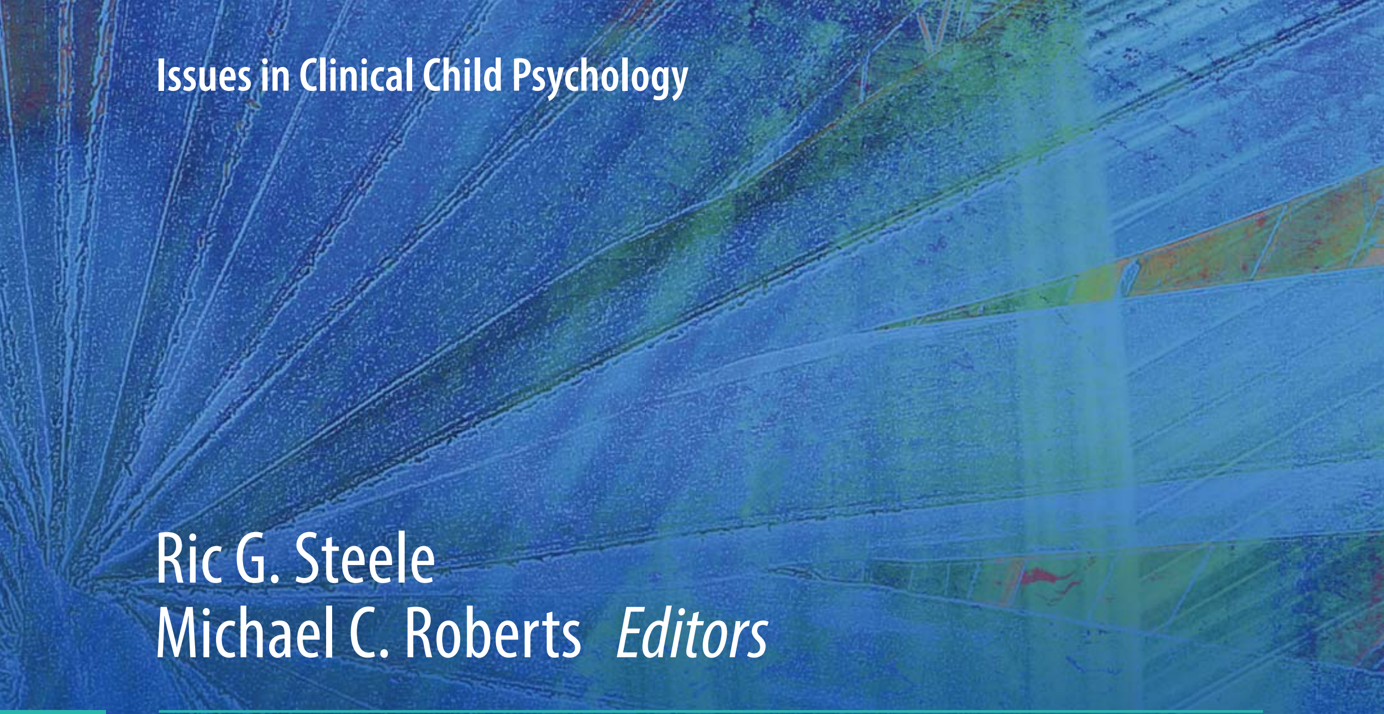

Issues in Clinical Child Psychology

Ric G. Steele
Michael C. Roberts *Editors*

Handbook of Evidence-Based Therapies for Children and Adolescents

Bridging Science and Practice

Second Edition

Springer

Issues in Clinical Child Psychology

Series Editor

Michael C. Roberts, Clinical Child Psychology Program, University of Kansas, Lawrence, KS, USA

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ISSN 1574-0471
Issues in Clinical Child Psychology
ISBN 978-3-030-44225-5 ISBN 978-3-030-44226-2 (eBook)
https://doi.org/10.1007/978-3-030-44226-2

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Ric G. Steele: To my daughters, Micah and Annah, for their love and encouragement.

Michael C. Roberts: To the children of the world, including grandchildren Caden, Carson, Cohen, Maribel, and Maxton with hopes for a brighter future.

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Foundations of Evidence-Based Therapies

Evidence-Based Therapies for Children and Adolescents: Where Are We, and How Did We Get Here?

Michael C. Roberts and Ric G. Steele

Abstract

Mental health disorders are among the leading causes of disability and functional impairment among children and adolescents worldwide. Only a fraction of youth in need of services receive them and there is particular need for the development, dissemination, and implementation of services with proven efficacy for a range of mental health conditions. Evidence-based therapies have demonstrated beneficial outcomes across multiple samples, ideally in a range of settings. As handbook editors, we placed particular emphasis on the identification and interpretation of meta-analytic effect sizes (standardized mean difference scores) as a means of considering and choosing interventions that have the greatest probability of positively affecting children and adolescents. The authors of the chapters in the present volume have captured the advances in the evidence-base for psychological therapies. The field of clinical child and adolescent psychology has shown tremendous growth in recent years. As presented by these chapter authors, clinicians have a range of treatment options for a number of different conditions and presenting problems to help fulfill the immense need for competent clinical services for children, adolescents, and their families.

Mental health disorders are among the leading causes of disability and functional impairment among children and adolescents worldwide (Erskine, Moffitt, Copeland, Costello, Ferrari, Patton et al., 2015). Recent estimates indicate that between 13 and 20% of children and adolescents in the United States (U.S.) has a mental, behavioral, or developmental disorder or condition that compromises functioning or quality of life (e.g., Achenbach, Rescorla, & Ivanova, 2012; Angold, Erkanli, Farmer, Fairbank, Burns, Keeler et al., 2002; Bitsko, Holbrook, Robinson, Kaminski, Ghandour, Smith et al., 2016; Merikangas, He, Burstein, Swanson, Avenevoli, Cui et al., 2010; Roberts, Roberts, & Xing, 2007; U.S. Department of Health and Human Services, 2018). Approximately three-quarters of the lifetime cases of mental health disorders in the U.S. are believed to originate before the age of 24 (Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005). These prevalence rates are generally consistent with international estimates of child and adolescent mental health problems (e.g., Canino, Shrout, Rubio-Stipec, Bird, Bravo, Ramirez et al., 2004; Costello, Egger, & Angold, 2005;

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_1

Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015; Sheppard, Deane, & Ciarrochi, 2018). Erskine et al. suggested that, as reproductive health and infection control continue to improve, mental health problems will account for even greater proportions of disease burden worldwide, necessitating a realignment of health services and priorities.

A closer inspection of the available data indicates significant variability in terms of prevalence rates of specific disorders across age, region, and population (Achenbach et al., 2012; Angold et al., 2002; Bitsko et al., 2016; Costello et al., 2005). For example, Kessler et al. (2005) noted significant variability in age of onset across disorders, with anxiety and impulse-control disorders demonstrating earlier median ages of onset than mood disorders and substance use disorders. Bitsko et al. (2016) reported that the prevalence of mental and behavioral disorders among children varied by state in the U.S., and was associated with parental mental health, income difficulties, and quality of medical care (e.g., having a medical home). Canino et al. (2004) reported that, in a representative sample of children and adolescents in Puerto Rico, children in urban settings had significantly higher rates of mental health problems than children in rural regions. Further, some studies have noted higher risk of some mental health problems among some children of ethnic minority status or low family income (e.g., Merikangas et al., 2010; Roberts et al., 2007), whereas others have not (Angold et al., 2002; Canino et al., 2004). Overall, the evidence suggests that the rates of mental and substance use disorders among children and adolescents are increasing (Polanczyk et al., 2015), particularly among children that experience environmental stressors (e.g., Bronsard, Alessandrini, Fond, Loundou, Auquier, Tordjman et al., 2016).

Despite the prevalence of mental health service needs among children and adolescents, historical and recent data suggest that only a fraction of youth in need of services receive them (Belfer & Saxena, 2006; Knitzer, 1982). For example, in a nationally representative sample of U.S. households, Olfson, Druss, and Marcus (2015) estimated that fewer than half of children with severe impairment due to mental health problems accessed services. Similarly, Merikangas, He, Burstein, Swendsen, Avenevoli, Case et al. (2011) reported that just over one-third of adolescents with diagnosed mental disorders obtained services, and less than one-half of adolescents with “severely impairing” (p. 41) disorders had received treatment. Epidemiological and survey data suggest similar unmet mental services need internationally as well (Belfer, 2008; Belfer & Saxena, 2006; Canino et al., 2004; Kieling et al. 2011; Levav, Jacobsson, Tsiantis, Kolaitis, & Ponizovsky, 2004). For example, Sheppard et al. (2018) estimated that 40% of Australian youths had unmet mental health service needs, with more than 25% reporting “wholly unmet needs” (p. 63).

As recently reviewed by Reardon, Harvey, Baranowska, O’Brien, Smith, and Creswell (2017), at least part of this unmet need may be explained by *structural* and *perceptual barriers* that interfere with the delivery of mental health services to children and adolescents. A robust literature attests to the impact of structural barriers to the availability and delivery of mental health services to children and adolescents, including lack of adequately trained providers, economic limitations (including lack of insurance coverage), and logistic difficulties (e.g., transportation, scheduling; Levav et al., 2004; Reardon et al., 2017; Sheppard et al., 2018). Perhaps highlighting the impact that structural barriers may have on access to mental health services, Angold et al. (2002) reported that African American adolescents with depressive symptoms were half as likely as Caucasian youth to receive specialty mental health services in the community, although were just as likely as Caucasian youth to receive mental health care in the school system.

Perceptual barriers, on the other hand, include attitudes and beliefs about the nature and severity of mental health problems and about the utility or acceptability of psychological services. Consistent findings indicate that perceptions related to the problem itself (e.g., “*problems were not serious*”), those related to the role of mental health services (e.g., “*treatment would not help*”) and those related to stigma (e.g., “*worried about what family/friends would say*”), represent barriers for children’s mental health services (Owens et al., 2002; Reardon et al., 2017; Sheppard et al., 2018). Because children and youth typically access mental health services through an adult gatekeeper (see Stiffman, Pescosolido, & Cabassa, 2004), such barriers may play a particularly significant role in the delivery of psychological services, particularly among underrepresented groups (Thurston & Phares, 2008; Turner, Jensen-Doss, & Heffer, 2015).

Where Are We? and How Did We Get Here?

Against this backdrop of general mental health service gaps for children and youths, there is particular need for the development, dissemination, and implementation of services with proven efficacy for a range of mental health conditions. Broadly defined, evidence-based therapies are those that have demonstrated beneficial outcomes across multiple samples, ideally in a range of settings. The language of effective psychological treatments as well as the concomitant conceptual and empirical bases has evolved through the years of psychologists as professional service providers (Eysenck, 1952; Levitt, 1957, 1963). Perhaps the first to conceptualize the issue succinctly was Gordon Paul (1967) who summarized the question as "*What treatment, by whom, is most effective for this individual with that specific problem, and under which set of circumstances?*" (p. 111). This omnibus question set the stage for an ongoing movement to develop a strong empirical research base to provide justification of psychotherapeutic interventions. Over time, mental health professionals including psychologists, psychiatrists, and social workers have built a stronger foundation for considering how to provide beneficial mental health services to a range of patients over developmental periods, different disorders and diagnoses, as presenting in a variety of settings.

Roberts and James (2008), in the first edition of this handbook, noted that the *Task Force on the Promotion of and Dissemination of Psychological Procedures* of the Division of Clinical Psychology of the American Psychological Association (APA) "catalyzed" (p. 8) the psychology profession to examine effective psychological treatments. This task force described detailed criteria and procedures for identifying effective treatments as "empirically validated treatments" (Chambless, Sanderson, Shoham, Johnson, Pope, Crits-Cristoph et al., 1996; Chambless, Baker, Baucom, Beutler, Calhoun, Crits-Christoph et al., 1998). Challenged by whether any treatment could be truly validated, the terminology shifted to "empirically supported treatments" or ESTs. Specialty professional organizations similarly applied the criteria for ESTs in clinical child psychology and pediatric psychology (e.g., Lonigan, Elbert, & Johnson, 1998; Spirito, 1999) with subsequent updates through systematic reviews of intervention research (e.g., Palermo, 2014; Silverman & Hinshaw, 2008; Southam-Gerow & Prinstein, 2014). The evaluative criteria underlying identification of ESTs, and even the questions of whether and how to evaluate effectiveness of psychological treatments, were met with mixed reactions with strong acceptance from some and rejection from others (see Roberts & James, 2008).

The APA then articulated components of the concept of "evidence-based practice in psychology" or EBPP. This was an attempt to resolve these professional differences and to relate professional psychology or health service psychology to the zeitgeist already extant in other professions serving the public, including medicine, nursing, social work, and allied health professions. EBPP was stated to be "the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences" (APA Presidential Task Force on Evidence-Based Practice, 2006, p. 273). The position statement presents the purpose is "to promote effective psychological practice and enhance public health by applying empirically supported principles of psychological assessment, case formulation, therapeutic relationship, and intervention" (p. 273). The APA definition was drawn from the general definition of "evidence-based practice" (EBP) as originally presented by the Institute of Medicine (2001), although the APA gave more emphasis to clinical expertise and patient characteristics (perhaps as a way to resolve the debate over ESTs). As noted by Roberts and James (2008), “Many aspects of EST can be incorporated into EBP, but they are not the same and will be treated distinctively. As perhaps a less rigorous approach, the EBP orientation may be less offensive to some in psychology who objected to what was perceived as an overreliance on empirically derived information of the EST movement and the neglect of the clinician’s expertise and experience” (p. 12).

The APA EBPP statement indicated that “best research evidence” is derived from different types of research approaches such as therapy process and outcome studies, randomized clinical trials (RCTs), and meta-analyses, systematic case studies, single-case designs, qualitative research and clinical observations, public health, and ethnography. The statement defined clinical expertise as “competence attained by psychologists through education, training, and experience that results in effective practice” (p. 275) with components including (1) case formulation and treatment planning based on assessment and diagnostic judgment, (2) skillful treatment provision, decision-making, and progress monitoring, (3) therapeutic relationships built on interpersonal skills, (4) self-reflection and skill development, (5) consideration and incorporation of research evidence, (6) awareness of influence from “individual, cultural, and contextual differences” (p. 277), (7) seeking other resources including consultation, and (8) having a “cogent rationale for clinical strategies” (p. 278). Patient characteristics included the patient’s belief systems and worldview, perceptions of problems and treatment, personal goals, situational, social, and cultural characteristics (e.g., gender/ethnicity, race, and social class), developmental considerations, and variations in the way psychological disorders are manifested.

Because of the conceptual emphasis on balance in EBPP, not privileging one component in its three parts, research base, clinical expertise, and patient characteristics, the metaphor of a “three-legged stool” has been used to describe an equal footing for the three components of EBPP (e.g., Roberts, Blossom, Evans, Amaro, & Kanine, 2017; Spring, 2007). Figure 1 situates this stool in the context of discipline-specific knowledge (and the epistemology upon which that knowledge is built), with the three co-equal legs of the stool corresponding to foundational competencies (e.g., scientific knowledge and methods, individual and cultural diversity, self-reflective practice/self-assessment), and evidence-based practice corresponding to functional competencies (e.g., assessment, intervention; cf. Rodolfa, Bent, Eisman, Nelson, Rehm, & Ritchie, 2005).

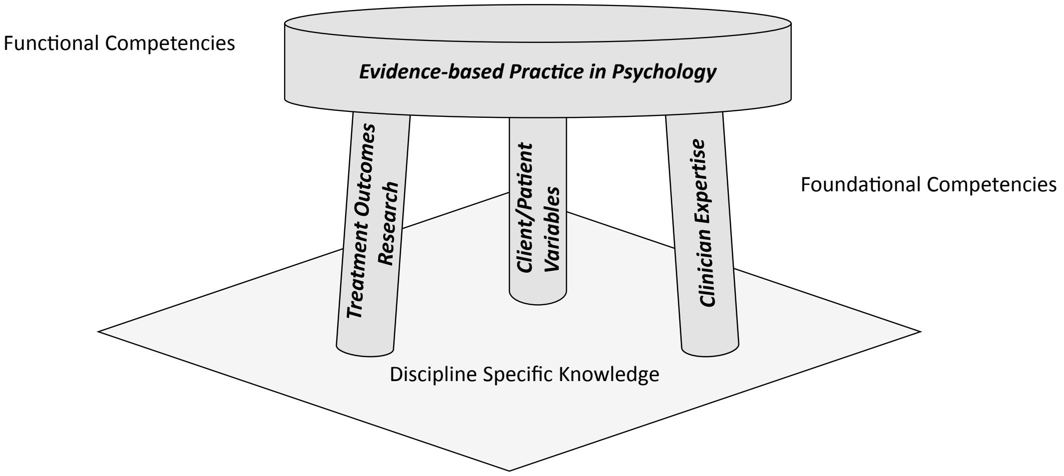

Fig. 1 Evidence-based practice in the context of foundational and functional competencies

Notably, the phrase "evidence-based practice" is singular, not plural as in "practices," indicating the integrative nature of the three components in clinical decision-making and provision of mental health services. Unfortunately, the phrase has been adopted and adapted over the few years of existence to be misused and "practices" is often invoked as a wide application of a presumed science-base to "practices" that are neither based in scientific research (see Lilienfeld, Lynn, & Bowden, 2018) nor inclusive or integrative of all three delineated components. When implemented with fidelity, the EBP concept emphasizes the integration or synthesis of information into clinical decision-making. The contrasting processes portrayed in Figs. 2 and 3 graphically demonstrate how EBP could be used to guide clinical decision-making for psychological treatments (including assessment, intervention, and other functional competencies provided by health service providers; Collins, Leffingwell, & Belar, 2007; Spring, 2007). For example, in Fig. 2, information from the EBP components is collected by taking the separate components as pieces that lead the clinician to do something in the form of a clinical decision. In this model, it seems possible or likely that one aspect or element of the model (e.g., clinical expertise) could exert outsized influence on clinical decision-making relative to other components. In almost any scenario in which one leg receives greater weight than the others, it is not hard to imagine less than optimal clinical care.

In contrast, the "true" evidence-based practice depicted in Fig. 2 highlights how information from the various EBP elements is integrated, synthesized, understood, and applied in combination to guide the application and implementation of mental health treatment and service delivery for the individual patient, the specific presenting problem, and under the patient's contextual circumstances including the client values/preferences and characteristics (as in Paul's basic question quoted earlier) and the clinician's expertise. Collins et al. (2007) described this as "…appraisal and integration of evidence with clinical expertise and patient values so that scientific evidence is seen as a central, not separate, component of clinical practice" (p. 662). As Spring (2007) articulated, "Evidence-based practice is the process of integrating the circles or tying together the three legs via a process of clinical decision-making" (p. 613), rather than choosing among the various legs of the stool to arrive at a conclusion.

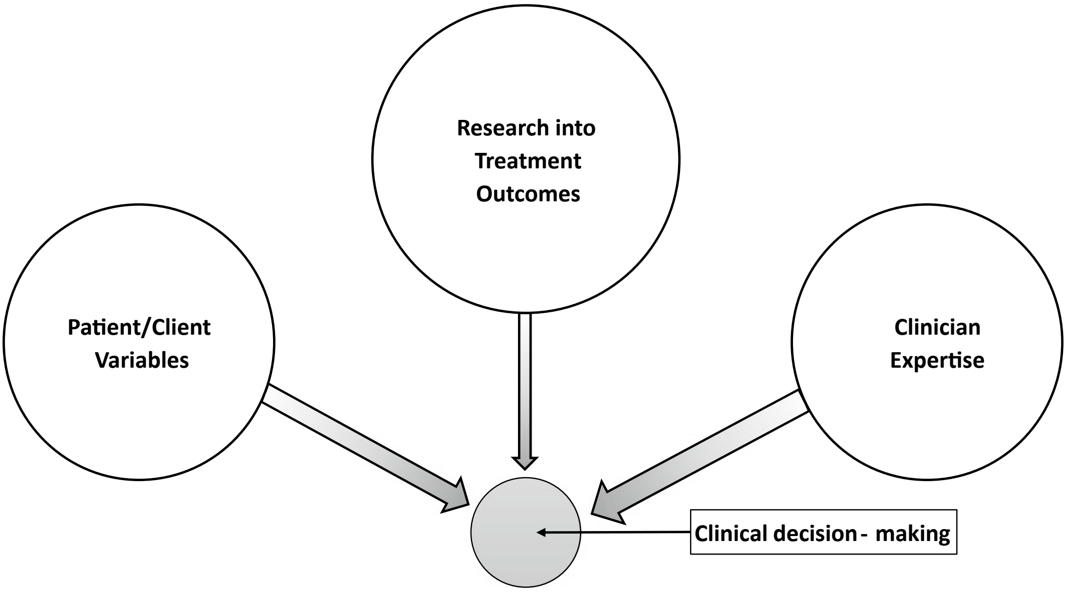

Fig. 2 Clinical decision-making *without* integration of information

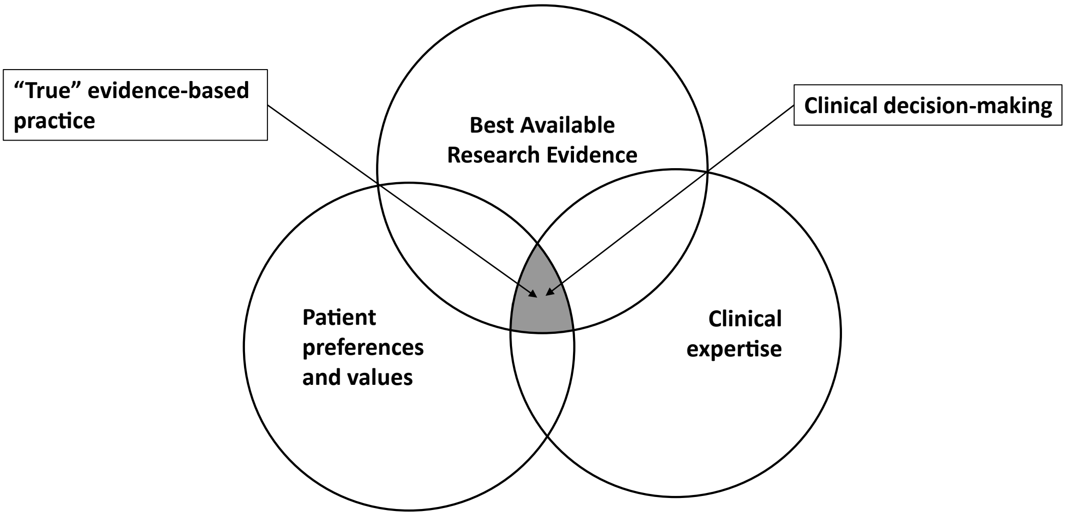

Fig. 3 Evidence-based Practice using integration of necessary information (cf., Spring, 2007)

After the first EBPP statement, APA subsequently formed a Task Force on Evidence-Based Practice With Children and Adolescents which took a meta-systems approach to the issue of effective services in its report by considering families, cultural norms and values, and service systems of schools, pediatric health settings, mental health systems, juvenile justice systems, child protection, and substance use programs (Kazak, Hoagwood, Weisz, Hood, Kratochwill, Vargas et al., 2010). The task force did not alter or adapt the APA EBPP definition, but also examined applications, dissemination, and implementation of EBPP concepts in providing services for underserved children, adolescents, and their families.

The APA EBP documents provided no strict criteria for evaluating any of the three components, only general guidance that is considerably broader than the EST criteria. Consequently, while the EBP concept has been more widely endorsed (Roberts et al., 2017), because the terminology accommodates a broad range of psychotherapeutic approaches, EBP has, at times, been distorted to have less meaningful application in many ways.

Roberts et al. (2017) described some of the misunderstandings surrounding EBPP, but noted the retention of many aspects of EST concepts in the research base/effective methods leg of the three-legged stool. Much less research attention has been devoted to the other two legs of client factors and clinician factors. Thus, less is known about how these components interact in effective assessment and treatment services (resulting in a "wobbly stool" Roberts et al., 2017, p. 917). Roberts et al. advocated for enhanced scientific research into clinician and client factors to clarify their relationship and importance relative to the stronger evidence-base for the treatment components per se rather than assume these as important variables with at best rather vague referents. If psychology is a science, then the clinical practice of psychology must be the application of that science to individuals and groups in need of services.

Additionally, the numerous and sometimes conflicting definitions, often with complex taxonomies of ESTs and EBP, alternatively faced with overly broad applications and bogus claims to be "evidence-based" create difficulties for clinicians, the public, and reimbursement systems to know what treatments or forms of services truly have adequate evidentiary support (cf., Higa & Chorpita, 2008; Proctor, Knudsen, Fedoravicius, Hovmand, Rosen, & Perron, 2007; Roberts, Biggs, Jackson, & Steele, 2011; Weisz, Chu, & Polo, 2004). Nonetheless, the notion that science and practice should be well integrated is not a recent development, nor is the belief that mental health services should have adequate scientific support. However, the controversies over ESTs and even the broader EBP have created opportunities to reinforce the long-standing tradition among many psychologists (at least since the 1950s) for basing clinical practice on scientific research findings. Indeed, clinical researchers in health service psychology have enhanced their efforts at solidifying the evidence-base including developing "real-world" or community-oriented applications and evaluations. This emphasis is particularly evident in clinical research in clinical child and adolescent psychology and pediatric psychology to serve particularly vulnerable populations.

Honoring the work that has been done in the identification of evidence-based therapies, we offer some additional thoughts about the interpretation of the evidence-base for psychological interventions in children. The authors of the chapters in the present volume have captured these advances in the evidence-base for psychological therapies. First, and consistent with Southam-Gerow and Prinstein (2014), as volume editors, we asked authors to highlight evidence-based *principles* (to the extent possible) rather than "name brand" (p. 4) therapies or treatment packages. In addition to Southam-Gerow and Prinstein's excellent reasons for highlighting "treatment families" (rather than name-brand interventions), we believe that understanding the active ingredients (i.e., principles) of evidence-based therapies may facilitate the flexible application of those therapies in a wider range of conditions. To continue our use of culinary analogies from the first edition of this book (Steele, Roberts, & Elkin, 2008), it is one thing to be able to follow a recipe for a particular dish, and quite another thing to understand the ingredients well enough to make necessary substitutions. If mental health providers are to offer "*flexibility within fidelity*" (Kendall & Beidas, 2007, p. 13; Kendall & Frank, 2018, p. 1) to the treatment model, they must understand the mechanisms of action of treatment components (principles), just as a baker must understand the nature and properties of the ingredients to be used in a recipe (e.g., the use of baking powder versus baking soda).

Second, also as editors, in selecting authors and reviewing draft chapters, we placed particular emphasis on the identification and interpretation of meta-analytic effect sizes (standardized mean difference scores) as a means of considering and choosing interventions that have the greatest probability of positively affecting children and adolescents. The previous work by the Task Force of the Division of Clinical Psychology (Chambless et al., 1996, 1998) and similar taxonomies (e.g., Lonigan et al., 1998; Spirito, 1999; Southam-Gerow & Prinstein, 2014) deriving from that work emphasized the selection of therapies based on the number of successful RCTs (e.g., well established = more than two RCTs demonstrating superiority over a placebo condition or an alternative condition). While these categorizations were necessary and certainly a major step in the right direction of development and identification of beneficial treatments, such information does not give the mental health provider an estimate of the likelihood that the intervention in question will work for a particular client (Cook, Cook, & Therrien, 2018; Ferguson, 2009). In contrast, knowing the effect size of an intervention or therapeutic approach can allow clinicians to estimate probability of superiority or probability of treatment benefit (Lindhiem, Kolki, & Cheng, 2012) for clients receiving that intervention or approach. To this end, Steele, McGuire, and Cushing (this volume) provide guidance for clinicians seeking to make better use of meta-analytic findings in clinical practice.

