diagnosis and treatment; and (5) training client's non-existent or deficient behaviors. While behavior therapy should arguably be based on experimental analysis, Kerbaux (1981a) recognized that the conditions of a therapeutic situation differ from those of a laboratory:

However, this controlled situation, free of extraneous variables, does not exist in the therapeutic setting. The therapist does not control the client, but rather exerts an influence on them, as he or she does not have access to all the necessary variables to talk about control and probably does not propose to do so; this does not define clinical work, no matter to which theoretical approach the therapist subscribes. The therapist's influence stands more on the way he or she works, on the either voluntary or involuntary model they present during their practice (p. 829).

The role of the therapist-client relationship as means of promoting change has been discussed in Brazil at least since the 1980s. Kerbauy (1981a) states that one of the determinants of therapeutic success is the personal qualities of the therapist, the client, and the interaction between them. In this sense, Mettel (1980) argued that the therapeutic relationship is one of the most important variables in the process, in which the therapist functions as a social reinforcer, model, discriminative stimulus, and participant-observer.

Conte et al. (1987) discussed the difficulties of teaching behavior therapy in Brazil in undergraduate psychology. Students opposed to behavior therapy due to their dissatisfaction with the theoretical and philosophical model (e.g., behavior analysis would have an allegedly "simplistic" view of the human being, disregard feelings and emotions, adopted a linear position when determining behavior, etc.). In addition, the intimate relationship between experimental behavior analysis and behavior therapy was also a source of dissatisfaction due to the scientific criteria adopted, which, when transposed to the clinical setting, it would supposedly eliminate the human character of the therapy.

In the late 1980s, cognitive therapy began to spread in Brazil, especially in the city of Rio de Janeiro. Headed by Dr. Harald Lettner – an Austrian therapist – and Dr. Bernard Rangé – a Brazilian therapist –, a group of therapists composed by Eliane Falcone, Helene Shinohara, Lucia Novaes, Mônica Duchesne, Paula Ventura, and Maria Alice Castro dedicated to the study and practice of Aaron Beck's therapeutic approach (whose book "Cognitive Therapy of Depression" was translated into Portuguese in 1997). The work from this group of therapists would later be called cognitive-behavior therapy. Lettner and Rangé (1988) published in Portuguese the "Behavior Therapy Manual", with 30 chapters that include theory, assessment of clinical problems, scientific methodology, aspects of practice, special applications, and training in behavior therapy. At the same time, this book can be considered a landmark for the entrance of cognitive therapy in Brazil, which started to advance mainly from the 1990s (Rangé et al., 2007).

An important milestone for behavior therapy in Brazil was the foundation of the *Brazilian Association of Behavior Psychology and Medicine* (ABPMC) in 1991, whose goal was and still it to assemble psychologists and professionals from other areas interested in the dissemination as well as scientific and technological development of behavior analysis. ABPMC gathers researchers, lecturers, and professionals who work with behavior analysis in various settings – basic, applied, conceptual, and historical research as well as practice – although most members are clinical psychologists. Since its foundation, ABPMC has held annual meetings, which configures the largest Brazilian forum – and one of the largest in the world – for

behavior analysis. In addition to promoting the dissemination of behavior analysis through its annual meetings, ABPMC publishes scientific journals and books, provides services to the community, as well as manages the accreditation process of behavior analysts in Brazil, which aims to attest a practitioner's work as based on the concepts of behavior analysis and the philosophy of radical behaviorism. In 2020, ABPMC had approximately 2.000 members.

ABPMC's annual meeting represent, to a certain extent, the growth of behavior analysis and behavior therapy in Brazil. Attendance grew from 75 participants in 1992 to 1700 in its 24th edition in 2015 (Zamignani et al., 2016a), often welcoming foreign behavior analysts along the years such, as Drs. Fred Keller, Murray Sidman, Robert Kohlenberg, Richard Mallott, and Jay Moore in the 1990s, as well as Drs. Garry Martin, Steven Hayes, John Austin, William McIlvane in the 2000s, among others. In 2004, the *13th ABPMC Annual Meeting* and the *2nd International Conference of the Association for Behavior Analysis International* were held simultaneously at the same venue, favoring a closer relationship between Brazilian and international behavior analysts. All ABPMC's editions featured posters and talks involving TAC, including case studies, their relationships with the third wave, among others.

It is also in the 1990s that some of the main landmarks of cognitive and cognitive-behavioral therapy are seen in Brazil (the second wave in the international context). In 1996, the Brazilian Association for Constructivist Cognitive Therapies (ABTCC) was founded. Shortly after, in 1998, the Brazilian Society of Cognitive Therapies (SBTC) was founded and merged with ABTCC. From philosophical, theoretical, and practical points of view, Rangé (1997) can be considered a landmark in the distinction between the Skinnerian propositions that supported clinical practice in Brazil and those presented by Aaron Beck. Certainly, his article "Why am I a Cognitive Behavior Therapist" is a landmark for the emergence, acceptance, and development of cognitive and cognitive-behavioral therapies in Brazil.

In 2009, SBTC was renamed "The Brazilian Federation of Cognitive Therapies" (FBTC) (Shinohara & Figueiredo, 2011). The objective of FBTC is to disseminate cognitive and cognitive-behavioral therapies in Brazil and, more recently, third wave therapies. Thus, among other actions, FBTC organizes a biennial conference, promotes international workshops, coordinates a certification of cognitive and cognitive-behavioral therapists in Brazil, and maintains several publications, such as the *Brazilian Journal of Cognitive Therapy*. In addition, FBTC is a member of the Latin American Association of Cognitive Psychotherapies and has maintained close relationships with representative international organizations, such as the Academy of Cognitive Therapy, Association for Contextual and Behavioral Sciences, and the Association of Behavioral and Cognitive Therapies (Neufeld & Affonso, 2013; Neufeld et al., 2015). In 2020, FBTC was composed of 4000 members.

Behavior-Analytic Therapy (TAC) and the Third Wave of Behavior Therapy

TAC stems from a collective effort of Brazilian researchers and practitioners to transpose the principles of experimental analysis of behavior and the philosophy of radical behaviorism into the scope of psychotherapy. At the same time, since the 1990s, the development of TAC has been influenced by third wave behavior therapies, especially Functional Analytic Psychotherapy (FAP; Kohlenberg & Tsai, 1991) and Acceptance and Commitment Therapy (ACT; Hayes et al., 1999).

For example, Dr. Fátima Conte, a practitioner since 1979, attended a workshop in 1989 by Steven Hayes entitled “Analysis and Treatment of Experiential Avoidance”, practicing clinical psychology under the influence of ACT even before its name – known as “Comprehensive Distancing” at the time. Between 1991 and 1997, Dr. Conte and her colleague, Dr. Maria Zilah da Silva Brandão, coordinated a postgraduate course at the State University of Londrina (UEL), called “Specialization in Functional Analytic Psychotherapy”, whose objective was to teach ACT and FAP and integrate them with the prevailing form of behavior therapy in Brazil (F. Conte, personal communication, July 12, 2020). ACT initially suffered a strong rejection from the Brazilian community on the accusation of being a cognitive approach. However, it gradually gained space and was more carefully analyzed in terms of its compatibility with radical behaviorism (e.g., Costa, 2012).

In 1995 and 1999, Dr. Robert Kohlenberg taught courses on FAP in Campinas and São Paulo (both in São Paulo state), leading many Brazilian therapists to adopt its essential elements (e.g., watch for clinically relevant behaviors, evoke clinically relevant behaviors, reinforce clinically relevant behaviors that are improvements of problem behaviors, etc). In fact, when attending Dr. Kohlenberg courses in Brazil in the 1990s, many avant-garde Brazilian behavior therapists recognized clinical strategies that they were already applying in their clinical practice (M. Delitti, personal communication, July 10, 2020).

More recently, Dialectical Behavior Therapy (DBT; Linehan, 1993), a third wave therapy, has started to make inroads in Brazil. Since the first Brazilian edition of the *Dialectical Behavior Therapy Intensive Training* promoted by *Behavioral Tech* in 2015, some TAC therapists have adopted many of its intervention procedures. In fact, at the 2016 ABPMC meeting, seven talks were offered in DBT (Sayago, 2016), rarely addressed in previous events. Once again, as expected from a community of therapists strongly rooted in Skinner’s work, publications emerged that analyzed the compatibility of DBT with radical behaviorism and behavior analysis (e.g., Abreu & Abreu, 2016; Almeida Neto, 2016; Leonardi, 2016b).

This symbiotic relationship between TAC and third wave therapies makes it difficult to accurately identify the features that define and distinguish it from the other numerous behavior therapies. In Brazil, we can commonly witness a combined use of intervention procedures based on different models of psychotherapy (ACT, FAP, DBT, behavior activation, etc.).

In this context, one might ask: why tell TAC from the rest of clinical behavior analysis? This distinction seems important because, although both TAC and clinical behavior analysis have been defined as psychotherapies based on the philosophy of radical behaviorism and on the conceptual, methodological and empirical bases of behavior analysis (cf. Guinther & Dougher, 2013; Meyer et al., 2010), they do not consist of identical practices. On the one hand, they advocate the transposition of empirically validated behavioral principles (reinforcement, discrimination, etc.) to the scope of psychotherapy, but on the other hand, third wave therapies show some detachment with the principles of experimental analysis of behavior and make use of terms that sound mentalistic to those who value Skinnerian terminology. This may not be a point of great relevance for many third wave therapists outside Brazil, but it is undoubtedly crucial for an important part of the Brazilian behavior therapy community. In addition, the use of middle-level terms that do not stem from basic research and appear to have no relation to the original theory and vocabulary of behavior analysis (McEnteggart et al., 2015), as occurs in ACT and DBT, is often viewed with discredit by professionals who base their clinical practice on experimental analysis of behavior.

Behavior-Analytic Therapy (TAC): A Brazilian Model

TAC has not yet been systematized in a manual, as were DBT and ACT for instance. However, several articles and chapters (e.g., Borges & Cassas, 2012; Cassas, 2013; Meyer et al., 2010; Meyer et al., 2018; Zamignani et al., 2016b) describe the main elements that constitute its therapeutic process. A summary is presented below based on these publications.

A client's suffering in their daily lives is conceived as a reflexive conditioned motivating operation (cf. Michael, 2000), thus increasing the likelihood of seeking professional help. What makes a clinical psychologist a possible source of reinforcement (and, consequently, establishes them as a conditioned reinforcer) is their professional status as a specialist in human behavior and a specially structured office setting to deal with painful and embarrassing events.

From the very first sessions, the therapist aims to develop a relationship through a nonpunishing audience (attentive and cautious listening, completely free of judgment, criticism, or disapproval), empathy (expressions of acceptance, care, respect, and understanding of what the client does, thinks, and feels) and demonstrations of what the scientific knowledge can provide them. In the words of Meyer et al. (2010):

The simple fact that the client has sought help, regardless of any exhibited behavioral pattern, should be the target of social reinforcement, via general expressions of support to the fact that the client is in therapy, given the problems that the client faces... The social reinforcement that the therapist must provide at this point seems "non contingent", as it does not address any of the client's specific class of responses. However, it is related to a client's

broader behavioral class of engaging in a change process. The therapist's response classes are those that allow the therapeutic process to occur and are typically constituted by their actions and verbalizations that suggest care and a general contingent support to seeking therapy (p. 163).

From the very first sessions, the therapist collects information on the client's complaint and life history through verbal interactions and direct observations in session. Generally, the client's report occurs in lay terminology and, throughout the process, the therapist organizes the data from the perspective of contingency analysis,¹ which makes it possible to understand which element of the behavioral relation (antecedent, response or consequence) is responsible for the clinical problem, and what needs changing to lead to improvement. As the determinants of the client's behavioral repertoire – genetics, life history, cultural context, and current environmental conditions – are unique to each case, the contingency analysis and resulting intervention are necessarily individualized.

Contingency analysis can reveal that the client's difficulties are related to consequent variables. In some cases, the problem may be the absence of reinforcing stimuli. For example, lack of interest and spending the day lying in bed can be the result of the absence of positive reinforcers, while frustration and nervous breakdowns can be attributed to a rupture in a previously established relationship between response and reinforcement (Skinner, 1974, chapter 4). In these circumstances, the therapist's role varies according to behaviors presented at the clinical complaint. If they are likely to occur in session (e.g., difficulty in interpersonal relationships), the therapist can evoke and reinforce them differentially, as proposed by FAP (Kohlenberg & Tsai, 1991). If not, it is up to the therapist to identify possible sources of reinforcement and enable new occurrences of the client's behavior, now likely to be reinforced, as proposed by behavioral activation (Martell et al., 2013).

In other cases, the problem may be related to other types of consequences. For instance, responses such as complaining, and expressing distress may have been reinforced by the decrease, elimination, and avoidance of aversive tasks or even attention, care, and compassion. However, due to their aversive effect on others, such responses can lead to social distancing, thus decreasing the density of positive reinforcement obtained over time, contributing to the maintenance of the clinical problem. In such situations, the therapist's role consists of analyzing the consequences and proposing interventions to change them.

¹In Brazil, the term *contingency analysis* has been used to identify functional relations (antecedent-response-consequence) in the therapy setting, which is essentially of an interpretative nature, whereas the term *functional analysis* has been reserved for research in which there is direct manipulation of environmental variables and strict experimental control (Costa & Leonardi, 2020). Naturally, the interpretation made in contingency analyses is not speculative, since it is based on empirically validated principles through basic experimental science, which makes such an interpretation a fundamental tool for the understanding of complex human behaviors (cf. Donahoe, 1993).

Still regarding consequences, the clinical problem presented by the client may be related to a history of punishment, which generally brings a wide range of harmful side effects such as guilt, shame, fear, anxiety, freezing, disturbing emotions, incitement to violence, etc. (Sidman, 1989). In such cases, the therapist aims to reduce the amount and magnitude of aversive stimulation in the client's life by developing repertoires to cope with the problem.

Contingency analysis can reveal that the client's suffering is related to antecedent variables, such as when the client is behaviorally capable of producing reinforcers and the environment provides reinforcing consequences, but there is inappropriate or no discriminative control. In these cases, the therapist's role is to assist the client in identifying discriminative stimuli related to each response and facilitating their success in such environments.

Another problem related to antecedents concerns rule-governed behavior. Excessive control by rules is usually correlated with some degree of insensitivity to changes in contingencies (and, thus, being responsible for a rigidity in the repertoire that contributes to the clinical problem), while a deficient control by rules can bring numerous problems (Meyer, 2005). In the first case, the therapist must lead the client to pay attention to other aspects of the situation, thereby decreasing the degree of control exerted by the rule, and, in the second, to develop rule-following.

In addition to revealing whether the clinical problem is related to antecedents or consequences, contingency analysis can also indicate whether there are behavioral excesses (e.g., overeating), deficits (e.g., lack of social skills) and interfering behaviors (e.g., difficulty in flirting due to a clothing style). When there are behavioral excesses, the therapist must strengthen alternative and / or incompatible behaviors that produce reinforcers powerful enough to compete with those obtained by the problem behavior, which is likely to decrease its frequency. When there are deficits, the therapist aims to foster the necessary repertoires, making use of shaping, modeling and / or rules, in addition to combining these techniques. When there are interfering behaviors, the therapist's role is to highlight the undesirable effects they produce and to suggest alternatives. Finally, it should be noted that, in some cases, repertoire problems are not related to excessive, deficient, or intervening behaviors, but rather to unsuitable topographies for the context in which the client is inserted. In such cases, it is due to the therapist to shape the existing topography of that behavior.

Finally, what we see today in the practice of TAC in Brazil is similar to what Callaghan and Darrow (2015) called the fourth wave of behavior therapy: employing contingency analysis as the main tool for formulating the case and using it to determine which intervention procedures from different behavior therapies, such as ACT, DBT, and FAP, to use. In their words:

Without denigrating any of the third wave treatments, it is possible to see the emergence of a fourth wave of behavior therapy. This wave would emphasize the key role of functional assessment in targeting client problems and choosing which strategies from the existing behavioral treatments to apply to a particular client. This relegates the current third wave

treatments to a set of interventions for client problems that can be integrated into one coherent, individualized intervention guided by a functional assessment. This is in contrast to more typically using ACT, FAP, DBT, or Behavioral Activation as standalone interventions and would require a therapist to consider multiple hypotheses for contextual variables surrounding different types of suffering. (...) Creating an approach to understand and treat human suffering that is grounded in behavioral principles, driven by functional assessment, and utilizes available contemporary behavioral treatment technologies, may allow a clinician to become a beacon of contemporary clinical science and therapy. The next wave of behavior therapy can integrate existing approaches to begin with the client, not the disorder, nor the treatment, but a functional assessment of that unique person. More than that, this wave will make room for the development of new strategies to alleviate suffering as our psychological problems evolve with human kind (p. 62–63).

