

Attention Deficit Hyperactivity Disorder: Third-Wave Behavior Therapy Conceptualization



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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.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). APA.
- Bauman, D., Beachy, B., & Ogbeide, S. A. (2018). Stepped care and behavioral approaches for diabetes management in integrated primary care. In W. O'Donahue & A. Maragakakis (Eds.), *Principle-based stepped care and brief psychotherapy for integrated care settings*. Springer Science, Business Media, LLC.
- Benjamin, J. Z., Harbeck-Weber, C., Ale, C., & Sim, L. (2020). Becoming flexible: Increase in parent psychological flexibility uniquely predicts better well-being following participation in

- a pediatric interdisciplinary pain rehabilitation program. *Journal of Contextual Behavioral Science*, 15, 181–188.
- Brassell, A. A., Rosenberg, E., Parent, J., Rough, J. N., Fondacaro, K., & Seehuus, M. (2016). Parent's psychological flexibility: Associations with parenting and child psychosocial Well-being. *Journal of Contextual Behavioral Science*, 5, 111–120. <https://doi.org/10.1016/j.jcbs.2016.03.001>
- Brown, N. M., Brown, S. N., Briggs, R. D., Germán, M., Belamarich, P. F., & Oyeku, S. O. (2017). Associations between adverse childhood experiences and ADHD diagnosis and severity. *Academic Pediatrics*, 17(4), 349–355. <https://doi.org/10.1016/j.acap.2016.08.013>
- Cairncross, M., & Miller, C. J. (2020). The effectiveness of mindfulness-based therapies for ADHD: A meta-analytic review. *Journal of Attention Disorders*, 24(5), 627–643. <https://doi.org/10.1177/1087054715625301>
- DuPaul, G. J., Evans, S. W., Mautone, J. A., Owens, J. S., & Power, T. J. (2020). Future directions for psychosocial interventions for children and adolescents with ADHD. *Journal of Clinical Child and Adolescent Psychology: The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, 49(1), 134–145. <https://doi.org/10.1080/15374416.2019.1689825>
- Epstein, J. N., Kelleher, K. J., Baum, R., Brinkman, W. B., Peugh, J., Gardner, W., Lichtenstein, P., & Langberg, J. (2014). Variability in ADHD care in community-based pediatrics. *Pediatrics*, 134(6), 1136–1143. <https://doi.org/10.1542/peds.2014-1500>
- Fang, S., & Ding, D. (2020). A meta-analysis of the efficacy of acceptance and commitment therapy for children. *Journal of Contextual Behavioral Science*, 15, 225–234. <https://doi.org/10.1016/j.jcbs.2020.01.007>
- Friedman, R., Sobel, D., Myers, P., Caudill, M., & Benson, H. (1995). Behavioral medicine, clinical health psychology, and cost offset. *Health Psychology*, 14(6), 509–518.
- Gibbons, M. B. C., Rothbard, A., Farris, K. D., Stirman, S. W., Thompson, S. M., Scott, K., Heintz, L. E., Gallop, R., & Crits-Christoph, P. (2011). Changes in psychotherapy utilization among consumers of Services for Major Depressive Disorder in the Community Mental Health System. *Administration and Policy in Mental Health*, 38(6), 495–503. <https://doi.org/10.1007/s10488-011-0336-1>
- Gifford, E. V., & Hayes, S. C. (1999). Functional contextualism: A pragmatic philosophy for behavioral science. In W. O'Donohue & R. Kitchener (Eds.), *Handbook of behaviorism* (pp. 285–327). Academic.
- Glick, D. M., Millstein, D. J., & Orsillo, S. M. (2014). A preliminary investigation of the role of psychological inflexibility in academic procrastination. *Journal of Contextual Behavioral Science*, 3(2), 81–88.
- Gloster, A. T., Walder, N., Levin, M. E., Twohig, M. P., & Karekla, M. (2020). The empirical status of acceptance and commitment therapy: A review of meta-analyses. *Journal of Contextual Behavioral Sciences*, 18, 182–192.
- Gotink, R. A., Meijboom, R., Vernooij, M. W., Smits, M., & Hunink, M. G. M. (2016). 8-week mindfulness based stress reduction induces brain changes similar to traditional long-term meditation practice – A systematic review. *Brain and Cognition*, 108, 32–41. <https://doi.org/10.1016/j.bandc.2016.07.001>
- Handler, M. W., & DuPaul, G. J. (2005). Assessment of ADHD: Differences across psychology specialty areas. *Journal of Attention Disorders*, 9(2), 402–412. <https://doi.org/10.1177/1087054705278762>
- Hayes, S. C., & Hofmann, S. G. (2017). The third wave of cognitive behavioral therapy and the rise of process-based care. *World Psychiatry*, 16, 245–246. <https://doi.org/10.1002/wps.20442>
- Hayes, S. C., Barnes-Holmes, D., & Roche, B. (2001). *Relational frame theory: A post-Skinnerian account of human language and cognition*. Kluwer Academic/Plenum Publishers.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2011). *Acceptance and commitment therapy: The process and practices of mindful change*. Guilford Press.