As detailed throughout this volume, a robust literature identifies evidence-based approaches for a host of psychological disorders and conditions in children and youths (see also Weisz, Kuppens, Ng, Eckshtain, Ugueto, Vaughn-Coaxum, et al., 2017), yet many youth receive care that is not based on current scientific findings (Kieling et al., 2011). Much of the professional and scientific literature produced in mental health for children and adolescents has focused on the research evaluating treatments, therapies, and interventions. The chapter authors, in summarizing the extant literature for a particular topic, have been necessarily limited by the nature of the information that has been produced by clinical researchers. The evidence-based treatment literature is relatively robust.

Recognizing that two of the legs of the three-legged stool of evidence-based practice have received less empirical attention related to specific problems as the majority of the chapters present, we designated several chapters to deal with client and cultural variables and therapist variables (viz., Karver, this volume; Piña, this volume). If the stool were to add a fourth leg in order to add further stability this would likely be related to the implementation and dissemination of mental health services—the "*how*" by which services are provided to meet the needs identified earlier and overcome the multiple barriers to service provision (e.g., Cox & Southam-Gerow, this volume, and Comer, this volume). As noted in Fig. 3, at the center of evidence-based practice (*not a plural with an "s,"* as in practices) is the clinician's integrated use of all data to make astute decisions in the clinical role. Chapters on assessment- and measurement-based care by Phares and evidence-based case conceptualization by Jensen-Doss and McLeod provide information related to these issues.

Concluding Remarks

Since the last edition of this *Handbook*, the field of clinical child and adolescent psychology has shown tremendous growth. As outlined by the various chapter authors, clinicians have a range of treatment options for a number of different conditions and presenting problems. Further, the use of evidence-based practice seems less controversial than it might have been at one point. However, as we have noted in that first edition, the advancement of evidence-based practice and empirically supported interventions must be matched with evidence-based training and dissemination for the positive effects of EBPP to be fully realized. This remains true for the initial development of clinical competencies within formal training programs, as well as for psychologists who seek to maintain competencies through continuing education (CE) programs. Renewed commitment to the assessment of clinical competencies within training programs is expected to improve the efficacy of services (Health Service Psychology Education Collaborative, 2013). Further, consideration of the EBPP model (e.g., Figure 1) in the context of foundational and functional competencies may provide a conceptual framework for how the various aspects of EBPP articulate with profession-wide competencies.

Similarly, creative thinking regarding how to deliver CE programs, and how to assess their efficacy might be expected to improve clinical services for the public (see Washburn, Lilienfeld, Rosen, Gaudiano, Davison, Hollon, et al., 2019). The health service psychologist with competencies in the range of treatments described in this handbook will want to advocate for and engage in the further development of clinical practice concepts and scientific evidence. Further, psychologists need to advocate at local, state, and federal levels for enhanced support to remove the structural and perceptual barriers in order to fill the significant unmet needs for psychological services to children, adolescents, and families that are based on scientific evidence.

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Methodological Issues in the Evaluation of Therapies

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Abstract

Whereas many conceptualizations of evidence-based therapies or treatments emphasize the selection of therapies based largely on the number of randomized clinical trials, it is increasingly important that clinicians consider demonstrated effect sizes as a selection criterion. The authors of this chapter provide a succinct background on meta-analyses as foundational information for clinical practice. A meta-analysis is an aggregation of the statistical effects from multiple research studies systematically collected from the available literature. Functionally, a meta-analysis allows a clinician to pull together scientifically derived information as a means of estimating the overall effectiveness for a treatment approach within one or more populations. The effect sizes obtained from meta-analyses indicate the proportion of people in a population that would likely benefit from a particular therapy, as well as the relative magnitude of the average effect. When combined with more individualized approaches (e.g., probability of treatment benefit), the use of effect sizes can provide more precise estimates of treatment efficacy for individual patients. The chapter is a primer on the use and application of meta-analytic findings to bridge science and practice and facilitate clinicians' application of meta-analyses and the resulting effect sizes to clinical cases.

The central question that most clinicians, researchers, and payers want answered when considering a therapy for children and adolescents is, "What therapy *works* for this problem within this population?" How we come to this determination is captured within the broad "evidence-based therapies" framework. As described by Roberts and Steele (this volume), a long history attests to the struggle to identify therapies that work within the populations served by health service psychologists. Current conceptualizations of evidence-based practice in psychology (EBPP; American Psychological Association [APA], 2006; Southam-Gerow & Prinstein, 2014) underscore the importance of empirical evidence in making such determinations. However, the assumptions that underlie this evidence, its limitations, and the challenges translating the limits of that evidence into practice are complex issues that must be addressed by individual clinicians as part of the EBPP process (APA, 2006). Whereas other handbook chapters on research methods have focused on designs that might

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_2

facilitate the generation of new "practice friendly" research (e.g., Berlin, Karazsia, & Klages, 2017; Steele, Mize Nelson, & Nelson, 2008), the goal of this chapter is to provide a primer on the use and application of meta-analytic findings as an additional method of bridging science and practice.

The Role and Limits of Randomized Control Trials (RCTs)

As noted by Roberts and Steele (this volume), many past and current conceptualizations of empirically supported therapies or evidence-based interventions emphasize the selection of therapies based largely on the number of randomized clinical trials (RCTs) to suggest superiority (e.g., Chambless & Hollon, 1998; Southam-Gerow & Prinstein, 2014). Among the various types of research designs that can be used to examine treatment efficacy (APA, 2006), RCTs are often considered the "gold standard" for determining the effectiveness of a treatment compared to other methodologies, such as single case designs and qualitative studies. Depending on the model, therapeutic approaches or specific interventions might be labeled "*possibly efficacious*," "*probably efficacious,*" or "*well-established*" if one or two RCTs by independent labs demonstrate the superiority of the intervention over a control condition, treatment as usual (TAU), or (in rarer cases) an alternative treatment. Such categorizations and criteria were necessary when such lists were first proposed and well-conducted RCTs of interventions (particularly for children and adolescents) were less common.

However, with the proliferation of treatment outcome studies, recent conceptualizations of treatment evaluation have added "method criteria" (Southam-Gerow & Prinstein, 2014; p. 2) as necessary components for the highest designations of empirical support (i.e., "*well-established*"). Such method criteria include the use of group design, treatment manuals, clearly delineated identified samples, reliable and valid outcomes assessment, and adequate analyses (Southam-Gerow & Prinstein, 2014). The recent addition of method criteria to the designation of interventions as "*evidence-based*" is a further step in the right direction, as it can help identify those studies with the most robust support. Moreover, method criteria may help eliminate some questionable interventions from being considered alongside established therapies (see Lilienfeld, Lynn, & Bowden, 2018).

Nevertheless, several aspects of our research methods still limit the degree to which any one or two RCTs can be used to make clinical decisions (Cook, Cook, & Therrien, 2018; Ferguson, 2009). A thorough critique of research methods is beyond the scope of this chapter. However, a few characteristics of the RCT design (or of the application of RCT results to clinical questions) are deserving of note, as these inherently limit the degree to which clinicians can directly apply the literature to their clinical cases. The design of a RCT (e.g., strict study controls [i.e., manualization] and randomization) and the many assumptions of a RCT that are used to claim causality are often very difficult to meet in reality, which raises questions about whether observed group differences are actually a result of differences in intervention or some other confounding variable. Of greatest importance to the clinician, the rigor of a RCT lies entirely in understanding causality as it relates to central tendency within groups (i.e., *are these two group means different?*). As a consequence, the effect of a RCT is not representative of any one person, and cannot tell the clinician whether their patient will improve if they are given the therapy tested. Additionally, a RCT cannot answer questions about effectiveness for all types of interventions, such as interventions developed as "packages" that include a structured list of components. Some authors (e.g., Levant, 2004) have invoked such methodological limitations to argue against the identification of empirically supported therapies or approaches. That is not our purpose. Rather, as described below, the current chapter seeks to articulate how the use of well-conducted meta-analyses can help bridge a gap between the inherent limitations of our research designs and facilitate clinicians' application of meta-analyses and the resulting effect sizes to clinical cases.

Overview of Meta-Analyses

Fundamentally, a meta-analysis is an aggregation of the statistical effects from multiple research studies that have been systematically collected from the available literature. It provides a relatively comprehensive overview of what the literature (as a whole) says about a particular research question, taking into account all of the individual studies that can be located on the topic. Functionally, a meta-analysis allows a clinician to pull together information from many RCTs to examine the collective evidence as a means of estimating the overall effectiveness for a treatment approach within one or more populations. A meta-analysis uses specialized pooling statistics that take into account features of the individual studies (e.g., sample size, distribution of outcome scores). Thus, it is not the case that a meta-analysis is simply another study with a bigger sample size. Rather, meta-analysis aggregates all of the information from prior studies and improves the precision in the estimated treatment effect by both combining study level effects to create an average and by increasing the precision of the estimate. In other words, if an RCT is not representative of any one person, neither is a meta-analysis but the range of possible effects is narrower and the clinician can better predict the effect for their patient. Meta-analyses and the effect sizes that they yield are important tools that can help the clinician evaluate the literature and select potential interventions or approaches that have the greatest likelihood of yielding beneficial effects for patients across a range of conditions.

Meta-analyses are conducted with a specified set of research questions, which determine the search and inclusion criteria that will be used by the clinical investigator to find relevant studies to include in the analysis. For example, in the case of meta-analyses on psychotherapy, this typically includes selection criteria associated with a treatment (e.g., *cognitive behavioral therapy, prolonged exposure*), outcome or symptoms of concern (e.g., *panic disorder, depressive symptoms*), and a certain study population (e.g., *school-age children, youth younger than 18*). This information also helps the reader or clinician using the meta-analysis determine whether the studies included in the meta-analysis are relevant to their patient (more information below about selecting a meta-analysis). To ensure a thorough and systematic review, authors use multiple research databases (e.g., MEDLINE, PsycINFO, Google Scholar) to search for relevant articles, and in some cases unpublished studies (e.g., dissertations), to be included in the meta-analytic review.

Following the selection of studies and extraction of necessary information, outcome data from each individual study is converted to an effect size. The aggregate effect size of a meta-analysis is then drawn from the (usually weighted) individual effect sizes that are identified from each study. As discussed more fully by Ferguson (2009) and Cook et al. (2018), an effect size is a standardized estimation of the magnitude (size) of an effect or association between two variables (e.g., delivery of treatment and change in outcome). That is, an effect size indicates the percentage of a standard deviation unit by which one group (e.g., a treatment group) differs from another (e.g., a control group or an alternative treatment group). Since an effect size is standardized, in that it is based on statistical deviations from sample means, it is thus “unitless.” For example, an effect size of $d = 0.25$ indicates that one group’s mean is about one-quarter of one standard deviation unit higher than another group mean. General conventions for “small” (<0.20), “medium” (0.50), and “large” (>0.80) effect sizes have been offered to help with interpretation (Cohen, 1992; see Fig. 1). While these conventions are arbitrary (see Blanton & Jaccard, 2006) and should not be overly interpreted, they are used commonly enough that they are essentially canon and will appear in most review papers. However, as discussed below, rather than relying on these arbitrary conventions, the clinician should interpret the effect size in light of the specific outcome measures and comparison conditions present in the studies making up the meta-analyses.

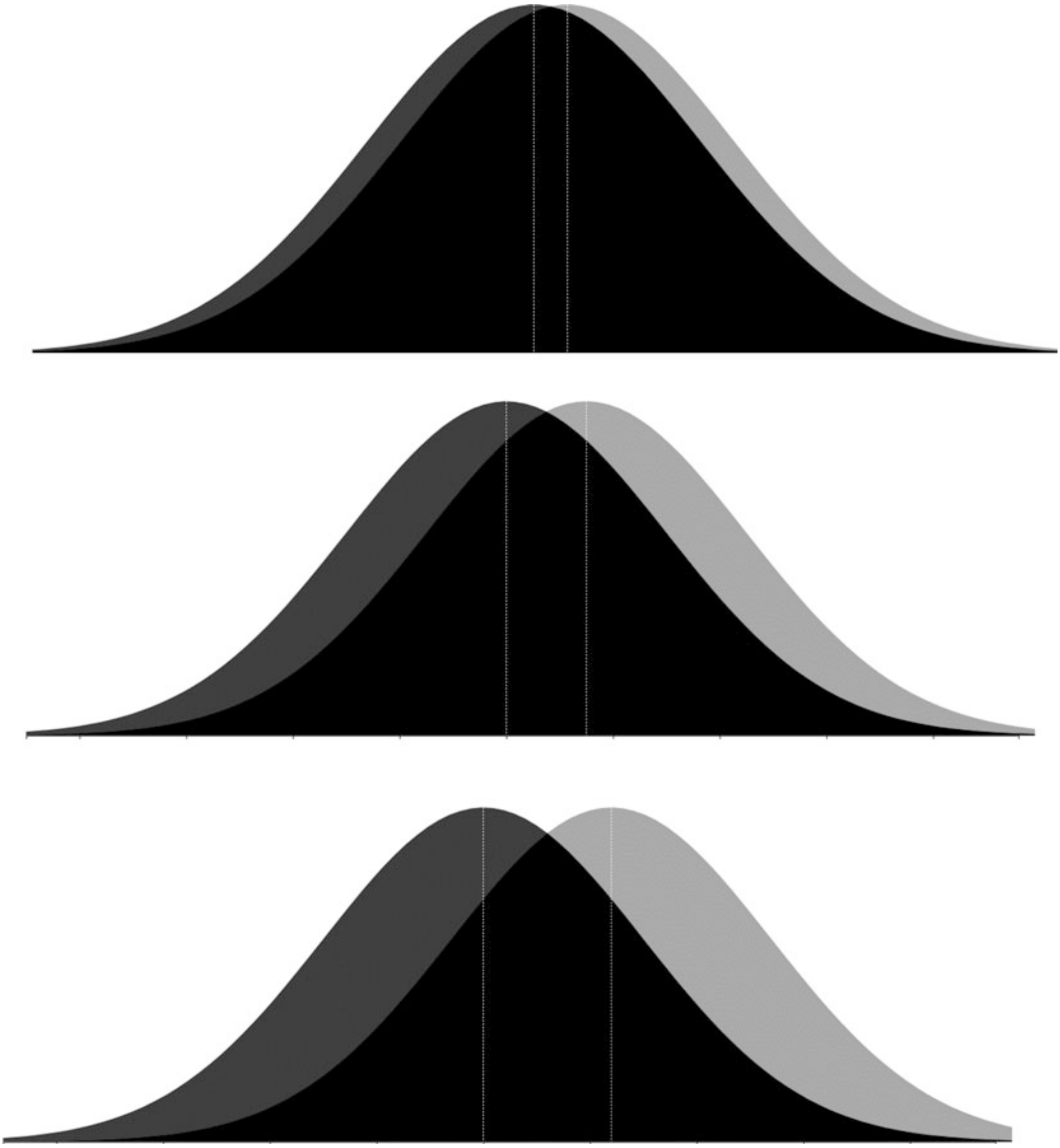

Fig. 1 Distributions of scores representing *Cohen's d* values of 0.20 (top), 0.50 (middle), and 0.80 (bottom). Treatment group scores are demonstrated in the lighter gray (right), control group scores are demonstrated in the darker gray (left), and overlap is represented in black

Selection of a Meta-Analysis

Of particular importance is the identification of a meta-analysis that directly addresses the clinical questions of interest. This includes the degree to which the meta-analysis investigates the treatment approaches of interest, as well as the degree to which the results are generalizable to a specific patient in question. Lilienfeld, Ritschel, Lynn, Cautin, and Latzman (2013) have noted that the use of meta-analytic findings can improve the quality of patient care by allowing clinicians to select interventions that are particularly efficacious within specific subsets of individuals. This supposition underscores the importance of selecting a meta-analysis that includes studies with participant representation that matches the patient of interest. For example, a clinician interested in knowing whether CBT is effective for reducing depressive symptoms in African American adolescents should seek a meta-analysis that includes studies that have specifically examined CBT among African American adolescents. Meta-analyses usually provide demographic summary tables or brief overviews of individual studies, such that the demographics of the participants are reported. The application of meta-analytic results to clinical cases not represented among the combined participant population of the meta-analysis significantly detracts from the clinical utility of the conclusions drawn.

Equally important in the selection of meta-analyses is the degree to which outcome measures in the included studies correspond to meaningful clinical outcomes in the “real world.” Such questions become increasingly important when the outcomes are standardized across multiple studies. For example, a meta-analysis of 21 studies might reveal an overall treatment effect size of 0.50 on self-report measures of anxiety in comparison to treatment as usual (TAU) conditions. Of course, that finding is likely based on *a number* of different self-report measures of anxiety. In order to interpret this finding, the clinician would need some assurance that the measures used in the contributing study were valid, as well as knowledge of whether a one-half standard deviation change on a self-report measure of anxiety is clinically meaningful. In sum, a careful examination of the empirical links between the effect-size metric obtained in a meta-analysis and observable criteria is necessary for the interpretation of specific effect sizes.

A third critical question in the selection of a meta-analysis relates to the specific comparison condition(s) examined (see Cook et al., 2018). Individual study effect sizes in meta-analyses are generally based on comparisons of an active treatment condition to some other condition, whether that be a control condition or waitlist, treatment as usual (TAU), or some other active treatment. Thus, knowing the specific comparison condition(s) that are examined within the meta-analyses is critical to understanding what the meta-analytic results mean for the clinical case in question. For example, an intervention with an effect size of 0.60 *in comparison to a no treatment condition* might be viewed differently from how one would view an intervention with an effect size of 0.60 *in comparison to another active treatment.* In the first case (i.e., an effect size of 0.60 in comparison to no treatment), one might be moderately impressed that the intervention is better than nothing. In the second case, one might be more impressed that the intervention has demonstrated superiority to another possible treatment approach.

Finally, the selection of a meta-analysis for clinical application must include an evaluation of the study’s risk of bias. Of particular concern is the “*file drawer problem*” (Borenstein, Hedges, Higgins, & Rothstein, 2011; Rosenthal, 1979), in which RCTs with null effects may not be published, which could ultimately result in inflated meta-analytic findings (because the unpublished studies could not be located for the meta-analysis). Both methodological and statistical methods are available to identify potential bias that may result from unpublished studies (e.g., dissertations, conference presentations) in the meta-analysis, such as the calculation of Failsafe *N* (Orwin, 1983) or the examination of effect size funnel plots. Careful inspection of a results section can alert the clinician to risk of bias.

Interpretation of Effect Sizes

Having identified a meta-analysis that addresses the *intervention* or *approach* of interest, the *specific outcomes* of interest, and a *specific population* of interest as closely as possible, the clinician can now turn to understanding the resulting effect sizes and what they indicate about clinical care. Effect sizes may be expressed using different metrics. Most commonly, effect sizes based on continuous data are calculated using group means and pooled standard deviations, and are expressed in terms of Cohen's *d*, Hedges' *g*, or standard mean difference. As noted above, a Cohen's *d* of 0.53 indicates that the mean of one group (e.g., a treatment group) is approximately 0.53 standard deviation units higher than another group (e.g., a control group). Alternatively, estimates of effect size may be presented in forms that reflect binary outcomes (remission versus non-remission), such as odd or risk ratios. For example, a meta-analysis that examined presence or absence of a specific anxiety diagnosis at end of treatment as its primary outcome might express the effect size in terms of an odds ratio. In this example, the odds ratio tells the clinician the probability that their patient will or will not have an anxiety diagnosis at the end of therapy compared to a patient who received the most common control condition included in the meta-analysis. For example, if an odds ratio was 2.0 and the meta-analysis included studies that only used TAU as the comparison, then the clinician knows that their patient is two times more likely to have remission of their anxiety than a similar patient who receives TAU.

Further interpretation of the effect sizes can yield additional clinically relevant information. An effect size should be accompanied by a 95% confidence interval (CI), which indicates the lower and upper bounds of the effect-size estimate. Just as in RCTs (in which larger sample sizes result in more precise estimates of measured outcomes), meta-analyses with greater numbers of individual studies (and larger individual studies) can yield more precise estimates of effect size (and correspondingly "tighter" 95% CIs). Importantly, a CI for an effect size that includes 0.00 should be taken to indicate that there is a reasonable chance that the treatment and the comparison condition(s) were equivalent. For example, if the comparison was a control or waitlist condition, then a 95% CI that includes 0.00 would indicate that the treatment was no better than not receiving any form of treatment. If the comparison was another viable treatment, a 95% CI that includes 0.00 would indicate that the two treatments were functionally equivalent.

In addition to inspecting the effect size(s) and its CIs, there are additional resources that can help the clinician understand the likelihood that a given treatment will be effective for a given patient. Several specific statistics that derive from the aggregate effect size can be calculated, including *Probability of Superiority*, *Cohen's* U_3, and *Number Needed to Treat* (NNT; Cook et al., 2018; Ferguson, 2009; Magnusson, 2014). Magnusson provides a very helpful website (https://rpsychologist.com/d3/cohend/) that can calculate these (and other) statistics, as well as provide a visual of distributions between two groups for a given effect size. Briefly, *Probability of Superiority* (PoS) indicates the probability that a person chosen at random from a treatment group will have a better outcome than a person chosen at random from the control group; Cohen's U_3 indicates the approximate percentile ranking in the control group for the average (mean) score in the treatment group (see Cook et al., 2018); and NNT refers to the number of participants who would need to receive the intervention in order for the study (or the clinician) to observe one more positive response in the treatment group, relative to the control (or untreated) group (Magnusson, 2014). Although NNT can be calculated from Cohen's *d* or Hedges' *g*, it is more directly related to effect sizes that are represented as odds ratios (see Ferguson, 2009).

A valid criticism of the interpretation of effect sizes in clinical contexts is that they do not directly speak to the likelihood that a *particular patient* will benefit from a specific therapy (Lindhiem, Kolko, & Cheng, 2012). Rather, the effect sizes obtained from meta-analyses can speak to the proportion of people in a population that would likely benefit from a particular therapy, as well as the relative magnitude of the average effect. Although this places limits on the clinical utility of meta-analytic results, Lindhiem et al. (2012) have provided a method of probabilistically estimating outcome and response for individual patients (i.e., children with oppositional defiant disorder symptoms) that is derived from obtained effect sizes (e.g., mean treatment response) and individual patient baseline severity. As anticipated, participants in the initial *Probability of Treatment Benefit* (PTB) sample who had greater baseline severity had lower probabilities of symptom-free outcomes, but higher probabilities of larger treatment responses. That is, because of their baseline severity, they stood to gain the most (in terms of symptom reduction) from therapy, even if their outcome was not in the "normal" (or non-clinical) range. Lindhiem et al. proposed PTB charts as a future direction to supplement the value of probabilistic treatment effect sizes with stratification by individual baseline characteristics across multiple symptom domains. They offered an example applied to disruptive behavior disorders, whereas Beidas et al. (2014) extended this work to include children and adolescent with anxiety.

Using Meta-Analytic Findings to Improve Cultural Competence

Lilienfeld et al. (2013) noted that the use of meta-analytic findings can allow clinicians to select interventions that are particularly efficacious within specific subsets of individuals. This is particularly important as several authors have raised valid concerns about the degree to which evidence-based therapies are effective among diverse samples (see Piña et al., this volume). One means of identifying differential effectiveness of interventions or approaches across groups is by examining moderator effects within a meta-analysis. Two statistics are often reported within meta-analytic studies and can be used to identify the presence of subgroups that respond differentially to treatment: *Cochran's* Q (or "Q") and *Higgin's* I^2 (Higgins, Thompson, Deeks, & Altman, 2003). Briefly, a significant Q-statistic indicates that study authors would be justified in examining moderators of the identified effect size within their sample. *Higgin's* I^2 provides an estimate of the percentage of variation within the sample of studies that is due to heterogeneity rather than chance. Studies that report a significant Q and those that report high *Higgin's* I^2 values are statistically justified in examining potential moderators of treatment effects (e.g., race/ethnicity, gender, age, format of service delivery). Examination of individual effect sizes, by moderator, can provide more precise estimates of the effect sizes that one might see if delivering an intervention within a particular group.

For example, a meta-analysis examining cognitive behavioral interventions in comparison to a waitlist or no treatment condition for treating oppositional and conduct disorders among youth 6–18 years of age may find an overall effect size of $d = 0.30$. If a significant Q-statistic or high I^2 was found, a follow-up moderator analysis on age then may find differences in intervention effect-size estimates among those studies with school-age children ($d = 0.10$) and adolescent ($d = 0.50$) samples. As this example demonstrates, a clinician with a school-age child as patient may be able to make a more informed decision about treatment approach using the moderator analysis and subgroup effect size estimate compared to the overall effect. Although there was a small to medium overall effect, the subgroup effect size for the clinician's population of interest may suggest the clinician seek information on other treatment approaches (e.g., examining meta-analyses on parent/family training). Similar consideration of differential effect sizes across groups would inform treatment options for children from underrepresented groups, allowing the clinician to choose the most efficacious potential treatment for a given client.

Concluding Remarks

A meta-analysis has many strengths, many of which can address the limitations of individual studies. As noted by Ferguson (2009) and Cook et al. (2018), aggregate estimates can provide a more precise estimate of treatment effects than any one study alone. Further, the use of meta-analysis in clinical decision-making shifts the focus from *p*-values, significance tests, and the aggregations of (only) statistically significant studies (i.e., Chambless & Hollon, 1998) to a focus on more precise estimates of treatment effects drawn from larger pools of data (Cumming, 2014). Further, when combined with more individualized approaches (e.g., *Probability of Treatment Benefit*; Beidas et al., 2014; Lindhiem et al., 2012), the use of effect sizes can provide more precise estimates of treatment efficacy for individual patients.

Certainly, meta-analyses and meta-analytic findings have their limitations (see Blanton & Jaccard, 2006; Israel & Richter, 2011). As with all research methods, meta-analyses can be performed poorly. Particular risks to meta-analytic research include not using adequate pooling methods (e.g., averaging multiple effects into a single effect for an individual study), failing to implement an exhaustive search (e.g., excluding relevant databases), or the use of inaccurate inclusion/exclusion criteria (e.g., including studies with modified treatment approaches). Further, like any inferential statistical method, meta-analyses can only provide estimates of effect sizes based on the available literature. Consistent with the computer science adage, "*garbage in/garbage out*," the quality of effect sizes must be evaluated in light of the quality and size of the contributing studies. On the other hand, when contributing studies are methodologically rigorous and their aggregate statistics produce tight confidence intervals, then confidence increases. Clinicians are encouraged to pay close attention to sections on *quality of the evidence* or *risk of bias* when evaluating a meta-analytic review paper as these sections should provide context for how to understand the findings much like what a limitations section of a single study would do. For more in-depth information about the design and use of meta-analyses, the interested reader is referred to Borenstein, Hedges, Higgins, and Rothstein (2011) and Card (2015).

As noted in Chap. 1 (Roberts & Steele), the field of clinical child psychology has demonstrated tremendous growth since the last edition of this handbook. The number and quality of empirical studies of interventions for children and adolescents have expanded the research base across most diagnostic categories. Along with the expanding empirical literature, the number of meta-analyses has increased substantially, offering clinicians greater insights into relative effect sizes for intervention outcomes. The judicious interpretation of these effect sizes can elucidate treatment approaches with the greatest likelihood of beneficial effects and can facilitate clinicians' application of the research literature to specific client populations. Further, clinical researchers can use meta-analytic methods to advance the field by further clarifying what works, for whom, and under what circumstances (Paul, 1967).

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Evidence-Based Assessment and Measurement-Based Care

Vicky Phares and Jessica Hankinson

Abstract

This chapter addresses the background and rationale for the use of evidence-based assessment and measurement-based care and discusses a number of issues related to identifying what constitutes evidence-based assessment and measurement-based care. These considerations are important because, before clinicians can decide on an evidence-based therapy, they must accurately identify the problems to target in treatment. Thus, the proper use of an evidence-based therapy is contingent upon a reliable and valid evidence-based assessment of the problems that are to be addressed in treatment. This chapter describes how clinicians must also utilize measurement-based care to ensure that the treatment is working as expected. Such measurement is infused into most evidence-based treatments currently, with utilization of client data before, throughout, and after treatment to provide the best care and outcomes for clients. In other words, this chapter describes how client data are to be used in selecting the appropriate treatment, to monitor treatment progress and verify that symptom reduction is taking place during treatment, and to show overall progress of treatment at the point of termination.