Evidence for Behavior-Analytic Therapy (TAC)

Experimental evidence of the efficacy of TAC is scarce. When reviewing 142 Brazilian publications on behavior therapy from 1949 to June 2001, Nolasco (2002) identified that 86% of studies in the area are conceptual, which led the author to conclude that TAC therapists “have communicated little to the scientific community about the models of its intervention method and their practical results” (p. 64).

More recently, Leonardi (2016a) conducted a systematic literature review in 14 databases to analyze the production of empirical evidence on the efficacy of behavior therapy in Brazil, locating 38 case reports, six single-case experiments, and no clinical trials. This predominance of case reports allows us to state that TAC lacks experimental studies, essential for the establishment of causal relationships between procedures and outcomes. Therefore, it is not currently possible to know if TAC is effective.

Most intervention procedures analyzed by Leonardi (2016a) failed to enable a trained reader in behavior therapy to replicate their findings or reproduce them in their practice. Examples (among numerous others) of illegible descriptions of therapists’ actions are “giving discriminative stimuli for the client to approach the family” or “questioning rules”. The lack of accurate in-session descriptions of therapists’ behaviors considerably diminishes the scientific value of the empirical studies.

Leonardi (2016a) highlighted that no studies evaluated the fidelity of procedures, that is, if the intervention was implemented as planned and described. Thus, the outcomes may be unrelated to the planned treatment, but rather to miscellaneous therapeutic actions that differed from those planned and described (i.e. the actual treatment).

In summary, data on TAC from Leonardi’s (2016a) literature review indicate that this type of therapy lacks clinical research that adequately verifies its efficacy. More recent work (e.g., Moraes & Silveira, 2019) reveals that little empirical research has been carried out since then.

Conclusion

Behavior therapies are characterized by the work of researchers and practitioners in different places, contexts, needs, and historical periods. As every historical event is unique, the history of behavior therapy in Brazil followed its own path.

Analyzing the history of behavior therapy based on the wave metaphor comprises models of psychotherapy that have spread internationally, such as ACT, DBT, FAP, among others. Thus, we chose to describe how such waves influenced the history of behavior therapy in Brazil, contemplating its beginning and development paths.

Also, we must highlight that the Brazilian term to describe behavior therapy based on radical behaviorism is unfamiliar worldwide. A Google Scholar search in August 2020 with the terms “behavior-analytic therapy”, “behavioral-analytic therapy” and “analytical-behavioral therapy” (some possible translations of the original “*terapia analítico-comportamental*” in Portuguese), almost exclusively returned articles by Brazilian authors that used such expressions in their abstract or keyword sections. The term used in Brazil is not known and used internationally, which hinders the dissemination of psychotherapy practice and research by Brazilian behavior analysts in other parts of the world and, consequently, the dialogue with other forms of already developed behavior therapies.

In Brazil, behavior therapy started in the late 1960s, and spread in the 1970s. At the time, many Brazilians either sought training abroad or invited overseas researchers and practitioners to teach in Brazil; thus, Brazilian therapists kept a close contact with representatives of the different waves in behavior therapy. It is also worth noting the strong female presence in scientific leadership throughout the history of behavior therapy in Brazil, including TAC.

The TAC model for understanding psychotherapy can be considered original given that no similar organization is known to have occurred simultaneously. The main assets of the theoretical-practical originality of TAC may be the well-known importance given to the therapeutic relationship as a drive for change and the adoption of contingency analysis as an assessment tool – both already present in various early 1970s’ studies. Notably, there are similarities between TAC and other models of psychotherapy, especially third wave ones. However, this similarity is not unique to TAC. Approximations between FAP, ACT and DBT, for example, are common in the international literature (Carlson, 2017; Center & Lynch, 2018; Gifford et al., 2011; Kohenberg & Callaghan, 2010; Martins & Vandenberghe, 2006; Olaz, 2015; Reyes-Ortega et al., 2020).

In conclusion, the three waves metaphor does not represent the development of behavior therapy in Brazil. On the other hand, third wave behavior therapies influenced the construction of the Brazilian model of behavior therapy (TAC) which, from a conceptual point of view, is strongly founded in behavior analysis and radical behaviorism and, from a practical one, is open for new developments of different behavior therapies.

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History of Cognitive and Behavior Therapies in Japan: A Behavior Analytic Perspective



Takashi Muto and Akihiko Masuda

In Western cultural contexts, the terms *behavior therapy* and *cognitive behavioral therapy* (CBT) are often used interchangeably to refer to a family of behavioral and cognitive therapies, ranging from applied behavior analysis to cognitive therapy (CT) and to acceptance- and mindfulness-based cognitive behavioral therapies (Hayes, 2004; Masuda & Rizvi, 2019; O'Donohue & Fisher, 2008, 2009). According to Goldfried and Davison (1994), when behavior therapy, or CBT, is viewed in this way, it is characterized as:

... a general orientation to clinical work that aligns itself philosophically with an experimental approach to the study of human behavior. The assumption basic to this particular orientation is that the problematic behaviors seen within the clinical setting can best be understood in light of those principles derived from a wide variety of psychological experimentation, and that these principles have implications for behavior change within the clinical setting... There are several important consequences of this basic point of view. Behavior therapists, like their experimental colleagues, are operational in their use of concepts. High level abstractions such as anxiety or depression are always operationalized in specific terms, such as a particular score on a behavioral assessment device, or a concrete description of behavior. Also very much within the spirit of experimental psychology, the behavior therapist is interested in the search for and manipulation of the strongest controlling variables... That is, the behavior therapist assumes that behavior is lawful and that it is the function of specifiable antecedent, organismic, and consequent conditions. In this regard, every clinical interaction constitutes a kind of experiment (pp. 3–4).

In the field of behavioral health, these are the features of behavior therapy that differentiate it from other schools of psychotherapy and behavioral health interventions.

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Behavior therapy was originally introduced to Japan by Kousaku Umezu (梅津耕作, 1928–1999) in the early 1950s (see our detailed discussion on Umezu below). During that time in Japan, evidence-based procedures linked to evidence-based processes of change was explicitly emphasized as the core of behavior therapy. However, today the term *behavior therapy* (“行動療法; kodo ryoho” in Japanese) is hardly presented in Japanese peer-reviewed journals. While the term *cognitive behavior therapy* (CBT; “認知行動療法; ninchi kodo ryoho” in Japanese) is well recognized by many, including both the professional and general public, it is understood merely as a therapeutic tool, rather than as a larger system of knowledge and treatment development (Hayes et al., 2013; O’Donohue & Fisher, 2009).

In this chapter, we will present the evolution of Japanese behavior therapy in light of unique Japanese cultural contexts, as well as highlight key historical events that took place since its inception. To do so, we will first orient readers to Japanese cultural and historical contexts relevant to the dawn and development of Japanese behavior therapy. Subsequently, we will present our views on the history of Japanese behavior therapy by following the *wave* rhetoric, which was used for the first time by Steven C. Hayes in early 2000s (Hayes, 2004; Hayes et al., 2003).

Behavior Therapy and Licensing Law for Psychologists in Japan

In the United States (U.S.), the first licensing law for psychologists was passed in Connecticut in 1945; by 1977, all states had passed similar licensing laws (Rehm & DeMers, 2006). On the other hand, it was not until 2017 that the Japanese government passed legislature for establishing master’s level psychologists as nationally licensed professionals (i.e., “国家資格” in Japanese) (see Ishikawa et al., 2020). Subsequently, it was not until 2019 that this law officially sanctioned the first master’s level licensed psychologist in Japan. To date, the Japanese government has not passed a licensing law for *doctoral level* psychologists.

In many ways, this slow progress is somewhat surprising, as other healthcare professionals in Japan have been recognized as nationally qualified and licensed for years since the end of World War II. For example, licensing laws were passed for medical doctors, including psychiatrists, in 1946, for nurses in 1948, and more recently for psychiatric social workers in 1997.

Why did it take so long for Japan to pass a licensing law for psychologists? One major factor was the resistance from other licensed professionals, such as physicians and nurses, who have served as primary providers of mental health services for years. Simply put, in Japan, physicians have traditionally held authority and privileges in all aspects of behavioral health care. These include diagnostic decision-making, treatment planning, and billing and reimbursement from the national healthcare system. Additionally, somewhat similar to the U.S. where people initially seek mental healthcare from their primary care physicians (O’Donohue & Maragakis, 2015), Japanese individuals tend seeks initial mental health

services from their family doctors or from physicians in “Psychosomatic Medicine (心療内科)” under their national healthcare system. To date, under this system, the primary duties of master’s level psychologists are to assist physicians and provide services prescribed by physicians. For this reason, although these master’s level clinicians are called “licensed psychologists,” the extent of their authority and privileges are minimal— a state of affairs which is substantially different from the status of both doctoral-level licensed psychologists master’s level clinicians in the U.S.

Another factor for the delay in the sanctioning of national licensure of master’s level psychologists was the lack of consensus among doctoral level psychologists at *meta levels* (O’Donohue, 1989; O’Donohue & Ferguson, 2016), including the philosophy of humanity or human nature (“人間観” in Japanese), as well as the way that psychologists approach human conditions both theoretically and clinically. The lack of consensus among these doctoral level psychologists has been problematic because in the current Japanese licensing system, they serve as mentors and supervisors for future master’s level psychologists in master’s training programs in clinical psychology (see Ishikawa et al., 2020 for their discussion on established training systems for psychologists as well as graduate students in Japan). Among these discrepancies, the role of science in clinical psychology has yielded a series of heated debates among psychologists. That is, many Japanese, including Japanese psychologists, are generally resistant to the idea of applying scientific knowledge and technologies to humans, especially the idea of doing so to “control” themselves and others. Furthermore, generally speaking, Japanese people tend not to like the idea that their thoughts and actions are controlled by other agents; while at the same time they do not like the idea that they have to take responsibility for their actions as their own control agent (Masuda, 2017; Weisz et al., 1984). Within the field of clinical psychology and other related disciplines, behaviorists emphasize science as the backbone of their clinical research and practice (Herbert & Forman, 2013; Herbert et al., 2013; O’Donohue & Fisher, 2009), and the public tends to continue to view behaviorists negatively as cold-hearted control agents of their clients (e.g., Turkat & Feuerstein, 1978). This is also the case in Japan, which has given Japanese behaviorists a rather unfavorable image within Japanese society (see Weisz et al., 1984 for the first-order control coping vs. second-order control coping). On a related note, as discussed briefly above, in Japan, family doctors, physicians in *psychosomatic medicine*, and psychiatrists are typically the primary service providers for mental health concerns. Generally speaking, they tend to follow a non-behavioral orientation, such as psychopharmacological and contemporary psychodynamic approaches.

Public Image of Behavior Therapy in Japan: A Cultural Perspective

If the first author (T. M.) is asked whether Japanese people generally like behavior therapy (or behavioral school of thoughts), his answer would definitively be “no.” Although there are some Japanese individuals who hold favorable views of behavior

therapy, including the authors of this chapter, these individuals are in the minority. From a sociocultural perspective, it is possible to identify three cultural practices (i.e., contextually situated behavioral repertoires) of Japanese individuals that may account for this “cultural dislike of behavior therapy.” These are (a) preference of assimilation and accommodation over first-order control, (b) characteristics of Japanese language, and (c) unwillingness to recognize oneself as a control agent. More specifically, as we will discuss extensively below, these repertoires of Japanese individuals at a cultural and social level are not compatible with the spirit of behavior therapy (i.e., philosophical, theoretical, and applied positions).

Preference of Assimilation and Accommodation Over Control

Metaphorically speaking, Japanese culture is often considered to be the polar opposite of Western culture (Markus & Kitayama, 1991; Weisz et al., 1984). That is, Japanese culture is considered the culture of interdependent self, seeing relations with others and what surrounds the self as vital determinants of self, whereas Western culture is viewed as that of independent and autonomous self (Hamaguchi, 1985; Markus & Kitayama, 2010). Particularly relevant to the issue of “control” discussed above, Japanese culture is known to value *second-order control strategies*, characterized by efforts to coexist and harmonize with the events of interest, including nature (e.g., natural disasters), social and political conflicts, and mental health issues (Weisz et al., 1984), while Western culture is often said to encourage *first-order control strategies* (e.g., direct attempts to conquer a targeted problem) for these events. For example, if there is a huge mountain between town A and town B, Japanese would want to make a path that goes around the mountain, but Westerners would want to dig a tunnel through the mountain to minimize the distance between town A and town B. As discussed elsewhere (e.g., Masuda, 2017), historians and psychologists have noted that the emphasis on second-order control within Japanese culture reflects the climate and geographic characteristics of Japan to which generations of Japanese individuals have had to adapt to for the sake of survival and prosperity.

Geographically speaking, Japan is an island country located along the Pacific coast of East Asia. Surrounded by oceans, over 70% of Japan is forested and mountainous. Most regions of Japan are temperate and characterized by four distinct seasons. Because of its wide range of latitude, seasonal winds, and different types of ocean currents, the climate in Japan varies dramatically from a cool, humid, and continental climate in the north to warm, tropical, and rainforest climate in the south. Japan is also known for a range of natural disasters. Typhoons occur annually, causing floods and landslides. Due to its location in the Pacific Ring of Fire with over 100 active volcanoes, Japan is also prone to earthquakes and tsunamis, having the highest natural disaster risk in the developed world. As a matter of fact, the major earthquake and tsunami in 2011 are still fresh in the memories of the Japanese people (Normile, 2011). Once again, relevant to the topic of this chapter, the

Japanese have learned as a cultural practice that a range of these natural disasters almost always occur in a way that is beyond human control. At the same time, the people of Japan have learned to appreciate the power and beauty of the nature and have done so by adapting themselves to nature, not the other way around.

Relatedly, adaptation and assimilation as behavioral choices of Japanese people were observed regarding the U.S., an enemy nation, during World War II and the post-World War II period. More specifically, the people of Japan appeared to have perceived and accepted many attacks from the U.S., including the major bombing of Tokyo (March 9–10, 1945) as natural disasters more so than as human-inflicted malice (i.e., first-order control). The major bombing of Tokyo, enacted as a fire-bombing raid (codenamed “Operation Meetinghouse”) by the U.S. on the capital of Japan during the final stages of World War II, is often cited as one of the most destructive acts of war in history, more destructive than atomic bombs dropped on Hiroshima or Nagasaki. As a result, Japanese people as a whole chose to assimilate and adapt themselves to the U.S. occupation, rather than continuing to resist further or expressing hatred toward the U.S. One important point to note here is that during U.S. occupation, Japanese individuals were still allowed to use Japanese as their native language. As such, Japan has been said to only have been Americanized in the materialistic domains, but not in the domain of cultural practice and identity.

Japanese Language

Relative to the English language, Japanese language has several ways of deemphasizing the *agent* and action in a sentence (Masuda, 2017); these features of the language might explain why Japanese people tend to have less favorable attitudes toward a scientific way of thinking and problem-solving embraced by behaviorists. More specifically, in pointing out this feature of Japanese syntax, Maynard (1997) terms Japanese a “Be-language” or “Become-language,” while describing English as a “Do-language” or “Have-language.” Summarizing the features of Japanese language, Maynard (1997) states:

... Japanese tends to frame the event as (1) something existing rather than someone possessing something, and (2) something becoming or happening, often beyond the agent’s control, and not as something that an agent who has full control “initiates and causes to happen.” The Japanese are more likely to interpret an event as a situation that becomes and comes to be on its own, while Americans tend to perceive an event resulting from an agent doing something and causing things to happen... Incorporating the concept of centrality of scene, we can conclude that one of the ways that Japanese are characteristically encouraged to see things is as the scene becoming, whereas from the American perspective it is the agent doing. The world that becomes is also a world where elements are held in balance, located in mutual interrelation. Here, instead of recognizing an agent acting on an object, multiple elements constructing the entire scene find themselves in a relational balance (p. 176).

Here is an example of how an event is framed and expressed in Japanese. The second author of this chapter (A.M.) was recently promoted to the rank of full professor at the University of Hawai‘i at Mānoa. In English, the second author would share

this news with his family and colleagues by saying something like, “I am officially promoted to the rank of full professor.” However, he is very much likely to share this news with his Japanese family and colleagues by saying something like “*konotabi Hawaii-daigaku kara Furu Professor heno shoushin wo itadakimashita.*” The literal translation of this sentence is something like “*It turns out* that I have been promoted to the rank of full professor by the University of Hawai’i at Mānoa.” In his Japanese expression, the second author himself as an agent of change is deemphasized by saying “It turns out...” as if it is an *unidentifiable* external factor that determined his promotion at the university, not himself earning it or by the action of *any specific agent*. From a lay perspective, this subtle difference between English and Japanese diction may not seem to be so crucial for practicing behavior therapy. However, the “be-language” and becoming-language” aspects of Japanese make it difficult to conduct a functional assessment (e.g., analysis of three-term contingency) for a given target behavior (i.e., B in the A-B-C functional assessment), as it obscures one’s understanding of what the target behavior is as well as its agent (e.g., who is engaging in that behavior). In other words, many Japanese have difficulty in passing the *dead man test* (Lindsley, 1991) for adequately identifying the target behavior of interest in practice and research.