- Kabat-Zinn, J. (2013). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness*. Bantam Books.
- Kral, T. R. A., Schuyler, B. S., Mumford, J. A., Rosenkranz, M. A., Lutz, A., & Davidson, R. J. (2018). Impact of short- and long-term mindfulness meditation training on amygdala reactivity to emotional stimuli. *NeuroImage*, *181*, 301–313. <https://doi.org/10.1016/j.neuroimage.2018.07.013>
- Krisanaprakornkit, T., Ngamjarus, C., Witoonchart, C., & Piyavhatkul, N. (2010). Meditation therapies for attention-deficit/hyperactivity disorder (ADHD). *The Cochrane Database of Systematic Reviews*, *6*, CD006507. <https://doi.org/10.1002/14651858.CD006507.pub2>
- Krull, K.R. (2020a). Attention deficit hyperactivity disorder in children and adolescents: Epidemiology and pathogenesis. *UpToDate*. Retrieved from https://www.uptodate.com/offcampus/contents/attention-deficit-hyperactivity-disorder-in-children-and-adolescents-epidemiology-and-pathogenesis?search=adhd&source=search_result&selec
- Krull, K. R. (2020b). Attention deficit hyperactivity disorder in children and adolescents: Overview of treatment and prognosis. *UpToDate*. Retrieved from https://www.uptodate.com/contents/attention-deficit-hyperactivity-disorder-in-children-and-adolescents-overview-of-treatment-and-prognosis?search=adhd&source=search_result
- Levin, M. E., Haeger, J., Ong, C., & Twohig, M. P. (2018). An examination of the transdiagnostic role of delay discounting in psychological inflexibility and mental health problems. *The Psychological Record*, *68*(2), 201–210. <https://doi.org/10.1007/s40732-018-0281-4>
- Linehan, M. M. (2015). *DBT skills training manual* (2nd ed.). The Guilford Press.
- Makriyianis, H. M., Adams, E. A., Lozano, L. L., Mooney, T. A., Morton, C., & Liss, M. (2019). Psychological inflexibility mediates the relationship between adverse childhood experiences and mental health outcomes. *Journal of Contextual Behavioral Science*, *14*, 82–89. <https://doi.org/10.1016/j.jcbs.2019.09.007>
- Marcowski, P., Białaszek, W., Dudek, J., & Ostaszewski, P. (2017). Higher behavioral profile of mindfulness and psychological flexibility is related to reduced impulsivity in smokers, and reduced risk aversion regardless of smoking status. *Polish Psychological Bulletin*, *48*(4), 445–455. <https://doi.org/10.1515/ppb-2017-0051>
- Marusak, H. A., Elrahal, F., Peters, C. A., Kundu, P., Lombardo, M. V., Calhoun, V. D., Goldberg, E. K., Cohen, C., Taub, J. W., & Rabinak, C. A. (2018). Mindfulness and dynamic functional neural connectivity in children and adolescents. *Behavioural Brain Research*, *336*, 211–218. <https://doi.org/10.1016/j.bbr.2017.09.010>
- Masuda, A., Hayes, S. C., Lillis, J., Bunting, K., Herbst, S. A., & Fletcher, L. B. (2009). The relation between psychological flexibility and mental health stigma in acceptance and commitment therapy: A preliminary process investigation. *Behavior and Social Issues*, *18*, 25.
- Moitra, E., & Gaudiano, B. A. (2016). A psychological flexibility model of medication adherence in psychotic-spectrum disorders. *Journal of Contextual Behavioral Science*, *5*, 252–257.
- Punja, S., Shamseer, L., Hartling, L., Urichuk, L., Vandermeer, B., Nikles, J., & Vohra, S. (2016). Amphetamines for attention deficit hyperactivity disorder (ADHD) in children and adolescents. *The Cochrane Database of Systematic Reviews*, *2*, CD009996. <https://doi.org/10.1002/14651858.CD009996.pub2>
- Robinson, P. J., Gould, D. A., & Strosahl, K. D. (2010). *Real behavior change in primary care: Improving patient outcomes & increasing job satisfaction*. Oakland, CA: New Harbinger Publications, Inc.
- Sairanen, E., Tolvanen, A., Karhunen, L., Kolehmainen, M., Järvelä-Reijonen, E., Lindroos, S., et al. (2017). Psychological flexibility mediates change in intuitive eating regulation in acceptance and commitment therapy interventions. *Public Health Nutrition*, *20*(9), 1681–1691. <https://doi.org/10.1017/S1368980017000441>
- Society of Clinical Psychology. (2016). Psychological treatments. In *Treatment target: Attention deficit hyperactivity disorder (adults)*. Retrieved from <https://div12.org/diagnosis/attention-deficit-hyperactivity-disorder-adults/>