Throughout this book, evidence-based therapies (EBTs) for children and adolescents are delineated for different disorders and clinical problems. Before clinicians can decide on an evidence-based therapy, however, they must identify the problems to target in treatment. Thus, the use of an evidence-based therapy is contingent upon a reliable and valid evidence-based assessment (EBA) of the problems that are to be addressed in treatment (De Los Reyes, Augenstein, & Aldao, 2017). If an evidence-based therapy is chosen based on inaccurate diagnostic information or if treatment progress is assessed with inaccurate assessment procedures, then even the best evidence-based therapy may not work well because the interventions were applied to the wrong target problem. Thus, evidence-based assessment is essential for the appropriate use of evidence-based therapy. As Achenbach (2005) summarized, “without accurate identification and measurement of the problems to be treated and of

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_3

outcomes following treatment, the potential benefits of EBT cannot be achieved" (p. 541). To further summarize, De Los Reyes and colleagues (2017) argued that "assessment is the 'evidence' in *evidence-based treatment*" (p. 537).

In addition to evidence-based assessment, clinicians must also utilize measurement-based care (MBC) to ensure that the treatment is working as expected (Weisz et al., 2019). MBC is infused into most EBTs currently, with utilization of client data before, throughout, and after treatment to provide the best care and outcomes for clients (Scott & Lewis, 2015). Specifically, MBC is "the use of systematic data collection to monitor client progress and directly inform care decisions" (pp. 49–50; Scott & Lewis, 2015). In other words, client data are used to select the appropriate treatment, to monitor treatment progress and verify that symptom reduction is taking place during treatment, and to show overall progress of treatment at the point of termination. There is compelling evidence, including from randomized clinical trials, that MBC is superior to non-MBC (Bickman, Kelley, Breda, de Andrade, & Riemer, 2011; Lyon & Lewis, 2017). MBC is feasible to implement (Boyd, Powell, Endicott, & Lewis, 2018) and can be utilized to enhance any evidence-based therapies (Scott & Lewis, 2015).

This chapter will first address the background and rationale for the use of evidence-based assessment and measurement-based care, and then will discuss a number of issues related to identifying what constitutes evidence-based assessment and measurement-based care. Because diagnostic tools and evaluation methods specific to individual disorders are discussed throughout this book in the context of each evidence-based therapy, this chapter will approach the issue from a broader perspective that is not disorder-driven. For measures specific to a disorder, each chapter can be reviewed to identify measures that were used to establish symptom identification and reduction for that disorder. In addition, excellent resources can be found on evidence-based assessments for a number of different disorders in youth, including anxiety (Spence, 2018), obsessive–compulsive disorder (McGuire, Brennan, & Storch, 2017), depression (Hankin, 2017), pediatric bipolar disorder (Youngstrom, Halverson, Youngstrom, Lindhiem, & Findling, 2018), attention-deficit/hyperactivity disorder (Jarrett, Van Meter, Youngstrom, Hilton, & Ollendick, 2018), oppositional and conduct problems (Allen, 2015), and autism spectrum disorders (Goldstein & Ozonoff, 2018).

With an eye toward MBC, Beidas and colleagues (2015) identified 20 free, brief, and validated measures for youth dealing with a number of clinical issues including anxiety, depression, disruptive behavior disorders, eating disorders, mania, trauma, and overall mental health. Also with an eye toward MBC, Weisz and colleagues (2019) developed the *Behavior and Feelings Survey*, which is a free, validated 12-item measure for both caregivers and youth to complete that includes the assessment of both internalizing and externalizing problems. Thus, evidence-based assessment measures are widely available.

Background and Historical Issues

With all of the focus on evidence-based therapies in both the adult and child literatures, it is quite surprising that professionals have only recently turned their attention to evidence-based assessment within the context of evidence-based therapies. Empirically based and evidence-based treatments have been the focus of widespread attention for over two decades (Task Force on Promotion and Dissemination of Psychological Procedures, 1995), and yet there has not been a concomitant focus on evidence-based assessments until relatively recently (Weisz et al., 2019). Of course, the concept of using empirically derived evaluation methods throughout treatment is not new (Achenbach, 1985), but the field-wide attention to evidence-based assessment and the linking of evidence-based assessment to evidence-based interventions through measurement-based care appears to be a relatively recent trend (Weisz et al., 2019).

Like the history of therapies and interventions, the history of assessment has been riddled with widely used techniques that have not had an empirical basis. Likely, the biggest controversy in the history of assessment regards the use of the Rorschach Inkblot Test (Hunsley, Lee, Wood, & Taylor, 2015). Whether with adults or children, the use of the Rorschach inkblot test has been questioned on empirical grounds routinely, as have many other measures such as the Human Figure Drawing, House-Tree-Person, Children's Apperception Test, and Kinetic Family Drawing (Hunsley et al., 2015).

Unfortunately, the use of measures with questionable psychometric properties is not rare. Given that national surveys have highlighted the minimal use of standardized assessment measures in community-based child clinicians (Cook, Hausman, Jensen-Doss, & Hawley, 2017), there is a need to increase the emphasis on evidence-based assessment and measurement-based care in the context of the evaluation of evidence-based treatments.

Rationale for Evidence-Based Assessments and Measurement-Based Care

The underlying rationales for using evidence-based assessments and measurement-based care are ultimately the same as the underlying rationales for using evidence-based therapies—professional psychologists need to know that their clinical techniques are accurate and evidence needs to serve as the cornerstone of these techniques. Our definition of evidence relies on knowledge that is gained through empirical research studies that are well controlled and carefully carried out. In the interventions literature, the "gold standard" of empirical evidence focuses on randomized clinical trials that show that one treatment is more effective than a placebo or another treatment (Ollendick & King, 2012). Thus, by definition, evidence-based treatments are more effective in terms of prediction or concurrent validity than placebo procedures or other treatments including treatment as usual (Ollendick & King, 2012).

In the assessment literature, it is more difficult to establish a firm basis for which assessment tools are or are not evidence-based. At a minimum, assessment techniques should be reliable and valid, but Mash and Hunsley (2005) pointed out that measures may have stronger evidence for some uses in certain populations and weaker or no evidence for other uses in different populations. For example, one measure may have strong normative data for the general population, less strong but adequate norms for outpatient clinical populations, and weak norms for inpatient clinical populations. The internal consistency, test–retest reliability, content validity, concurrent validity, predictive validity, discriminant validity, incremental validity, diagnostic utility, and treatment utility may also vary for the same measure across these different populations (Mash & Hunsley, 2005). Thus, categorizations of certain measures or assessment techniques must be cognizant of the specific use of the measure and the intended population to be evaluated (i.e., we cannot say that a measure is "valid" but that it is validated for a specific purpose with a specific population).

Unlike the original criteria put forth by Chambless and Hollon (1998) that codified the definitions of empirically supported therapies, there is currently no formal framework by which to judge whether a measure meets criteria as an evidence-based assessment technique. There are, however, guidelines and standards for the development and use of psychological assessment techniques that are well known. *The Standards for Educational and Psychological Testing* (2014) is widely used as the national standard for the development and use of psychological tests and the publication focuses on the establishment of empirical data in test development and use. Mash and Hunsley (2005) argued that additional guidelines should be developed that are specific to evidence-based assessment. They noted that guidelines need to take into account evidence-based methods (e.g., the types of assessment techniques used) as well as the assessment process (e.g., how assessment data are used and how divergent information is combined and ultimately utilized in the treatment process). With these principles in mind, Hunsley and Mash (2018) developed a rubric to evaluate the psychometric properties of assessment instruments across nine categories: norms, internal consistency, inter-rater reliability, test–retest reliability, content validity, construct validity, validity generalization, treatment sensitivity, and clinical utility. With the addition of prescriptive validity, discriminative validity, and repeatability by Youngstrom and colleagues (2017), De Los Reyes and Langer (2018) provided a detailed table that presents the combined rubric along with criteria for considering measures to be adequate, good, or excellent. Consistent with this rubric, the book, *A guide to assessments that work (2nd ed.)*, is a strong resource for clinicians who wish to seek out evidence-based assessment instruments (Hunsley & Mash, 2018). In addition, Greene and Ollendick (2019) provide a comprehensive list of evidence-based assessment measures within the behavioral assessment arena.

In addition to needing more standardized criteria for defining evidence-based measures and for developing more standardization in the assessment process, there are a number of issues that must be considered in trying to formalize a more evidence-based assessment process that is linked to the evaluation of evidence-based treatments through measurement-based care. These issues include the need to assess both broad and specific problems, considerations of both categorical as well as dimensional aspects of behavior, the use of multiple informants that represent children's behavior in multiple contexts, the use of multiple methodologies, the need to assess strengths as well as problems, the use of assessment techniques that are sensitive to diversity, the use of assessments that are sensitive to child and adolescent functioning over time, and assessments that explore the context and environment as it relates to children's and adolescents' functioning.

Issues in Conducting Evidence-Based Assessments and Measurement-Based Care

Assessments of Both Broad and Specific Problems

A thorough evidence-based assessment process should include the evaluations of both the referral problem and other potential problems that were not identified initially by the child, his/her parents, his/her teachers, and other professionals. As in adult clinical populations, comorbidity is the rule rather than the exception in child and adolescent clinical populations (American Psychiatric Association, 2013). Thus, a thorough evidence-based evaluation before treatment must go beyond the exploration of the specific referral problem in order to identify other possible problems that are related to the child's functioning. Certainly a referral for depressive symptoms in a child would call for the use of a measure like the Children's Depression Inventory-2 (Kovacs, 2011), but other symptoms would need to be assessed with broader measures such as the Child Behavior Checklist (Achenbach & Rescorla, 2001) to ascertain whether there were any comorbid problems such as anxiety or conduct problems (Klein, Dougherty, & Olino, 2005).

Parallel examples could be given for structured clinical interviews that result in the identification of psychiatric diagnoses before treatment begins. One of the advantages of using a diagnostic interview like the Diagnostic Interview Schedule for Children (DISC; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) is that the clinician is able to assess a wide array of potential diagnoses. However, the advantages of the global nature of the DISC are not always maximized by clinical researchers and clinicians, perhaps because of the extensive amount of time that it takes to administer a thorough diagnostic interview (Weisz & Addis, 2006).

In a system of evidence-based assessment, it would be ideal to include measures that assess both broadly and specifically at the beginning and end of treatment. Due to time constraints, most advocates of MBC suggest a very brief measure that can be used throughout treatment, which can assess specific symptoms or can provide a broader assessment, such as the Behavior and Feelings Survey (Weisz et al., 2019). These same issues are relevant to the assessment of children's and adolescents' functioning through categorical versus dimensional approaches.

Assessments of Both Categorical and Dimensional Aspects of Behavior

There have long been debates on the nature of children's behavior and whether it is best conceptualized in a categorical taxonomy (e.g., using the *Diagnostic and Statistical Manual of Mental Disorders–Fifth Edition* (*DSM-5*; American Psychiatric Association, 2013) or dimensional taxonomy (e.g., using the *Achenbach System of Empirically Based Assessment* (ASEBA; Achenbach, 2009). A number of researchers have explored the empirical evidence in the structure of developmental psychopathology and have concluded that the majority of childhood problems are best conceptualized in a continuous rather than a dichotomous fashion (Achenbach, Ivanova, & Rescorla, 2017). For this reason, the Hierarchical Taxonomy of Psychopathology (HiTOP) was developed, which provides a dimensional alternative to traditional categorical conceptualizations of psychopathology (Conway et al., 2019). Specifically, the HiTOP model was developed from empirical investigations into the common patterns of traits and symptoms across multiple types of psychopathology. In addition, the Research Domain Criteria (RDoC) project instituted by the National Institute of Mental Health conceptualizes psychopathology within a dimensional system and attempts to identify underlying etiological factors that are common across many types of emotional and behavioral difficulties (Insel et al., 2010).

With continued debate about whether the nature of psychopathology is categorical or dimensional (Conway et al., 2019), it should be noted that dimensional and categorical conceptualizations of children's functioning need not be considered incongruent. Achenbach (2005) argued that categorical and quantitative or dimensional approaches can inform each other and can add to the richness of data gathered about children's and adolescents' functioning. In fact, most randomized clinical trials include assessments from both categorical and dimensional conceptualizations of child functioning (e.g., the British Autism Study of Infant Siblings (BASIS); Green et al., 2017). Thus, it would be ideal if evidence-based assessments included evaluations of behavior from both a categorical and dimensional perspective along with an exploration of underlying mechanisms that cut across multiple maladaptive behaviors.

Assessments of Multiple Informants in Different Settings

It would also be ideal if children's and adolescents' behaviors were assessed by different informants who can report on behavior in different settings, such as in the home and at school. One of the unique features in working with youth as opposed to adults is that child clinicians can easily gather information about children in the form of self-reports as well as from collateral informants. Using multiple informants of children and adolescents has been a well-established practice for decades (De Los Reyes et al., 2015).

The challenge, however, is that informants often do not agree on their conceptualizations of the child's or adolescent's behavior. These differences are common in both the identification of problems to be targeted for therapeutic intervention and in more global ratings of behavior (Hoffman & Chu, 2015). Overall, there is a fair amount of disagreement between youth, parents, and therapists in relation to the target problems of therapy.

This same issue is relevant when using standardized assessment measures. In their classic meta-analysis, Achenbach, McConaughy, and Howell (1987) found that informants' ratings of children and adolescents differed largely based on the comparability of the role of the informant in relation to the child (e.g., parent with parent versus parent with teacher). More recent studies have found comparable results whereby different informants, such as mothers and fathers, often show significant correspondence in reporting on their children's behavior but the correlations are modest and account for relatively small amounts of variance (De Los Reyes et al., 2015).

There are many possible explanations for these differences in perceptions of children's and adolescents' behavior, including situational specificity (Achenbach et al., 1987) or differing levels of problem recognition (Thurston, Phares, Coates, & Bogart, 2015). Parents' own psychological functioning has also been found to be related to their reports of children's emotional/behavioral problems (Schleider et al., 2015).

Thus, there are a number of factors that can influence informants' reports of children's and adolescents' emotional/behavioral problems. There is no set of informants, including even trained observers, that are considered a "gold standard" for use in assessing children's and adolescents' emotional/behavioral problems (De Los Reyes et al., 2015). Thus, evidence-based assessment protocols should consider using multiple informants in order to gather a comprehensive overview of the child's or adolescent's functioning before, during, and after treatment.

Assessments with Multiple Methodologies

In addition to the use of multiple informants in evidence-based assessment, there is also empirical evidence to support the use of multiple methodologies in the assessment of children and adolescents (De Los Reyes et al., 2017). Methodologies such as interviews, behavior checklists, and direct observations have all been investigated in relation to the different types of information that can be collected about the referred child or adolescent.

The use of interviews with children and parents is usually evaluated separately depending on whether they are unstructured or structured. There is little empirical support for the use of unstructured interviews for the purpose of psychiatric diagnosis. Unstructured clinical interviews are used widely in clinical practice, with the overwhelming majority of clinicians using an unstructured interview to begin the assessment process with a parent or child or both (Cook et al., 2017). Unfortunately, unstructured interviews are not terribly reliable or valid (Cook et al., 2017), perhaps yielding information that is idiosyncratic and not central to the presenting problems.

Nevertheless, although unstructured clinical interviews do not have strong empirical support for diagnostic purposes, they can be beneficial in developing rapport with child and adolescent clients (Sattler & Hoge, 2006). Given that rapport is essential for completion of a full evaluation and given that rapport is linked to therapeutic alliance which is in term linked to therapeutic outcome (Karver, De Nadai, Monahan, & Shirk, 2018), it seems that unstructured clinical interviews may have a place within an evidence-based assessment if only to help develop rapport and to gather background information (Sattler & Hoge, 2006). There continues to be support for the use of structured clinical interviews to ascertain psychiatric diagnoses (Cook et al., 2017).

Behavior checklists have been used extensively in the assessment of children and adolescents and many behavior checklists have strong psychometric properties. Behavior checklists can be used for rating broad spectrums of behavior, such as with the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) and the Behavior Assessment System for Children-3 (BASC-3; Reynolds &

Kamphaus, 2016), or can be used for the assessment of specific symptoms, such as the Children's Depression Inventory-2 (CDI-2; Kovacs, 2011) or the Revised Children's Manifest Anxiety Scale-2 (RCMAS-2; Reynolds & Richmond, 2008). Because of their ease of use and because of the strong psychometric properties, behavior rating checklists will likely remain a cornerstone of evidence-based assessment. The majority of measures used within MBC focus on brief behavior checklists given repeatedly once therapy has commenced (Beidas et al., 2015; Weisz et al., 2019). Unfortunately, standardized behavior checklists remain under-utilized in clinical practice, often due to limited resources, perceived time burden, or clinician resistance (Cook et al., 2017). Thus, more work needs to be done to reduce these barriers (whether real or perceived).

Before and after treatment, structured observations are a potentially useful tool in evidence-based assessment if the target behavior is observable (e.g., overactivity versus suicidal ideation). The majority of structured observational systems are geared toward use in the classroom. The Direct Observation Form (DOF; Achenbach, 1986) and the Student Observation System (SOS; Reynolds & Kamphaus, 2016) are both well-standardized observational systems that can be used for assessing children's behavior in the classroom. Functional behavior assessment is often used within the context of applied behavior analysis, with the idea of identifying the causes of the maladaptive behavior before designing an intervention to change the behavior (Call, Scheithauer, & Mevers, 2017). Depending on the target problem and the resources available for the assessment procedures, structured observations can be a useful part of evidence-based assessment.

Thus, in order to secure a thorough evaluation of children and adolescents, evidence-based assessments should use multiple methodologies in the assessment of children and adolescents (De Los Reyes et al., 2017). These methodologies can be used to assess both problematic features of youth and strengths and competencies.

Assessments of Strengths as Well as Problems

In addition to assessing emotional/behavioral problems in youth, it makes sense to also assess competencies and strengths. Hopefully clinicians who use evidence-based treatments are not only seeking to decrease emotional/behavioral problems but also to enhance competencies, strengths, and social–emotional skills within youth (Abrahams et al., 2019). The development of competencies, including adequate coping mechanisms, is integral to the well-being of youth (Burt, Coatsworth, & Masten, 2016).

There are a number of evidence-based measures of competencies and strengths, including the competence scores from multiple informants with the ASEBA system (Achenbach & Rescorla, 2001) and the BASC-3 system (Reynolds & Kamphaus, 2016). In addition, other measures such as the Strengths and Difficulties Questionnaire (Goodman, 1997) and the series of measures by Harter (1985, 1988) that measure perceived competence can be a good way to assess the positive aspects of children's and adolescents' functioning. Ideally, a thorough evidence-based assessment would help to document both the problems and the strengths of children and adolescents in treatment. Note that symptom severity as well as strengths, quality of life, life satisfaction, and overall functioning can be assessed throughout therapy through the MBC process (Scott & Lewis, 2015).

Assessments that Are Sensitive to Diversity

One of the cornerstones of using measures that are consistent with evidence-based assessment is choosing measures that are sensitive to diversity. At a minimum, measures should be sensitive to developmental considerations and gender differences in behavior, but there is also evidence to support the use of measures that have been investigated regarding racial/ethnic considerations and socioeconomic status issues.

Depending on the target behavior being assessed, age and gender may play a large role in the understanding of behavior. Because age and gender are so meaningful in understanding the normative basis of behavior, most standardized measures take gender and age into account during the standardization process (e.g., Achenbach & Rescorla, 2001; Kovacs, 2011; Reynolds & Kamphaus, 2016).

There is equivocal evidence as to the relevance of racial/ethnic differences and socioeconomic status issues in the use of standardized assessments. For example, out of 663 analyses of specific items and total scores on the CBCL and YSR, only two items showed over 1% of the variance accounted for by race/ethnicity or SES (Achenbach & Rescorla, 2001). These analyses suggest that race/ethnicity and SES have very little influence in the assessment process. There is, however, evidence that some standardized measures have different factor structures for different racial/ethnic populations (Roggman, Cook, Innocenti, Norman, & Christiansen, 2013; Steele et al., 2006). In addition, items can be perceived differentially based on race/ethnicity (Rodriguez et al., 2019). Thus, it makes sense to use only measures that have been investigated in diverse groups and that have been validated for a variety of racial/ethnic and socioeconomic groups (Valenzuela, Pulgaron, Salamon, & Patino-Fernandez, 2017). Reynolds and Suzuki (2013) recommend that clinicians "inspect test developers' data for evidence that sound statistical analyses for [racial/ethnic] bias have been completed" (p. 107). These points are part of providing high-quality assessments but they are also consistent with providing evidence-based assessments.

Assessments that Are Sensitive to Changes Over Time

Another aspect of evidence-based assessment that is inherent in any high-quality assessment process is to assess children and adolescents over a period of time. This concept is the cornerstone of measurement-based care (Scott & Lewis, 2015). In order to monitor treatment progress effectively, assessment measures must be sensitive to changes over time (Beidas et al., 2015).

One measure that has gained great popularity across the United States in evaluation outcome studies is the Youth Outcome Questionnaire (YOQ; Dunn, Burlingame, Walbridge, Smith, & Crum, 2005). With both parent-report and self-report versions, the YOQ has been used extensively in outcome studies in a variety of different settings (Gillis et al., 2016). In addition, the Behavior and Feelings Survey appears to be a promising measure that can be used within MBC given that it is sensitive to change over time in addition to being brief, free, and well validated (Weisz et al., 2019). Overall, clinicians who are interested in using evidence-based assessment techniques and MBC must also be cognizant of assessing youth at more than one time point.

Assessments Beyond the Child or Adolescent

In addition to assessing emotional/behavioral problems and strengths/competencies, there are a number of other aspects that are relevant to children's and adolescents' functioning. For example, maternal and paternal psychopathology (Cheung & Theule, 2019), interparental conflict (Zemp, Johnson, & Bodenmann, 2019), parent–child conflict (Marmorstein & Iacono, 2004), and family environment (Lau et al., 2018) have all been linked to developmental psychopathology, so there is good reason for clinicians to consider assessing these aspects in relation to child well-being. Different environments, such as the family and the school, can influence children's behavior and can be assessed as part of a comprehensive evaluation of children's functioning (Flores, Salum, & Manfro, 2014).

Within the therapeutic environment, there is growing evidence of the importance of therapeutic alliance in the effectiveness of treatment. Based on a meta-analysis of 28 studies, Karver and colleagues (2018; see Chap. 23) concluded that the connection between the therapeutic relationship and treatment outcome was significant across all developmental levels studied. Characteristics related to therapeutic alliance may be relevant to assess when conducting a thorough evaluation of treatment outcome.

Relatedly, there are a number of promising measures that are being used within the study of mental health service utilization, including the Services Assessment for Children and Adolescents (SACA; Horwitz et al., 2001) and the Therapy Procedures Checklist (Weersing, Weisz, & Donenberg, 2002). These assessment measures can be used to investigate and ultimately improve treatment integrity (Weisz et al., 2017). Overall, further exploration of therapeutic alliance and the use of mental health services by children and adolescents should strengthen the ties between evidence-based assessment and evidence-based therapies.

Clinical Vignette to Illustrate Evidence-Based Assessment and Measurement-Based Care

"Marjorie" is a 12-year-old female. Her parents brought her to therapy for treatment for her anxiety and sleep difficulties. She had no other medical or developmental issues. She had recently moved to the area and her parents had noticed an increase in her anxiety symptoms. She had difficulties sleeping secondary to consistent checking with her mother about her schedule for the next day, expressing multiple worries to her mother, and often coming into her parents' room at night. She had obsessive thoughts, including thinking that she may hurt herself. She had compulsions including looking around her room in sequence, closing doors, straightening books, and repeating steps over and over in her bedtime routine. EBA was conducted including a broad-based assessment measure of emotional and behavioral functioning (e.g., BASC-3) across mother, father, self, and teacher. Anxiety symptoms across reporters were in the clinically significant range (T-scores > 70). In addition, a narrowband assessment measure of anxiety (e.g., MASC-2) was conducted across mother, father, and self-report. Results indicated total scores in the "very elevated" range and the highest subscale was for Obsessive and Compulsive symptoms (again T-scores > 70).

Following her initial appointment, the psychologist met with Marjorie and her parents to provide results of the EBA. The OCD diagnosis was explained along with its symptoms and treatment. Using exposure and response prevention (Franklin, Freeman, & March, 2019), the psychologist began mapping OCD symptoms with Marjorie and had her rate her distress over her various obsessions and compulsions, using a SUDS scale each week. For homework, we discussed trying to resist certain rituals as much as she could and we would follow-up at her next session. At the following sessions, we discussed tools and cognitive strategies to help "boss back her OCD." If she did not feel like she could completely resist a ritual, we discussed changing it up or increasing the length of time before she engaged in a ritual. With SUDS data from each session, the psychologist was able to verify on a weekly basis that the treatment was effective. Over 12 weeks of consistent sessions, involving Marjorie and her parents, Marjorie's symptoms became much less distressing. Her obsessive thoughts about hurting herself were absent and she was able to sleep on her own, without a lengthy bedtime ritual. She was looking forward to getting back into activities that she had not been able to participate in before treatment. EBA measures was repeated and Marjorie's symptom levels decreased across mother's, father's, and self-reports to the "slightly elevated" range (T-scores between 60 and 65). Marjorie and her parents felt like they were able to manage her anxiety and OCD much better and had tools that they could implement consistently. Thus, EBA was used before, during, and after treatment to inform clinical decisions.

Future Directions in Evidence-Based Assessment and Measurement-Based Care

In reflecting on the somewhat brief history of evidence-based assessment and measurement-based care, it is important to realize that there are still many unanswered questions as to how to make evidence-based assessment techniques and MBC the predominant, and perhaps only, modes of assessment. There is certainly a need to develop more practice-friendly measures for evidence-based assessments, such as computerized log-in systems that provide a quick screen of clients' functioning when clients and their parents show up to the clinician's office (Mash & Hunsley, 2005). There has also been a call for more time-efficient problem scales that are quicker and more user-friendly for the assessment of children's and adolescents' emotional/behavioral problems in order to reduce the assessment burden of clients and their parents (Ebesutani, Bernstein, Chorpita, & Weisz, 2012). Many of the measures used within the MBC process are brief and easy to use (Beidas et al., 2015). In addition, Item Response Theory procedures can be used to shrink lengthy questionnaires into shorter, circumscribed measures that are still psychometrically sound and that have strong clinical utility (Lambert et al., 2003).

Finally, probably the biggest challenge in the future use of evidence-based assessment and MBC is a problem common to the use of evidence-based therapies. Specifically, clinical scientists develop well-standardized procedures for MBC, evidence-based assessments, and evidence-based therapies that are investigated extensively and they present to each other at conferences and cite each others' published work, but clinicians in the community are often still not using these techniques (Weisz et al., 2017). For example, in a survey of over 1,500 practicing child clinicians, Cook and colleagues (2017) found that 76.7% used primarily unstandardized assessment measures and an additional 6.0% used almost no assessment measures. These concerns will be discussed throughout this book and they are relevant to evidence-based assessment and measurement-based care as well as evidence-based interventions.

Summary

Overall, the issues discussed throughout this chapter (assessments of broad versus specific problems, categorical versus dimensional conceptualizations, multiple informants, multiple methodologies, assessment of strengths and competencies, sensitivity to diversity, sensitivity to functioning over time, and environmental context for children's and adolescents' behavior) are not specific to the study of evidence-based assessments and measurement-based care, but they provide the foundation for conducting assessments that are grounded in empirical research. These features are important to consider in conducting evidence-based assessments and measurement-based care that can help to identify the problems to be addressed and to monitor the progress and outcome of evidence-based therapies.