In sum, language (or what B. F. Skinner called verbal community) shapes the way a given culture’s members think and feel (e.g., self-control; Maynard, 1997; Skinner, 1957, 1974). The Japanese verbal community seems to socially encourage Japanese people to pay closer attention to the context where their experience unfolds without emphasizing the agent of change, including themselves. Reinforcing this form of linguistic practice may facilitate one’s sense of self as being harmonious with the context and hone their sensitivity to the changes unfolding in that context. However, on the other hand, this cultural practice also makes *explicitly pursuing and advocating for* first-order control strategies, a common problem-solving strategy derived from the practice of Western science, less appealing and intuitive to many Japanese individuals (Masuda, 2017).

Unwillingness to Recognize Oneself as a Control Agent

Generally speaking, Japanese people have a tendency to avoid identifying themselves as *agents* who regulate and control themselves, others, and encountered situations. This tendency often accompanies a desire to conceal or obscure the locus of control or responsibility (Davies & Ikeno, 2002). Together, these proclivities are argued to be *adaptive* within Japanese culture, while actions in opposition to these behavioral predispositions are often punished. For example, when Japanese people perceive that a given individual achieves something *individually* by regulating or controlling something, they tend to applaud that individual and their accomplishment *less*, or even express dislike toward that individual for being “too individualistic.” Similarly, when an individual attempts to achieve something independently without explicitly taking collectivistic support into consideration, that person is

likely to be at the center of blame from others especially if that person fails to achieve desired ends. These social and cultural contingencies operating within Japanese society seem to reflect the collectivistic characteristics of Japanese culture (Markus & Kitayama, 1991, 2010), where the survival and sustainability of the group are emphasized over those of each of the individuals that constitute the group.

On a related note, some readers may think that these *avoidant* tendencies are incompatible with a well-known virtue of *Harakiri of Samurai* (武士の切腹; ritual suicide by disembowelment with a sword), which was formerly practiced in Japan by samurai as an honorable alternative to disgrace or execution. Harakiri, at least in a Western cultural context, is viewed as a symbolic act of a samurai who fully honors and embodies self-control, self-discipline, and personal responsibility as the agent of their own action (Nitobe, 2012). Nevertheless, we argue that *harakiri* is a *stereotyped and exaggerated aesthetic* of self-sacrifice and personal responsibility. In reality, we argue further that it was a reflection of the Japanese social system at the time that covered up the practice of scapegoating (i.e., singling out an individual and placing the full responsibility or blame on that individual) by calling it the heroism/aesthetics of Samurai (侍の誇り). Furthermore, Samurai as a social class consisted of only 7% of the population in Japan at the time, while the vast majority of Japanese (i.e., over 80%) were farmers. In other words, the embodiment of self as the agent of own conduct, as seen in the way of Samurai (Nishigori et al., 2014; Nitobe, 2012), has not been part of mainstream Japanese culture in the past or present.

Once again, one's unwillingness to take personal responsibility as the cause of certain outcomes in certain situations has permeated into many aspects of Japanese culture and is maintained in part throughout the linguistic features of the Japanese language and vice versa. Said in another way, the avoidance of putting oneself into a situation as the locus of responsibility or control seems to be a fundamental behavioral tendency among Japanese, which is incompatible with the spirit of behavior therapy (e.g., self-control; Skinner, 1974; Weisz et al., 1984).

Person-Centered Approach and Japanese Culture

Even to this date, seeking psychotherapy is not necessarily part of mainstream culture in Japan (Ishikawa et al., 2020; Masuda et al., 2009; Masuda et al., 2005). Nevertheless, given the aforementioned three points, if Japanese individuals seek professional psychological services, they seem to prefer to *receive* Rogerian person-centered psychotherapy, in which a gentle and harmonious therapeutic relationship between client and clinician is emphasized. Within this type of therapeutic relationship, Japanese clients prefer to work with therapists who are gentle and validating, rather than explicitly direct in targeting active and intentional behavioral change. In fact, although dated, a national survey showed that the most common therapeutic orientation with which Japanese clinicians self-identify was a person-centered supportive and integrative approach (Japanese Society of Certified Clinical Psychologists, 2006).

Dawn of Behavior Therapy in Japan (1950–1980): The First Wave

From a perspective of many European nations, Japan is located in the Far East: In fact, Japan is officially referred to as *Nippon* in Japanese, meaning “the land where the sun raises.” As noted above, Japan is an island country separated from the continent of Asia and surrounded by ocean. The geographic features of Japan have shaped the way Japanese obtain and develop new knowledge and skills at a cultural level. That is, historically Japanese initially tend to learn a new skill or knowledge from outside (e.g., learning to grow rice from Chinese and Koreans and manufacturing cars from Western cultures), learn them wholeheartedly, and advance that knowledge and skill further (to adapt them to the Japanese sociocultural context or otherwise). In other words, rather than inventing something new or innovative themselves, Japanese tend to import ideas or products from elsewhere and improve them further (i.e., Kaizen; 改善 in Japanese) or adapt it to their cultural context. Behavior therapy was no exception to this heuristic.

Behavior therapy was introduced to Japan in 1950s as one of the innovative scientific technologies of the West, the winners of World War II (Yamagami et al., 1982). As noted elsewhere, this was because behaviorism happened to be the mainstream school of thought in psychology at the time (O’Donohue & Kitchener, 1999). For this reason, if cognitive science were the mainstream approach in psychology in the 1950s, behavior therapy might not have been introduced to Japan in the way that it was. Metaphorically speaking, the introduction of behavior therapy to Japan in the 1950s was a smaller tide of the larger wave of Western behavior therapy that arrived on the shore of the Far East.

Studies of Nocturnal Enuresis by Kousaku Umezu: The Dawn of Behavior Therapy Research in Japan

The first behavior therapy research paper published in Japan was said to be the one by Kousaku Umezu (梅津耕作, 1928–1999) in 1956 (Umezu, 1956). The title of the paper was “A treatment of nocturnal enuresis (NE) through conditioning Part I,” which was informed by O. H. Mowrer and his classical conditioning account of NE (Mowrer, 1938; Mowrer & Mowrer, 1938). More specifically, in this study, Umezu presented a treatment device for NE that he developed and its effects on 13 children with nocturnal enuresis (Umezu, 1956, 1957). Based on these findings, Umezu also proposed his account of NE and treatment of NE (see Fig. 1). According to Umezu, a child’s behavior of nocturnal urination was theorized to be a conditioned response (i.e., denoted as “r”), which was elicited by elevated pressure within the bladder, which was theorized to serve as a conditioned stimulus (cs). The treatment device Umezu created was designed to detect urine and signal the child with a sound of bell within three seconds from the detection of urine. Following principles of classical conditioning, the sound of the bell was theorized to serve as an unconditioned

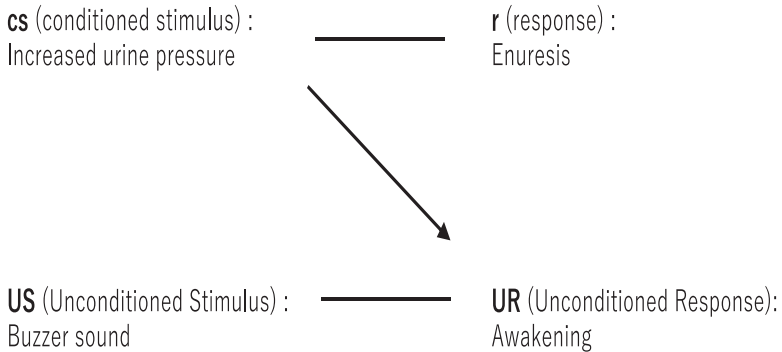


Fig. 1 Umezu’s treatment model for enuresis based on classical conditioning

stimulus (US), which elicited the unconditioned response (UR) of waking up from sleep. Once these “cs-r” and “US-UR” behavioral associations were conditioned to occur at the same time, perceived pressure within the bladder (cs) was theorized to come to elicit the response of waking up from sleep, behavior that was topographically identical to UR in the model), which was incompatible to the behavior of urinating.

Translation of the Volume Behaviour Therapy and the Neuroses by Hans Eysenck

Following the seminal paper by Umezu in 1956, behavior therapy was applied to a number of psychiatric conditions, such as pediatric mutism and psychosomatic tics during the latter part of the 1950s (Umezu, 1976). At the same time, researchers and clinicians began to scrutinize the link between learning theories and behavior therapy as an applied extension of these theories. However, during the 1950s, behavior therapy did not have a huge impact on Japanese society.

According to Umezu (1976), a major shift in regards to the recognition of behavior therapy in Japan occurred when the volume *Behaviour therapy and the neuroses: Readings in modern methods of treatment derived from learning theory* by Hans Eysenck (1960) was translated into Japanese and published in 1965. It is worth noting that this volume was translated into Japanese by the founding members of the Society of Personality and Behavioral Disorder (SPBD; 異常行動研究会). The SPBD was founded in 1960 by a group of psychologists who studied clinical applications, which were informed by animal learning models. In addition to Umezu, other founding members of the SPBD included Hiroshi Imada (今田寛; 1934-) of Kwansai University, Takashige Iwamoto (岩本隆茂; 1933–2010) of Hokkaido University, Yutaka Haruki (春木豊; 1933–2019) of Waseda University, Hisashi Hirai (平井久; 1928–1993) of Sofia University, and Yoshinori Matsuyama (松山義則; 1923–2014) of Doshisha University. These individuals are now recognized as the founding

researchers of learning principles in Japan. As shown in Fig. 2, since the publication of *Behaviour therapy and the neuroses* in Japanese in 1965, there had been a dramatic increase in the number of peer-reviewed papers that featured behavior therapy (Agari, 1980).

Establishment of Japanese Association of Behavior Therapy in 1975

The growing interest in behavior therapy in the late 1960s and early 1970s resulted in the establishment of the Japanese Association of Behavior Therapy (JABT) in 1976, which was purported to have been carved out from the Society of Personality and Behavioral Disorders (SPBD). The key figures in the establishment of JABT were Kikuo Uchiyama (内山喜久雄; 1920–2012) of University of Tsukuba and Yujiro Ikemi (池見 酉次郎; 1915–1999) of Kyushu University. In the same year, the *Japanese Journal of Behavior Therapy*, the flagship journal of JABT, also started. A content review of the papers published in JJBT between 1976 and 1980 revealed that the interests among JABT members were mainly in clinical practice (e.g., application of behavior therapy to diverse behavioral issues), rather than in theories and basic research in behavior therapy. Exemplars of the major topics covered during that time included the application of behavior therapy to children with a range of behavioral issues, such as autism, developmental disabilities, selective mutism, asthma, and vocal tics. Other rather minor topics covered during that time were the

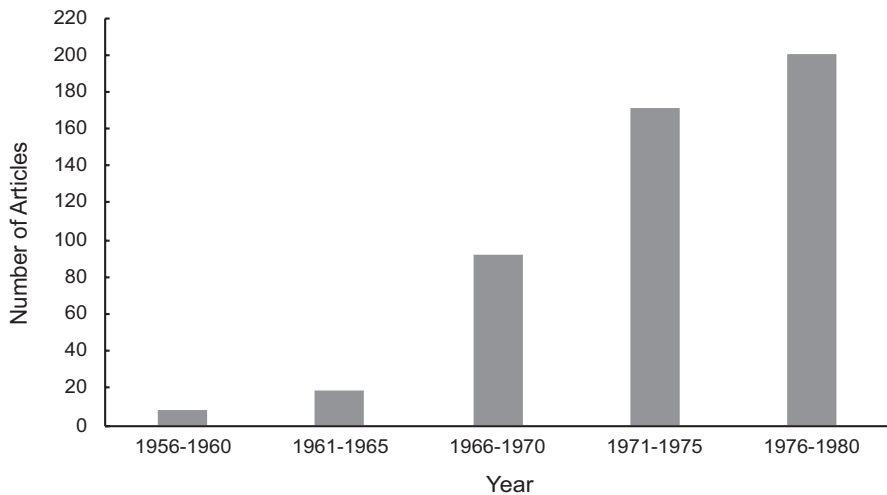


Fig. 2 Number of the published articles related with behavior therapy in Japan (1956–1980). (This figure was based on data in Agari, 1980)

application of biofeedback and behavior therapy to adults with anxiety, eating disorders, and weight concerns (Fig. 3).

Further Development of Behavior Therapy and Division (1980–2001): The Second Wave

In the previous section, we noted that one of the most salient features of Japanese cultural development is the importation of innovative knowledge and technologies from elsewhere (in hopes of advancing them further or adapting them to a Japanese cultural context). While there are notable advantages of this feature in Japanese culture, there is also one notable pitfall. That is, this way of advancement in cultural practice does not come from within, but from *outside* the Japanese cultural context. Additionally, Japanese people tend to become too consumed with staying abreast of the ever-increasing number of innovative trends to be able to adequately adapt or assimilate them in sufficient depth to Japanese culture or advance them further. As such, new trends in Japan in many fields simply come and go quickly as if these trends are *one-hit wonders*, so to speak. This seems to be the case for the field of behavior therapy in Japan. The trends with Japanese behavior therapy often are not shaped by concerted paradigm shifts from within, but rather from emanate from perspective shifts in Europe and North America, such as the cognitive revolution in the 1950s and 1960s (see Strunk et al., this volume).

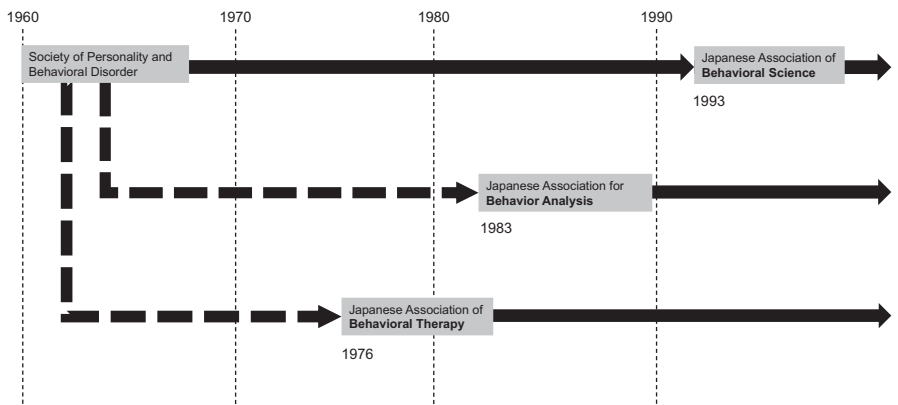


Fig. 3 Historical flow of the establishment of behavior therapy-related societies and associations in Japan from '60 to '90

An Invited Visit of Albert Bandura in 1982: Bridging from Behavioral Theories to Cognitive Theories

One of the major historical events in Japanese behavior therapy was the visit of Albert Bandura in 1982. For Japanese behavior therapy researchers and clinicians in 1980s, Albert Bandura had been extremely influential since the 1970s. His major works published in the 1970s (Bandura, 1971, 1977) were translated into Japanese and published for Japanese audiences almost simultaneously during that time. In 1982, Bandura was invited to deliver a plenary address at the 46th Annual Meeting of Japanese Psychological Association (JPA), which was followed by a series of seminars across four major cities (i.e., Hiroshima, Kyoko, Gigu, and Tokyo). At the time of his visit, Bandura was known internationally for his social learning theory (Bandura, 1977), self-efficacy (Bandura, 1978), and cognitive and symbolic inhibition (e.g., Bandura & Barab, 1973). In the area of behavior therapy, Bandura also stressed the role of cognitive process in behavior change (e.g., Bandura & Adams, 1977). As can be imagined by looking at the cover of his seminar booklet (see Fig. 4), Japanese behaviorists' responses to Bandura's innovative ideas were initially mixed. While some were thrilled by this newer wave, others were concerned about his heavy emphasis on cognition in behavior change.