- Storebø, O. J., Skoog, M., Damm, D., Thomsen, P. H., Simonsen, E., & Gluud, C. (2011). Social skills training for Attention Deficit Hyperactivity Disorder (ADHD) in children aged 5 to 18 years. *The Cochrane Database of Systematic Reviews*, *12*, CD008223. <https://doi.org/10.1002/14651858.CD008223.pub2>
- Strosahl, K., Robinson, P., & Gustavsson, T. (2012). *Brief interventions for radical change: Principles and practice of focused acceptance and commitment therapy*. New Harbinger Publications, Inc.
- Substance Abuse and Mental Health Services Administration. (2018). *Key substance use and mental health indicators in the United States: Results from the 2017 National Survey on Drug Use and Health (HHS Publication No. SMA 18-5068, NSDUH series H-53)*. Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/>
- Syme, K. L., & Hagen, E. H. (2020). Mental health is biological health: Why tackling “diseases of the mind” is an imperative for biological anthropology in the 21st century. *American Journal of Physical Anthropology*, *171*(S70), 87–117. <https://doi.org/10.1002/ajpa.23965>
- Tang, Y.-Y., Tang, R., & Posner, M. I. (2016). Mindfulness meditation improves emotion regulation and reduces drug abuse. *Drug and Alcohol Dependence*, *163*, S13–S18. <https://doi.org/10.1016/j.drugalcdep.2015.11.041>
- TEDMED. (2015, February 17). *How childhood trauma affects health across a lifetime* [Video file]. Retrieved from <https://www.youtube.com/watch?v=uXXTL77oouU>
- TEDx Talks. (2016, February 22). *Psychological flexibility: How love turns pain into purpose | Steven Hayes | TEDxUniversityofNevada* [Video file]. Retrieved from https://www.youtube.com/watch?v=079_gmO5ppg
- Thomas, R., Sanders, S., Doust, J., Beller, E., & Glasziou, P. (2015). Prevalence of attention-deficit/hyperactivity disorder: A systematic review and meta-analysis. *Pediatrics*, *135*(4), e994–e1001. <https://doi.org/10.1542/peds.2014-3482>
- Trindade, I. A., Mendes, A. L., & Ferreira, N. B. (2020). The moderating effect of psychological flexibility on the link between learned helplessness and depression symptomatology: A preliminary study. *Journal of Contextual Behavioral Science*, *15*, 68–72.
- Valeras, A. S. (2019). Healthcare’s wicked questions: A complexity approach. *Families, Systems & Health*, *37*(2), 187–189. <https://doi.org/10.1037/fsh0000425>
- Wang, P. S., Lane, M., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Twelve-month use of mental health services in the United States: Results from the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*(6), 629–640. <https://doi.org/10.1001/archpsyc.62.6.629>
- Wolraich, M. L., Lambert, W., Doffing, M. A., Bickman, L., Simmons, T., & Worley, K. (2003). Psychometric properties of the Vanderbilt ADHD diagnostic parent rating scale in a referred population. *Journal of Pediatric Psychology*, *28*(8), 559–567. <https://doi.org/10.1093/jpepsy/jsg046>
- Young, K. S., van der Velden, A. M., Craske, M. G., Pallesen, K. J., Fjorback, L., Roepstorff, A., & Parsons, C. E. (2018). The impact of mindfulness-based interventions on brain activity: A systematic review of functional magnetic resonance imaging studies. *Neuroscience & Biobehavioral Reviews*, *84*, 424–433. <https://doi.org/10.1016/j.neubiorev.2017.08.003>