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Evidence-Based Case Conceptualization/Evidence-Based Clinical Decision Making

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Abstract

This chapter defines the fundamentals of case conceptualization and presents a case conceptualization model designed to support evidence-based practice in serving children and adolescents. This science-informed case conceptualization model helps guide the treatment process throughout treatment and is designed to cut across age groups, disorders, and theoretical treatment approaches. Evidence-based practice emphasizes using research and clinical information to inform clinical decision-making. Although discussions have often focused on evidence-based treatments, evidence-based practice is a broader concept that encompasses treatment, assessment, case conceptualization, and the relationship between client and therapist. Case conceptualization is defined as developing a complete picture of a client to generate a treatment plan by collecting data that are used to generate hypotheses about the causes, antecedents, and maintaining influences for an individual client's problems within a biopsychosocial context. When done well, case conceptualization blends data generated by evidence-based assessment, the research literature on psychopathology and treatments, and information about a client's characteristics, values, and preferences in order to generate a personalized, evidence-informed treatment plan. Adopting a scientific approach to case conceptualization helps therapists guide the clinical decision-making process from intake to termination.

Evidence-based practice (EBP) is an approach to clinical decision-making that integrates the best available evidence, therapist expertise, and client characteristics and preferences(American Psychological Association Presidential Task Force on Evidence-Based Practice, 2006). EBP thus emphasizes the importance of using research and clinical information to inform clinical decision-making. Although discussions around EBP have often focused on evidence-based treatments (EBTs), EBP is a broader concept that encompasses treatment, assessment, case conceptualization, and the relationship between client and therapist.

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_4

The heart of EBP is arguably the ability to develop a case conceptualization informed by the theoretical and empirical literature. Case conceptualization is defined as developing a complete picture of a client to generate a treatment plan by collecting data that are used to generate hypotheses about the causes, antecedents, and maintaining influences for an individual client's problems within a biopsychosocial context (Eells, 2011; Nezu, Nezu, & Lombardo, 2004). When done well, a case conceptualization blends data generated by evidence-based assessment (EBA; see Chap. 3), the research literature on psychopathology and EBT, and information about a client's characteristics, values, and preferences in order to generate a personalized, evidence-informed treatment plan. Adopting a scientific approach to case conceptualization can help therapists use findings from the theoretical and empirical literature to produce a roadmap to guide the clinical decision-making process from intake to termination.

In this chapter, we discuss the fundamentals of case conceptualization and present a case conceptualization model designed to support EBP. Our approach to case conceptualization, called the science-informed case conceptualization model (Christon, McLeod, & Jensen-Doss, 2015; McLeod, Jensen-Doss, & Ollendick, 2013), is intended to help guide the treatment process throughout treatment and is designed to cut across age groups, disorders, and theoretical treatment approaches. This model utilizes a hypothesis testing approach informed by EBA (Hunsley & Mash, 2007; Hunsley & Mash, 2008).

Foundations of Case Conceptualization

Case conceptualization can be considered "a provisional map of a person's presenting problems that describes the territory of the problems and explains the processes that likely caused and are maintaining the problems" (Bieling & Kuyken, 2003, p. 53). Breaking this definition down highlights important aspects of case conceptualization. First, it is "provisional," in that it represents the therapist's understanding of a client based on the available information that is open to revision as additional information arises. Case conceptualization is an ongoing process that should involve continuous assessment designed to test the hypotheses contained in the conceptualization. Second, it describes the "territory of the problems," meaning that a good case conceptualization fully describes the client's presenting problems, including information about the behavioral, cognitive, and emotional aspects of their symptoms, in order to identify specific treatment targets. Third, the case conceptualization informs the treatment plan by identifying factors that contribute to the child's problems, and the chosen interventions should be designed to directly address those factors.

Models of case conceptualization can be grouped into theory-specific and general approaches. Theory-specific approaches start from a specific theory, and gather and interpret data within that framework. Persons (2008) case formulation model for cognitive behavioral therapy (CBT) and Haynes and colleagues' (2011) functional analytic case conceptualization model for behavior therapy are examples of such approaches. Most existing research on case conceptualization focuses on theory-specific approaches. In contrast, general approaches collect data from an atheoretical perspective, and then identify the best-fitting theoretical approach based on the specific causal and maintaining factors identified for that client (e.g., Eells, 2015; McLeod et al., 2013). The science-informed case conceptualization model we present in this chapter is an example of a general model. Given that a specific problem may be effectively treated by a variety of theoretical approaches (e.g., CBT and interpersonal therapy for adolescent depression; Weersing, Jeffreys, Do, Schwartz, & Bolano, 2017), general models can help determine the best-fitting treatment for a specific client and avoid a "one size fits all" approach to treatment selection. However, once an initial treatment approach is selected, continuing to build out the case conceptualization using a theory-specific approach may be a helpful strategy for ensuring that all information is in place to start treatment.

However, these stances taken toward case conceptualization are largely conceptual, as very little research has evaluated case conceptualization methods. Most empirical work on case conceptualization has focused primarily on interrater reliability. For example, Persons and colleagues (e.g., Persons & Bertagnolli, 1999) examined the interrater reliability of her CBT case conceptualization model by training therapists in it, having the therapists generate conceptualizations after listening to recorded therapy sessions, and examining agreement between the therapists and expert judges on the problems and cognitive mechanisms identified. A recent systematic review on CBT case conceptualization concluded that therapists can reliably identify some components of the case conceptualization, and that reliability is improved when a structured method for collecting assessment data is used or when therapists are provided with the same clinical material (Easden & Kazantzis, 2018). A review across multiple approaches to case conceptualization also found that therapists can generate reliable case conceptualizations under some circumstances, but the authors also noted that there are too few high-quality studies to draw definitive conclusions (Flinn, Braham, & das Nair, 2015).

Even fewer studies have examined the validity of case conceptualizations. Indeed, there is little consensus on what methods should be used to validate the case conceptualization process (Mumma, 2011). Some studies have compared “formulation-driven CBT” to manualized treatment (Easden & Kazantzis, 2018). For example, Ghaderi (2006) randomized individuals with eating disorders to manualized versus individually tailored CBT. This study found some support for increased efficacy of the individualized approach. However, reviews of such studies have concluded that the literature generally does not support the notion that tailored treatment is more effective than manualized treatment, although more methodologically rigorous studies are needed (Easden & Kazantzis, 2018; Ghaderi, 2011; Mumma, 2011).

Another approach to assessing validity has involved the creation of measures to rate the “quality” of case conceptualizations produced by therapists. A recent review identified eight such measures, primarily focused on CBT case conceptualization (Bucci, French, & Berry, 2016). The authors concluded there is preliminary support for the utility of such measures, but more research is needed to assess their score reliability and validity.

Finally, Mumma and colleagues (Mumma, 2011; Mumma, Marshall, & Mauer, 2018) have argued for an individualized approach that focuses on whether a client’s case conceptualization is valid for that client. In this approach, data are continuously collected and analyzed using statistical models drawn from multivariate time series approaches, ranging from simple correlations to more complex analyses, such as factor analysis or multiple regression (Mumma et al., 2018). While many therapists may lack the statistical training or software required to formally implement this approach, the use of continuous data collection to “test” the case conceptualization in a descriptive fashion is highly feasible, as we discuss further under Step 5, below.

In sum, despite the centrality of case conceptualization to EBP, it is not clear what constitutes an “evidence-based” approach to case conceptualization. The limited literature that exists on this topic is highly varied in methods and quality, precluding clear conclusions. This is particularly true in the area of case conceptualization for youth. For example, in their systematic review on CBT case conceptualization, Easden and Kazantzis (2018) only identified one youth study, and Flinn and colleagues (2015) also only included one youth study in their review. The model we present in this chapter is designed as a framework to support EBP grounded in the developmental psychopathology, assessment, and treatment literature. As such, we describe this model as “science-informed” rather than “evidence-based,” as studies have not yet examined its reliability or validity. Before describing the model, however, we will briefly discuss EBA.

If Case Conceptualization Is the Roadmap for Treatment, EBA Is the GPS

Over the past 15 years, EBA has emerged as an important component of the EBP movement. Hunsley and Mash (2007) were some of the first to articulate a need for an approach to clinical evaluation that utilizes science and theory to guide the assessment process. A key aim of the EBA movement is to develop and promote a set of guidelines to direct research and inform clinical practice. Central to this effort is an increased focus on the quality of assessment measures along with efforts to promote a set of criteria to classify assessment measures along psychometric dimensions such as score reliability, validity, and clinical utility.

EBA is conceptualized as the process of using science and theory to select assessment measures that can produce information used to generate a description of the assessed individual (Hunsley, 2002; Hunsley & Mash, 2007). EBA serves key roles at the different phases of treatment: (a) Intake, (b) Treatment planning and delivery, and (c) Treatment monitoring and feedback. A key concept in EBA is that measures and methods should be selected based upon the evidence supporting score reliability and validity for a given client and assessment goal (Hunsley & Mash, 2007). Several sets of authors have developed rating criteria to classify score reliability, validity, and clinical utility according to different levels (e.g., Hunsley & Mash, 2008; Youngstrom et al., 2017).

The application of EBA requires an understanding of how psychometric evidence should be considered when selecting measures for different stages of treatment. Toward this end, it is important to understand the differences between diagnostic and behavioral assessment measures. Different theories guide the two assessment traditions giving them different psychometric strengths, which makes these measures useful at different phases of treatment. Thus, it is important for therapists to understand how and when to use diagnostic and behavioral measures at different points in the treatment process in order to produce a full picture of a client that can be updated over the course of treatment.

Diagnostic Assessment

Diagnostic assessment is comprised of "nomothetic" measures used to generate diagnoses and classify behavior relative to a comparison group. Rooted in the principles of nomothetic assessment, scores produced by nomothetic measures are interpreted in terms of how an individual compares to the larger population (e.g., a t-score on a rating scale; Cone, 1986). Classical test theory is typically used to develop and evaluate the score reliability and validity of nomothetic measures, wherein a score is typically viewed as representative of an underlying construct.

Nomothetic instruments serve important functions in treatment. At intake, nomothetic instruments provide therapists with tools that help determine the degree to which a behavior is normative and whether someone meets the criteria for a diagnosis. These instruments also provide an entry point to the scientific literature, as the developmental psychopathology and treatment literature are largely organized around diagnoses. Once treatment begins, nomothetic instruments can play an important role in outcome monitoring and evaluation. They can, for example, help determine if a client has experienced significant improvement by comparing their improvement to the reliable change index for that measure. Despite their utility, nomothetic instruments generally cannot help therapists tailor treatment or tailor a case conceptualization. Behavioral instruments are needed for this purpose.

Behavioral Assessment

Behavioral assessment is grounded in idiographic principles and is designed to help therapists understand the uniqueness of an individual (Cone, 1986). Based on person-centered assessment principles, the point of comparison with idiographic instruments is the individual's own behavior across time and contexts. Generalizability theory is typically used to guide the development of idiographic instruments (Cronbach, Gleser, Nanda, & Rajaratnam, 1972).

The primary contribution of idiographic instruments is to inform the development of the case conceptualization and for outcome monitoring. Idiographic instruments can help identify the presenting problems, and their causal, antecedent, and maintaining conditions. Behavioral assessment also serves as an index by which to continually evaluate the effects of treatment and to make appropriate modifications in treatment.

In sum, EBA plays a critical role in generating and refining a case conceptualization. To achieve the assessment goals presented at the different stages of treatment therapists must know when and how to use both diagnostic and behavioral approaches. To do so, therapists must be conversant with the different psychometric principles underlying the two approaches in order to understand when each should be used to best inform treatment. Without these skills therapists will not produce accurate data, which is needed to produce a case conceptualization.

The Stages of Case Conceptualization

Our case conceptualization approach progresses through five stages. As illustrated in Fig. 1, the assessment, psychopathology, and treatment literature are consulted throughout this process. EBA is used at each step in an iterative fashion to refine the conceptualization. The five stages involve identifying presenting problems and setting treatment goals (Stage 1), generating diagnoses (Stage 2), producing initial hypotheses about influences on a client's problems (Stage 3), and selecting a treatment (Stage 4). Then data are collected to test and revise the hypotheses during treatment (Stage 5). As we describe each stage in more detail below, we will highlight the types of EBA measures and strategies that are particularly relevant for each. To illustrate our approach, we will describe how each step was applied to a 17-year-old Latina female, Ana, whose parents brought her to an outpatient treatment center because they said she frequently argued with them and was not completing household chores or homework.

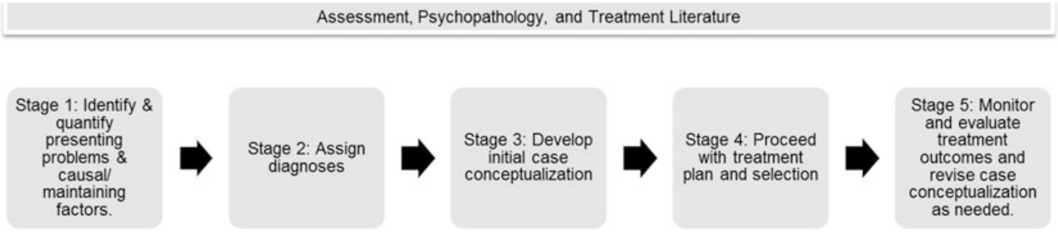


Fig. 1 The science-informed case conceptualization model

Stage 1: Identify and Quantify Presenting Problems and Causal/Maintaining Factors

The primary goals of this stage are to identify the presenting problem(s), rank them in terms of treatment priority, and to begin the process of gathering information on the factors that serve to cause or maintain them. This information is used to operationalize the presenting problems in concrete, observable, and measurable terms (Ollendick, McLeod, & Jensen-Doss, 2013; Persons & Davidson, 2001). For example, the topography of the presenting problems can be defined (frequency, intensity, and duration) across various response modes (cognitions, affect, behavior). Once the presenting problems are operationalized they should be ranked in terms of treatment priority in collaboration with the client and family.

The identification, definition, and ranking of the presenting problems represent the first step in building the case conceptualization. Once the presenting problems are identified and operationalized, information about each problem relevant to building the case conceptualization can be gathered. This information includes: (a) *Historical factors* in a client's past that may predispose the client to exhibit a presenting problem via specific causal factors; (b) *Causal factors* that directly contribute to the problem, such as emotion regulation difficulties; (c) *Antecedents* that immediately precede and cue a presenting problem, and (d) *Maintaining factors* that serve to maintain a presenting problem via conditioning or operant mechanisms.

Data in Stage 1 can be collected via nomothetic (i.e., diagnostic interviews, broad or narrowband symptom measures) and idiographic (i.e., self-monitoring) methods. Information about historical, causal, antecedent, and maintaining variables can be gathered by asking clients about areas such as developmental history and milestones, medical history and medications, history of trauma or abuse, family psychiatric history (genetic factors), physical or somatic symptoms (biological factors), coping and behavioral skills, cognitive processes surrounding presenting problems, and family factors (e.g., parent modeling).

Application of Stage 1 to Ana. During the intake assessment, Ana's parents completed a background form detailing Ana's family and developmental history. To gather diagnostic information, both Ana and her parents were interviewed using the DSM 5 version of the Mini International Neuropsychiatric Interview for children and adolescents (MINI-KID; Sheehan et al., 2010) and they completed the self- and parent-report versions of the Behavior Assessment System for Children, 3rd Edition (BASC-3; Reynolds & Kamphaus, 2015) to broadly screen for symptoms and adaptive functioning. The therapist also used functional interviewing strategies to better understand the causal, antecedent, and maintaining factors related to Ana's difficulties.

These assessments were used to flesh out the two presenting problems, which were seen as related to one another. In terms of fights with parents, Ana indicated that she often became angry (affective) when she thought her parents did not understand her or were making unreasonable demands of her (cognitive). The behaviors she displayed during these fights included yelling and leaving the room. These fights were related to Ana not meeting her responsibilities, as they generally started when Ana's parents asked her to complete chores or homework (antecedents), and her parents often did not force her to complete these activities after the fights (maintaining factors). Ana's negative thoughts and avoidance of chores contributed to these fights as did an acculturation gap between Ana and her parents, who were immigrants to the United States (causal factors). Finally, the family reported being particularly concerned about Ana's behavior because her sister had been diagnosed with bipolar disorder (historical factor).

During the intake, it became clear that, although it was not a stated reason for the referral, Ana's irritable/depressed mood should be considered a target problem. Her irritability appeared correlated with her presenting problems. Based on the functional interview, her irritability appeared to have a cyclical relationship with her refusal to do homework as the resulting poor grades would (a) worsen her mood, (b) lead to increased sleep, (c) lead to fights with her parents, and (d) lead to more avoidance of homework. The family agreed that this should be a focus of treatment when they worked with the therapist to generate idiographic “top problems” and rate them on a scale from 0 (not at all a problem) to 10 (a huge problem) (Weisz et al., 2011). For example, Ana’s top problems were “Fights with my parents” (rated a 10), “I feel depressed” (8), and “Getting annoyed with people” (7).

Stage 2: Assign Diagnoses

The goal of this stage is to determine if the client meets the criteria for one or more diagnoses. Diagnoses are an important way that our field communicates about clients and research samples, so they represent a bridge between the problems experienced by a client and the research literature. The psychopathology literature can be used to identify potential targets for assessment (e.g., important risk factors) and to generate the hypotheses in the case conceptualization (Nezu et al., 2004; Persons, Davidson, & Tompkins, 2001). Knowing a client’s diagnosis can also help identify EBA measures for a specific diagnosis (e.g., Hunsley & Mash, 2018). Finally, the treatment literature provides access to the treatment options available for each disorder, as most EBTs are developed for specific diagnoses or diagnostic clusters.

Data collected in Stage 1 about the presenting problems along with several EBA strategies can be used to help therapists arrive at a diagnostic profile. Given the unreliability of diagnoses based solely on clinical judgement (e.g., Rettew, Lynch, Achenbach, Dumenci, & Ivanova, 2009), the gold standard approach to generating diagnoses is standardized diagnostic interviews. As these interviews can be quite lengthy, knowledge about the base rate of specific disorders in the setting and the client’s known risk factors and scores on rating scales can be used to increase the efficiency of the diagnostic process (Youngstrom et al., 2017). Inspired by the evidence-based medicine movement, this approach utilizes less intensive assessment strategies to gather information that can be used to generate data to estimate the probabilities that a client has a particular diagnosis, allowing the therapist to focus more intensive interview strategies on a narrower set of diagnoses that seem most likely for a specific client.

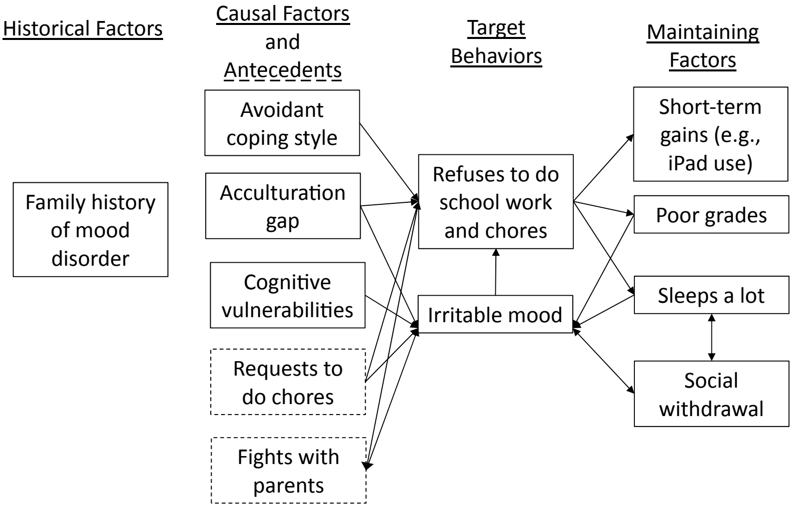
Application of Stage 2 to Ana. Based on the results of the diagnostic interview, rating scales, and behavioral assessments, Ana was assigned a diagnosis of Major Depressive Disorder.

Stage 3: Develop Initial Case Conceptualization

Stage 3 involves the development of a set of preliminary *working* hypotheses about factors that cause, cue, and maintain a client’s problems (Persons et al., 2001). As noted earlier, a case conceptualization is a comprehensive roadmap of how the client’s presenting problems are formed and maintained. Stage 3 involves synthesizing the data collected and putting the findings together into this roadmap. In this story, the presenting problems identified in Stage 1 are considered *dependent variables* that the therapist will attempt to change during treatment. The causal, antecedent, or maintaining factors identified in Stage 1 become the mediating variables targeted with specific therapeutic interventions (the independent variables).

The heart of each case conceptualization is the hypotheses about the relationships between the presenting problems and the causal, antecedent, and maintaining variables. Importantly, each hypothesis should be rooted in research and stated in a way that is testable and measurable via assessment data. Writing out the hypotheses and mapping out the relations among variables using figural drawings can be very useful (Beck, 2011; Jensen-Doss, McLeod, & Ollendick, 2013).

Fig. 2 Figural drawing of ana's initial case conceptualization



Importantly, this stage is ongoing and continues throughout treatment as new data are gathered to test and revise the hypotheses (see Stage 5, below).

Application of Stage 3 to Ana. Figure 2 depicts a figural drawing for Ana's initial case conceptualization. Although fights with parents were initially considered a target problem, the therapist hypothesized that it served as an antecedent to Ana's refusal to comply with requests and her negative mood. Those relations were depicted using bidirectional arrows to reflect the hypothesis that these responses further exacerbated the fights. When drawing the case conceptualization, it can be unclear where exactly to place specific variables. As there is no "right answer" to this question, it is more important to capture the relations between variables in a way that informs treatment than to worry about the specific placement of variables.

Stage 4: Proceed with Treatment Plan and Selection

In Stage 4, treatment goals and the treatment approach are identified. A treatment goal for each presenting problem that represents the desired outcome is identified. Treatment goals should be outlined in specific, concrete goal statements to facilitate treatment planning (e.g., Kiresuk & Sherman, 1968). Once treatment goals are listed, they should be ordered in terms of priority, as this helps to generate a treatment plan.

It is important that the client and therapist agree on the treatment goals and priority, as agreement on tasks and goals is an important component of the alliance (e.g., Fjermestad et al., 2018). In youth treatment, goal setting is complicated by the fact that there are typically multiple individuals involved in setting treatment goals, including the youth, caregiver(s), therapist, and possibly teachers, and they often understand the youth's problems in different ways (e.g., De Los Reyes et al., 2015). Shared decision-making (SDM) strategies can facilitate these discussions (Cheng et al., 2017). Langer and Jensen-Doss (2016) suggest that SDM in youth mental health involve: (a) determining who should be involved in decision-making; (b) deciding what decisions need to be made; (c) using the case conceptualization to identify the most important and feasible options; (d) identifying the pros and cons of each option; and (e) making an initial decision and plan for revisiting that decision as treatment unfolds.

Once treatment priorities have been determined, interventions are selected that target the causal and maintaining variables most relevant for the chosen target problems. Each variable should ideally be addressed with one or more specific interventions (e.g., exposures to target avoidance in anxiety), guided by the treatment literature. A cost–benefit analysis can then be applied to candidate interventions in order to develop the treatment plan (Nezu et al., 2004). This approach takes into consideration the client's treatment priorities, the likelihood the interventions will yield meaningful changes in the presenting problems, and any potential costs for taking a particular approach. Feasibility of specific interventions are also important to consider (e.g., cost, client skills, and therapist expertise; Nezu et al., 2004). SDM approaches can also be very useful at this stage to make decisions such as who should be involved in treatment and what interventions are acceptable to the family (Langer & Jensen-Doss, 2016).

At this stage, the therapist selects an EBT that incorporates the interventions that fit the case conceptualization. Ideally, this decision is based on high-quality research evidence, preferably systematic reviews or meta-analyses that aggregate results across several studies. It is likely that the literature will not identify a treatment that is a perfect fit for each client. For example, clients may present with subclinical or comorbid conditions, there may be multiple EBTs for a particular disorder, or an EBT may not exist for a particular disorder (e.g., binge-eating disorder in adolescence; Lock, 2015). The case conceptualization can be used to identify a best-fitting treatment for the client and can help guide efforts to tailor the intervention to the client.

As discussed above, the science-informed case conceptualization model is designed to generate a broad case conceptualization to facilitate treatment selection. Once the treatment has been selected, additional conceptualization work might take place that is specific to the treatment chosen. For example, the initial stages of interpersonal therapy for depressed adolescents (IPT-A; Mufson, Dorta, Moreau, & Weissman, 2004) involves identifying the interpersonal problem area most relevant for the adolescent; the specific interventions employed in IPT-A vary by interpersonal problem area. It is also important to remember that the case conceptualization is not "finished" once the treatment has been selected. As discussed in Stage 5, it is important to use ongoing assessment to refine the case conceptualization throughout treatment.

Application of Stage 4 to Ana. A number of potential interventions were identified based on Fig. 2. For example, the hypothesis that Ana's cognitive vulnerabilities (e.g., interpreting her parents as not understanding her without considering other possibilities) might be addressed through cognitive restructuring. Given the hypothesis that Ana's negative mood was preceded by conflicts with her parents, interventions to address these conflicts might serve to improve her mood. Identified interventions fell into two clusters, one focused on improving Ana's coping skills (e.g., cognitive restructuring, behavioral activation) and another focused on improving Ana's relationships (e.g., negotiation skills to resolve conflicts).

Turning to the EBT literature, the therapist identified two treatments that included good representation of these interventions: CBT and IPT-A (see Chap. 9). Weersing and colleagues (2017) identified both treatments as "well established" for adolescent depression in a systematic review and both had large effect sizes according to a meta-analysis by Chorpita and colleagues (2011). The therapist discussed both possibilities with Ana and her parents, and the family decided that IPT-A was most consistent with their values of the importance of family, although her parents were concerned that this intervention would not directly address her refusal to do school work and chores. Given the strong research support for IPT-A, the therapist concurred that IPT-A was a good choice and treatment began. However, the therapist also shared the conceptualization with the family and her hypothesis that interventions to improve Ana's mood would serve to improve her compliance at home.

Stage 5: Monitor Treatment Progress and Revise Case Conceptualization as Necessary

The goal of Stage 5 is to develop an ongoing plan to assess the case conceptualization. Consistent with the individualized approach to assessing the validity of case conceptualization (Mumma et al., 2018), this stage includes using repeated assessments throughout treatment to test hypotheses and monitor treatment progress. Assessment during this phase supports revision of the case conceptualization and also informs decisions about treatment termination.

The use of continuous assessment to support clinical decision-making is often referred to as "measurement-based care" (MBC; e.g., Scott & Lewis, 2015). In MBC, assessment data are collected frequently (e.g., every session) and therapists (and sometimes clients) receive feedback that can be used to adjust treatment as needed. An extensive literature supports the use of MBC in adults, particularly in improving outcomes for clients who have been identified as not-on-track (NOT) for good treatment outcomes (e.g., Gondek, Edbrooke-Childs, Fink, Deighton, & Wolpert, 2016; Krägeloh, Czuba, Billington, Kersten, & Siegert, 2015). The literature on MBC in youth is more limited, but a few studies suggest it may improve outcomes for youth as well (Bergman et al., 2018). Although the preponderance of the research on MBC has focused on monitoring symptoms during treatment, some models including a broader array of measures of the therapy process, such as alliance and motivation for change (e.g., Riemer et al., 2012), and research with adults supports the idea that using a broader array of measures can be particularly useful with clients who have been flagged as NOT (e.g., Harmon et al., 2007).

To be useful for case conceptualization purposes, MBC strategies for each hypothesis should be identified. Measures used for treatment monitoring should be feasible to use and provide information that can directly inform treatment decisions. Although nomothetic rating scales are very useful for MBC and most MBC research has focused on rating scales, idiographic measures are also well-suited for repeated measurement and allow for an individualized approach that can be used to test and revise hypotheses. Some evidence also suggests that these measures might be more sensitive to change than standardized measures (Lindhiem, Bennett, Orimoto, & Kolko, 2016). In the interest of making assessment a routine part of care, we recommend collecting data during each session. Applying a staggered approach wherein different measures are collected each week can allow the therapist to assess a broader variety of constructs while keeping the burden within each session low (Riemer et al., 2012).