Nevertheless, the major contribution that Albert Bandura made to Japanese behavior therapy was on its guiding principles (theories). That is, Bandura was so influential that he made the transition of its guiding principles from the "behavioral" (i.e., operant and classical conditioning) to the "cognitive" (e.g., cognitive mediational models) rather smoothly. Additionally, as his theoretical model places the emphasis on self as the agent of change (e.g., self with self-efficacy), rather than the therapist as the control agent, behavioral practice drawn from his model seemed to be better suited to Japanese cultural practices more so than traditional behavioral accounts (e.g., behavior therapist serving as the controlling agent for a client's behavior change). Finally, once one of his most cited works, *Social foundations of thought and action: A social cognitive theory* was published in 1986 in Japanese (Bandura, 1986), many learning researchers as well as behavioral therapists in Japan became *cognitivists*.

Establishment of Japanese Association of Behavior Analysis in 1983

The mainstream school of thought in the Society of Personality and Behavioral Disorder (SPBD) was the learning theory of Clark L. Hull (1884–1952; see Rashotte & Amsel, 1999 for Clark Hull's behaviorism). The Japanese Association for Behavior Analysis (JABA; not to be confused with the Western behavior analytic-oriented *Journal of Applied Behavior Analysis [JABA]*) was founded in 1983 by Skinnerian scholars and clinicians who were members of SPBD. On a related note,

Fig. 4 The cover of the Dr. Bandura's seminar booklet



B. F. Skinner (1904–1990) was the plenary speaker for the 43rd Annual Meeting of Japanese Psychological Association (JPA), which was held 3 years prior to the visit of Albert Bandura. Of these Japanese Skinnerian scholars and clinicians, Masaya Sato (佐藤方哉; 1932–2010) of Keio University was the central figure, who was often considered by many as the father of behavior analysis in Japan as well as the long-term leader of the JABA (Ono, 2011). In 1973 during his sabbatical year, Sato went to work with Lewis. R. Gollub (Gollub, 1964, 2002; Gollub & Urban, 1958) a former student of B. F. Skinner, at the University of Maryland. For Westerners, Sato is known as the first Association of Behavior Analysis International (ABAI) president from outside the United States.

Another notable leader who made a significant contribution to the establishment of JABA was Kaoru Yamaguchi (山口薫; 1924–2015) of Tokyo Gakugei University. From 1967 to 1968, Yamaguchi received Dr. Sydney W. Bijou's (1908–2009) guidance as a Fulbright scholar and studied as an affiliated faculty at the University of Illinois. Today, Bijou is known by many as having established the first systematic program of research in the experimental analysis of human behavior specifically related to typically and atypically developing children. Relevant to the present

chapter, Bijou is also known for taking an early role in the globalization of behavior analysis, notably in Mexico and Japan. Yamaguchi served as the first president of JABA and had worked tirelessly to bring radical behaviorism-informed behavior analysis to Japan. Yamaguchi's efforts have served to further cultivate the guiding principles of behavior analysis in Japanese soil, which is still to this day, the major mission of JABA. To do so, Yamaguchi established strong working and collegial relationships with well-known behavior analysts outside of Japan who were members of ABAI, and in 1986 JABA was officially recognized as the third regional ABAI chapter outside the United States. From a historical perspective, the establishment of JABA in 1980s can be viewed as a resistance among Skinnerian researchers and clinicians against the cognitive revolution that was promoted further by the visit of Albert Bandura.

Publication of “Cognitive Behavior Therapy” by Yuji Sakano: The Establishment of Cognitive Behavior Therapy in Japan

Figure 5 shows the changes in the number of conference presentations on cognitive therapy (CT) or cognitive behavior therapy (CBT) in Japan from 1981 to 1993 (Takazawa et al., 1994). As can be seen in this graph, *cognitive-oriented* behavior therapy began to gain recognition by Japanese scholars and clinicians in the late 1980s. In the context of this growth, one of the notable events in the history of Japanese behavior therapy was a symposium that was held in the annual meeting of the Japanese Association of Behavior Therapy (JABT) in 1995. The title of the symposium was “Is cognitive behavior therapy a behavior therapy?” In this symposium, Yuji Sakano (坂野雄二) of Waseda University and Hiroaki Kumano (熊野宏昭) of the University of Tokyo expressed their position of CBT as behavior therapy, whereas Masahiro Sugiyama (杉山雅彦) of the University of Tsukuba and Shinji Tani (谷晋二) of Seiyu Clinic presented an opposing view (i.e., “CBT is NOT behavior therapy”). However, much of the topics covered by these presenters were on *therapeutic procedures*, not on theoretical frameworks or basic science (e.g., rule-governed behavior, stimulus equivalence), upon which these behavioral procedures were purported to be based (see Hayes, 1978; Hayes, 1991 for different levels of analysis in behavioral science). In other words, this symposium revealed the gap between research and practice within JABT, which is conceptualized as a major impediment to the advancement and progress of behavior therapy (Hayes et al., 2013).

Nevertheless, in the same year, the first Japanese-originated book on CBT by Yuji Sakano, entitled “Cognitive behavior therapy (認知行動療法)” was published (Sakano, 1995). As discussed above in the context of the influence of Albert Bandura, the cognitive approach seems to be compatible with the Japanese culture more so than traditional behavioral approaches. From a historical perspective, the publication of this seminal book set the foundation of CBT as a legitimate paradigm within JABT.

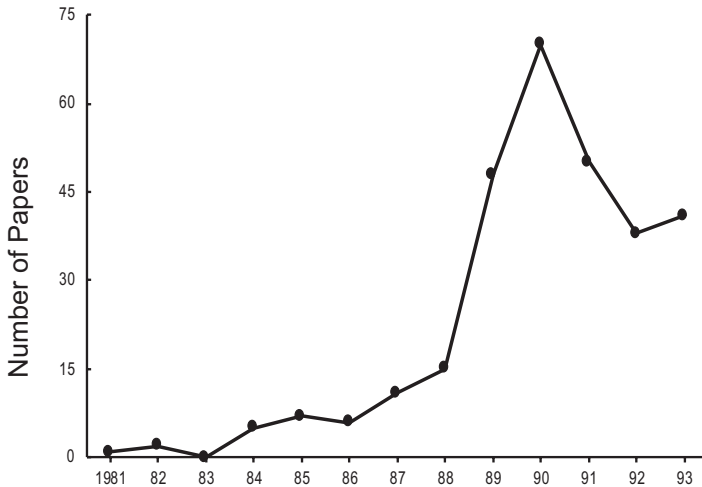


Fig. 5 Number of papers reported on cognitive behavioral therapy from 1981–1995

Behavior Therapy’s Identity Crisis in Japan (2001–2020): The Third Wave

In 1999, the Ministry of Health, Labor and Welfare of Japan declared evidence-based medicine as the guiding framework of healthcare in Japan (Sakurai, 2003). Because of this new policy, evidence-based treatments also became of a great interest in the field of behavioral health in the following years. Particularly relevant to the topic of the present chapter, this national level of shift in emphasis of evidence-based treatment accelerated the popularity of CBT in Japan, although the movement was far less pronounced than the proliferation of CBT in the United States due to the rise of managed care in the late 1990s (Cummings et al., 2001; Hofmann et al., 2013). Nevertheless, since then in Japan, Beck’s CT for depression (Beck et al., 1979) has achieved the same status as other evidence-based treatments for depression, such as selective serotonin reuptake inhibitors (SSRIs). More specifically, in 2010, CT/CBT for outpatient clients with mood disorders has been covered by the national health insurance system (Ono et al., 2011). Finally, in the early 2000s, applied behavior analysis (ABA) was gradually recognized in Japan as the treatment of choice for children and adolescents with autism spectrum disorder (Hiraiwa, 2016).

While this emphasis on evidence-informed practice is encouraging, it also has resulted in unintended outcomes for behavior therapy. That is, because of a more exclusive focus on *outcomes* (i.e., symptom reduction) in evidence-informed practice, both behavioral health professionals and the general public seem to view behavior therapy (including CT and CBT) merely as a set of effective techniques, which is somewhat disjointed from its purported links to learning theories and experimental psychology (Goldfried & Davison, 1994; Rosen & Davison, 2003).

Once again, as noted by many experts in the West (e.g., Hayes, 1991; Hayes et al., 2013; Hofmann, 2013), this gap between inductive, evidence-informed, theory and practice is extremely problematic for the advancement of knowledge and technologies in behavior therapy.

Furthermore, in our view, this unintended outcome, along with the lack of clarity regarding the essential characteristics of behavior therapy embraced by both behaviorists and the lay public were exacerbated further in the early 2000s by the introduction of acceptance- and mindfulness-based CBT (Hayes et al., 2004). Relatedly, this acceptance- and mindfulness-based CBT movement has revitalized the Japanese interest in Zen Buddhism and other traditional practices (e.g., meditation) for the pursuit of optimal health and well-being, however (Masuda & O'Donohue, 2017).

World Congress of Behavioral and Cognitive Therapies in 2004

One of the most significant historical events for Japanese behavior therapy was the World Congress of Behavioral and Cognitive Therapies (WCBCT) held in Kobe in July 2004 (Ishikawa et al., 2020; Ono et al., 2011). This was the third largest international conference of psychology held in Japan with 1400 attendees and a total of 90 invited lectures (e.g., David Barlow), workshops, and symposia by nationally and internationally recognized scholars, such as David Barlow, Edna Foa, Keith Dobson, Robert Liberman, Arthur M. Nezu, Lars-Göran Öst, Jacqueline B. Persons, and Paul Salkovskis. The conference was sponsored by three behavior therapy-related organizations in Japan: the Japanese Association of Behavior Therapy (JABT), the Japanese Association for Behavior Analysis (JABA), and the Japanese Association for Cognitive Therapy (JACT) which was founded in 2001 (Ishikawa et al., 2020; Ono et al., 2011).

As implied above, during the early 2000s, these three organizations operated somewhat independently from one another, and they remained to be isolated from one another until 2004. Therefore, one of the notable merits in co-hosting the WCBCT was that professional members of these three organizations began to communicate with one another more openly and reciprocally in research and practice that went beyond the boundaries of their affiliated organizations (see Bachnik, 2019; Matsumoto, 1990 for ingroup vs outgroup dynamics in Japan).

Arrival of Mindfulness Revolution: A Role of Japanese Cognitive Behavior Therapy

Another set of the historically significant events for Japanese behavior therapy that happened during the WCBCT was the first symposium on acceptance- and mindfulness-based CBT in Japan. The symposium was organized by Yoshinori Sugiyama (杉浦義典) of Shinshu University, Yoshinori Ito (伊藤義徳) of University

of Ryukyus, Takashi Muto (武藤崇) of Ritsumeikan University, and Minoru Takahashi (高橋稔) of Hiroshima International University, who later became the leading scholars and clinicians on acceptance- and mindfulness-based CBTs in Japan. This symposium was followed by the translation and publication of *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition* (Hayes et al., 2004) in 2005 by these symposium members along with Yutaka Haruki of Waseda University. Parenthetically, Haruki translated Kabat-Zinn's *Full catastrophic living: Using the wisdom of your body and mind to face stress, pain, and illness* (Kabat-Zinn, 1990) into Japanese in 1993. However, this translated book or mindfulness did not gain much attention from Japanese behavioral health professionals nor the general public. Similarly, Muto (2006) published the first Japanese-original edited volume on acceptance and commitment therapy (ACT; Hayes et al., 1999; Hayes et al., 2012) in 2006, entitled *Acceptance and commitment therapy in Japanese context*. However, this first Japanese ACT book received limited interest, mostly among academics.

During 2000s, many Japanese CBT clinicians and researchers were skeptical about acceptance- and mindfulness-based CBTs, such as ACT (Hayes et al., 2012), mindfulness-based cognitive therapy (MBCT; Segal et al., 2013), and dialectical behavior therapy (DBT; Linehan, 1993), which incorporated mindfulness and meditation into their theory and practice. This was in part because the practices of mindfulness and meditation were not necessarily innovative or novel for many Japanese individuals, including Japanese behaviorists and CBT researchers, and also because these Eastern-originated practices were also negatively associated with Aum Shinrikyo (オウム真理教, Oumu Shinrikyō, literally “Supreme Truth”). Aum Shinrikyo was a Japanese doomsday cult and terrorist organization at the time, which carried out the deadly Tokyo subway sarin attack in 1995, randomly killing 14 people and injuring over 5000 people in varying degrees. In a denouement of events, Chizuo Matsumoto (松本 智津夫; 1955–2018), the leader of Aum Shinrikyo was executed by hanging in 2018. At that time, he had attained celebrity status in Japan for his unique yoga and mediative practice, which are often associated with mindfulness- and acceptance-based practices that are incorporated into ACT, DBT, and MBCT (Fig. 6).

Although mindfulness is often said to have originated in an Eastern cultural context (Bishop et al., 2004; Kabat-Zinn, 2003), it did not become a cultural trend in Japan until the 2010s. In fact, until 2010, mindfulness and meditation were often viewed as “old-fashioned” or “forgotten” practices which offered no practical value for Japanese people in the present time. Japanese public perception of mindfulness morphed into a favorable one in the 2010s when mindfulness was featured as an efficacious practice, which is deliberately incorporated by well-known global IT companies (e.g., Apple and Google) for promoting their employees' mental health and workplace functioning. Once again, consistent with historical Japanese cultural evolution, mindfulness was an (re)imported as new trend in lay public and academia. Subsequently, mindfulness became of great interest to many Japanese as many notable Buddhist abbots and scholars responded to and raised concerns about the mindfulness movement from the West (e.g., Matsuyama, 2017). As a result, the

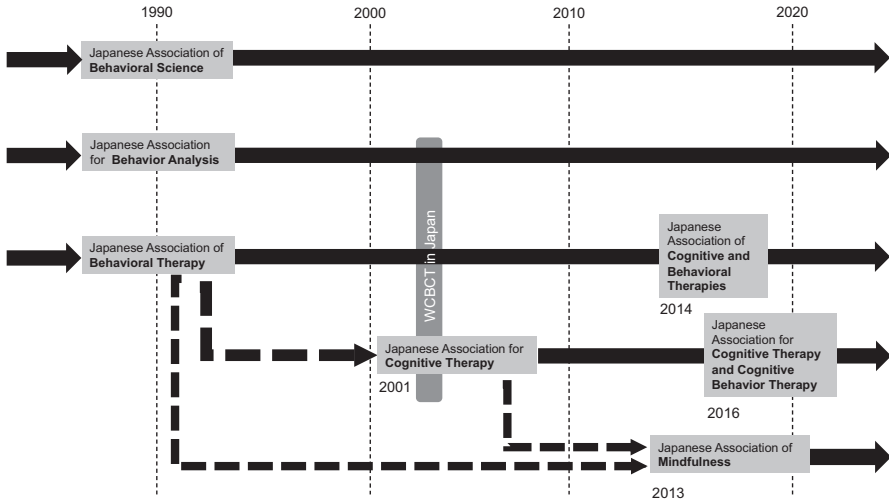


Fig. 6 Historical Flow of the Establishment of Behavior Therapy-related Societies and Associations in Japan from '90 to '20

Japanese association of mindfulness (JAM) was founded in 2013, and Yutaka Haruki became the first president. Unlike other Japanese associations (e.g., Japanese Association of Behavior Therapy, Japanese Association for Behavior Analysis) presented in this chapter, JAM focuses on health psychology and positive psychology more so than on psychopathology and behavioral and cognitive behavioral therapies.

Where Is Behavior Therapy Headed in Japan?

Following the WCBCI in 2004, the Japanese Association of Behavior Therapy (JABT) and Japanese Association for Cognitive Therapy (JACT) held their annual meetings together on a few occasions. However, the two organizations have not yet become integrated. In fact, each association has remained independent from each other, while changing their names slightly, similar to how the Association for Advancement of Behavioral Therapies (AABT) changed its name to the Association for Behavioral and Cognitive Therapies (ABCT) in 2003. In 2014, JABT changed its name to the Japanese Association of Behavioral and Cognitive Therapies (JABCT; 日本認知・行動療法学会), and to reflect this change, the JABCT changed the name of its flagship journal from the *Japanese Journal of Behavior Therapy* to *Japanese Journal of Behavioral and Cognitive Therapies* in 2017. On the other hand, JACT changed its name to the Japanese Association of Cognitive Therapy and Cognitive Behavior Therapy (JACTCBT; 日本認知療法・認知行動療法学会).

As discussed above, behavior therapy, or CBT, is traditionally characterized by a system of advancing knowledge and techniques derived from our understanding of evidence-based procedures linked to evidence-based processes of changes (Herbert et al., 2013; Rosen & Davison, 2003). Recently, JABA explicitly and intentionally has focused on this original spirit of behavior therapy through the framework of clinical behavior analysis (Dougher & Hayes, 2000; Kohlenberg et al., 1993). For example, notable JABA members, such as Muto and his colleagues (Muto, 2006; Muto et al., 2011), have studied and practiced ACT (Hayes et al., 2012) and functional analytic psychotherapy (FAP; Tsai et al., 2009) by following the perspective of B. F. Skinner's radical behaviorism (Skinner, 1974). On a related note, more recently in 2021, the *Japanese Journal of Behavior Analysis*, the flagship journal of JABA, put forth a special issue on clinical behavior analysis.