Collecting data as part of treatment monitoring is important, but the heart of MBC is using the data to form a feedback loop that can be used to revise the case conceptualization when progress is not being made. Data from rating scales can be compared to established norms to decide if the change observed for a particular client is meaningful and whether the client is in the nonclinical range for the measure; many digital systems that are designed to support MBC provide alerts when clients are NOT, generated by comparing the client's trajectory of change to normative trajectory of change data for the measure (Lyon & Lewis, 2016). Data from rating scales and idiographic measures can both be plotted. It is important to begin reviewing MBC data early in treatment, as identifying problems with treatment progress or process (e.g., poor therapy alliance) as they emerge allows for course corrections as quickly as possible. It can be useful to share graphs with families to facilitate discussions about treatment. In the case of youth treatment, comparing data across reporters can help identify such issues as poor communication within the family.

MBC data can also be used to support decisions about when to terminate treatment, which ideally occurs when the therapist and client have agreed that adequate treatment gains have been obtained. This decision is based both on the client's subjective perspective of "feeling better," as well as information from the MBC data, such as whether the client has experienced clinically significant change and is longer above the clinical threshold for any standardized measures that are being collected. It can also be helpful to reassess symptoms of any diagnoses that were being treated to make sure the client is no longer experiencing clinically significant symptoms, and using some broader assessment measures, such as a broad rating scale, can also help ensure that no new problems have arisen during treatment.

Application of Stage 5 to Ana. Ongoing monitoring of Ana's symptoms involved a nomothetic measure, the *Center for Epidemiologic Studies Depression Scale for Children* (CES-DC; Faulstich, Carey, Ruggiero, Enyart, & Gresham, 1986), every 2 weeks, and the idiographic *Top Problems* rated by Ana and her parents on a scale of 1–10 each week (Weisz et al., 2011). The ratings on the *Top Problems* included items to test some of the hypotheses (e.g., Ana rated both "I feel depressed" and "fights with parents" each week, allowing the therapist to monitor the relationship between them; her parents rated "doesn't do homework" and "is irritable" each week). Idiographic strategies were also used to monitor the completion of therapy homework, allowing the therapist to track Ana's application of IPT-A strategies. The therapist plotted the CES-DC and Top Problems ratings to monitor change over time.

Over the first six sessions, there were no meaningful changes in any measure, and Ana had not completed any of her IPT-A homework, despite seeming to buy into the skills in session. These data were shared with Ana, who said that she was having too much difficulty regulating her emotions when she interacted with her parents, so could not calm down enough to use the IPT-A skills. Based on this feedback and in consultation with the family, the therapist decided to switch to CBT, particularly focusing on emotional identification to increase Ana's awareness of her emotions, cognitive restructuring to address Ana's cognitive vulnerabilities, and behavioral activation to target Ana's avoidance of chores, school work, and social interactions. Ana began doing her therapy homework, and started improving on her rating scales and top problems.

After 16 sessions, Ana and her parents' ratings on the Top Problems all fell below 2, and Ana's CES-DC score fell in the nonclinical range. The therapist reviewed the symptoms of major depressive disorder with Ana and she no longer met the criteria for the disorder. Finally, the BASC-3 was readministered to see if any new symptoms had emerged, and there were no significant findings. Given these assessment data and the family's belief that Ana had met her goals for treatment, therapy was terminated.

Conclusion

EBP in psychology has been defined as "the integration of the best available *research* with *clinical expertise* in the context of *patient characteristics, characteristics, culture, and preferences*" (American Psychological Association Presidential Task Force on Evidence-Based Practice, 2006, p. 273; italics added to emphasize the three components of EBP), which can be a difficult balance for therapists to maintain. As we hope we have illustrated here, a well-defined case conceptualization, grounded in the research literature and guided by nomothetic and idiographic assessment data, provides the glue that holds this three-legged stool together.

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Anxiety and Related Disorders

Evidence-Based, Non-pharmacological Interventions for Pediatric Anxiety Disorders

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Abstract

Anxiety disorders are among the most prevalent psychiatric problems in pediatric populations, frequently persist into adulthood, and are prospectively linked to negative sequelae, such as depression, suicidal ideation, conduct problems, and illegal substance use for some youth. Cognitive and behavioral therapy protocols have accrued the largest and most rigorous scientific support. These protocols most often involve psychoeducation, exposures (in vivo, imaginal), and cognitive restructuring. Some protocols include augmentation strategies such as relaxation training, social skills training, caregiver training, and modification of caregivers' own anxiety symptoms. This chapter synthesizes and critically evaluates presumed mechanisms of clinical change in pediatric anxiety with an eye toward clinical application. A clinical illustration is offered relevant to child-focused, group-based CBT. The strategies and tools come from the authors' work in developing, evaluating, and deploying in communities exposure-based CBT interventions.

From a disorder development framework, anxiety is a typical emotion that sometimes goes awry and thus results in pathological emotionality. Anxiety disorder development is often conceptualized based on Lang's (1961) taxonomy of the fear response system and Barlow's (2000) emotion model. In essence, cues demanding performance or arousal awareness can become anxiety-provoking for some vulnerable youth. This occurs, in part, when attention shifts from the cues to a self-evaluation of coping ability (or rather lack thereof) and even a belief of uncontrollability. The perceived lack of coping ability and control increases negative affect and somatic arousal, setting the stage for distortions in information processing and apprehension. When that occurs, pathological anxiety manifests itself as avoidance (subtle, gross) and persistent central nervous system arousal. Thus, while most youth experience typical anxiety, disorder emerges throughout the developmental process for many youths.

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Anxiety disorders are among the most prevalent psychiatric problems in pediatric populations, with rates ranging from 5 to 12% in children and as high as 31% in adolescents (Merikangas et al., 2010). The most prevalent disorders in this diagnostic class and in order of developmental emergence are specific phobias (19.3%), separation anxiety disorder (7.6%), social anxiety disorder (9.1%), and generalized anxiety disorder (2.2%) (Merikangas et al. 2010). Anxiety disorders in pediatric populations are associated with impaired functioning across a number of areas, including school, peer relationships, and with caregivers (e.g., Ezpeleta, Keeler, Erkanli, Costello, & Angold, 2001). Left untreated, anxiety disorders persist into adulthood and are prospectively linked to negative sequelae, such as depression, suicidal ideation, conduct problems, and illegal substance use for some youth (Kessler, Rucio, Shear, & Wittchen, 2009). Pediatric anxiety disorders also carry a significant societal cost, exceeding $17 billion per year, largely due to healthcare expenditures, school absenteeism, and lost productivity due to caregivers missing work (e.g., staying home with the child, collecting the child from school early) (Bodden, Dirksen, & Bogels, 2008; Bui et al., 2017). Undoubtedly, pediatric anxiety disorders are of public health significance and effective interventions are, therefore, critical.

Cognitive and Behavioral Therapy Remains the First Choice for Targeting Pediatric Anxiety

For pediatric anxiety treatment, cognitive and behavioral therapy (CBT) protocols have accrued the largest and most rigorous scientific support. These protocols most often prescribe psychoeducation, exposures (in vivo, imaginal), and cognitive restructuring (Kendall, 1994; Silverman & Kurtines, 1996). Some protocols include augmentation strategies such as relaxation training, social skills training, caregiver training, and modification of caregivers' own anxiety symptoms (Beidel, Turner, & Morris, 2000; Lebowitz, Marin, Martino, Shimshoni, & Silverman, 2019; Silverman, Kurtines, Jaccard, & Pina, 2009). Empirical evidence in support of cognitive and behavioral therapy was evaluated initially by Ollendick and King (1998), who identified studies using guidelines from the American Psychological Association's (APA) task force on determining the status of evidence-based treatments (Chambless et al., 1996). In their report, Ollendick and King identified four randomized-controlled trials (RCTs) and several single-case design studies, which led to the conclusion that imaginal and in vivo exposures, modeling, and CBT (with and without parent involvement) were probably efficacious for the treatment of childhood phobias and anxiety disorders.

A decade later, Silverman, Pina, and Viswesvaren (2008) updated the evidence-based status of psychosocial interventions for anxiety disorders in children and adolescents also using the APA taxonomy. Silverman et al. further added an evaluative summary of the interventions' status using Nathan and Gorman's (2007) methodological guidelines. Most of the treatment studies were viewed as meeting Nathan and Gorman's criteria for either robust or fairly rigorous methodological quality. Silverman et al. (2008) review also contained a meta-analysis. Results indicated that individual-based CBT and group-based CBT were probably efficacious (with and without parent involvement) and 16 additional treatments were considered to be possibly efficacious (all exposure-based or CBT). Diagnostic recovery rates ranged from 46 to 79% and between-group effect sizes ranged from 0.31 to 0.46 for pediatric anxiety symptoms (assessed with youth self-rating scales; all statistically significant).

Since the 1998–2008 reports, more than 20 meta-analyses focusing on CBT procedures for pediatric anxiety have been published. Most reported effect sizes similar to those reported by Silverman et al. (2008). For example, Reynolds, Wilson, Austin, and Hooper (2012) reported between-group effect sizes that ranged from 0.39 to 0.77. In addition, Higa-McMillan, Francis, Rith-Najarian, and Chorpita (2016) reported within-group effect sizes that ranged from 0.78 to 2.37. Higa-McMillan et al. also reported that six treatment approaches were well-established: child-only CBT, CBT with parent involvement, CBT plus medication, CBT-based education, modeling, and exposures. Moreover, these interventions are capable of improving symptoms of frequently co-occurring disorders (e.g., depression, disruptive behavior problems) simply by targeting pediatric anxiety (e.g., Garber et al., 2016; Saavedra, Silverman, Morgan-Lopez, & Kurtines, 2010), with within-group effect sizes for secondary effects ranging from 0.24 to 0.54 (Kreuze, Pijnenborg, de Jonge, & Nauta, 2018).

Not “One” Cognitive and Behavioral Therapy for Pediatric Anxiety

Systematic and evaluative reviews of interventions for pediatric anxiety problems aim largely to facilitate recommendations to psychology training programs, practitioners, and third-party payers (Chambless et al., 1996; Chambless & Hollon, 1998), yet little is known about which specific treatment principles are fundamental in causing positive clinical outcomes. From the work of Higa-McMillan et al. (2016), we know that the most frequently used practice elements are exposures, cognitive self-control, and relaxation (with each component occurring in 55% to almost 90% of treatment packages for anxiety). Yet some pediatric anxiety interventions also incorporate social skills training (Lyneham, Abbott, Wignall, & Rapee, 2003; Pina et al., in press; Silverman et al., 2019; Spence, Donovan, & Brechman-Toussaint, 2000) while others incorporate caregiver (Ginsburg, Drake, Tein, Teetsel, & Riddle, 2015; Lebowitz et al., 2019) and even teacher training (Heyne et al., 2002). Amid these differences in CBT packages, we know that modeling, exposure, education, attention control, and social skill training produce effect sizes ranging from 0.14 to 1.42 (see Higa-McMillan et al., 2016). In addition, and also from the meta-analytic work of Chorpita and colleagues, we know that caregiver involvement is significantly associated with greater positive clinical effects (at the immediate posttest and short-term follow-up [Sun, Rith-Najarian, Williamson, & Chorpita, 2019]), while booster sessions, goal setting, and maintenance/relapse prevention are not significantly related to effect sizes at posttreatment or follow-up. Albeit, the study concluded that these other practices might show moderated effects, signaling clinical value for some youth (Sun et al., 2019).

In addition to differences in components, consideration must be given to approach. For example, in our own research (Pina et al., in press; Pina, Silverman, Fuentes, Kurtines, & Weems, 2003; Pina, Zerr, Villalta, & Gonzales, 2012; Silverman, Kurtines, Jaccard, & Pina, 2009), the general approach has been to introduce exposures early in treatment to create the occasion for changes in cognition to occur. In the work of others, the general approach has been to introduce cognitive restructuring early in treatment to facilitate exposures (Barrett & Turner, 2001; Dadds et al., 1997; Kendall, 1994; van Starrenberg et al., 2017). Both approaches emphasize the processing of exposures as a critical and putative ingredient for clinical change. Variations in clinical elements (e.g., social) skills training and configuration of CBT treatment packages (e.g., group, group plus parent) could be a reason for some variability observed in meta-analyses (e.g., 45–82% in Ost & Ollendick, 2017; 39–85% in Silverman et al., 2008; 81–88% in Wang et al., 2017); thus, knowledge relevant to the specific treatment principles that are fundamentally implicated in causing positive clinical outcomes could help shed light on ways to narrow clinical outcome heterogeneity.

Translating CBT Principles for Pediatric Anxiety Disorders into Clinical Practice

In order to distill pediatric anxiety treatment knowledge into clinical practice, we draw on CBT intervention theory and the "small-theory" framework of Lipsey (1990). In our view, clinical translation requires defining multiple factors to target for change via intervention, with the intention of maximizing impact on the outcomes (Pina et al., in press). For the best and most robust evidence in assessing program targets, one should draw on knowledge from mediation studies. As such, for this chapter, we synthesized studies published to date that have tested mediation as intervention-related mechanisms of clinical change in pediatric anxiety.

Table 1 offers a synthesis of methodologically robust studies testing mediation in the pediatric anxiety intervention area. From those studies, the following theory-driven targets were identified by our team: increasing (a) coping self-efficacy and (b) positive peer relationships; reducing (c) parental modeling of anxiety and (d) psychological control (e.g., instilling guilt in child). Table 1 also shows additional targets but those are viewed as requiring additional evidence because the studies have identified methodological limitations (e.g., nontemporal research design, low statistical power, lack of comparator condition). Clinically, we advocate for implementation of principles aimed at affecting ostensible mediators (mechanisms of clinical change: a–d) and such principles could come from well-established CBT packages for pediatric anxiety, such as *Coping Cat* (Kendall, 1994), *Social Effectiveness Training for Children* (Beidel, Turner, & Morris, 2000), and *Supportive Parenting for Anxious Childhood Emotions* (Lebowitz et al., 2019), most of which were thoroughly explained in Silverman and Kurtines (1996).

Table 1 Robustness of evidence for mediators of EBIs for pediatric anxiety

		Study design							
Putative mediator	Studies	Sig	RCT	Time^a	N	T_M	T_o	M_M	M_o
Coping self-efficacy	Kendall et al. (2016)	✓	✓	✓	✓	Post	F/U (3 mos.)	CQ-C	PARS
	Ollendick, Ryan, Capriola-Hall, Reuterskiöld, and Öst (2017)	✓	✓		✓	Residual (pre to 6 mos.)	F/U (6 mos.)	PBS	ADIS CSR
	Lau, Chan, Li, and Au (2010)	✓	✓			Residual (pre to post)	Residual (pre to post)	CQ-C	SCAS
	Maric, Heyne, MacKinnon, Van Widenfelt, and Westenberg (2013)	✓		✓		Residual (pre to post)	Residual (pre to post AND pre to 2-month F/U)	SEQSS	SFT, attendance %
Positive peer-youth relationships	Silverman et al. (2019)	✓	✓	✓	✓	Post	F/U (12 mos.)	FQ	RCMAS
Parental modeling of anxiety	Ginsburg et al. (2015)	✓	✓	✓	✓	Reductions at Post AND at F/U (6 mos.)	F/U (12 mos.)	BSI	ADIS CSR

(continued)

Table 1 (continued)

		Study design							
Putative mediator	Studies	Sig	RCT	Time^a	N	T_M	T_o	M_M	M_o
Parental psychological control	Silverman et al. (2019)	✓	✓	✓	✓	Post	F/U (12 mos.)	PRPBI	RCMAS
Perfectionism	Essau, Conradt, Sasagawa, and Ollendick (2012)	✓	✓		✓	Residual (pre to post)	Residual (pre to post)	CAPS	SCAS
Repetitive thinking	Spence et al. (2017)	✓	✓		✓	Residual (pre to post)	Residual (pre to post)	PEPQ-R	SPAI-C
Negative self-talk	Treadwell and Kendall (1996)	✓	✓		✓	Residual (pre to post)	Residual (pre to post)	NASSQ	RCMAS
	Kendall and Treadwell (2007)	✓	✓		✓	Residual (pre to post)	Residual (pre to post)	NASSQ	RCMAS
	Lau et al. (2010)	✓	✓			Residual (pre to post)	Residual (pre to post)	NASSQ	SCAS
	Hogendoorn et al. (2014)			✓	✓	Latent Difference Score (pre to mid-intervention to post to 3-month F/U)	Latent Difference Score (pre to mid-intervention to post to 3-month F/U)	CATS-N/P	RCADS-C
	Ginsburg et al. (2015)		✓	✓	✓	Reductions at Post AND at F/U (6 mos.)	F/U (12 mos.)	CNCEQ	ADIS CSR
	Kendall et al. (2016)		✓	✓	✓	Post	F/U (3 mos.)	NASSQ	PARS
Avoidant coping	Essau et al. (2012)	✓	✓		✓	Residual (pre to post)	Residual (pre to post)	CSCY	SCAS
	Pereira et al. (2018)			✓		Mid-intervention	F/U (4 mos.)	ASQ-C	SCARED-R
Positive self-talk	Hogendoorn et al. (2014)	✓		✓	✓	Latent Difference Score (pre to mid-intervention to post to 3-month F/U)	Latent Difference Score (pre to mid-intervention to post to 3-month F/U)	CATS-N/P	RCADS-C
	Treadwell and Kendall (1996)		✓		✓	Residual (pre to post)	Residual (pre to post)	NASSQ	RCMAS
	Kendall and Treadwell (2007)		✓		✓	Residual (pre to post)	Residual (pre to post)	NASSQ	RCMAS
Somatic complaints	Hale et al. (2018) (CAMS)		✓	✓	✓	Pre to week 8 to post	Residual (pre to post)	SCARED—somatic	PARS

(continued)

Table 1 (continued)

		Study design							
Putative mediator	Studies	Sig	RCT	Time^{a}	*N*	T_M	T_o	M_M	M_o
Social skills	Spence et al. (2017)		✓		✓	Residual (pre to post)	Residual (pre to post)	SSQ	SPAI-C
	Alfano et al. (2009)					Residual (pre to post)	Residual (pre to post)	behavioral task	SPAI-C
Depressive self-talk	Treadwell and Kendall (1996)		✓		✓	Residual (pre to post)	Residual (pre to post)	NASSQ	RCMAS
	Kendall and Treadwell (2007)		✓		✓	Residual (pre to post)	Residual (pre to post)	NASSQ	RCMAS
Interpretation biases	Pereira et al. (2018)	✓		✓		Mid-intervention	F/U (4 mos.)	ASQ-C	SCARED-R
Perceived coping control	Pereira et al. (2018)	✓		✓		Mid-intervention	F/U (4 mos.)	ASQ-C	SCARED-R
Loneliness	Alfano et al. (2009)	✓				Residual (pre to post)	Residual (pre to post)	LS	SPAI-C
Adaptive coping	Hogendoorn et al. (2014)	✓		✓	✓	Latent Difference Score (pre to mid-intervention to post to 3-month F/U)	Latent Difference Score (pre to mid-intervention to post to 3-month F/U)	CCSC	RCADS-C
	Pereira et al. (2018)			✓		Mid-intervention	F/U (4 mos.)	ASQ-C	SCARED-R

Note Sig presence of a significant mediation finding; *RCT* presence of a randomized-controlled trial design comparing intervention to at least one control condition (in mediation analysis, the absence of a control condition limits the ability to conclude that observed mediation effects are truly attributable to the intervention rather than nonspecific epiphenomenal factors [e.g., development]); *Time*^{a} presence of temporal mediation design that measured change in the mediator and clinical outcome at distinct timepoints (in contrast to concurrent or cross-sectional mediation where the mediator is measured and tested at the same time as changes in the clinical outcome and does not provide information about the theory of the intervention's sequential, cascading, or delayed clinical change from intervention efforts [see MacKinnon, 2008]); *N* presence of total sample size ≥ 124 based on minimum sample size requirements to reliably detect mediational effects as derived from Fritz and MacKinnon (2007), assuming 0.80 power and medium effect size from intervention to mediator, and from the mediator to anxiety outcome; T_M timepoint of mediator measure used in test for mediation; T_O timepoint of outcome measure used in test for mediation; M_M measure used for mediator; M_O measure used for outcome; *ADIS CSR* Clinician Severity Rating; *ASQ-C* Ambiguous Situations Protocol; Behavioral Task = Independent observer rated assessment of social anxiety and skill based on role-plays and read-aloud tasks; *BSI* Brief Symptom Inventory *CAPS* Child and Adolescent Perfectionism Scale; *CATS-N/P* Children's Automatic Thoughts Scale—Negative and Positive; *CCSC* Children's Coping Strategies Checklist; *CNCEQ* Children's Negative Cognitive Error Questionnaire; *CQ-C* Coping Questionnaire for Children; *CSCY* Coping Strategies Checklist for Youth; *FAD* Family Assessment Device; *FQ* Friendship Questionnaire; *LS* Loneliness Scale; *NASSQ* Negative Affectivity Self-Statement Questionnaire; *PARS* Pediatric Anxiety Rating Scale; *PBS* Phobic Beliefs Scale; *PEPQ-R* Post-Event Processing Questionnaire Revised; *PRPBI* Parent's Report of Parental Behavior Inventory; *RCADS-C* Revised Children's Anxiety and Depression Scale—child report; *RCMAS* Revised Children's Manifest Anxiety Scale; *SCARED-R* Screen for Child Anxiety Related Emotional Disorders-Revised; *SCARED somatic* Screen for Child Anxiety Related Emotional Disorders—Panic/Somatic subscale; *SCAS* Spence Children's Anxiety Scale; *SEQSS* Self Efficacy Questionnaire for Social Skills; *SFT* School Fear Thermometer; *SPAI-C* Social Phobia and Anxiety Inventory; *SSQ* Social Skills Questionnaire; *STAIC-S-P* State-trait anxiety inventory-state (parent reported)

Implementation of CBT Principles for Pediatric Anxiety Disorders

For an illustration of implementation strategies and principles in child-focused, *individual-based* CBT, we refer the reader to our chapter in the first edition of this handbook (Silverman & Pina, 2008). In this edition of the handbook, we offer an illustration relevant to child-focused, *group-based* CBT. The following strategies and tools come from our work in developing, evaluating, and deploying in communities a gamified, exposure-based CBT intervention (see Pina et al., in press; Stoll et al., 2017).

Herein, our intervention theory aims at reversing and disrupting anxiety disorder development by increasing youths' capacity to cope with the cues outlined in Barlow's emotion model (2000) while alleviating the frequency and severity of impairment associated with the fear response system (as updated by Adolphs, 2013). In a clinical context, increasing youths' coping capacity means increasing their perceived coping self-efficacy, both overall and in direct problem-solving (using, for example, positive cognitive restructuring). Thus, the practice principles aim to improve self-efficacy (e.g., as social competence for managing anxiety-provoking situations) while also reducing clinical features of pediatric anxiety, such as physiological hyperarousal and distortions in information processing. This approach is consistent with the distillation of evidence-based interventions articulated by Chorpita, Daleiden, and Weisz (2005) such that the principles are: (1) in vivo exposures to feared situations facilitated by (2) relaxation, (3) cognitive self-control, and (4) social skills training (as relevant). Our work distinguishes implementation strategies from treatment principles (Silverman & Kurtines, 1996); for example, while a treatment principle could be graduated in vivo exposures (wherein the putative process could be habituation and/or inhibitory learning), the implementation strategy could be a contingency contract (Silverman et el., 1999). Details on the application of the principles come from the formative work of Silverman and Kurtines (1996), and Beidel, Turner, and Morris (2004). To explain implementation of principles that could modify mediators of pediatric anxiety treatment outcomes, we provide examples from our own work with caregivers, youth, and both.

Working with Caregivers. First, we explain to caregivers that when youth avoid situations or objects that make them feel anxious or afraid, their fear is maintained and gets worse because youth do not have the opportunity to experience their fear decrease upon the successful management of the feared situation. We explain that fear or anxiety is to be expected in some situations and does not necessarily interfere with performance (i.e., youth can often manage a feared situation successfully, and thus will benefit from exposure). For example, a child who is afraid or who avoids social events such as birthday parties should, in fact, go to birthday parties. Even in the case where anxiety is still experienced during the event, the anxiety tends to go down with practice exposures. Consider a parallel of learning to ride a bicycle, in which a child may fall off the bicycle but with practice increases in mastery and becomes less fearful; getting back on the bicycle is an essential component of having a more positive experience with the bicycle. This example with the bicycle is well accepted by caregivers and youth. We further explain that we will use gradual exposure to create step-by-step success experiences in facing fears such that the child's confidence in ability increases.

Second, we explain to caregivers two basic principles of learning: reinforcement and extinction. We explain positive reinforcement, for example, by introducing the concept of a contract. We give caregivers detailed instruction and training in child behavior management (e.g., the importance of following through and being firm and consistent) and more specifically on contingency contracting (e.g., "if [child's name] approaches a feared dog at the park, then the parent will take the child that night to see a movie of the child's choosing"). Explicit contracts help reduce conflict and instill in parents the notion that they have a primary role in reducing their child's fear/anxiety. Third, we explain to caregivers that exposure (activities aimed as mastering a fear) is most effective when it is (1) prolonged, massed, and carried out in vivo (confront the feared object or event to experience decreases in fear levels), (2) uses a hierarchy, and (3) is followed by positive reinforcement (including self-rewards). We further explain that exposures are effective when distraction and avoidance are minimized (no looking away from the feared stimulus, no mentally distracting oneself, no playing with a small toy, no seeking reassurance, no discussing other topics, no asking the therapist unrelated questions, no relying on protective behaviors from parents, or the like). Creating these distinct, structured exposures allows for the reward of the approach behavior and extinction of avoidance behavior.

Working with youth. First, we explain to youth that staying away from situations that make them feel anxious, scared, afraid, frightened, nervous, or worried makes these feelings get worse as they do not get the chance to learn that, in most situations, "there is really nothing to be afraid or anxious of." We explain that fear or anxiety is to be expected in some situations (e.g., if a lion is running after you, a fear response is reasonable and adaptive), but in other times it interferes with the things that you might like and would want to do (attending parties, making new friends). Second, we explain to youth that learning to be less afraid or anxious means facing your fears, but only facing them little by little, and in ordered steps (using a hierarchy). At this time, the notion of "supports" is introduced such that youth learn they will build a toolbox with resources that can help facilitate the process of learning to be less afraid or anxious (e.g., relaxation, cognitive self-control, social skills training) and that caregivers are part of the team.

In terms of the resource toolbox, and starting with relaxation, we have found that for children "I can Relax!" (MP3) (Pincus, 2001) and for adolescents "Tactical Breather" (mHealth) (Shore et al., 2014) are developmentally appropriate, consistent with research, and attractive to users. For cognitive self-control, we teach the acronym SWAP (S = Situation: the situation that makes you worried; W = Worry: the nervous thoughts that pop into your head; A = Action: come up with an action or attitude that: could solve the problem, makes you see things in a more real way, could be tested when you face the fear; P = Practice: practice the specific strategy, or rehearse the plan by writing it out, imagining in your head, or talking it out with the caregiver). We practice SWAP using a roll and move board game where youth apply SWAP to solve challenges consisting of prompts with a typical anxiety-provoking situation and accompanying worry thought, weaved together with corrective feedback and praise. In terms of social skill tools, we focus on conversations and assertiveness. We explain that an important part of making friends and keeping friends is talking with them and listening to them. We work together to come up with tips for conversations. When could you start a conversation? How could you start a conversation? Then, we practice conversations using the tips and a gamified role-play activity where youth, in pairs, role-play the "when's" and "how's" of conversations, which is weaved together with corrective feedback and praise. For assertiveness, we explain that to be assertive means to stand up for one's rights without violating another's rights. We explain that even when you are assertive, things do not always turn out the way you want. However, what is most important is that you speak your mind. Then we teach the acronym SAFE (S = Speak Your Mind, A = Ask Nicely, F = Firm but Kind Voice, E = Eye Contact) and practice it with a card and token board game, where youth identity situations to be assertive in and, with a peer they nominate, use SAFE to resolve the situation. Again, this game is weaved with corrective feedback and praise from the implementer and also from peers from the group.

Pulling it all together. In our intervention model for pediatric anxiety, we leverage involvement from caregivers and youth to implement youth exposures to feared objects or situations. We work to specify situations youth might find difficult because of feeling worried or nervous. Starting with a list of situations that youth might find difficult at school, for example, youth use a feelings thermometer to identify the level of difficulty where 0 = not at all difficult and 8 = very, very difficult. Using ratings from the thermometer, situations that are moderately difficult for the youth (at a 4 or 5 rating) are identified for exposure. Exposures are conducted in vivo, after having scaffolded the skills through the imaginal exposures (or role-plays with the group) conducted throughout the previous activities. Youth rate the situation (before completing and after completed) using the thermometer and are encouraged to stay in the situation for an extended amount of time to help the number go down. After completed, we ask: "What happened to the number?" We explain that, when the number goes down, that means the youth was able to manage the situation and can do it again. If it stays the same, then that means the youth needs to try again and stay in the situation longer. If it goes up, then that means the situation was too hard, try an easier situation first then return to the other situation. This discussion is part of processing the experience to help solidify clinical change. We emphasize the repeated and prolonged nature of successful exposures as well as the importance of practicing skills (e.g., SWAP, SAFE). When we implement in the schools, for example, teachers and caregivers are kept informed, weekly, about all efforts to overcome the fear and anxiety via emails/texts (e.g., "This week, your child learned about the importance of facing new challenges. Ask her child about this week's challenge tasks for school or home practice. Encourage and facilitate skill practice with quality" c.f. *Compass for Courage*).

Strengths and Weaknesses of CBT for Pediatric Anxiety Disorders

There are a number of caveats stakeholders should consider when it comes to CBT for pediatric anxiety research and its application into clinical practice. First, whereas CBT for pediatric anxiety is already considered a "well-established" intervention, clinical outcomes are generally less promising in community-based settings than in university research laboratories, such that diagnostic recovery is lower (e.g., only about 23% in Wergeland et al., 2014). Second, the potential clinical benefits of standard CBT for pediatric anxiety do not necessarily materialize for all youth; for example, Latinx ethnicity predicted poorer outcomes in the Child Anxiety Multisite Study (CAMS, Taylor et al., 2018; Walkup et al., 2008). In response, protocols that leverage the knowledge of working in the context of cultural diversity have been developed and tested (see Chap. 25 in this handbook; *Compass for Courage*). Third, in the CBT pediatric anxiety area, a "large" effect size has not been translated into functional gains such that, for example, anxiety-related school absenteeism was only 56.9% in Heyne et al. (2002) and the effect size was large (see Pina, Zerr, Gonzales, Ortiz, 2009 for additional examples).

These caveats, unfortunately, lead stakeholders to implement "therapies" that are not evidence-based. In this regard, we remind the reader of pediatric anxiety practices that are contraindicated (i.e., potentially harmful and/or ineffective; Koocher, McMann, Stout, & Norcross, 2015): magnet therapy, rebirthing therapy, past life regression therapy, crystal healing, Kirlian therapy, penduluming, Bio-Ching, JoyTouch, withholding food water, aura therapy, Orgone Therapy, Astrotherapy (Allen, Kluger, & Buard, 2017; Andrade, 2017; Askinosie, 2015; Gilmartin, 2013; Harvey, 2000; Nicola, (n. d.); Sharma & Sharma, 2016). As such, we, respectively, ask stakeholders to engage in de-implementation (i.e., the process of eliminating practices that are untested or insufficiently tested as well as those that have been tested and found contraindicated or inferior; Koocher et al., 2015; Prasad & Ioannidis, 2014).

The Future of Clinical Interventions for Pediatric Anxiety Symptoms and Disorders

Extensive research with CBT for pediatric anxiety has led to the advancement of novel treatment models that could be more precise and efficient. Pediatric anxiety treatment research has started to leverage neuroscience and digital health (Pramana et al., 2018; Stoll et al., 2017; Yeguez, Page, Rey, Silverman, & Pettit, 2019; Whiteside et al., 2019). Leveraging neuroscience, for example, means expanding treatment to include interventions such as attention bias modification training (ABMt), as it expands on our understanding of attention bias (e.g., among youth with heightened anxiety toward threat or ambiguity). This neurocognitive protocol could rapidly become part of standard practice for reasons that are important to clinicians (e.g., ABMt is brief and can be implemented with minimal clinician involvement or training; clinical outcomes on pediatric anxiety appear similar to those shown by CBT; as a technology-based treatment, ABMt could become the first line of intervention for youth who lack access to adequate evidence-based care, as is the case for ethnic minority youth who would otherwise require a CBT treatment that is culturally robust; Pina, Polo, & Huey, 2019). ABMt interventions for pediatric anxiety have shown effect sizes ranging from 0.17 to 0.37 (Cristea, Mogoase, David, & Cuijpers, 2015; Mogg, Waters, & Bradley, 2017; Pennant et al., 2015).

Turning to digital health, CBT research has made it possible to develop delivery efficiencies (e.g., using e-health solutions to deliver treatment in rural communities, digitizing out-of-session self-skill practice). Digital health tools could rapidly become part of standard practice, and digital health interventions for pediatric anxiety have shown effect sizes ranging from 0.39 to 0.41 (Grist, Croker, Denne, & Stallard, 2019; Jones, Dickter, Beard, Perales, & Bunge, 2016). We warn stakeholders, however, that some digital health technologies for pediatric anxiety are not ready for clinical application. For example, “MoodGym” and “e-couch Anxiety and Worry program” (both internet-based protocols) have shown few to no benefits compared with controls, including low participant engagement rates with the intervention content (Calear, Christensen, Brewer, Mackinnon, & Griffiths, 2016). Similarly, “Dojo” and “Mindlight” (both video game-based interventions) have shown no clinical benefits (Scholten, Malmberg, Lobel, Engels, & Granic, 2016; Schoneveld et al., 2016). Our recommendation for clinicians is to monitor and carefully evaluate innovations in the pipeline by staying abreast of clinical treatment research (e.g., via clearing houses or clinical networks such as APA’s Society of Clinical Child and Adolescent Psychology).

Concluding Comments

It is our view that cognitive and behavioral treatment strategies should be routinely taught by psychology training programs, advocated and implemented by practitioners, and covered by third-party payers. This view is consistent with recommendations from major professional societies such as the American Psychological Association, Association for Behavioral and Cognitive Therapies, and Society for Clinical Child and Adolescent Psychology. Via such societies, stakeholders can obtain formal training as well as up-to-date information on the availability of new treatments for pediatric anxiety. From our work on this chapter, we offer five major take-home viewpoints: (1) CBT remains the cornerstone of evidence-based psychosocial interventions for pediatric anxiety disorders; (2) Cognitive and behavioral principles most commonly involve psychoeducation, exposures (in vivo, imaginal) and cognitive restructuring, with additional relaxation training, social skills training, and caregiver training; (3) Introducing exposures early in treatment to create the occasion for changes in cognition to occur has been a successful and efficient treatment model; (4) The ways in which cognitive and behavioral principles are delivered are amenable to reengineering, such that the needs of special populations (and context fit heterogeneity) can be effectively meet (e.g., cultural diversity); (5) The future of pediatric anxiety treatment is rapidly leveraging basic neuroscience and digital health innovations to better serve the needs of youth with pediatric anxiety symptoms and disorders as well as those of families caring for such vulnerable segment of the population.

Key Points

- Cognitive behavioral therapy (CBT) and Behavioral Therapy (BT) remain the first-line choices for addressing pediatric anxiety.
- The most frequently identified elements within CBT and BT approaches include exposure, cognitive self-control, and relaxation training; Early introduction of exposure and cognitive restructuring may facilitate greater change in symptoms.
- Effective treatment packages also tend to address coping self-efficacy and positive peer relationships, while reducing parental modeling of anxiety and guilt induction.
- Despite the demonstrated strengths of CBT for anxiety in children, clinical benefits of standard CBT for pediatric anxiety do not necessarily materialize for all youth; specific attention to culturally competent delivery of services may improve outcomes for children from underrepresented groups in the literature.

Funding R. D. Stoll's effort for the writing of this chapter was supported in part by a NIDA T32 fellowship 039772. W. K. Silverman's effort was supported in part by NIMH grant R01 MH119299 01. The content is solely the responsibility of the authors and does not represent the official views of the funding agency. Correspondence should be addressed to Dr. Stoll at rdstoll@asu.edu.

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Evidence-Based Treatment of Pediatric Obsessive-Compulsive and Related Disorders

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Abstract

Pediatric obsessive-compulsive disorder is a common childhood psychiatric illness. The primary focus of the chapter is on obsessive-compulsive disorder per se given the more robust evidence base, although additional evidence is briefly reviewed for other obsessive-compulsive related disorders such as body dysmorphic disorder, hoarding disorder, trichotillomania, and excoriation disorder. The cause of this disorder remains unknown, however, there are multiple biobehavioral etiological theories. The cause is likely multi-determined and includes cognitive-behavioral, biological, and environmental factors. The chapter discusses therapeutic considerations for the psychosocial treatment of pediatric OCD and related disorders. Cognitive-behavioral therapies have been identified as efficacious treatments for this pediatric condition. There is a strong evidence base from meta-analyses for both traditional cognitive behavioral treatments and cognitive-behavioral family treatment modalities. Emerging research has also focused on remote treatment delivery options and novel modalities for nonresponders such as intensive cognitive-behavioral therapies. Other psychosocial modalities have not been demonstrated as efficacious based on available evidence.

Obsessive-compulsive and related disorders include obsessive-compulsive disorder (OCD), body dysmorphic disorder (BDD), hoarding disorder, trichotillomania (hair-pulling disorder), and excoriation (skin-picking) disorder. Research on many of these disorders in pediatric populations is unfortunately sparse. The evidence base for pediatric OCD is considerably more robust and is, therefore, largely the focus of this chapter. The current evidence for other OCD-related disorders is briefly reviewed. Finally, treatment considerations are discussed for the treatment of pediatric OCD and other related disorders.

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Obsessive-Compulsive Disorder

Previously thought to be rare, recent research has identified pediatric OCD as one of the most common childhood psychiatric illnesses, with a point-prevalence rate between 1 and 2%, with prevalence increasing in the adolescent years (Fontenelle, Mendlowicz, & Versiani, 2006). Symptoms typically begin in adolescence (Brakoulias et al., 2017; Dell'Osso et al., 2016), with insidious onset, and follow a protracted yet fluctuating course (Visser, van Oppen, van Megen, Eikelenboom, & van Balkom, 2014). Not surprisingly, pediatric OCD is related to significant functional impairment within academic, family, and social domains (Storch, Larson, et al., 2010; Weidle, Ivarsson, Thomsen, Lydersen, & Jozefiak, 2015), largely due to distress and frequency of ritual engagement (Piacentini, Bergman, Keller, & McCracken, 2003). Advances in psychological and pharmacological interventions strongly suggest that early detection and treatment can improve prognosis (Fineberg et al., 2019).

Etiology

Although the cause of OCD remains unknown, there are multiple biobehavioral etiological theories. In all likelihood, the cause of OCD is multi-determined and includes cognitive-behavioral, biological, and environmental factors (Brander, Pérez-Vigil, Larsson, & Mataix-Cols, 2016; International Obsessive Compulsive Disorder Foundation Genetics Collaborative et al., 2017; Wilhelm, 2006). For example, cognitive-behavioral theory indicates that a neutral stimulus (or event) becomes conditioned to elicit distress due to its association with another feared situation. Subsequent to the acquisition of the conditioned fear, compulsive behaviors develop to reduce or avoid distress because they temporarily ameliorate the distress associated with obsessions through operant mechanisms (negative reinforcement). Cognitively, individuals with OCD frequently misattribute the meaning of intrusive thoughts. For example, intrusive thoughts might be interpreted such that an individual perceives responsibility for causing or failing to prevent harm, leading to obsessional patterns to reduce associated distress. Attempts to neutralize intrusive thoughts (obsessions) via rituals or avoidance prevent the disconfirmation of the patient's fears and maintain the reinforcement cycle.

A more biological model hypothesizes that abnormal serotonin metabolism is implicated in the expression of obsessive and compulsive symptoms. This hypothesis is supported by data from successful treatment-outcome studies with serotoninergic such as selective serotonin reuptake inhibitors (SSRIs; Öst, Riise, Wergeland, Hansen, & Kvale, 2016; Strawn, Welge, Wehry, Keeshin, & Rynn, 2015). Evidence from genetic, neuroimaging, and neuroendocrine studies also provide support for the neurochemical etiological model of pediatric OCD (Koch et al., 2012; Piras et al., 2015; Sinopoli, Burton, Kronenberg, & Arnold, 2017).

Evidence-Based Pediatric OCD Therapies

In reviewing the evidence base, meta-analyses are particularly useful as they pool results from multiple studies to provide a more robust estimate of treatment effects compared to individual trials (Higgins & Green, 2011). Of particular relevance is the effect size, which reflects the differences in outcomes of interest (e.g., OCD severity) between groups (e.g., treatment versus control). The most commonly reported effect sizes for outcome studies are Cohen's d (d) and Hedges g (g), which reflect the standardized mean differences in outcomes between groups (0.2 = small effect, 0.5 = medium effect, and 0.8 = large effect).

Cognitive-Behavioral Therapy (CBT)

CBT has been identified as an efficacious treatment for pediatric OCD (Öst et al., 2016). There is a strong evidence base for both traditional CBT and Cognitive-Behavioral Family Treatment (CBFT) modalities (Iniesta-Sepúlveda, Rosa-Alcázar, Sánchez-Meca, Rosa-Alcázar, & Parada-Navas, 2017; Öst et al., 2016; Wu, Lang, & Zhang, 2016). Emerging research has also focused on remote treatment delivery options and novel modalities for nonresponders (Jónsson, Kristensen, & Arendt, 2015; Wootton, 2016).

Meta-analytic results have supported CBT as a first-line treatment for youth with OCD (McGuire et al., 2015; Öst et al., 2016; Wu et al., 2016). In the most comprehensive meta-analysis ($n = 42$ studies; Öst et al., 2016), the overall effect of combined treatment was large ($g = 0.80$), with medium effects for CBT ($g = 0.53$) and SSRIs ($g = 0.48$) CBT alone has been found to produce higher treatment response rates (69.6%) when compared to the use of a pharmacologic agent (SSRIs) alone (48.9%). Effect sizes for CBT ($g = 1.53$ compared to wait-list, 0.93 compared to placebo, and 0.53 compared to all comparison groups) support the effectiveness of the treatment for addressing symptoms of pediatric OCD (Öst et al., 2016). Over half (52.7%) of participants utilizing CBT have been shown to no longer meet diagnostic criteria for OCD post treatment. No significant differences in treatment outcomes have been found between delivery formats (e.g., individual, group, or family).

Additionally, CBT alone has been shown to be more effective than SSRI treatment in producing OCD remission (Öst et al., 2016), although studies are somewhat difficult to compare due to differences in comparison groups (e.g., placebo or wait-list). Although combined CBT and SSRI treatment is recommended in clinical guidelines (Geller, March, & American Academy of Child and Adolescent Psychiatry Committee on Quality Issues, 2012), and supported by the landmark POTS trial (Pediatric OCD Treatment Study Team, 2004), meta-analytic findings have not consistently found improved outcomes of combined treatment over CBT-only treatment (Ivarsson et al., 2015). Further research is greatly needed to examine the comparative efficacy of combined treatment compared to CBT or SSRIs alone, particularly whether combined treatment may be beneficial for particular types of youth. Further, side effects from SSRIs have the potential to interfere with treatment, particularly for those who experience symptoms of activation syndrome (Reid et al., 2015). Overall findings suggest that CBT should be the first line of treatment for youth with OCD.

Family Treatment. There is a growing body of literature focused on family involvement in the treatment of pediatric OCD. CBFT involves a structured parental component that often includes parent involvement in treatment sessions, parent training and parental support during exposure exercises. A meta-analytic review found that CBFT effectively reduced obsessive-compulsive symptoms ($d = 1.46$; Iniesta-Sepúlveda et al., 2017). Additionally, CBFT has been shown to be more beneficial in an individual setting compared to a group setting ($d = 2.43$ and 1.41, respectively; Iniesta-Sepúlveda et al., 2017). Thus, a preponderance of evidence supports the utility of considering parent involvement during treatment planning. This is particularly relevant given the importance of reducing family accommodation during treatment for OCD, which includes children involving parents in their OCD symptoms and families changing their behaviors to avoid triggering OCD concerns (Wu et al., 2019).

Intensive CBT. Despite the high rates of treatment success, not all patients respond to traditional therapeutic approaches. An alternative for such cases of treatment-resistant OCD, or for those who do not have access to local CBT providers, is intensive CBT formats. These can range from delivering a similar number of therapy hours in a limited number of sessions, to full residential programs with hours of therapy each day. These studies produce good reductions in OCD severity (Jónsson et al., 2015; Leonard et al., 2016; Storch et al., 2007; Whiteside, Dammann, Tiede, Biggs, & Jensen, 2018). However, there is a lack of research comparing intensive formats to traditional delivery formats, so it is unclear which participants would benefit specifically from intensive treatments. Further, intensive treatment can require more therapist and family time, include additional costs, and is not widely available. Currently, intensive treatments are generally reserved for children with the most severe concerns or those requiring quick improvement (Jónsson et al., 2015).

Other Psychosocial Therapies

Although many non-CBT psychosocial modalities have been used to treat OCD (e.g., play-based, supportive, and psychoanalytic therapy), they have not been demonstrated as efficacious based on available evidence. In the adult literature, one emerging modality that has demonstrated efficacy similar to manualized CBT for treatment of OCD is acceptance and commitment therapy (ACT; Bluett, Homan, Morrison, Levin, & Twohig, 2014). However, this approach has not yet been studied in samples of children and adolescents.

Pharmacotherapy

SSRIs such as sertraline, fluoxetine, and fluvoxamine are the first-line pharmacotherapy for pediatric OCD (Geller et al., 2012). Meta-analytic studies of randomized, double-blind clinical trials support the efficacy of SSRIs with moderate effect sizes ($g = 0.43–0.50$) compared to placebo (Ivarsson et al., 2015; McGuire et al., 2015; Öst et al., 2016), and no differential response to different SSRIs (Varigonda, Jakubovski, & Bloch, 2016). Although generally well tolerated, SSRIs are not without side effects. For example, a constellation of side effects referred to as activation syndrome (e.g., irritability, disinhibition) has been shown to negatively impact treatment response in multimodal treatment for pediatric OCD (Reid et al., 2015). Further, SSRIs have been associated with an elevated risk of suicidality compared to placebo across pediatric OCD, anxiety, and depression samples (Locher et al., 2017). Although the risk in pediatric OCD samples has not been thoroughly established, it is clear that patient education and reasonable levels of clinical oversight are warranted when prescribing SSRIs in pediatric patients. Further research is greatly needed to determine optimal dosing strategies that balance anxiety reduction with side effects and treatment tolerability in pediatric OCD.

Serotonin and norepinephrine reuptake inhibitors (SNRIs) such as duloxetine are an emerging pharmacotherapy for pediatric OCD; however, a meta-analysis literature search revealed no double-blind trials evaluating the use of SNRIs for pediatric OCD as of 2016 (Locher et al., 2017). There has been great interest in pharmacological methods to enhance outcomes of exposure therapy, with most research focusing on d-cycloserine (DCS). Although initial DCS trials in pediatric OCD were promising, the largest pediatric OCD study to date failed to find an advantage for DCS over placebo in reducing OCD symptoms (Storch et al., 2016), and a recent meta-analysis of child and adult OCD DCS studies did not support the use of DCS (Gu, Storch, Zhao, Xu, & Wang, 2017). However, strong interest remains in attempting to identify pharmacologic agents that may augment the effect of exposure therapy (Abramowitz, Blakey, Reuman, & Buchholz, 2018).

Cognitive-Behavioral Treatment for Pediatric OCD: Practical Applications of Evidence-Based Principles

Cognitive-behavioral therapists combine techniques based on the cognitive and behavioral conceptualizations of OCD. To address the classical and operant conditioning mechanisms that theoretically establish and maintain OCD behaviors, CBT therapists engage their patients in exposure and response prevention (ERP) exercises. To address cognitive distortions that are common in OCD, ERP is combined with cognitive restructuring techniques.

To successfully implement ERP exercises, it is essential to choose an exposure exercise that is anxiety provoking, yet not so much so that the patient is unable to refrain from compulsive behavior. Thus, a ritual hierarchy, or list of anxiety-provoking situations that motivate rituals that is rank ordered from least to most distressing, is developed early in the therapy process. Exposure exercises typically begin with tasks that are minimally or moderately anxiety provoking (i.e., lower on the hierarchy). For example, a child who exhibits obsessions regarding contamination and responds with excessive hand washing would be exposed to situations that provoke the contamination obsession (e.g., placing bare hands on a dirty floor). Thereafter, the patient would stay in that situation without washing his or her hands until the anxious arousal decreases significantly (based on subjective ratings of distress and behavioral observations). This accomplishes two behavioral goals. First, from an operant conditioning perspective, by refraining from washing hands during the exposure the compulsive behavior was not negatively reinforced, thus weakening the association between handwashing and distress reduction. Second, from a classical conditioning perspective, the exposure sets up a situation where the conditioned stimulus (obsessions about exposure to potential contaminants) is presented in absence of the unconditioned stimulus (e.g., getting violently ill). Thus, with subsequent exposures, the conditioned response (anxious arousal) will be weaker. With a decrease in the anxious arousal, it becomes easier to refrain from compulsive behavior.

Although studies regarding the role of cognitions in symptom presentation for children with OCD are inconclusive, cognitive restructuring techniques are often utilized in the treatment of pediatric OCD (Schneider & Storch, 2017). Children are taught to recognize cognitive distortions (e.g., “I will get sick if I don’t go to the bathroom before meals”) as “just my OCD,” to identify types of cognitive distortions, and to use specific strategies to address particular types of distortions (Lewin, Storch, Adkins, Murphy, & Geffken, 2005). For example, if a child is exaggerating the likelihood or magnitude of a particular feared event, then the child may be coached to use reminders about the realistic likelihood and severity of that negative outcome (e.g., “It probably will not happen and it wouldn’t be that bad if it did.”). Another treatment strategy to help children better conceptualize and implement the cognitive aspects of treatment is “bossing back” the OCD. When “bossing” their OCD, children verbalize the irrational or unlikely nature of their obsessions and provide an opposite to the thought by “telling the OCD” that they are going to do something different and that it cannot hurt them. In addition, giving the OCD an undesirable nickname, visualizing it as something the child has control over, and portraying treatment as a “fight” against the nasty OCD, can help children better conceptualize treatment and become more engaged (i.e., making treatment more fun).

Incorporating the child’s family has been the focus of more recent pediatric OCD treatment. Family-focused CBT attempts to equip the child and parents with tools to improve their understanding and management of OCD symptoms (Freeman et al., 2014). Family-focused CBT begins with providing psychoeducation to the child and parent in appropriate, clear language that conceptualizes treatment and outlines a path to recovery. This includes a discussion of family accommodation of the child’s OCD symptoms and the long-term benefits that come at the cost of the short-term difficulties of systematically reducing accommodating behaviors. Behavioral management skills training is provided as a way to equip the parents with strategies to manage symptoms and encourage progress. These include differential reinforcement, shaping, and contingency management strategies. Externalizing strategies like those mentioned above are taught to the child to help reduce stigma and shame and to motivate progress against a common obstacle.

Treatment Considerations for Pediatric OCD

Developmental Adaptations. As with any pediatric psychosocial intervention, a variety of developmental issues must be considered. From the onset of therapy, accurate assessment is a challenge with children as they may have difficulty recognizing/reporting obsessions and the relationship between obsessions and compulsive behavior. To address this issue, CBT therapists may use treatment exercises as an opportunity to gain further information and to teach the child about obsessions or other relevant symptoms. Specifically, a therapist may get a child started with an exposure exercise then ask the child during a state of clear distress "What are you thinking?" The therapist can use this information to gain a better understanding of the nature of the child's presentation and coach the child in the use of cognitive restructuring techniques. In children who do not acknowledge the presence of specific cognitive components, therapists can defer to a sense of discomfort as the trigger for ritual engagement. Additionally, psychoeducation and metaphors used in therapy must be adjusted to meet the cognitive development of the child, while adequately conveying the conceptual basis of the therapy. Finally, younger children tend to focus on the present. Thus, the temporary distress associated with ERP may have a stronger effect on their motivation to engage in therapy than the abstract future positive gains. This is particularly difficult in children who do not find their obsessions or ritual engagement distressing. To address this, many CBT therapists use contingency management techniques involving positive consequences for the completion of therapy exercises and negative consequences for refusal to attempt therapy exercises.

Caregiver Involvement. The importance of family involvement in the treatment of pediatric OCD is generally accepted in the research and clinical fields (Lebowitz, Panza, & Bloch, 2016). Of particular importance is assessing accommodating behaviors that are common and contribute to maintaining the child's symptoms (Caporino et al., 2012). Systematically identifying and reducing family accommodation can make it difficult for a child to engage in unwanted behaviors and, thus, increases the likelihood that a child will make efforts to engage in alternate behaviors when faced with distressing obsessions or urges. Family members, typically parents, are also trained to lead the child through exposure exercises. Thus, steps on the hierarchy can be targeted outside of therapy sessions thereby increasing the speed of treatment progress and enhancing generalization of skills. Additionally, family members and other caregivers can act as accountability agents and may be actively involved in contingency management of therapy compliance.

Therapy Intensity. Traditionally, CBT for pediatric OCD takes place in the context of a 45–50 min in-office therapy session on a weekly basis; however, a variety of factors can change to increase the intensity of the therapy as needed for the child. For example, exposure sessions can be moved outside of the therapy office into more relevant environments (e.g., public bathrooms, school, home, public places). The duration of the sessions may also be increased to accommodate for multiple in-session exposure exercises or the frequency of the sessions may be increased to multiple times per week. Although the comparative efficacy of these methods of intervention has not been well established, some results suggest an increased frequency of sessions may increase the effectiveness for children who do not respond to once weekly sessions (Jónsson et al., 2015; Storch et al., 2007). An alternative approach for cases of intractable OCD or for those who do not have access to local CBT providers is to refer the youth to an intensive CBT program. Treatment incorporates identical principles to standard weekly CBT; however, children undergo a concentrated course of therapy characterized by an aggressive targeting of symptoms. Preliminary results of studies in difficult-to-treat pediatric OCD patients supports its use and should stimulate future research and trials among refractory cases (Jónsson et al., 2015; Storch, Lehmkuhl, et al., 2010).

Teletherapy and Remote Treatment. Despite the availability of effective treatment for pediatric OCD, many families experience barriers to seeking face-to-face treatment and a significant number of children and adolescents go untreated. To overcome these barriers, emerging research has examined the utility of remote treatment modalities (Storch, Caporino, et al., 2011; Wootton, 2016). Remote treatment modalities are those that can be provided without having a therapist in the same room. Remote treatments can differ in format and include high-intensity treatments (i.e., those that deliver real-time services through the use of technology such as videoconference or phone calls or low-intensity treatments (i.e., structured lessons or provision of skill information using computer modules or workbooks. Both low- and high-intensity remote treatments have demonstrated similar efficacy to what is seen in face-to-face treatment (Wootton, 2016). Remote treatments may be particularly useful within a stepped-care model, where individuals receive low-intensity remote treatments and only move onto high-intensity treatment if it is deemed necessary.

Prognostic Indicators

Many potential predictors of treatment outcomes have been examined, though results tend to be inconsistent. We review some potential predictors that have received support in the literature.

OCD Severity. Greater symptom severity appears to be associated with poorer treatment outcomes (Garcia et al., 2010; Torp et al., 2015). CBT is recommended for all levels of OCD severity, though youth with very severe symptoms may require additional care such as pharmacologic treatment, intensive CBT, or extensive duration of treatment.

Symptom Types. Although CBT appears effective for a wide range of OCD symptom dimensions (e.g., washing, checking, repeating, etc.), some symptom presentations are generally considered more difficult to treat. For example, children with aggressive intrusive thoughts and checking behavior responded more favorably to CBT than other OCD symptom types in one study (Storch, Merlo, Larson, Bloss, et al., 2008).