Education and Trainings

As noted above, the Japanese government has not passed a licensing law for doctoral-level psychologists with an equivalent status to that of a licensed psychologist in the United State. For this reason, the majority of clinical training in Japan is at the master's level where graduate students are exposed to behavior therapy and CBT as part of their degree requirements in applied clinical training (Ishikawa et al., 2020). It is important to note that there several doctoral programs in clinical psychology and related fields exist in Japan. However, their primary goals are not to produce licensed psychologists upon the completion of doctoral training. Rather, the primary goal of these programs is to train doctoral candidates to attain theoretical expertise in their field, with licensure, or licensure eligibility often considered as a byproduct of such academic training. To date, within the field of clinical psychology in Japan, behavior therapy and CBT exist as major orientations, or as part of their "eclectic" orientations, but not as a dominant, or unified, perspective.

Conclusion

When behavior therapy was first introduced to Japan in the 1950s, it was still faithful to its original spirit that was adequately summarized by Goldfried and Davison (1994). That is, behavior therapy in Japan during the 1950s and 1960s emphasized the link between basic research and applied research in knowledge and treatment development. As a post-World War II innovative paradigm that was imported from the West, Japanese behaviorists at that time consistently followed this system of scientific endeavor in behavior therapy. However, in our view, unlike other disciplines (e.g., natural science, medicine, technologies) that have been flourishing and thriving in Japan, the impact and contribution that behavior therapy has brought to Japan seems minimal. That is, unlike other disciplines that have advanced

themselves further from “the originally imported,” the field of behavior therapy in Japan merely gravitates toward the aftereffects of new trends occurring in the West without advancing them further.

So, is behavior therapy in Japan dead? We do not think so. Instead, we are hoping that this chapter redirects the focus of our fellow Japanese behaviorists and cognitive behaviorists to the very original spirit of behavior therapy, which was brought to Japan by Kousaku Umezu—the great Japanese pioneer of behavior therapy, nearly 70 years ago. We also believe that there is now enough momentum built for Japanese behaviorists and cognitive behaviorists to begin to tackle the real challenges that are ahead of us.

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Part VI
Summary and Future Directions

The Future of First Wave Behavior Therapies



Bruce A. Thyer

The focus of this chapter will be upon the future directions that first-wave behavior therapies seem to be heading. By the first wave behavior therapies I will be principally reviewing those forms of assessment and intervention largely derived from the conceptual framework of operant learning. Other early behavior therapies that relied more on respondent and observational learning, such as systematic desensitization and other forms of ‘reconditioning’ (e.g. exposure to fear evoking stimuli in order to desensitize someone to objects, animals or situations which produced unrealistically high anxious reactions) will be reviewed elsewhere in this volume, as will the so-called cognitive behavior therapies.

First wave behavior therapies based on operant learning principles initially tended to focus on eliminating dysfunctional behavior and on promoting more adaptive skills, without an empirical assessment of the causes of the problem. For example, if a child was displaying large amounts of out-of-seat behavior in the classroom, a program to reinforce in-seat behavior, and perhaps to punish out-of-seat behavior, might be implemented. If the child responded by remaining attentively seated more often, this was seen as a successful outcome. If the problem was self-injurious behavior by a young person with a serious intellectual disability, a similar program of reinforcing keeping one’s hands away from the head, and applying mild aversive consequences contingent on head-banging might be applied. Early published examples of this type of behavior modification can be found in Isaacs, Thomas and Goldiamond (1960) who used the contingent delivery of chewing gum to reinforce verbal behavior among two chronically psychotic persons with mutism. Similarly, Ayllon (1963) used mild punishment to reduce food stealing, satiation to reduce towel hoarding, and mild punishment to reduce the wearing of excessive amounts of clothing, with a 47 year old woman diagnosed with schizophrenia.

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These early efforts at operant-based treatment, which eventually evolved into the contemporary field known as behavior analysis, rarely attempted to consider the underlying *functions* of the problematic behaviors. It was seen as sufficient to “fix the problem” and to a very great degree this approach was successful (Grossberg, 1964). Over time behavior analysis became recognized as a generally effective approach to helping clients, albeit more so in the fields of education and developmental disabilities than in mental health.

As the field progressed, attention was drawn to cases when operant-based treatment either did not work, or produced only fleeting gains (e.g., Lazarus, 1971, Mausner, 1971), and it became obvious that the lack of attention to the *causes* maintaining the problematic behavior was responsible for some instances of treatment failure. In the 1980s the assessment methodology known as functional analysis entered the armamentarium of behavior analysts, wherein diligent efforts are undertaken to empirically ascertain the causes potentially maintaining a client’s problematic behavior (e.g., Iwata et al., 1982; Bailey & Pyles, 1989). Rather than immediately and directly implementing a behavior change technique, in functional analysis efforts are made to examine the antecedents and consequences surrounding the occurrence of the problem behavior, and potentially maintaining controlling contingencies that are tested via temporary experimental manipulation.

A given problem behavior could potentially be maintained by external positive reinforcement (e.g., attention), negative reinforcement (e.g., escape from an unpleasant situation), or perhaps by self-reinforcement (e.g., scratching an itch). A problem, such as school avoidance, could be caused by severe fears of something at the school environment, inadvertent reinforcement provided by the parents for staying home (e.g., more gaming time), so-called separation anxiety, or a child’s not wanting to leave mother alone for fear she might be abused by the father if the child is not present. Each different maintaining factor requires quite different approaches to treatment.

For treatment to be successful over the long run, determining the existing contingencies maintaining the problem behavior is crucial. The behavior analyst might take a baseline of the problem behavior under varying conditions, then change only one consequence, and see its possible effect. By evaluating the frequency of the problem under these varying conditions, one can gain a more accurate sense of the maintaining conditions, and then implement a suitable approach, such as withdrawing reinforcement, reinforcing an incompatible behavior, extinguishing escape behavior, or removing opportunities for self-reinforcement. An example of the latter might be having a client who scratches himself excessively wear gloves, have their fingernails well-trimmed, or apply anti-itch cream.

Treatments based on functional assessment have a higher probability of being successful in the long run than applying a one-size-fits-all approach. Hanley et al. (2003) conducted a comprehensive review of the use of functional analysis in behavior analysis and found the approach to be widespread and highly effective in resolving behavioral difficulties. As we shall see below, behavior analysts are actually required by their code of ethics to conduct a functional analysis prior to implementing a behavior reduction plan (BACB, 2016, see Section 3.01). The

implementation of functional analysis, along with other factors, has significantly elevated the conceptual sophistication of the field.

Behavior analysis has made significant advances in the past few decades. Below I will outline some of the major developments and discuss both positive and negative aspects of each.

Signs of Professionalization

The field focused on the sociology of the professions has established a number of criteria through which a given discipline can be considered a genuine profession. These include such factor as recognition and endorsement by the larger society, solid professional associations, being based on a recognized body of specialized knowledge, a code of ethics, and the requirement of specific training, among others (see Larson, 1978). Here are some of the advances behavior analysis has made in this regard.

Organizational Infrastructure

The field of behavior analysis is well-supported by a number of national, regional and state associations that are academically-based and that practicing behavior analysts can join. The two major ones at the national level are the *Association for Behavior Analysis - International* (ABAI) (<https://www.abainternational.org/welcome.aspx>) and the *Association of Professional Behavior Analysts* (APBA, <https://apbahome.net/>) ABAI was founded in 1974 and has about 7000 members. It sponsors a number of national conventions each year; supports a stable of quality behavior analytic journals; accredits doctoral, masters and bachelor's degree programs; hosts an employment listing service, and sponsors continuing education (CE) programs in behavior analysis and several related fields, such as psychology and social work. APBA was founded in 2007 and has a clear focus on meeting the needs of practitioners in the field. In many ways APBA mirrors the activities of the ABAI. APBA hosts an annual conference, sponsors CE programs, undertakes legislative advocacy related to behavior analytic services, promotes a model legislative act governing the legal regulation of behavior analysts, and has a number of state chapters. Both ABAI and APBA endorse professional liability insurance programs its members may purchase. The *European Association for Behavior Analysis* (<https://www.europeanaba.org/>) and within-country associations around the world further support the development of the field.

A relatively small number of psychologists (about 500) remain active members within the American Psychological Association and form *Division 25 – Behavior Analysis*. It is more academically based than practice-oriented and includes important issues, such as basic research in the experimental analysis of human and animal

behavior and the philosophy of behaviorism (topics of not much interest to practitioners). It sponsors some awards in the field of behavior analysis and has a small number of papers and panels presented during the annual convention of the APA.

I am a member of Division 25 and my sense is that its members are older than the majority of practicing behavior analysts, who gravitate more to the ABAI and APBA. While not absolute, the budding off of behavior analysis from the field of psychology is nearly complete (Thyer, 2015a). Many licensed health care providers claim human behavior and its modification within its legal scope of practice, and to be science-based (this varies greatly obviously), claims isomorphic with those of behavior analysis. Fields such as clinical social work, marriage and family therapy, mental health counseling, speech and language pathology, teachers, business managers, all can potentially make use of the *methods* of behavior analysis. That they typically do this less well than qualified BCBAs seems apparent (I am a licensed clinical social worker and very familiar with that field), but it is unlikely that behavior analysts will ever successfully stake out an exclusive and legally supported claim to the professional practice of using operant methods to modify human behavior.

Credentialing and Legal Regulation

Unlike the ABAI and APBA, which are membership organizations, the *Behavior Analyst Certification Board* (BACB, <https://www.bacb.com>) was founded in 1998 to nurture the legal regulation and state-level credentialing of the practice of behavior analysts. One does not join the BACB as a member. The BACB develops and maintains a high quality set of credentialing examinations, created consistent with the highest psychometric standards, to support several levels of credentialing. These are the Board Certified Behavior Analyst (BCBA, requiring a master's degree), the Board Certified Associate Behavior Analyst (BCaBA, requiring a bachelor's degree), and the registered behavior technician (RBT, requiring a high school diploma). BCBAs holding a doctoral degree may also qualify to use the designation of BCBA-D but there are no additional requirements for this designation. All these credentials require formal training in ABA, passing a valid examination, adherence to the professional code of ethics (formally called the *Professional and Ethical Compliance Code for Behavior Analysts*, <https://www.bacb.com/ethics-information/ethics-codes/>), and maintaining ones skills through continuing education (CE) requirements. Recertification is required every two years.

The two major initiatives of the BACB involve the development and administration of the credentialing examinations, and promoting the state-level licensure of qualified behavior analysts. Both initiatives are extremely successful. At least 31 states now legally regulate or license the practice of behavior analysis and passing the appropriate BCBA examination is included in to each state's legislation as a requirement to be licensed. Some states (e.g., Florida) do not legally regulate the practice of behavior analysis via licensure but may provide for a lower level of regulation called certification, but also involving the BACB examinations.

The BACB actively works with the states lacking licensure to help obtain it, and refine the licensure acts in states which already have licensure. As of the end of 2020, there were over 42,000 BCBAs, over 4500 BCaBS, and about 83,000 RBTs. The BACB focuses on providing certifications to residents in the USA, Canada, and the UK, although residents of other countries may be permitted to apply in the future. The BCAB program is accredited by the National Commission for Certifying Agencies, a highly respected agency. The demand for persons holding the BACB credentials is rapidly increasing and salaries are generally good. For example, in 2018 there were over 16,000 job postings for BCBAs, increasing to almost 29,000 in 2019 (BACB, 2020b).

Insurance Reimbursement and Billing Codes

Related to the growth of an extensive and valid credentialing program for professional behavior analysts, is the practice of permitting BCBAs to obtain health insurance reimbursement for their services. Behavior analysis is a fairly intensive treatment modality and few families have the financial wherewithal to pay for ABA out of pocket, so having insurance reimbursement available makes these services more widely accessible and also makes ABA practice more financially feasible for BCBAs. When federal and state insurance programs, such as Medicaid and the widely available military insurance program known as Tricare, decided to reimburse for BCBA services, this acted as a sort of *imprimatur* which encourages other state and private insurance programs to similarly support behavior analysis. As noted by Trump and Ayres (2020) “Recent insurance reforms in 47 states, the District of Columbia, and the U.S. Virgin Islands require companies to offer, or cover, behavior-analytic services to individuals diagnosed with autism spectrum disorder.” (p. 282). This is an incredible impetus to the spread of behavior-analytic treatment.

The ABAI collaborates with a multidisciplinary Billing Codes Commission which is aimed at developing Current Procedural Terminology (CPT) codes for BCBAs and other professionals to use to bill for behavior analysis assessment and treatment services. This is important because the improper use of a CPT code can result in non or delayed insurance reimbursement (Staff, 2020).

Practice

The practice of behavior analysis is growing exponentially. As noted by the BACB (2020a), “Demand for behavior analysts is increasing: Annual demand for individuals holding BCBA/BCBA-D certification has increased each year since 2010, with an 80% increase from 2018 to 2019. In addition, increases in demand occurred in every state since 2010” (p. 1, bold in original).

The practice of behavior analysis is not limited to providing autism services. The ABAI supports a number of special interest groups focused on many other domains and social problems in which BCBAs practice. Some of these are Addiction; Health, Sport and Fitness; Behavioral Gerontology; Behavioral Medicine; Clinical Medicine; Crime; Delinquency and Forensics; Gambling; Mental Health; Rehabilitation and Independent Living; and Sexual Behavior, among others. Clearly it is a mistake to see behavior analysis as being limited to practice with persons with intellectual disabilities and autistic spectrum disorders, although this latter field clearly dominates the field.

Some Problems

Competing Credentials

Although the BACB continues to be the dominant credentialing program for behavior analytic providers, a number of less stringent or more narrowly focused competing credentials have arisen. This creates some confusion within the field itself and among the public. The *Behavioral Intervention Certification Council* (BICC, <https://behavioralcertification.org/>) offers credentials as a Board Certified Autism Technician (BCAT) and a Board Certified Autism Professional (BCAP). This group has its own examination program (not as well developed as those offered by the BACB) and a Code of Conduct (2 pages long, also not as extensive as that developed by the BACB). The BICC was created in 2013 and focuses exclusively on providing credentials related to the treatment of person with autism spectrum disorder, a far narrower focus than the field of behavior analysis as a whole. The BCAT requires only 15 h of clinical experience (a shockingly low number) to earn the credential, along with other qualifications. The BICC eerily mirrors the structure of the BACB processes and services such as its own code of conduct, credentialing examinations, certifications, continuing education programs, disciplinary actions, etc.

The *American Board of Professional Psychology* (<https://abpp.org/Applicant-Information/Specialty-Boards/Behavioral-Cognitive.aspx>) offers board certification with an emphasis in applied behavior analysis (under the umbrella of its certification in behavioral and cognitive psychology, an odd pairing, given ABA's eschewal of so-called cognition as a directly manipulable cause of behavior). This credential, board certification in clinical psychology, is limited to licensed psychologists (holding a doctoral degree) with at least two years of practice in behavioral and cognitive psychology. It does not require earning the BCBA credential. It is not clear how many licensed psychologists have earned the ABPP with the specialization in behavioral and cognitive psychology but it is likely very small.

Professional psychology viewed with misgivings the slow but steady rise of behavior analysis as an independent, science-based practice. Increasing numbers of ABA practitioners obtain their academic degrees outside of psychology programs

(e.g. academic masters or doctorates solely in the field of behavior analysis, or in education). One early sticking point was whether BCBA's were practicing 'psychology' and as such needed to be supervised by licensed psychologists. There is an uneasy truce now, with the surge of ABA as its own independent discipline and credentials, and the apparent minimal interest of licensed psychologist in providing ABA services. ABA services requires a sizeable investment of time and effort and do not lend themselves to the tradition of the 50-min-h and office-based practice common in psychotherapy. Licensed psychology lost the fight in terms of restricting the licensed masters-level practice of psychotherapy by clinical social work, marriage and family therapy, and mental health counseling, and it seems ABA is emerging as its own similar stand-alone discipline.

In one recent development, the APA has approved accreditation standards for master's programs in "health" psychology, e.g., clinical, counseling, and school psychology (Grus, 2019). Previously APA only accredited doctoral programs in professional psychology and this new accreditation program in health psychology will inevitably lead to state-level efforts to permit the licensure of masters-level health psychologists. These will likely be met with some resistance by doctoral-level licensed psychologists in some instances, and also very likely from other masters-level psychotherapy-related professions, such as clinical social workers, marriage and family therapists, and counselors, fearing, perhaps rightly so, increased competition in the marketplace. It is also possible that licensed masters-level health psychologists will compete with the large and growing number of masters-level BCBA's, and state-level efforts by BCBA's may also push back on providing licensure to masters-level health psychologists. This could potentially give rise to a resurgence of conflicts between the profession of behavior analysis and that of professional psychology.