Psychiatric comorbidity. Comorbid psychiatric conditions can have a significant impact on treatment. It appears that poorer treatment outcomes are associated with greater externalizing symptoms (Garcia et al., 2010; Storch, Merlo, Larson, Geffken, et al., 2008), depression symptoms (Højgaard et al., 2019; Lavell, Farrell, Waters, & Cadman, 2016), and Attention-Deficit/Hyperactivity Disorder (ADHD) symptoms (Farrell, Waters, Milliner, & Ollendick, 2012). Interestingly, the presence of a tic disorder was associated with better treatment outcomes (McGuire et al., 2015).

Family factors. Family factors, such as family accommodation, higher conflict, and parental blame are associated with OCD and predict poorer treatment outcomes (Garcia et al., 2010; Rudy, Lewin, Geffken, Murphy, & Storch, 2014; Wu et al., 2019).

Treatment of Other Obsessive-Compulsive and Related Disorders

Body Dysmorphic Disorder

BDD involves an excessive preoccupation with perceived defects in appearance (American Psychiatric Association, 2013). BDD typically begins in early to mid-adolescence (Bjornsson et al., 2013), affecting approximately 2% of young people (Enander et al., 2018; Schneider, Turner, Mond, & Hudson, 2017). To date, pediatric BDD treatment research is very limited, and primarily driven by findings from adult research.

Meta-analysis findings support the use of CBT for BDD; across 7 studies including 299 (mainly adult) participants, a large treatment effect was found ($d = 1.22$) compared to wait-list or control (Harrison, de la Cruz, Enander, Radua, & Mataix-Cols, 2016). Moderate response rates have been found in three small ($n = 6$, 13, and 30) adolescent CBT outcome studies (Greenberg, Mothi, & Wilhelm, 2016; Krebs, Turner, Heyman, & Mataix-Cols, 2012; Mataix-Cols et al., 2015). Response rates at follow-up range from 40 to 75%, and CBT response was superior to a psychoeducation and support control condition. Although CBT is a promising treatment for pediatric BDD, further research is greatly needed in order to improve treatment outcomes.

SSRIs are the recommended pharmacotherapy for BDD, supported in adult samples by a systematic review (Phillipou, Rossell, Wilding, & Castle, 2016) and a recent ($n = 100$) open trial (Phillips et al., 2016). In a chart review study, 53% of 19 adolescents treated with an SSRI had substantial improvement in symptoms (Albertini & Phillips, 1999). The results from a number of other case studies appear to support the use of SSRIs in adolescents with BDD, with high doses often required for response (Greenberg, Sullivan, & Wilhelm, 2017).

In the adult literature, emerging BDD treatment modalities include internet-delivered CBT (Enander et al., 2016; Gentile et al., 2019), acceptance-based exposure therapy (Linde et al., 2015), interpretation bias modification training (Summers & Cougle, 2016), and visual processing training (Beilharz, Castle, Grace, & Rossell, 2017). However, these treatments have not been examined in pediatric samples.

Body-Focused Repetitive Behaviors

Body-focused repetitive behavior disorders include excoriation (skin-picking disorder) and trichotillomania (hair-pulling disorder). These disorders involve excessive grooming behaviors that are experienced as difficult to control, are associated with distress and impairment, and can cause temporary or permanent physical damage such as hair loss or scarring (American Psychiatric Association, 2013).

Meta-analytic findings demonstrate large overall treatment effects of cognitive-behavior therapy for adult trichotillomania ($d = 1.41$; McGuire et al., 2014). Studies including pediatric samples are very limited at this time. Two case studies examined ACT and Dialectical Behavior Therapy for adolescents with trichotillomania, finding promising results (Fine et al., 2012; Welch & Kim, 2012). Moreover, an open trial of 46 children and adolescents reported a 77% decrease in trichotillomania symptoms severity at post treatment (Tolin, Franklin, Diefenbach, Anderson, & Meunier, 2007). Finally, two randomized controlled trials ($n = 24$ and 14) demonstrated large reductions in symptoms from pre- to post treatment (Franklin, Edson, Ledley, & Cahill, 2011; Lee et al., 2018).

A meta-analysis of three adult excoriation disorder treatment studies ($n = 5$ [open trial], 17 [wait-list control], and 151 [open trial]) found large treatment effects ($g = 1.09$) for behavioral treatments (Selles, McGuire, Small, & Storch, 2016). Unfortunately, efficacy of cognitive-behavior therapy for excoriation disorder in children and adolescents remains largely unexamined.

Meta-analytic findings demonstrate moderate overall treatment effects ($d = 0.41$) for serotonin reuptake inhibitors in adult trichotillomania studies (McGuire et al., 2014). A randomized controlled trial of *N*-acetylcysteine in 39 children and adolescents found no significant benefit compared to placebo (Bloch, Panza, Grant, Pittenger, & Leckman, 2013).

A recent meta-analysis examined treatments for adults with excoriation disorder (Selles et al., 2016). Lamotrigine was examined in two treatment studies (n = 16 [placebo control] and 24 [open trial]) for excoriation disorder. Combined, the studies demonstrated large treatment effects (g = 0.98). Four treatment studies (n = 10 [placebo control; fluoxetine], 14 [open trial; fluvoxamine], 15 [open trial; fluoxetine], and 29 [open trial; escitalopram]) using SSRIs demonstrated a large treatment effect when combined (g = 1.09). Research is badly needed in pediatric populations.

Hoarding Disorder

Hoarding disorder is characterized by difficulty discarding items leading to their accumulation that cause significant congestion of living areas as well as distress and impairment. The prevalence of hoarding disorder in adults is estimated at 2–6%. No wide-scale epidemiological study has examined hoarding in pediatric populations; however, rates are generally estimated to be similar to adult populations. To date, hoarding disorder treatment research is limited and largely consists of findings from adult research (Reviews: Morris, Jaffee, Goodwin, & Franklin, 2016; Storch, Rahman, et al., 2011).

A recent meta-analysis supports CBT as a treatment for hoarding disorder in adults. The analysis of 12 open and randomized controlled trials for hoarding disorder found an overall large treatment effect (g = 0.82) for CBT (Tolin, Frost, Steketee, & Muroff, 2015). Two case studies have examined a family-based CBT treatment approach for pediatric hoarding disorder. The cases involve a 9-year-old girl and an 11-year-old boy with significant hoarding behaviors, resulting in significant distress and impairment. The cases examined presenting treatment in an age-appropriate manner, addressing family dynamics such as accommodation, and maintaining treatment gains. Outcomes were favorable in both cases, indicating the potential for family-based CBT, although further research is desperately needed in this area.

Meta-analytic findings also support the use of a pharmacological intervention for hoarding disorder in adults (Brakoulias, Eslick, & Starcevic, 2015). The analysis consisted of seven case series, open, and randomized controlled trials for hoarding disorder and estimated that 37–76% of participants significantly responded to pharmacological treatment. Compared to CBT, the evidence for pharmacotherapy interventions is currently less robust with only a single randomized controlled trial included in the meta-analysis. Moreover, to date, no pharmacological treatment trials exist for pediatric hoarding, thus, treatment recommendations are unclear at this time.

Conclusion

The empirical basis for the treatment of OCD in children and adults has expanded substantially, with considerable evidence for CBT and SSRIs. However, research on other obsessive-compulsive and related disorders has greatly lagged behind OCD, and significant research is required to establish evidence-based care for disorders including BDD, hoarding, trichotillomania, and excoriation. Although recent advances in treatment research are encouraging, families can face many barriers to accessing evidence-based care. Further, it can be challenging for clinicians and researchers to directly compare outcomes across studies and meta-analyses due to differences in study design and analyses. This highlights the need for continued development both in treatment research and in dissemination of evidence-based treatment protocols. Together these efforts will enhance access to high-quality care for youth with OCD and related disorders.

Key Points

- There is strong evidence supporting the use of Cognitive-Behavioral therapy (CBT) and SSRIs to treat pediatric OCD.
- More head-to-head treatment studies are needed for youth with OCD in order to determine the outcome of combined treatment compared to CBT and SSRI monotherapies.
- OCD studies are increasingly focusing on the identification of moderators and predictors of treatment outcome for youth OCD.
- The evidence supporting the use of CBT for BDD, trichotillomania, skin-picking, and hoarding disorder comes from adult samples, however, there is promising early evidence from pediatric samples.
- There is little to no evidence for the use of pharmacotherapy for pediatric trichotillomania, skin-picking, and hoarding in pediatric populations.

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Evidence-Based Interventions for Posttraumatic Stress Disorder in Youth

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Abstract

This chapter discusses the prevalence and incidence of Posttraumatic Stress Disorder (PTSD), in addition to issues of diagnosis, assessment, and evidence-based treatments. Posttraumatic Stress Disorder (PTSD) is unique among psychological disorders in that it is precipitated by an external event. Specifically, exposure to potentially traumatic events, such as school shootings, terrorist attacks, motor vehicle accidents, devastating natural disasters, interpersonal violence, and life-threatening illnesses and injuries may lead to significant psychological distress and functional impairment, resulting in PTSD. The chapter authors review the key treatment approaches that have been identified as effective for youth based on systematic reviews and meta-analyses. They also describe the underlying principles for evidence-based treatments. Well-established treatments include Trauma-Focused Cognitive Behavioral Therapy and Cognitive Behavioral Treatment which are presented in detail. Also covered are treatments including Prolonged Exposure and EMDR. Several recent systematic reviews and meta-analyses have evaluated psychological treatments for PTSD in youth. Overall, these reviews support the efficacy of cognitive behavioral treatments, and especially that are trauma-focused, for treating PTSD or posttraumatic stress symptoms among trauma-exposed youth.

Posttraumatic Stress Disorder in Youth

Posttraumatic Stress Disorder (PTSD) is unique among psychological disorders in that it is precipitated by an external event (American Psychiatric Association [APA], 2013). Specifically, exposure to potentially traumatic events (PTEs), such as school shootings, terrorist attacks, motor vehicle accidents, devastating natural disasters, interpersonal violence, and life-threatening illnesses and injuries may lead to significant psychological distress and functional impairment, resulting in PTSD

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_7

(Bonanno, Brewin, Kaniasty, & La Greca, 2010; La Greca & Silverman, 2012; Price, Kassam-Adams, Alderfer, Christofferson, & Kazak, 2016).

By 16 years of age, an estimated two-thirds of youth experience at least one PTE (Copeland, Keeler, Angold, & Costello, 2007; McLaughlin et al., 2013). Youths' exposure to PTEs may escalate in the future, given the increasing frequency of many traumatic events, such as mass shootings and climate-related disasters, both of which are on the rise in the U.S. and worldwide (Cohen, Azrael, & Miller, 2014; Dodgen et al., 2016). Fortunately, most youth are resilient, and exposure to PTEs does not always result in psychological disorder (Bonanno et al., 2010). Nevertheless, a significant minority of youth (typically 30% or less) exposed to traumatic events, such as disasters or acts of violence, develop PTSD or significant, persistent posttraumatic stress symptoms (PTSS) (e.g., La Greca, Silverman, Vernberg, & Prinstein, 1996).

Definition and Diagnostic Considerations

The conceptualization of PTSD has changed substantially since 1980, when it was first introduced (APA, 1980). Currently, there is an ongoing debate over the conceptualization of PTSD, with very different diagnostic models offered by the *DSM-5* and *ICD-11*.

DSM-Based Criteria. Most of the research on PTSD in youth has been based on the *DSM-IV* (APA, 1994), which conceptualized PTSD as including 17 symptoms across three symptom clusters: reexperiencing, avoidance, and arousal. In 2013, *DSM-5* expanded the criteria for PTSD to include 20 symptoms across four symptom clusters (reexperiencing, avoidance, arousal, and a new cognitions/mood cluster). This "broad approach" to PTSD incorporates symptoms that reflect the many diverse clinical presentations of the disorder (Friedman, 2013). The reexperiencing (e.g., intrusive memories, nightmares) and arousal (e.g., insomnia, hypervigilance) clusters remained essentially the same as in *DSM-IV*, while the avoidance cluster was modified to require active avoidance of internal or external trauma cues. The new cognitions/mood cluster includes symptoms such as negative beliefs, negative emotions, anhedonia, and distorted cognitions about blame.

DSM-5 also introduced separate criteria for diagnosing PTSD in children ages 6 years and younger (APA, 2013), as developmentally sensitive criteria (i.e., those that reduce cognitive symptoms and have observable behavioral anchors for symptoms) identify three to eight times more young children with PTSD than do the adult-based criteria (Scheeringa, Myers, Putnam, & Zeanah, 2012; Scheeringa, Zeanah, & Cohen, 2011). The PTSD model for "young children" contains about 16 symptoms across three clusters (re-experiencing, arousal, and a cluster containing both avoidance and cognitions/mood symptoms). Moreover, recent studies suggest that the *DSM-5* criteria for young children also may be appropriate for preadolescent children (ages 7–12 years) (Danzi & La Greca, 2017).

ICD-11 Criteria. *ICD-11* takes a narrow approach to PTSD by only including "core" symptoms; this was done to improve the clinical utility, and to reduce assessment burden and overlap with other disorders (Brewin et al., 2017). The *ICD-11* definition has six symptoms across three clusters (re-experiencing, avoidance, and arousal). Importantly, reexperiencing means to experience the trauma as if it were happening in the present, such as through vivid memories, nightmares, or flashbacks. Avoidance reflects active avoidance of internal or external trauma cues. Arousal reflects an ongoing sense of threat (e.g., hypervigilance, startle response).

ICD-11 also includes diagnostic criteria for Complex PTSD (Brewin et al., 2017), which is believed to emerge after prolonged and repeated trauma (e.g., slavery, genocide, chronic abuse). Complex PTSD includes the criteria for PTSD as well as symptoms that reflect "disturbances in self-organization," such as problems with affect regulation, negative self-concept (e.g., feelings of shame or worthlessness), and pervasive interpersonal difficulties (Brewin et al., 2017; Karatzias et al., 2017).

Individuals with features of Complex PTSD might benefit from treatments that include emotion regulation strategies and efforts to improve interpersonal functioning; however, there has been little study of Complex PTSD in youth.

Diagnostic Issues. Because current conceptualizations of PTSD diverge widely, they pose challenges for identifying and treating youth with PTSD. Importantly, there is a low agreement between the *DSM-5* and *ICD-11* diagnostic models for PTSD; each model identifies youth "missed" by the other model (Danzi & La Greca, 2016, 2017). For example, only 45% of disaster-exposed children who met criteria for PTSD (in either the *DSM-5* or *ICD-11* systems) were identified by *both DSM-5* and *ICD-11* (La Greca, Danzi, & Chan, 2017), even though children who met either set of diagnostic criteria reported elevated levels of PTSS and functional impairment.

Furthermore, several psychological conditions often co-occur with PTSD, such as general anxiety, depression, and substance use (Bonanno et al., 2010; Lai, La Greca, Auslander, & Short, 2013); trauma exposure also is linked with grief, anxiety, and stress-related health problems (Bonanno et al., 2010). For example, nearly 75% of the adolescents in a national sample who met criteria for PTSD also met the criteria for depression or substance use (Kilpatrick et al., 2003).

These comorbid conditions are important to assess because they contribute to the chronicity of youths' PTSD (La Greca et al., 2013; Lai et al., 2013) and predict treatment resistance or poor treatment outcome (e.g., Jaycox et al., 2010). Further, it is important to consider the possibility that youth referred for depression, anxiety, or substance abuse may have co-occurring and unrecognized symptoms of PTSD. Thus, a comprehensive assessment of youth exposed to PTEs is recommended, that identifies PTSD and related comorbidities in order to facilitate treatment planning (see Cohen et al., 2010; La Greca & Danzi, in press).

Prevalence, Incidence, and Disparities in Youth

Population-based studies in the U.S. reveal that PTSD develops during childhood or adolescence in about 3–4% of boys and 7% of girls (Kilpatrick et al., 2003; McLaughlin et al., 2013), with subclinical levels of PTSD occurring at much higher rates (Bonanno et al., 2010; Copeland et al., 2007; Price et al., 2016). Even subclinical levels of PTSD can significantly interfere with youths' academic, cognitive, social, and emotional functioning (e.g., La Greca, Silverman, Lai, & Jaccard, 2010; Price et al., 2016).

Prevalence rates of PTSD vary widely depending on the youth's age. For example, U.S. adolescents have been reported to have a lifetime PTSD prevalence of 5% (8% in girls; Merikangas et al., 2010), similar to the adult lifetime prevalence of 8.7% (APA, 2013). In contrast, the lifetime prevalence rate of PTSD in has been reported to be as low as 0.1% in the U.S. and the U.K. (Copeland et al., 2007; Ford, Goodman, & Meltzer, 2003). Given that exposure to at least one PTE is relatively common (Copeland et al., 2007), this low rate is likely an underestimate, due to difficulties in identifying PTSD in youth.

In terms of the incidence of PTSD following a traumatic event, a recent meta-analysis of trauma-exposed youth indicated that 15.9% developed PTSD following a traumatic experience, with rates for girls (20.8%) doubling that of boys (11.1%; Alisic et al., 2014). Further, Alisic et al. found that the incidence of PTSD was substantially higher for youth exposed to interpersonal trauma (e.g., abuse) than non-interpersonal trauma (e.g., natural disasters). In fact, PTSD was evident for 32.9% of girls exposed to interpersonal trauma.

In general, the literature on ethnic and cultural disparities in the diagnosis of PTSD in youth is sparse. However, epidemiological research with adults indicates that PTSD risk is slightly higher among African Americans and lower among Asians compared with European Americans, when controlling for trauma characteristics (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). The study of disparities in PTSD is complicated by the fact that various ethnic and cultural groups may have differential exposure to the number and type of traumatic events, and that recovery from traumatic events may be confounded with socioeconomic status or other important factors. Importantly, regardless of disparities in the occurrence of PTSD, it appears to be the case that minority groups are less likely than Whites to seek treatment for PTSD (Rabalais, Ruggiero, & Scotti, 2002).

Evidence-Based Principles or Approaches to Treatment

In this section, we review the key treatment approaches that have been identified as effective for youth based on systematic reviews and meta-analyses and also describe their underlying principles. We begin with Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)and CBT, as they are considered well-established treatments for PTSD in youth. We also describe Prolonged Exposure for adolescents (PE-A), which contains some elements of TF-CBT. Finally, we describe Eye Movement Desensitization and Reprocessing (EMDR), which has shown some efficacy in treating youth exposed to single-event traumas, such as motor vehicle accidents. Other psychological treatments have a more limited evidence-base, and drug treatments are typically not used for treating PTSD in youth.

Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)

TF-CBT is a short-term intervention that uses cognitive behavioral learning principles and exposure techniques to reduce PTSS and other common trauma reactions. The key elements of TF-CBT include psychoeducation, coping skills, gradual exposure to PTSS triggers, cognitive processing of trauma-related thoughts and beliefs, and caregiver involvement (Cohen, Mannarino, & Deblinger, 2017). In particular, *gradual exposure* is believed to reduce youths' avoidance, distress, and negative emotions associated with the trauma through habituation to trauma cues, and *cognitive processing* of the trauma is designed to help the youth to create more adaptive associations and interpretations of the trauma events (Cohen et al., 2017). These strategies can counteract maladaptive learning that may have occurred through trauma exposure. For example, youth may learn maladaptive responses to trauma cues by modeling others' reactions, or through unintentional parental reinforcement of avoidant behaviors (Cohen et al., 2017).

As detailed by Cohen and colleagues (2017), TF-CBT involves eight components.

Psychoeducation. The clinician provides an overview of the treatment, as well as information about common reactions to traumatic experiences to normalize such reactions. Facts about the specific trauma the youth endured are presented. Parental involvement in treatment is discussed during this phase, which often involves separate parent and child sessions.

Relaxation. Youth are taught relaxation exercises, such as focused breathing and progressive muscle relaxation; mindfulness practices may also be included. These skills are to be practiced when youth are exposed to trauma reminders.

Affective Awareness. Youth are taught to identify feelings that occur regularly as well as when reminded of the trauma, to continue gradual exposure to trauma reminders. Youth are taught to rate the intensity of feelings (a skill used later in exposure sessions) and to express them appropriately, as well as to regulate their emotions through techniques such as distraction.

Cognitive Coping. Youth are taught to evaluate cognitions in terms of their accuracy and helpfulness, and to understand the relationship between thoughts, feelings, and emotions through real-life examples. With the clinician's help, youth develop alternative thoughts that are more accurate, and learn that these thoughts can affect their trauma-related feelings and behaviors.

Trauma Narrative and In Vivo Exposure. To diminish trauma-related avoidance and emotional distress, the clinician helps youth to create a developmentally appropriate trauma narrative (e.g., a puppet show for a young child; journal writing for an adolescent). The clinician asks open-ended questions and repeats back the child's memories to counteract avoidance as well as to elicit further details for the trauma narrative. Throughout this stage, the youth rates his or her distress and uses relaxation skills when distress levels rise. In order to support habituation to traumatic reminders, the youth gradually moves from less fear-evoking moments to the worst moment or memory. The narrative might conclude with a final chapter synthesizing what the individual has learned over treatment as well as his or her expectations for the future.

In vivo exposure may be indicated when the trauma narrative does not sufficiently reduce avoidance or when there is disruptive avoidant behavior (e.g., school refusal). In such cases, the clinician helps youth build a hierarchy of avoided situations, and through systematic exposure to increasingly fear-provoking stimuli, youth learn that these stimuli are not dangerous.

Cognitive Processing. The clinician and youth review the trauma narrative, with special attention to thoughts related to shame, self-esteem, trust, and safety. The youth evaluates whether each thought is accurate or helpful, and then the clinician helps the child challenge these thoughts through Socratic questioning, role-playing, or other exercises. After cognitive processing, this new information is integrated into the trauma narrative.

Parental Involvement (Conjoint Sessions) And Behavior Management. Although this portion of treatment is important, the clinician must first determine that the child is willing to share the narrative and the parent/caregiver is able to support the child. The clinician meets individually with the child and the parent to discuss the rationale for conjoint sessions, how the caregiver will respond to the narrative, and coping skills that may be necessary. During conjoint sessions, the child shares the trauma narrative uninterrupted, followed by the parent responding to the child's narrative, and the clinician facilitates a discussion about the experience.

In addition, because some youth respond to trauma with externalizing behaviors, parents are taught to manage these symptoms using behavioral techniques, such as labeled praise for desired behaviors, active ignoring of non-dangerous disruptive behaviors, time out, and contingency management. To teach these principles, clinicians may role-play with parents.

Enhancing Safety. To avoid self-blame, this session begins with praise of the youth's response to the trauma. Then, often together with parents, the clinician reviews how to communicate about potentially dangerous future situations, and the youth practices responding to various situations. Lastly, the clinician helps the child and family develop a plan for challenging situations, such as by identifying helpful people and safe places and emphasizing that the child should continue to ask for help when someone does not believe him or her.

Summary. Overall, the elements of TF-CBT are designed to allow youth to habituate to the fear-provoking nature of trauma cues, to correct inappropriate and maladaptive cognitions related to the trauma, and to facilitate adaptive coping and safety skills. A school-based version, *Cognitive Behavioral Intervention for Trauma in the Schools* (CBITS), also appears effective for treating PTSD in youth following disasters and other types of trauma (e.g., Jaycox et al., 2010).

Cognitive Behavioral Treatment (CBT) Without a Trauma Focus

All the CBT elements of TF-CBT (described above) can be implemented without the imaginal or in vivo exposure; this modified treatment also appears to be effective in reducing PTSS in youth (e.g., Nixon, Sterk, Pearce, & Weber, 2017). Notably, while not including the explicit trauma-exposure components, CBT for PTSD in youth does include some trauma-focused elements, such as more general exposure to the trauma through psychoeducation, skills to regulate emotions when faced with trauma reminders, and cognitive processing of thoughts related to the trauma. CBT appears to be a viable treatment option for youth, who experience difficulty with the explicit exposure elements of TF-CBT.

Prolonged Exposure for Adolescents (PE-A)

PE-A is a short-term individual therapy with a CBT orientation, based on emotional processing theory (Foa, Huppert, & Cahill, 2006). In PE-A, youth confronts the situations or activities that remind them of their traumatic event and "revisit" their traumatic memory by repeatedly retelling a trauma narrative (Foa, Chrestman, & Gilboa-Schechtman, 2009). It has been used with adolescent females who have been sexually abused (e.g., Foa, McLean, Capaldi, & Rosenfield, 2013).

According to the emotional processing theory, PTSD symptom change occurs through the activation and alteration of one's fear structure through exposure, but this theory also emphasizes the importance of *increasing the organization* of the trauma story. Repetition allows for the creation of a cohesive trauma narrative, which may reduce PTSD symptoms, as the ability to articulate a trauma is associated with symptom amelioration (Foa et al., 2006, 2009). The three main components of PE-A are described below and detailed by Foa and colleagues (2009).

The ***psychoeducation and breathing retraining*** element of PE-A is similar to the first phases of TF-CBT. However, PE-A also includes an optional motivation-building exercise to counteract youths' interpretation of symptoms as "weakness" or as indications that they will never recover. Next, the **in vivo *exposure*** component is similar to the in vivo exposure used in TF-CBT. Finally, for ***imaginal exposure***, the clinician encourages the youth to describe the trauma event aloud and to add more details during each subsequent trauma exposure. The clinician also aids the youth in processing the memory and challenging erroneous thoughts related to the trauma. The imaginal exposure is audio-recorded, so that the youth can listen to the recording daily for homework. Eventually, in order to boost emotional processing, the youth is encouraged to repeatedly retell the worst parts of his or her trauma, focusing on one part at a time, until habituation to the event occurs.

Eye Movement Desensitization and Reprocessing (EMDR) Therapy

During EMDR, the youth attends to a biphasic distracting stimulus while also focusing on the trauma memory. EMDR typically is briefer than other treatments, with sessions lasting 45 min, and treatment length ranging from 3 to 12 sessions, depending on the study (Dorsey et al., 2017; Rodenburg, Benjamin, de Roos, Meijer, & Stams, 2009). EMDR is based on the adaptive information processing model (Shapiro, 2007), which posits that the information processing system becomes altered in those with PTSD, so that the past is experienced as recurring rather than distant, and thus adaptive resolution does not occur. EMDR utilizes *dual attention* to trauma and to present-day strengths (e.g., "I am safe now") to aid in processing the traumatic event and related cues as memories that are not presently dangerous. Although research into the mechanisms of action underlying EMDR therapy is sparse (Landin-Romero, Moreno-Alcazar, Pagani, & Amann, 2018), hypothesized mechanisms of action for the eye movements and dual-task procedures include the induction of REM-sleep-like state (Stickgold, 2007), bolstering of episodic memory and attentional flexibility (Gunter & Bodner, 2008), and the occurrence of physiological changes such as decreased arousal (Sack, Hofmann, Wizelman, & Lempa, 2008). EMDR in youth is sometimes combined with CBT (de Roos et al., 2011; Farkas, Cry, Lebeau, & Lemay, 2010). In fact, EMDR is similar in some ways to TF-CBT as it is intended to reduce distress and strengthen adaptive beliefs about traumatic events; however, EMDR does not involve detailed descriptions of the traumatic events or extended trauma exposure.

EMDR has the youth focusing on traumatic images, thoughts, emotions, or bodily sensations while engaging in bilateral stimulation (e.g., repeated eye movements). Relaxation, guided imagery, and eye movement techniques are first taught, followed by the re-processing sessions (Fleming, 2012). Specifically, as described by Adler-Tapia and Settle (2016), after explaining the EMDR treatment, the clinician teaches the youth relaxation techniques and asks the youth to describe a favorite memory, which is conceptualized as a "safe place;" these skills are repeated in between EMDR practices and at the end of the session. Next, the clinician helps the youth focus on a specific distressing memory through directive questioning. The clinician asks the child to generate functional and dysfunctional cognitions related to the trauma, and then the image, emotion, and physical sensation associated with the dysfunctional cognition. Next, the child focuses on the thought, image, emotion, and sensation while also attending to distracting stimuli, such as the clinician's fingers moving back and forth in front of the child's eyes. After this practice, the child speaks to the clinician about memories, thoughts, emotions, and physical sensations that arise, and rates subjective units of distress (SUDs). The child then refocuses on these experiences during the next exposure to the distractor. This continues until SUDs ratings decrease to zero; after that, the clinician guides the child to attach a functional, more positive belief to the memory. In young children, rather than focusing on a cognition, a positive image such as a superhero may be used (Fleming, 2012). Throughout treatment, the clinician and child reevaluate memories that have been processed to guide further treatment.