The *International Board of Credentialing and Continuing Standards* (IBCCS) offers a Certified Autism Specialist and an Advanced Certified Autism Specialist credential (<https://ibcces.org/certifications-education/#1600369147586-2ebcce10-6b51>). One can earn both 'credentials' with a bachelor's degree, some years of practice experience in the field, completing 21 continuing education hours, and the payment of a \$875 fee! The CE training is limited to the following topics: Behavior, Behavior Contingency, ethics, and Discrete Trial Training. These are certainly within the scope of ABA practice but extremely limited, coming nowhere near the competencies needed to effectively serve persons with autism. I suspect that these certifications are marketed to either the gullible or those unwilling to complete the more rigorous requirements of the BACB.

The *Qualified Behavior Analysis Credentialing Board* (<https://qababoard.com/about/>) is another independent body which offers certifications to practitioners who serve persons with autism spectrum disorder. Founded in 2012, it offers three levels of credentials which largely mirror those of the BACB, the entry-level Applied Behavior Analysis Technician, the supervisory-qualified Qualified Autism Services Practitioner, and the masters-level Qualified Behavior Analysts. These required a high school diploma, continuing education or university-based coursework, passing a written exam, and supervised experience. Unlike the BCBA, the QABA

credentials are exclusively focused in the area of autistic spectrum disorders. Fewer than 5000 individuals have earned one of these credentials.

Green (2015) authored a comprehensive paper on evaluating various credentials in behavior analysis, a paper whose recommendations were adopted by the Association for Professional Behavior Analysis (https://cdn.ymaws.com/www.apbathome.net/resource/collection/1FDDDBDD2-5CAF-4B2A-AB3F-DAE5E72111BF/APBA_Guidelines_EvaluatingCredentials_180906.pdf). Anyone contemplating education and credentialing in the field of ABA is advised to consult Richmond's recommendations, and to evaluate each credentialing program they are considering against these standards.

For now the BACB credentials remain the most rigorous and most widely recognized. In many states the title "Behavior Analyst," or some close variant thereof, is a legally protected term that may only be used by licensed behavioral analysts (licensure of behavior analysts is each individual state's prerogative). No private organization licenses behavior analysts, no matter what credential is offered by that organization. The advantages of the BACB credentials is their sound research-base, rigorous standards of examination, a highly sophisticated and scrupulous code of ethics, disciplinary procedures, broad scope of practice – beyond the field of autistic spectrum disorders, third party insurance recognition, and widespread adoption by the states that regulate ABA services. The development of multiple practice credentials in behavior analysis is confusing to the field, practitioners and public alike. As the legal regulation of behavior analysis moves ahead (31 states license behavior analysts), with more and more states requiring the BCBA credential and restricting the title "Behavior Analyst" and terms such as "behavior analysis services" to the holders of that and other BACB-provided credentials, it is hoped that alternative, and in many ways spurious credentials, will wither away (BACB, 2020c).

Corporate Takeover of Behavior Analysis?

In the early years of behavior analysis, services were usually provided in institutional settings, such as state homes for persons with intellectual disabilities, psychiatric hospitals, and public schools. Clientele were often persons with very serious disabilities for whom there seemed little hope, who received little professional attention and were provided only with custodial care. There seemed little to lose by letting experimental psychologists try their new methods to help such persons learn to acquire adaptive living skills and to decrease dysfunctional behaviors.

Over time, the successes of behavior analysis led to these services being adopted within more mainstream setting. With the rise of the BACB credentials, individual practitioners became hired as staff members or independent contractors, and companies exclusively devoted to providing behavior analysis services arose. As third party insurance payments became more widely available, some entrepreneurial ABA companies expanded and became not only quite large in terms of professional staff, but also quite profitable. Inevitably, this has attracted the attention of venture

capitalists or larger health care companies, who literally ‘bought’ entire ABA-service companies. This can be a problem, as noted by Cathey and Ward (<https://bsci21.org/how-to-build-your-business-as-a-behavior-analyst/>):

A related issue is the tendency for leaders to sell out their businesses to larger organizations or conglomerates. This again may make for a short-term windfall for the leader but larger conglomerates can tend towards profit maximization over quality care and production. This is of course not the rule, but is quite common.

Graber and O’Brien (2019) also accurately note this issue. The new owners may tend to see ABA service providers more as profit generators than as purveyors of humanistically-based care carefully regulated by a strong code of ethics. Caseloads might be increased to the point that quality of care deteriorates, and supervisory hours are cut below the minimum required. The careful attention to live data-collection, ascertaining inter-rater agreement, conducting functional analyses, and social validity issues, all may be seen as ancillary to the real business of doing ‘therapy’, which produces billable hours, and reduced accordingly.

Sohn (2020) wrote about this problem and quoted one of the country’s leading experts in ABA, Jon Bailey, Ph.D., making the following point:

...the agencies that hire RBTs often rely on a vast pool of undertrained labor. These businesses collectively train and employ tens of thousands of RBTs to work with children. “It’s being treated as a money grab in many places,” Bailey says. He estimates that there are hundreds, if not thousands, of these companies in the United States. Some are profitable enough that they have become popular buys for private equity firms.

One firm was alleged to have committed fraud against the federal Tricare insurance program and paid a penalty of over \$600,000 (<https://www.justice.gov/usao-mdfl/pr/tampa-bay-autism-service-provider-agrees-pay-675000-resolve-civil-healthcare-fraud>). The ABA Ethics Hotline (<https://www.abaethicshotline.com/who-we-are/>) is one reliable resource dedicated to providing guidance to companies and individuals faced with ambiguous billing practices of a lowering of practice standards. Several Florida ABA firms were convicted of Medicaid fraud. While the firms involved paid penalties, the state also cut back on ABA services as a whole, depriving clients of needed care. Such incidents tarnish the reputation of ABA as a credible and trustworthy field. Some companies specialize in rooting out fraud and abuse among the providers of behavior analysis services (e.g., <http://highlandbehavioral.com/managed-care-organizations-employers/fraud-abuse-analysis/>). In sum careful attention needs to be given to ensure that ABA firms owned and operated by larger corporations which are non-ABA focused maintain high professional standards and that these are not sacrificed in the name of enhancing profits.

The Intrusion of Pseudo-scientific and Non-Research-Based Services

In the broad field of human services, there are several ways a given intervention can be categorized.

1. It may have no scientific support at all, which is all too common. A given program has simply not been examined, and there is no way to empirically see if it is or is not supported by research since the requisite research has not been undertaken.
2. It may have been researched and found not to be helpful. This too is common. ‘Helpful’ means that the intervention yields outcomes that are clearly superior to the benefits obtained following receipt of credible placebo-type services. Many accepted therapies have been shown to provide little more than placebo-level benefits.
3. It may have been researched and found to be harmful. This too is common. Yet such services continue to be provided.
4. It may have been adequately researched and shown to be generally beneficial.

The BACB Code of Ethics is quite clear that therapies associated with statuses 1–3 above are unacceptable for inclusion in the practice of ABA. For example, Item 2.09 (a) on Treatment/Intervention Efficacy states “Clients have a right to effective treatment (i.e. based on the research literature and adapted to the individual client)... Effective treatment procedures have been validated as having both long-term and short-term benefits to clients and society.” Given this clear mandate it is surprising to find behavior analysts providing non-scientifically validated or pseudoscientific services to their clients, as documented by Schreck and Mazur (2008) and Schreck, Karunaratne, Zane and Wilford (2016). Among the non-research-based therapies provided were facilitated communication/rapid prompting, vitamin therapy, holding therapy, hyperbaric oxygen therapy, Sensory Integration Therapy, Auditory Integration, and Gluten-casein-free diets, and Floor-time. As Schreck et al. (2016) contend, “These results must serve as a wakeup call for our field of ABA. It is unfathomable that even one behavior analyst would admit to and/or use any of the unestablished or ineffective/harmful treatments listed” (p. 373). There is an ample literature out there to educate practitioners on ineffective and harmful therapies and their characteristic warning signs (Capuano & Kim, 2020; Offit, 2008; Pignotti & Thyer, 2015; Thyer, 2015b, 2019, 2022; Thyer & Pignotti, 2010, 2015. Schreck, Karunaratne, Zane & Wilford (2016) provide some helpful suggestions to further reduce the intrusion of fake therapies into the practice armamentarium of behavior analysts. If we do not that behavior analyst employ empirically valid practices, our claims to being a science-based field will ring hollow.

Summary and Conclusions

For many, behavior analysis is considered as a major approach in the first wave of behavior therapies. Today there are solid indicators forecasting that behavior analysis will thrive in the future. There is a snowballing of the number of appropriately credentialed Board Certified Behavior Analysts, the professional infrastructure is sound, private-pay and third-party insurance sources of income needed to support

the practice of ABA are growing, our scientific foundation is sound and expanding. Our Code of Ethics, supported by the BACB is solid, and in my opinion is one of the most rigorous and comprehensive available. The number of avenues for becoming certified as a behavior analyst, via formal university-based degrees or by taking approved courses, is growing. I find these developments astonishing, considering the state of affairs when I entered the field in the late 1970s. My peers and I had little sense of how successful the field would become. We held the view that through behavior analysis we could help make over the existing practice disciplines (Thyer, 1995). We believed that by showing how effective ABA services were, myriad clinical social workers, professional psychologists, educators, and other groups would eagerly substitute ABA practices their less effective, traditional practices, and in effect become much more behavioral in their orientation. This did not happen. ABA remains a minority practice perspective in most health care fields. It is the privilege of these fields to ignore the utility of the science of behavior. If they continue to do so, a Darwinian process will likely winnow out the less effective approaches to care and behavior analytic practices are well positioned to file the gap.

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The Future of Third Wave Cognitive Behavior Therapies



Robert D. Zettle and Akihiko Masuda

Prognostication would seem to be a rather thankless and perilous undertaking that is perhaps best reserved for predictions about the weather by groundhogs and woollybear caterpillars (“7 Animals Besides Groundhogs that Can Predict the Future,” [n.d.](#)). After all, even prophecies that eventually prove to be accurate, especially those that are unwelcomed, may not be believed, leading to the dismissal of those who offer them as little more than modern-day Cassandras. Our purpose in this chapter is to offer our thoughts on where we believe what have come to be known as third wave cognitive behavior therapies (CBT)¹ may be headed. We claim to have no special psychic powers in doing so and are mindful of considerable trepidation that our predictions may eventuate in us being placed in the same company as a large ground squirrel (“Punxsutawney Phil”) or a cursed Greek priestess (“Cassandra”). We are nonetheless willing to take this risk.

¹It should be noted that the term “cognitive behavior therapy” is being used broadly to encompass a collection of related approaches whose development has progressed over three distinct waves (Hayes, 2004). During the first of these phases or generations, the approaches that evolved during the second wave into what is now known as traditional CBT were commonly recognized as behavior therapies and/or forms of behavior modification and applied behavior analysis.

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Domain of Third Wave Cognitive Behavior Therapies

Our vision of what the future might hold collectively for third wave CBT would seem to be somewhat dependent on what specific approaches are regarded as being legitimate and appropriate members of the domain. Resolving this matter, however, may be a bit more challenging and contentious than might be expected. Hayes (2004) submitted that a third generation of CBT had emerged by the dawn of this century that represented alternative approaches for addressing clinically-relevant private events. More specifically, rather than seeking to directly change problematic affective states through the application of operant or classical conditioning principles (first wave) and/or dysfunctional beliefs via cognitive restructuring (second wave), therapies within this third wave instead pursued a second-order change agenda that emphasized the incorporation of mindfulness and acceptance strategies to alter how clients relate to unwanted thoughts and feelings. According to Hayes, interventions representative of this latest generation of CBT included, but were not necessarily limited to acceptance and commitment therapy (ACT; Hayes et al., 1999, 2012b), dialectical behavior therapy (DBT; Linehan, 1993), functional analytic psychotherapy (FAP; R. J. Kohlenberg & Tsai, 1991), and mindfulness-based cognitive therapy (MBCT; Segal et al., 2002). Others asserted that metacognitive therapy (MCT; Wells, 2008) and mindfulness-based stress reduction (Kabat-Zinn, 1990) should also be regarded as part of the movement (Herbert & Forman, 2010).

Perhaps not surprisingly, at least some proponents of second wave or more traditional versions of CBT took rather strong exception to the proposition that this purported next generation of therapies had anything all that new to offer (Arch & Craske, 2008; Hofmann & Asmundson, 2008), or even if it did, that its membership list was all that expansive. Hofmann et al. (2010), in particular, cited personal communications from Linehan and Wells expressing their affiliation with more traditional CBT in arguing that DBT and MCT, respectively, should not be considered as third wave approaches. If there was one point, however, that both sides of this debate seemed to be in agreement on it was that to the extent that a new generation of CBT had emerged, ACT most clearly exemplified it.

To the degree that ACT may thus be regarded as a “poster child” for the third and most recent wave of CBT, our discussion of the future of such approaches will of necessity be closely linked with that of this intervention. Another purported, but less visible, third wave approach, however, that also warrants inclusion and explicit mention in this overall consideration is FAP (R. J. Kohlenberg & Tsai, 1991). Practitioners and researchers of ACT commonly regard and value proponents of FAP as “fellow travelers” insofar as it is the one other third wave approach that is most closely associated with ACT, to the point that separate as well as conjoint presentations, symposia, and workshops of each are commonly featured at each annual conference sponsored by the Association of Contextual Behavioral Science (ACBS). One reason for the close relationship between FAP and ACT is that both are essentially process-based approaches that share common philosophical and conceptual roots in functional contextualism and radical behaviorism, even though FAP is more

relatively concerned with how clients relate to others than with their own private events (B. S. Kohlenberg & Callaghan, 2010). Despite these somewhat differing clinical foci, both approaches can and have been rather seamlessly integrated with each other in both research (Gifford et al., 2004) and practice (Callaghan et al., 2004), leading Carmen Luciano (1999) to go so far as proclaiming that “if you’re doing ACT and not doing FAP, you’re not doing ACT!” While FAP has established an identity and presence independent of ACT, it is, nonetheless, so closely related to ACT as another approach grounded within contextual behavioral science (CBS) that their futures in our view are likely to be inexorably linked. And if so, as goes ACT, so goes FAP in particular, and third wave approaches more generally.

Changes in What Is Delivered and How

We are not sure where ACT is going, but we are reasonably confident that it will not be standing still as we anticipate changes in at least both its composition and accessibility. In what follows, we will first address anticipated alterations in the make-up of ACT by elucidating two pathways already in motion that we believe will increasingly impact the future of ACT and other members of CBT’s third generation.

One of these movements involves the ongoing relationship between ACT and both practical advancements and conceptual refinements related to relational frame theory (RFT; Hayes et al., 2001) as a “functional contextual account of human language and cognition” (Hughes & Barnes-Holmes, 2016, p. 130). The other is the growing emergence of a process-based approach to CBT in particular (Hayes & Hofmann, 2018) and of psychotherapy more generally (Hofmann & Hayes, 2019) that has the potential to supersede and subsume the three waves of CBT that have preceded it. Insofar as these two developments until quite recently have unfolded largely independent of each other, we will first discuss each of them separately. However, in light of recent efforts to develop an RFT-driven, process-based therapy (e.g., D. Barnes-Holmes et al., 2020a, b), we will then consider the implications of the two heretofore parallel movements essentially merging into one for the future of third wave approaches.

Either singly or collectively, we expect that further developments in RFT and process-based therapy (PBT) are quite likely to result in the eventual demise of the branded therapy currently known as ACT within a further blurring of distinctions between the three generations of CBT (D. Barnes-Holmes et al., 2020a). Such an apparent inevitable outcome, however, in our view is to be heralded rather than lamented insofar as it would specifically reflect ACT’s ultimate legacy and contributions, as well as those of the third generation of CBT more broadly, to progressive therapeutic movements larger than themselves. In short, we believe that the impact of ACT will continue to be felt through its legacy as a coherent process-based approach (Ong et al., 2020) even though its specific identity and explicit recognition of its contributions to future research and practice of CBT may diminish over time.

Apart from changes in what might be regarded as the make-up or branding of ACT, are others that we more confidently foresee impacting the delivery of ACT as well as other more contemporary approaches to CBT. A trend that was already in motion away from offering face-to-face psychotherapy sessions in traditional practice settings, such as offices, to instead through telehealth has been greatly and dramatically accelerated as a result of the global COVID-19 pandemic (e.g., Perrin et al., 2020). The proportion of services offered by psychologists in the US via telehealth prior to this year (i.e., 7%) has increased 12-fold to over 85% during the pandemic (Pierce et al., 2020). Moreover, these same psychologists expect that over a third of their work will continue to occur as telehealth following the conclusion of the outbreak (Pierce et al., 2020). Accordingly, our expectation is that this shift in service delivery modes, while certainly not specific to ACT and other third-wave approaches, is unlikely to be reversed, but will continue to proliferate as more creative uses of modern technologies such as apps (e.g., Bricker et al., 2020), internet-based platforms (ACBS, n.d.-b), and other computer-assisted options, such as virtual reality (e.g., Matsangidou et al., 2020) are further developed.

The ACT-RFT Relationship

Consistent with their shared philosophical groundings within functional contextualism, the relationship between ACT and RFT can be most meaningfully understood by considering the historical and current situational contexts within which their relationship has been and is presently situated. In short, reflecting on the history ACT and RFT have shared with each other may help explicate both their current and future relationships, as well as any resulting implications for the future of ACT in particular and of third wave CBT more generally. From our perspective and for our purposes, it seems meaningful to view the relationship between ACT, which is based on RFT-informed behavioral principles (e.g., rule-governed behavior), and RFT as having progressed and as continuing to unfold over three discernible stages.

Parallel Play

Although a case can be made that ACT preceded the development of RFT, both have common roots in an effort to better understand how language and cognition contribute to human functioning from a behavior analytic perspective (Zettle, 2005; Zettle & Wilson, *in press*). In that sense, it seems more useful to regard the simultaneous development and co-evolution of each, particularly during the 1990s, as being roughly akin to parallel play. ACT and RFT, like two children occupied with their own toys within a shared playroom, were certainly aware of each other and their

respective activities, especially given the seminal contributions of Steve Hayes to the development of each, but advancements in one, in retrospect, received minimal explicit acknowledgement by the other. The first book-length presentations of both ACT (Hayes et al., 1999) and RFT (Hayes et al., 2001) were published around the same time, but made relatively little mention of each other. For example, the index of the first ACT book (Hayes et al., 1999, p. 303) included three mentions of RFT within it, and that of the RFT text (Hayes et al., 2001, p. 273) referenced ACT twice. By contrast, the second edition of the ACT book 13 years later (Hayes et al., 2012b, p. 400) cited RFT over 20 times. Thus, especially within the first decade of this century, developments in ACT and RFT became more closely interrelated to where advancements in one were more likely to stimulate and inform progression in the other.

Reticulated Model

The inter-relationship that subsequently emerged between ACT and RFT, particularly during the first decade and a half of this century, came to be formally cast and championed as occurring within a broader “reticulated model” of CBS (Hayes et al., 2012a) in which ACT and RFT collaboratively pursued increasingly mutual interests, albeit via a division of labor in which advancements within basic RFT research in human language and cognition would presumably lead to the more efficacious practice of ACT.

One such example was the development of a brief ACT protocol targeting the stimulus function of repetitive negative thinking that was informed by both conceptual and empirical progress in RFT (Ruiz et al., 2016, 2018, 2019, 2020). From an RFT perspective, client values and triggers for repetitive negative thinking, respectively, are conceptualized as nested within hierarchical networks of positive and negative reinforcers that, in turn, are related to each other in a frame of opposition. Within this framework, events that have positive reinforcing functions due to their congruence with values (e.g., spending time with a close friend) also set the occasion for worrying and rumination to be triggered by their nonoccurrence or blockage, such as when that same friend fails to return a phone call or text message. The focus of therapy is to disrupt escalating repetitive negative thinking that serves a negative reinforcing/experiential avoidant function and is triggered by such value-incongruent events by redirecting client attention to valued actions (e.g., reaching out to another friend). Although a more detailed account of how the protocol was administered by Ruiz and his colleagues is beyond the scope of this chapter, it is important to highlight that what was uniquely RFT-consistent in its development was the way initially triggered negative thinking was reframed in relationship to value-consistent alternative/compatible behaviors following the RFT principles of mutual entailment, combinatorial entailment, and transformation of stimulus function (see Ruiz et al., 2016).

Within the reticulated relationship being advocated between ACT and RFT, interests of and challenges encountered by clinicians also would help identify critical phenomena to be further investigated by basic scientists within the RFT lab. Illustrative applications of this facet of the CBS model advocated by Hayes et al. (2012a) included efforts by RFT to account for and enhance the use of metaphors (Foody et al., 2014; Sierra et al., 2016) and exercises promoting a type of perspective taking, known as self-as-context (Foody et al., 2013, 2015) within the practice of ACT. Metaphors, in particular, have been included within versions of ACT that predated both its recognition as a branded approach as well as the development of RFT (Zettle, 2005; Zettle & Wilson, *in press*). For example, the results of a laboratory analogue experiment by Sierra and associates (2016) suggested that the therapeutic impact of metaphors could be optimized by emphasizing shared physical properties between client experiences and the metaphor (e.g., struggling with anxiety and quicksand) and by the inclusion of appetitive augmenting functions within its presentation (e.g., highlighting valued actions that could be engaged in if the struggle were abandoned).

Speaking of metaphors, RFT researchers within the reticulated model came to be likened by at least some (McLoughlin, 2017; Schoendorff, 2018) to “elves in the basement” who were tasked with producing new toys for ACT “Santas” to then gift to their “good little girl and boy” clients. Some understandable resentment and other ill feelings by proponents of RFT about being cast in this role, as well as a growing recognition of the sheer futility of the task assigned to them, eventually lead to what might currently be compared to an amicable separation between RFT and ACT, rather than a marriage in which one partner dominated over the other (Y. Barnes-Holmes et al., 2016a, b). On this latter point, those in the RFT labs particularly pointed out the challenges of conducting a satisfactory scientific analysis of “middle-level terms,” such as defusion and self-as-context, germane to the model of psychological flexibility on which ACT is based (Foody et al., 2013). Most importantly, such nontechnical terms and concepts have not, in contrast to one such as “reinforcement,” been generated directly from laboratory data (Y. Barnes-Holmes et al., 2016a, b). Instead, they were posited as less technically defined clinical processes contributing to behavioral health and well-being within the model of human functioning on which ACT is based. As a result, RFT bench scientists attempting an experimental analysis of ACT-related middle-level terms soon realized they were in effect taking on a “mission impossible.”

It seems worth pointing out that this relationship between what might be regarded as the applied and basic domains within CBS, as represented respectively by ACT and RFT, seems to have been largely the reverse of that which occurred during the development of the first generation of behavior therapy (Zettle, 2016). Systematic desensitization, for example, was informed by basic respondent principles first investigated by Wolpe (1958) in establishing and eliminating conditioned emotional reactions in cats, while the treatment program developed by Lovaas (1966) for

children with autism was based on behavioral principles originally identified and investigated in the operant conditioning laboratory (Ferster & Skinner, 1957; Skinner, 1938). Imagine if Skinner first developed an effective means of modifying the behavioral deficits and excesses of children with developmental disabilities before retreating to the lab with his rats and pigeons to identify the basic principles and processes behind its success. Applied scientific advances often precede basic science, which results in the latter chasing and lagging behind the former. In retrospect, this same relationship appears to have played itself out at least to some degree between ACT and RFT.

Amicable Separation

More recently over roughly the past 5 years, proponents of RFT have asserted more autonomy and independence in pursuing their own interests, particularly within the domain of educational practices (Y. Barnes-Holmes et al., 2016b), and in being less influenced by the agenda of ACT practitioners and researchers. The resulting separation or divorce has been an amicable one, especially insofar as a number of the theoretical/conceptual advancements within RFT, as well as related basic research findings, have clear implications for psychotherapeutic practice. A shift that has occurred over this time period is that RFT's contributions to clinical work have become less closely tied to ACT, but are increasingly instead more widely applicable to other therapeutic practices and traditions, particularly the burgeoning PBT movement occurring within CBT writ large (Hayes & Hofmann, 2018). Two prime examples of what may be regarded as the development of RFT-informed approaches to verbal psychotherapy unfolding largely independent of ACT as well as other specific, branded treatment packages are provided by the recent work of Villatte et al. (2016) and D. Barnes-Holmes et al. (2020).

The book by Villatte and associates (2016) particularly represents a coherent effort to apply what has been learned in the RFT lab to more effectively utilize language as a medium for human growth and the alleviation of suffering within verbal psychotherapy. The volume even includes a “Quick Guide to Using RFT in Psychotherapy” (pp. 361–380) that makes it quite clear at the very outset that it is not merely another ACT manual:

It is not meant to describe another or better way to do ACT, nor to suggest that you need to become an ACT therapist in order to apply RFT in your clinical practice. It is not meant to replace ACT or, indeed, any other treatment. Instead, this book is an attempt to explore and explicate principles that apply to a common core mechanism of *all* psychotherapies – language. (Villatte et al., 2016, p. 5)

The most recent work by D. Barnes-Holmes et al. (2020) is even more explicit in developing their version of an “RFT-driven process-based therapy” informed by recent advancements in their conceptualization of arbitrarily applicable

relational responding.² They specifically propose a new conceptual unit of analysis within RFT, referred to as the *ROE*, based on their argument that psychological experiences for those of us who are sufficiently verbally competent is a byproduct of a continuous stream of relating (*R*) to stimuli and events verbally, orienting (*O*) or attending to particular events or stimuli, and their evoking (*E*) properties, depending on whether such stimuli or events are appetitive, aversive, or relatively neutral in nature. Because the three elements of the *ROE* are thought to interact with each other in a dynamic rather than linear way, ideographic functional analyses and assessments of their respective roles in initiating and maintaining clinically-relevant behavior must be undertaken in order to effectively guide process-oriented therapy tailored on a client-by-client basis.

While RFT has been busy finding its own way in the world, ACT has not been exactly standing still. Over 60% of the 400 plus randomized controlled trials of ACT that have been reported to date have been published within the last 5 years (ACBS, n.d.-a) as the globalization of the approach and its areas of application have similarly expanded beyond psychotherapeutic practices over this same period of time (Zettle & Wilson, in press). ACBS, which is the parent organization for ACT practitioners and researchers as well as applied and basic scientists within RFT, currently has over 9000 members, with over 80% of them residing outside the U.S. (ACBS, n.d.-c).

The Emergence of Process-Based Therapy (PBT)

It exceeds the focus and purpose of this chapter to offer a detailed summary of the growing PBT movement within CBT and its possible implications for clinical research and practice beyond it to psychotherapy more broadly. For such coverage, interested readers are referred to the recent book (Hayes & Hoffmann, 2018) as well as a series of related papers by Hayes, Hofmann, and colleagues on PBT (Hayes et al., 2019, 2020a, d; Hofmann & Hayes, 2019). For our purposes, an overview of PBT and the context in which it has emerged should be sufficient to provide a backdrop in which to specifically consider its potential impact on the future of CBT more generally and on that of its third wave in particular.

In large measure, PBT can be viewed as a reaction and alternative to the “protocols for syndromes” approach (Hayes et al., 2019) of the past 25 years within CBT

²According to RFT, both humans and nonhumans display nonarbitrarily applicable relational responding by differentially responding to stimuli based on their relative physical properties. For instance, a pigeon can be trained to peck the larger of two discs even if selecting the smaller one is the only option that has been previously reinforced. However, to date only verbally capable humans have reliably shown arbitrarily applicable relational responding in which behavior is controlled not by the relative physical properties of stimuli, but by others established by verbal-social communities. The prototypical example is how the value of coins in a number of monetary systems is not based on their respective sizes (Hughes & Barnes-Holmes, 2016).

during which empirically-supported psychological treatments were organized around psychiatric diagnoses (e.g., Task Force, 1995). While this movement served its purpose in supporting more randomized clinical trials and firmly establishing CBT writ large as the dominant evidence-based approach to psychotherapy, it eventually collapsed under its own weight. Ultimately, it became virtually impossible for any practicing clinician to become sufficiently competent in implementing respective treatment manuals for the ever-expanding number of branded efficacious interventions linked to diagnoses (see Hayes & Hofmann, 2020 for the detailed accounts of this claim). Rather than emphasizing research-supported therapeutic packages and protocols, the PBT movement alternatively focuses on “the underlying change mechanisms that lead to attainment of a desirable treatment goal” (Hayes et al., 2019, p. 41). The ultimate objective is to then link processes that can be shown to mediate therapeutic improvement with evidence-based procedures that reliably move such processes.

The advocates of PBT have proposed a multidimensional and multilevel meta-model derived from evolution science in organizing individual models of how specific evidence-based therapeutic process and procedures are related to each other (Hayes et al., 2020a, b, c, e). The adequacy of specific process-based models at a psychological level are to be judged within this larger meta-model to the extent that they account for the contexts in which clinically-relevant changes or variations in six dimensions [i.e., affect, cognition, attention, motivation, self, and overt behavior (Hayes et al., 2019)] are selected and retained (Hayes et al., 2020a). For example, do increases in emotional acceptance as an affective process mediate reduced psychological suffering and enhanced well-being, and if so, what specific therapeutic procedures or practices, in turn, have been shown to activate such emotional acceptance?

It is by no means clear at this point in its development and dissemination what ultimate impact the PBT movement will have on the third wave of CBT in particular, CBT more generally, and even psychotherapy as a whole. Additionally, to date there are no studies examining the incremental effects of PBT above and beyond the extant syndrome-focused treatment approach. That being said, our educated guess is that whatever effects there might be are more likely to be felt by CBT, given that the two chief proponents of PBT, Steve Hayes and Stefan Hofmann, have been major players within the third and second waves, respectively, of CBT. At present, the core clinical competencies highlighted in their edited book (Hayes & Hofmann, 2018) as instrumental in activating evidence-processes of therapeutic change include the implementation of procedures, however, that span all three generations of CBT. For example, chapters on contingency management (Higgins et al., 2018), stimulus control (McIlvane, 2018), and shaping (Miltenberger et al., 2018) represent operant conditioning approaches integral to CBT’s first wave, while its incorporation of respondent principles are updated in a chapter covering arousal reduction (McKay, 2018). The second generation of CBT and its emphasis on cognitive restructuring is reflected among other chapters by those focused on cognitive reappraisal (Wenzel, 2018) and modifying core beliefs (Arntz, 2018). Finally, chapters on cognitive defusion (Blackledge, 2018), cultivating psychological acceptance

(Forsyth & Ritzert, 2018), values (Lundgren & Larsson, 2018), and mindfulness (Baer, 2018) highlight procedures and techniques popularized by ACT and related third wave approaches.

It is our expectation that a successful pivot to PBT is most likely to blur distinctions among the three waves of CBT as well as those among existing branded therapies nested within each. We suspect that this may be even more so for ACT and other third wave approaches due to both conceptual and philosophical reasons. ACT is fundamentally itself a process-based approach supported by a model of human functioning that encompasses key behavioral processes posited to contribute to greater psychological health. Thinking about CBT more broadly, and even all of psychotherapy for that matter, in terms of the key processes that mediate the alleviation of suffering and the promotion of psychological well-being is something with which practitioners and researchers of ACT are already comfortable and accustomed. Moreover, the proposed extended evolutionary meta-model within which PBT is to be situated in our view embraces the same philosophical viewpoint; namely, functional contextualism (Hayes et al., 2012a); embraced by ACT and related third wave approaches, such as FAP. Both basic and applied behavioral scientists are likely to have an affinity for evolutionary theory extended to incorporate psychological phenomena, although acceptance of the PBT meta-model by those who explicitly endorse functional contextualism is likely to be less of a stretch compared to those who implicitly favor an alternative worldview, such as elemental realism/mechanism (Hughes, 2018; Pepper, 1942).

While we are not prepared, unlike our groundhog friend, to predict when winter will be transformed into spring, we are reasonably confident in concluding that the unique contributions of ACT and other third wave approaches within CBT will remain even if eventually subsumed within the PBT movement. Their continued legacy will have been the identification of additional therapeutic processes, such as acceptance, and the development of efficacious ways of fostering them. Ironically, ACT's success in this respect appears to have led to its undoing. Progressive muscle relaxation is still being taught to clients (McKay, 2018) even though therapists who limited their practice to systematic desensitization have by now become extinct.

A Confluence of Influences

The profile and status of ACT as a “poster child” for CBT's third wave appears to be in the process of being weakened (if we can mix our metaphors) by a “perfect storm” of eroding forces. ACT's primary originator (Hayes) has seemingly given birth to a new and more favored sibling (PBT) within the CBT family at the same time that a long-standing partner (RFT) of ACT has opted to go its own way in also supporting the new addition. The merging of PBT with RFT-informed clinical practice that may expand beyond ACT seems likely to further diminish ACT as a branded treatment and blur any useful remaining distinctions that may still exist among the

three waves of CBT. If this occurs, all of CBT may become repackaged as PBT, particularly if the movement does not expand to psychotherapy more generally.

To the extent that ACT never was meant to be defined as a set of techniques or procedures, but rather as a process-based approach distinguished by the conceptual model of human functioning and related philosophical framework on which it was based, its likely diminished status in our view is not to be lamented, but instead acknowledged as scientific progress, especially if improvements in therapeutic efficacy and/or efficiency can be documented for the PBT initiative. ACT after all was responsible for introducing increased *variation* in putative psychotherapeutic change mechanisms, some of which have been *selected* based upon their empirical support and therapeutic value, and are consequently being *retained* within the PBT movement.

ACT and the Rest of Third Wave Behavior Therapies

As we get closer to the end of this chapter, we would like to share some further thoughts on the third wave CBT movement and the role of ACT within it. As we noted earlier, ACT has been regarded by many as the prime representative for the latest generation of CBT mainly because of Steven C. Hayes (Dimidjian et al., 2016). That is, Steven Hayes, the originator of ACT, was the first to use the term “third wave” in writing, and he was also among the most vocal proponent of it as a distinct movement within CBT (Hayes, 2004; Hayes & Hofmann, 2017; Hayes et al., 2003).

As ACT, FAP, DBT, MBCT, and several other approaches are grouped together as representing a third generation of CBT, it is often naturally assumed that they must be quite similar to one another in some very significant way. However, as we implied earlier in this chapter, “third wave” is not a scientific term that describes a scientific paradigm with a coherent set of principles and worldview. Rather, it is more like a term used for the purposes of a political campaign in forming a coalition within the field of CBT. Perhaps for this reason, the first published characterization of the third wave movement was less specific and more inclusive:

Grounded in an empirical, principle-focused approach, the third wave of behavioral and cognitive therapy is particularly sensitive to the context and functions of psychological phenomena, not just their form, and thus tends to emphasize contextual and experiential change strategies in addition to more direct and didactic ones. These treatments tend to seek the construction of broad, flexible, and effective repertoires over an eliminative approach to narrowly defined problems, and to emphasize the relevance of the issues they examine for clinicians as well as clients. The third wave reformulates and synthesizes previous generations of behavioral and cognitive therapy and carries them forward into questions, issues, and domains previously addressed primarily by other traditions, in hope of improving both understanding and outcomes. (Hayes, 2004, p. 658)

As implied in the statement above, ACT, FAP, DBT, MBCT, and other key members of third wave CBT are grouped together based primarily on their shared

topographical features in practice (treatment techniques and “middle-level” models), and not necessarily on coherent and shared psychological principles, such as RFT, and guiding philosophical assumptions. We emphasize this because coherence in the latter domain is crucial for a given concept to be considered as a scientific paradigm. We view that whereas a single third wave approach, such as ACT, may have this coherence more or less, the third wave CBT movement as a whole, given its within-group heterogeneity, does not appear to have this quality. Perhaps for this reason, contrary to what many might assume, a major takeaway from this section for us is that regarding the third wave of CBT as a unique scientific paradigm in a strict sense may not be particularly useful (see Barlow, 2016 for paradigm crashes in the field of CBT).

Contributions of Third Wave Cognitive Behavioral Therapies

Although the third wave movement within CBT as a whole may not be considered as a distinct scientific paradigm, it has brought significant changes within the field as well as to that of behavioral health. At applied levels, many third wave concepts and methods, such as acceptance and values, have become central parts of the CBT tradition (Hayes & Hofmann, 2017). In fact, these concepts and methods co-exist with previously established ones within a unified model of CBT (e.g., Mennin et al., 2013), and within the larger field of CBT (e.g., O’Donohue & Fisher, 2008).

One of the most notable contributions of the third wave CBT movement is the revitalization of CBT as an interconnected and empirically informed system of basic scientific theory, applied theory, and practice, which is guided by an *underlying philosophical worldview* (Hayes & Hofmann, 2017, 2018). This significant shift from viewing a CBT as a mere collection of various therapeutic techniques occurred out of necessity. That is, the domain of behavioral and cognitive therapies lacked a meta-framework (e.g., underlying philosophical assumptions) to synthesize and assimilate various and often seemingly contradicting concepts and methods that co-exist within it. In order to do so, the field of CBT now, more so than before, recognizes the importance of explicating one’s own underlying philosophical assumptions (Klepac et al., 2012; Masuda & Rizvi, 2019).

As discussed above, scrutiny and clarification of underlying philosophical worldviews have naturally led to a strong focus on developing and refining basic and applied theories of behavior change and well-being (Hofmann & Hayes, 2019). Third wave approaches, such as ACT, FAP, DBT, and MBCT, have focused far less than previous generations of CBT on developing and refining tightly crafted treatment protocols for specific psychological disorders. Instead, this movement has collectively emphasized broadly applicable evidence-based processes of change linked to evidence-based procedures in treatment development (Hayes & Hofmann, 2017). This set of major contributions has cemented a stage for the dawn of process-based CBT or PBT within the last 2–3 years (Hayes & Hofmann, 2018; Hofmann & Hayes, 2019).

Challenges That the Third Wave Movement Has Brought to the Field

It is also important to acknowledge some notable problems that the third wave movement may have unintentionally brought to the field or at least perpetuated. These problems seem to stem mainly from ambiguity in what defines this third wave. Because of shared topographical features in their practices, the term “third wave” is often used synonymously with that of “acceptance- and mindfulness-based CBT” (Hayes et al., 2004), much like the second wave of traditional CBT was defined by its inclusion of cognitive restructuring. Whereas many proponents of the third wave movement have made efforts on the reticulated investigation and advancement of evidence-based processes of change linked to evidence-based procedures, organizing the third-wave movement on the basis of topographical features implicitly encourages continuing to view CBT at a technical or “middle-level” as a mere collection of various therapeutic techniques. That is, from this point of view, any therapeutic intervention, for example, that mixes behavioral and cognitive techniques with a mindfulness or value exercise could be legitimately called a third wave CBT, just as those in the previous generation were identified as CBT based on the utilization of cognitive restructuring. In fact, to date, because of this, there is a proliferation of purportedly new and unique acceptance- and mindfulness-based CBTs, such as mindfulness-based exposure therapy (King et al., 2016) and compassion-focused ACT (Hill et al., 2020). What is unclear is whether these newer CBTs are qualitatively unique at a process of change level.

Furthermore, this topographical and technical level of grouping and understanding third wave CBTs (e.g., acceptance, value, and mindfulness) make it difficult to differentiate third wave CBTs from interventions that are not, including those originating from nonbehavioral traditions. On the bright side, this feature of the third generation of CBT has made it more relatable and approachable for nonbehavioral clinicians as well as for a wide range of behavioral health professionals. This inclusive and welcoming nature of the third wave CBT movement allows the erosion of tribe mentality across and within different schools of thought in the field of behavioral health. However, at the same time, the rapid expansion of third wave CBT in this way fails to ensure quality control in service delivery and interventionist training.

After All, What Is the “Third Wave”?

From a broader perspective, one can view this third wave movement as part of mindfulness revolution occurring more broadly within the field of behavioral health since the turn of this century (e.g., Li & Ramirez, 2017; Norcross et al., 2013). Because of this, the third wave movement in CBT is often indistinguishable from mindfulness-informed psychotherapies, a group of nontraditional approaches that

have been part of this mindfulness revolution (e.g., Bien, 2006; Germer et al., 2013; Pilla et al., 2020). As discussed elsewhere, many of these mindfulness-informed psychotherapies are atheoretical in the strictest sense (at least for the behavior therapy tradition) and have originated in eclectic schools of thought. In other words, these other less empirically-oriented traditions are not necessarily committed to evidence-based treatment delivery linked to the evidence-based process of change. In being considered part of the mindfulness revolution, the third wave movement in CBT may have unwittingly contributed to this atheoretical and eclectic approach. In sum, we believe that the third wave movement, because of its obscurity and ambiguity, has brought both blessing and curse to the field of behavior therapy and CBT.

Personal Reflections by Robert D. Zettle

As the philosopher George Santayana (n.d.) remarked, “To know your future you must know your past.” In offering an epilogue to our projection of where we believe the field may be headed, we hope it therefore does not seem too self-indulgent for one of us (RDZ) to reflect upon his personal experiences in being both a witness to, and sometime participant in, the three generations of CBT.

My (RDZ’s) first formal indoctrination into the world of behavior therapy occurred during the first year of my master’s degree program at Bucknell University in the fall of 1974 when our class attended the first Temple University Conference in Behavior Therapy and Behavior Modification. The gathering was organized by Joseph Wolpe and featured a keynote address by Mary Cover Jones, whom he regarded as “the mother of behavior therapy” (Wolpe, 1969 as cited in Gieser, 1993) based on her two publications 50 years earlier on the elimination of children’s fears. If the first wave of behavior therapy had a clear point of origination, it was with those two landmark papers in which Jones (1924a, 1924b) reported on the efficacy of strategies and techniques that were not only the forerunners of Wolpe’s desensitization by reciprocal inhibition (“method of direct conditioning”), but also of modeling-based interventions (“method of social imitation”), and even cognitive therapy (“method of verbal appeal”), thereby earning her appropriate recognition as “the first behavior therapist” (Gieser, 1993).

The Temple Conference further solidified my interest in behaviorism itself, which had began while still an undergraduate at Wilkes College (now University) with my initial exposure to Skinner (1971), as well as the viability of existing behavioral interventions, such as systematic desensitization and aversion therapy, while at the same time making their limited applications, especially in addressing the most common presenting problems of adult outpatients, all the more obvious. Behavior therapists of the era were also increasingly noting that none of their interventions adequately addressed the influence of language and cognition (e.g., Mahoney, 1974), or what Kohlenberg et al. (2002) would later frame as “the most basic question about outpatient adult behavior therapy” (p. 248); namely, “what is the mechanism that explains how ... talking helps the client outside of the office in

his or her daily life?" (p. 248). It would only be later with the clear emergence of CBT's second wave that alternative outside approaches, such as rational emotive therapy (Ellis, 1962) and especially cognitive therapy (Beck, 1970), that had already, or were in the process of being developed, would be adopted as legitimate members of the CBT family. Until that time, apart from some meager beginnings of "cognitive-behavior modification" (e.g., Meichenbaum, 1977), the recognized first wave interventions to address the role of verbal-cognitive variables in the mid 1970s were largely limited to thought stopping (Rimm, 1973) and coping self-statements within self-instructional training (Meichenbaum, 1972).

In the absence of any clear behavior analytic answers to the question of cognitive control, I turned to the writings of Skinner (1969, 1974) for possible clues. This quest, however, did not bear fruit until I began my doctoral degree program in the fall of 1976 at the University of North Carolina at Greensboro and had the good fortune of having Steve Hayes, as a newly-hired assistant professor, assigned as my advisor. It soon became apparent that both of us shared a commitment to better understand the impact of verbal behavior and language on human suffering and its alleviation. Initially this collaboration resulted in a conceptual expansion of Skinner's (1969) formulation of rule-governance (Zettle & Hayes, 1982) and an empirical demonstration of how the impact of coping self-statements could be accounted for as a form of rule-following known as pliance (Zettle & Hayes, 1979).

A much more formidable challenge, however, emerged following the Rush et al. (1977) randomized clinical trial comparing cognitive therapy to antidepressant medication and the subsequent emergence of CBT's second wave. If there was a singular event that marked the birth of a new and second generation of CBT, it was the publication of this paper as the first to report that a psychological approach was superior to pharmacotherapy in the treatment of a psychiatric disorder. First generation behavior therapists who longed for a way to effectively respond to what and how clients think now seemingly had the means to address these concerns in a way that was not only more sophisticated than both thought stopping and coping self-statements, but even more importantly, enjoyed more substantive empirical support. Not surprisingly, clinicians with less strong allegiances to behavior analysis and radical behaviorism soon added cognitive restructuring components and procedures to their existing first-generation treatment packages, and the second generation of CBT quickly expanded beyond Beckian cognitive therapy (Beck et al., 1979). In short, behavior therapy had become CBT.

While it seemed clear that the means Beck and his colleagues had developed for apparently altering client thinking in clinically-relevant ways worked, it was by no means obvious how or why cognitive therapy worked. More closely examining the approach through the behavior analytic lens of rule-governance suggested that the components of "distancing" and behavioral homework within cognitive therapy might be more critically important than the one, cognitive restructuring, that had been receiving the most attention (Zettle & Hayes, 1982). Distancing was regarded as the "first critical step" within cognitive therapy (Hollon & Beck, 1979, p. 189) in which clients were basically taught that thoughts are not facts, while behavioral homework assignments were regarded as the most powerful way of "testing out"

and restructuring cognitive distortions. The stance that distancing in particular takes towards dysfunctional thinking seemed sensible from a behavior analytic perspective and suggested the possibility of expanding and further developing such a strategy into its own therapeutic approach (Zettle & Hayes, 1982), known at the time as comprehensive distancing (CD; Hayes, 1987). As the forerunner of ACT, CD included explicit emphases on what are now recognized as processes of acceptance, defusion, mindfulness, and committed action, but excluded any similar focus on values clarification and enhancement of self-as-context (Zettle & Wilson, *in press*).

What is now regarded as the first randomized clinical trial of ACT was my dissertation (1984) in which CD was compared to cognitive therapy of depression. Perhaps somewhat ironically and in an effort to better understand cognitive therapy from the inside, the bulk of participant data were collected while I was completing my predoctoral internship at Beck's Center for Cognitive Therapy in Philadelphia during 1982–1983. It seems worth mentioning in light of later criticisms directed towards ACT by second-wave proponents of CBT (Arch & Craske, 2008; Hofmann & Asmundson, 2008), that I was rebuffed in my efforts to receive participant referrals through the Center. I was asked if CD included cognitive restructuring and upon answering “no,” was informed that referrals were only made to those who offered cognitive therapy. Clearly at least at that time, CD (ACT) was viewed as sufficiently different than cognitive therapy to not be summarily dismissed as merely “old hat” (Hofmann & Asmundson, 2008).

ACT assumed a relatively low profile during the 1990s during which time relatively more focus was placed on the development of RFT and explication of functional contextualism as its respective theoretical and philosophical foundations (Zettle & Wilson, *in press*) than on accumulating further empirical support for the approach. In fact, there were only two published studies on the efficacy of ACT by the time of the first book on it (Hayes et al., 1999), and nine total 5 years later when Hayes (2004) proclaimed that CBT's third wave had arrived. What soon followed for over the next decade was a quite contentious period of predictable pushback, largely from second wave proponents, in which ACT, in particular, and third wave approaches more generally were criticized on both empirical and conceptual grounds. More specifically, both the quality (Öst, 2008, 2014) and quantity (Corrigan, 2001) of supportive research was seriously questioned and ACT was accused of being indistinguishable from both traditional CBT as well as Morita therapy (Hofmann, 2008; Leahy, 2008). Even those not all that familiar with RFT can derive via combinatorial entailment that traditional CBT must therefore also be equivalent to Morita therapy (i.e., “If ACT is the same as traditional CBT and is also indistinguishable from Morita therapy, then CBT must be the same as Morita therapy”). Suffice it to say that even being a relatively minor participant in CBT's ongoing family squabble at the time often seemed more akin to being a combatant in a civil war.

Happily, an armistice and eventual rapprochement were finally attained once it became increasingly clear to even some of ACT's most strident skeptics and critics that its mechanisms of action were sufficiently distinct from those of traditional, second wave CBT (Forman et al., 2012; Niles et al., 2014), even if it was not more

efficacious (e.g., Arch et al., 2012; Craske et al., 2014; Forman et al., 2007). There is perhaps no more persuasive evidence that the once combative relationship between the troops of CBT's second and third wave has been resolved than that the two former opposing "generals" (i.e., Hofmann and Hayes) are now collaborating in promulgating PBT. If their campaign is broadly successful, future distinctions between CBT writ large and other approaches to psychotherapy may no longer hold. If the impact of the PBT movement is more limited to CBT itself, it may represent a fourth wave that blurs previous lines of demarcation among the first three generations of CBT.

Conclusion

The aim of this chapter was to offer our thoughts on where the third wave of CBT may be headed. Although not having special psychic powers in doing so, we are reasonably confident in concluding that ACT and other third wave CBTs in the current forms are likely to disappear sooner than we may think, but that their unique contributions within CBT will remain as part of the next wave of CBT (i.e., PBT). Their continued legacy within PBT will have been the identification of additional therapeutic processes of change, such as those referred to as acceptance and values, and the development of evidence-based procedures of fostering them. As we look forward to seeing if our prognostications will place us in the same company as Punxsutawney Phil or Cassandra, we are at least somewhat comforted by the sage observation of the Nobel Laureate in Physics, Niels Bohr (n.d.): "Prediction is very difficult, especially if it's about the future."

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