Evidence-Base: Summary of Key Meta-Analyses and Systematic Reviews

Several recent systematic reviews and meta-analyses have evaluated psychological treatments for PTSD in youth (Dorsey et al., 2017; Forman-Hoffman et al., 2013; Morina, Koerssen, & Pollet, 2016). Overall, these reviews support the efficacy of CBT, and especially TF-CBT, for treating PTSD or PTSS among trauma-exposed youth.

Specifically, Dorsey and colleagues (2017) reviewed 37 treatment studies categorized by modality (group vs. individual), participants (child vs. child and parent), and treatment type (i.e., based on the primary theoretical orientation), and included well-known treatments (i.e., CBT, TF-CBT, PE, and EMDR), as well as less frequently studied ones (e.g., KIDNET, mind–body skills). Treated youth were exposed to diverse types of traumatic events; about half (46%) the studies were conducted outside the U.S.; and the most common treatment settings were schools, community clinics, and university- or hospital-based clinics. Most of the treatments were delivered by mental health professionals. The most common outcome variables were PTSD or PTSS (95% of the studies), depression (51%), externalizing problems (46%), and anxiety (27%).

Because this review was not a meta-analysis, effect sizes for the PTSD treatments were not available. However, Dorsey and colleagues (2017) identified three treatment families whose effects were considered to be well established: individual CBT, group CBT, and individual CBT with parent involvement. The evidence supported the use of these treatments with culturally diverse youth. CBT included TF-CBT, as well as interventions that focus on PE with some psychoeducation (e.g., PE-A; Foa et al., 2013). Most CBT treatments were multicomponent with common elements, such as psycho-education, coping skills, and imaginal or in vivo exposure, and most were 8 to 14 sessions in length. Evidence supported the effectiveness of individual and group CBT (with and without a trauma-focus) compared with active treatment conditions. In addition, individual CBT with parental involvement, which focused primarily on TF-CBT, outperformed comparison conditions; this treatment includes the non-offending parent when used with maltreated youth (Cohen et al. 2015).

Dorsey and colleagues also identified two interventions as *probably efficacious*: group CBT with parent involvement and EMDR. Although promising, these approaches were limited by the small number of studies and relatively small samples. Other intervention approaches had substantially less support, including individual integrated therapy for complex trauma (e.g., Ford, Steinberg, Hawke, Levine, & Zhang, 2012), mind–body skills (e.g., Gordon, Staples, Blyta, Bytyqi, & Wilson, 2008), and group creative expressive activities plus CBT (Tol et al., 2014).

Finally, in terms of treatment moderators, Dorsey and colleagues also found that greater maternal depressive symptoms were associated with poorer youth outcomes; longer treatments (e.g., 16 versus 8 sessions) were associated with better outcomes; and youth who displayed sudden gains during treatment had greater improvements in PTSS. However, youth age and gender did not appear to be associated with treatment outcome.

Morina and colleagues (2016) conducted a meta-analysis of interventions for PTSD that included 41 RCTs of youth 18 years of age or younger. Youth were predominantly exposed to traumatic events that occurred over an extended time period (e.g., mass conflict, sexual assault, and multiple other traumas). The psychological interventions studied included: TF-CBT, multidisciplinary treatments, classroom-based interventions (CBIs), EMDR, psychodynamic therapy, psychotherapy, and meditation; these conditions (all combined) were compared to youth in either wait-list control or active comparison conditions (e.g., treatment as usual). TF-CBT and CBI (typically based on CBT) were also evaluated independently of the other psychological interventions. Findings revealed that at postintervention and follow-up: (1) psychological interventions produced greater effect sizes for reductions in PTSD symptoms than did control conditions ($g = 0.83$ vs. waitlist, $g = 0.41$ vs. active control); (2) effect sizes were especially large for TF-CBT (g = 1.44 vs. waitlist; g = 0.56 vs. active control) and weakest for CBIs (g = 0.23 vs. waitlist); (3) the treatment effects were stronger for comparisons with inactive ($g = 0.83$) versus active conditions ($g = 0.41$); and (4) no support was obtained for psychopharmacological interventions (based on 2 studies), consistent with other reviews (e.g., Forman-Hoffman et al., 2013).

Morina and colleagues (2016) also evaluated the impact of psychological interventions on comorbid depressive symptomatology, finding positive but much smaller intervention effects ($g = 0.30$ vs. waitlist; $g = 0.32$ vs. active control); however, medium effect sizes were obtained for TF-CBT specifically ($g = 0.59$ vs. waitlist; $g = 0.48$ vs. active control). Finally, several potential moderators of treatment outcome were evaluated, with some support for older youth age being related to better outcomes; however, no findings were observed for group versus individual treatment, the number of treatment sessions, or whether caregivers were included.

In general, these two reviews are consistent with earlier work (e.g., Gillies, Taylor, Gray, O'Brien, & D'Abrew, 2013) that provided support for the efficacy of TF-CBT for reducing PTSD and PTSS in trauma-exposed youth. Less support is provided for TF-CBT leading to reductions in depressive symptoms or anxiety. However, another recent meta-analysis, that focused specifically on PTSD and co-occurring depressive symptoms in youth exposed to diverse types of trauma, found medium to large effects ($g = 0.78$) for TF-CBT leading to reductions in depressive symptoms compared to no treatment (Lenz & Hollenbaugh, 2015). This latter review also found TF-CBT to be more effective with older youth, and noted that the study samples were predominantly comprised of minority youth.

In addition to the above, Rodenburg and colleagues (2009) published a meta-analysis of the efficacy of EMDR in children treated for PTSD, based on 7 randomized trials of 109 children (4–18; mean = 10.88 years) treated with EMDR and 100 controls. Overall, they observed a medium effect size for the impact of EMDR versus controls ($d = 0.56$, $p < 0.001$), with a wide range of effects across studies ($d = 0.07$–1.45). The authors also noted a positive effect for comparisons between EMDR and an established treatment (CBT) ($d = 0.25$, $p < 0.05$) based on two studies, suggesting that further study of EMDR's incremental efficacy for traumatize youth is warranted.

Overall, the evidence-base has multiple strengths. Specifically, studies: included youth who were diverse with respect to age, ethnicity, and types of trauma exposure; were conducted in diverse settings, capturing both efficacy and effectiveness of the interventions; were conducted both nationally (U.S.) and internationally; and included nonactive and active comparison conditions.

However, several limitations to the evidence-base should be noted. One concerns the ways that treatments are grouped or classified. Some reviews combine trauma-focused and non-trauma-focused CBT (e.g., Dorsey et al., 2017); others combine across all psychological interventions (e.g., Morina et al., 2016) or include PE-A with the CBT interventions rather than as a "stand-alone" treatment. Because CBT interventions might have a trauma focus but not include all the elements of TF-CBT, grouping such treatments with TF-CBT can be misleading. These "grouping decisions" make it challenging to identify the most effective treatments or the components contributing to a particular treatment's effectiveness.

A second limitation to the evidence-base is that studies typically evaluate entire treatment packages (e.g., TF-CBT), and not the primary treatment principles. Thus, it is not clear which treatment components are most essential, or what aspects of PTSD are most affected by a specific treatment. For example, do treatments with an exposure emphasis lead to greater reductions in the avoidant symptoms of PTSD than those without exposure elements? Does the cognitive processing aspect of TF-CBT lead to greater reductions in the cognition/mood symptoms of PTSD than treatments without such components? Studies that explicitly examine treatment mediators, and that track the impact of trauma treatments on the various PTSD symptom clusters might help to better understand the mechanisms underlying the various treatments' effectiveness, and facilitate tailoring of treatments to youths' specific needs.

A third limitation is that existing reviews vary in terms of the types of trauma exposure included in the evidence-base; in the future, differentiating between treatments for Type I versus Type II traumatic events would be useful. Type I traumas are unexpected single events (e.g., natural disasters, motor vehicle accidents) and Type II traumas are anticipated and chronic (e.g., sexual abuse, war) (Fleming, 2012). Some PTSD treatments (e.g., TF-CBT, PE-A), mainly have been studied after Type II traumas; others (e.g., EMDR) mainly have been studied after Type I traumas (Fleming, 2012). In general, we know the most about treatments for Type II events, with fewer well-controlled studies for youth affected by acute Type I events.

Finally, most intervention studies demonstrate effectiveness compared to inactive control conditions, and reveal weaker findings (especially in the long term) when an active control condition is the comparison. Future studies that compare treatments to active controls, and that examine comparative treatment effectiveness (e.g., PE-A versus EMDR) are needed.

Summary of Treatment Efficacy or Effectiveness

Overall, trauma-focused CBT (TF-CBT) has the strongest evidence-base for treating PTSD in youth (Dorsey et al., 2017; La Greca & Danzi, 2019). In fact, the Practice Parameters set forth by the American Academy of Child and Adolescent Psychiatry (Cohen et al., 2010) recommend that TF-CBT be the first line of treatment for youth with PTSD. TF-CBT is effective in treating youth with diverse types of trauma exposure and across a broad developmental range (preschool through adolescence); it may lead to reductions in co-occurring symptoms of depression or other problems (Lenz & Hollenbaugh, 2015); it has been adapted for multiple cultures (Dorsey et al., 2017); and it has been adapted for youth with complex trauma (Cohen, Mannarino, Kliethermes, & Murray, 2012). CBT without a trauma focus also has strong support, and could be used when trauma exposure is problematic.

In terms of treatment modalities, TF-CBT (and CBT) can be administered individually or in groups (see Cohen et al., 2017 for details). Individual TF-CBT typically is delivered to the parent and child. Group-based TF-CBT (often delivered in school settings, as in CBITS) may be conducive to large-scale traumatic events and appears to facilitate youths' access to and engagement in treatment compared to clinic-based treatment settings (e.g., Jaycox et al., 2010).

PE-A is a type of trauma-focused CBT especially useful for adolescent girls exposed to sexual maltreatment. PE-A also includes several components that might be particularly suited for adolescents, such as motivational interviewing, a focus on the social impact of PTSD symptoms, and flexibility with regard to parent involvement (Foa et al., 2009). Similar to TF-CBT, PE-A has been found to reduce comorbid symptoms such as depression (Foa et al., 2013).

In general, if these treatments were not feasible or successful, a clinician might consider using EMDR, as it has been studied with trauma-exposed youth who have not responded to TF-CBT or CBT treatments. However, drug treatments are typically not desirable for treating PTSD in youth (La Greca & Danzi, 2019), although pharmacological treatments might be useful to consider as adjunct treatments for addressing youths' comorbid conditions (Cohen et al., 2010).

In selecting a treatment approach, an important consideration is whether youth display conditions comorbid with PTSD (especially anxiety, depression, ADHD, and substance use; Cohen et al. 2010). Such youth may need adjunct treatments to address co-occurring problem areas. For example, a large RCT conducted in German service settings found that TF-CBT was effective for youth with heterogeneous types of traumas, although youth with more comorbid disorders showed less improvement (Goldbeck, Muche, Sachser, Tutus, & Rosner, 2016).

Treatment options for the parent(s) also may be an important consideration, as maternal depressive symptoms predict poorer youth response to PTSD treatment (Dorsey et al., 2017). Parents also may have shared trauma exposure with the child (e.g., after a motor vehicle accident or disaster) and need assistance dealing with their own reactions. Finally, youth who have significant risk factors for poor recovery (e.g., lack of social support, occurrence of stressful life events; La Greca & Danzi, 2019) may need a treatment plan that addresses these areas of risk.

TF-CBT Case Example: Gabriella

Because TF-CBT is considered the first line of treatment for youth with PTSD, below we discuss how a clinician might implement this treatment using a case example. We note the major components of TF-CBT and discuss considerations for treatment implementation, including how cultural values, individual preferences, and case-specific challenges might affect treatment.

"Gabriela" is a 15-year-old girl, referred to an outpatient clinic by her pediatrician due to sudden changes in her behavior, including poor academic performance, dropping out of the swim team, and withdrawing from relationships with her friends and her mother. The clinician conducted a thorough intake and learned that Gabriela is experiencing many symptoms of PTSD related to a traumatic experience that occurred three months prior. Gabriela had been texting with "Max," who she met through a social media website. Gabriela explained that her mother, who she characterized as "overprotective" and "old-fashioned," did not approve of her dating, so Gabriela snuck out of her bedroom at night to meet Max for the first time at a local park. When she entered the park, Gabriela was grabbed from behind by an older man, who pulled her toward a van. Gabriela screamed and struggled, while the man attempted to choke her and ripped at her clothes. The assault was interrupted by a couple who had been taking a walk nearby and were alerted by the noise. The man fled in the van, and the couple gave Gabriela a ride back to her home.

Since then, Gabriela has been having nightmares and intrusive memories of the attack. She avoids going to school because her bus stop is near the park, and when she does make it to school, she cannot concentrate on her schoolwork and feels jumpy and on edge. Gabriela stated that she feels "ruined" by the experience and feels like she will never be able to trust anyone again. The clinician also learned that Gabriela and her mother immigrated from Central America when Gabriela was 2-years old. Gabriela does not remember that experience, but stated that her mother becomes distressed if Gabriela asks her about it and refuses to talk about it.

Psychoeducation. For a case like Gabriela, it is crucial to provide psychoeducation about trauma reactions and a rationale for the treatment plan to both the adolescent and the parent. When planning this session, the clinician should be prepared for several possible challenges that may arise. The clinician should be mindful of the family's background and the possibility that the mother may have her own trauma history, which could influence her reactions to her daughter's experience. Parents may present with a range of responses to a traumatic experience like Gabriela's, such as blame, guilt, anger, avoidance, or distress. The clinician should consider how these reactions may influence the adolescent's recovery. The clinician also should take the family's cultural background into account, and how culture may influence factors such as perceptions of mental health, values and expectations, parent–child interaction patterns, views of sexual assault, willingness to discuss difficult content, and attitudes toward therapy.

Relaxation. The individual's developmental level is important to consider when selecting how to teach stress management strategies. For an adolescent Gabriela's age, relaxation techniques such as diaphragmatic breathing or progressive muscle relaxation could be taught with considerable detail. For a younger child, these strategies may need to be simplified or presented in the form of games or blowing bubbles.

Affective Awareness. Learning to identify and understand emotional experiences is a crucial part of therapy for youth of any age. As an adolescent, Gabriela should be encouraged to identify a wide range of emotions (both positive and negative) and to think about complex emotions, such as having more than one feeling simultaneously (e.g., fear because the assault happened, but also relieved that it was interrupted). It also may help to think about the family dynamics and cultural factors surrounding emotional experiences, as some families may have high levels of expressed emotions whereas others may be uncomfortable displaying emotions. This issue may come up as therapy becomes more emotionally evocative in future sessions.

Cognitive Coping. Gabriela should be taught about the connection between thoughts, feelings, and behaviors, as well as encouraged to identify and challenge cognitive distortions. For youth with PTSD, it is particularly important to attend to inaccurate cognitions tied to feelings of guilt or blame. For a case like Gabriela, the clinician should consider what internal and external messages Gabriela is contending with around these topics. For example, Gabriela's assertion that she is "ruined" may be influenced by cultural context, family reactions, and her cognitions about the assault. The clinician also may need to support Gabriela's mother in processing and differentiating her own thoughts and feelings about the trauma from other intertwined issues, such as her daughter seeking a romantic relationship and sneaking out of the house.

Trauma Narrative. Before beginning the trauma narrative, the clinician should review the rationale with both Gabriela and her mother. If the mother's tendency is to avoid talking about distressing content, then the clinician might anticipate some resistance to this component of treatment. Youth also may be reluctant to engage in the trauma narrative; thus, it is important that the youth is given agency in determining the plan for this phase of treatment. Gabriela should be encouraged to take ownership of her narrative and determine how she wants to structure it. Many adolescents prefer a book or written format, but some might prefer other creative outlets (e.g., music, artwork, photography, etc.). Gabriela should begin the trauma narrative with parts of her story that do not elicit distress (e.g., autobiographical details) and then eventually move on to more distressing content. As Gabriela develops her trauma narrative, the clinician should guide her in exploring her thoughts and feelings about the trauma, identifying common themes, and challenging inaccurate or unhelpful cognitions.

In Vivo *Exposure*. Gradual in vivo exposure exercises can address the avoidance and distress evoked by trauma-related cues. The clinician should support Gabriela in identifying and rank-ordering such cues causing the least avoidance/distress to the most avoidance/distress. Some triggers may be obvious (e.g., being at the bus stop where the assault occurred) and others may require exploration with the clinician to identify (e.g., changing clothes in the locker room for swim team). Gabriela should start with exposure to less distressing stimuli before moving on to more distressing stimuli. Her completion of planned exercises and the accompanying emotional ratings should be carefully monitored and tracked over time.

Conjoint Parent–Child Sessions. This component involves the adolescent sharing some or all of the trauma narrative with a supportive parent or caregiver. The clinician should work with Gabriela's mother prior to this session, to prepare the mother for hearing the narrative and coaching her to respond in a supportive and appropriate manner. The clinician should be sensitive to the possibility that Gabriela's trauma narrative could be a trigger for the mother's own trauma history. Even parents without a trauma history may find it highly distressing to hear details about their child's traumatic experience. Further, sensitive topics such as sexual history or alcohol/drug use may be uncomfortable for parents and adolescents to broach. It may help for Gabriela's mother to role-play her responses with the clinician first. The mother should be encouraged to provide praise for Gabriela's progress and engagement in therapy.

Enhancing Safety. Although typically toward the end of treatment, the clinician may prioritize safety content earlier in treatment if there are safety concerns. For Gabriela, the clinician may want to prioritize discussing safe social media and phone practices, identifying suspicious online behavior, and opening communication around these topics with the parent. It also may be useful to discuss signs of healthy versus unhealthy romantic relationships, to role-play boundary setting with romantic partners, and to provide information about sexual health topics. By helping Gabriela think through and problem-solve how to handle various scenarios, the clinician can reduce risk and prevent relapse by planning for the future.

Alternative Approaches: PE-A

TF-CBT was chosen for Gabriella's case as it is the "first line" of treatment for youth PTSD. However, PE-A also has empirical support for a case like Gabriela. A few considerations could aid the clinician in choosing between TF-CBT and PE-A in this scenario. Specifically, Gabriela is referred for concerns other than the traumatic experience (e.g., academic and social problems) and the family dynamic involves avoiding discussion of difficult and emotionally charged content. The clinician might anticipate that the PTSD diagnosis and trauma treatment recommendation could come as a surprise to Gabriela and to her mother and might elicit reluctance to participate in treatment. Although both TF-CBT and PE-A begin with psycho-education and coping skills, TF-CBT devotes more sessions to this process and spends more time on foundational skills before beginning exposures; these additional sessions could allow the family time to become comfortable with the therapy process before beginning challenging exposure work. Also, Gabriela has symptoms of potential comorbid depression (e.g., anhedonia), and foundational CBT skills could be useful with such symptoms. The TF-CBT module on enhancing safety also might be a help to address internet usage and Gabriela's safety concerns.

On the other hand, if Gabriela and her mother appeared motivated for treatment and receptive to the clinician's rationale for exposure work, PE-A may be a particularly efficient treatment option for targeting her PTSD symptoms. With PE-A, Gabriella would initially be provided with psychoeducation and breathing retraining before moving directly into in vivo and imaginal exposure. Gabriela would be encouraged to spend substantial time "reliving" the traumatic experience, both in session and at home between sessions.

Directions for Future Clinical Research

Although there has been tremendous progress in their development, evidence-based treatments for youth PTSD are relatively new. Here we describe several important directions for future research. First, we know little about the effectiveness of the various treatment components of PTSD treatments. Future studies that examine PTSD treatment components, the mediators of treatment outcome, and the impact of trauma treatments on specific PTSD symptom clusters will enable clinicians to better tailor treatments to youths' specific psychological needs.

Second, we need comparative effectiveness studies that compare PTSD treatments to each other (e.g., PE-A versus EMDR). Some work of this kind has emerged recently (e.g., de Roos et al., 2017) and additional studies would be welcomed.

Third, evaluating the impact of PTSD treatments on youths' comorbid symptomatology and the need for adjunct treatments will be critical. Rates of comorbidity are high among youth with PTSD and bode poorly for PTSD treatment outcome (e.g., Bonanno et al., 2010).

Fourth, we need well-controlled studies that focus on youth with persistent PTSD occurring after disasters, as well as on interventions that are effective in reducing PTSS during the early post-trauma recovery phase. Communitywide disasters and other large-scale trauma events pose tremendous challenges for treating PTSD because the need for mental health services far exceeds available resources (La Greca & Silverman, 2012). Early interventions to reduce PTSS are extremely sparse, and the quality of the existing evidence-base is low (i.e., few studies, small samples), making it difficult to draw conclusions (Forman-Hoffman et al., 2013).

Fifth, we need to evaluate promising treatments. Mind–Body Skills, Narrative Exposure, and Seeking Safety could be examined (La Greca & Danzi, 2019), as well as interpersonal approaches that have been used with adults (Markowitz, Milrod, Bleiberg, & Marshall, 2009).

Sixth, there is a critical need for future studies to evaluate alternative and more efficient ways to *deliver* PTSD treatments. Especially important are implementation strategies that use technological advances, such as telehealth, to reach youth in rural and other "hard to reach" areas (Stewart, Orengo-Aguayo, Cohen, Mannarino, & de Arellano, 2017). Efficient modes of PTSD treatment delivery also might include school-based settings (Jaycox et al., 2010), and "stepped care" approaches (e.g., Salloum, 2010), where brief versions of evidence-based PTSD treatments are used initially, reserving more intensive treatments for youth who do not respond to the initial treatment. Such approaches might be especially critical in the aftermath of large-scale disasters that affect large populations yet have limited or depleted mental health resources.

Finally, continued evaluation of the moderators of treatment outcome for evidence-based PTSD treatments would be highly desirable. Specific moderators might include age, gender, ethnicity, type of trauma exposure, presence of comorbid conditions, and parental psychopathology, among other possibilities.

Summary

Key Points

- Overall, TF-CBT has the strongest evidence-base and is considered the “first line” of treatment for treating PTSD in youth. TF-CBT has been effective for reducing PTSD and PTSS with diverse populations (ethnically and developmentally) exposed to diverse types of trauma.
- TF-CBT has less support for reductions in depressive symptoms, anxiety, or substance use, although recent findings indicate that TF-CBT leads to reductions in depressive symptoms compared to no treatment. In general, youth with PTSD and comorbid conditions may be challenging to treat and may need adjunct treatments to address comorbid conditions.
- Although progress has been made, the evidence-base for treating PTSD in youth is still evolving. Important future research directions include: understanding the impact of treatment components (especially explicit exposure procedures) on youths’ PTSD symptoms; evaluating interventions after large-scale disasters and for preventing PTSD during the early post-trauma recovery period; developing effective and efficient methods for treatment delivery; and evaluating treatments that are promising but currently understudied.

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Mood Disorders and Related Problems

Evidence-Based Interventions for Depressive Disorders in Childhood

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Abstract

This chapter reviews current information on childhood depression and evidence-based therapies for the treatment of depression in children 12 and under. Depressive disorders in childhood are associated with significant distress and impairment. The prevalence and incidence of childhood depressive disorders and nuances of frequent comorbid conditions are described. Despite the widespread rates and sometimes devastating effects of depressive disorders in children, empirically based treatments for them are few in number. The authors articulate that the profession has limited knowledge about overall treatment efficacy and knows even less about related treatment issues, such as comorbidity, family involvement, group versus individual format, and relapse prevention. They note that many advances have been made in developing and testing psychosocial treatments for children with depressive disorders. This chapter summarizes findings from previous systematic reviews and incorporates new findings published recently. The authors discuss findings from randomized clinical trials of cognitive behavioral therapy, interpersonal therapy, family-based therapy, dialectical behavior therapy, psychodynamic therapy, and parent-–child interaction training for childhood depression. However, much work remains to be done: Different populations of affected children, different styles of therapies, and different treatment methods all need further examination.

Depressive disorders in childhood are associated with significant distress and impairment. This chapter reviews current information on childhood depression and evidence-based therapies for the treatment of depression in children 12 and under. Separate chapters in this volume review bipolar disorders in youth and depression as it appears in adolescence.

Per the *Diagnostic and Statistical Manual*, *Fifth Edition* (*DSM-5*), depressive disorders that can be diagnosed in childhood include major depressive disorder (MDD), persistent depressive disorder

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([PDD], formerly dysthymia), and disruptive mood dysregulation disorder (DMDD), as well as other specified and unspecified depressive disorder (American Psychiatric Association [APA], 2013). Childhood MDD can be diagnosed after two weeks of persistently depressed or irritable mood, or anhedonia, co-occurring with symptoms such as changes in appetite, changes in sleep, fatigue, difficulty concentrating or making decisions, feelings of worthlessness or guilt, and recurrent thoughts of death or suicidal thoughts or actions. PDD represents a merging of the older diagnostic categories of chronic major depressive disorder and dysthymia, and in children, it is characterized by at least 1 year of depressed or irritable mood more days than not, co-occurring with at least two other depressive symptoms. DMDD, introduced in *DSM-5*, is the only depressive disorder in *DSM-5* that must have its onset by age 10 (and can only be diagnosed for the first time in youth aged 6–18). Diagnostic criteria for DMDD include severe, recurrent (at least three times per week) temper outbursts that are out of proportion to the situation and inconsistent with developmental level, together with persistently irritable mood between outbursts. Symptoms must be observed in two or more settings for 3 consecutive months.

Research on childhood depressive disorders has increased in recent decades. Meta-analytic findings including 27 countries indicate a worldwide-pooled prevalence rate of 2.6% for MDD and dysthymia in youth aged 6–18 (Polanczyk, Salum, Sugaya, Cave, & Rohde, 2015). In the United States, the 12-month prevalence of depression in children under the age of 12 has been estimated at 2.5% (Merikangas, He, Brody, Fisher, Bourdon, & Koretz, 2010), and up to 10% of youth experience subthreshold depressive symptoms (Birmaher, Brent, & the American Academy of Child and Adolescent Psychiatry [AACAP] Work Group on Quality Issues, 2007). Prevalence rates for DMDD have been estimated in the 2–5% range (Brotman et al., 2006). Rates of depression in childhood are similar for girls and boys (Birmaher et al., 1996), though by adolescence girls are twice as likely to experience a depressive disorder (Merikangas et al., 2010).

Childhood-onset depressive disorders are associated with difficulties in peer relationships, poor academic performance, and behavior problems (Jaycox et al., 2009). Depressive episodes in children have a median duration of 16 weeks (Rohde et al., 2013) and tend to recur (Birmaher, Arbelaez, & Brent, 2002; Kovacs, Feinberg, Crouse-Novak, Paulauskas, & Finkelstein, 1984). Depressive disorders in youth can lead to poor adult outcomes, predicting depression, bipolar disorder, anxiety disorders, substance abuse, and antisocial personality disorder in adulthood as well as continued functional impairment (Avenevoli, Swendsen, He, Burstein, & Merikangas, 2015; Weissman et al., 1999).

In addition, comorbid conditions are the rule, not the exception, for children with depressive disorders. Yorbik, Birmaher, Axelson, Williamson, and Ryan (2004) compared comorbid conditions in children with major depressive disorder (MDD) to those of adolescents also with MDD. In the child sample, 34.8% suffered from any anxiety disorder (18.9% generalized anxiety disorder, 18.4% separation anxiety disorder), 4.5% suffered from social phobia, 14.9% had attention deficit hyperactivity disorder (ADHD), 10.0% had conduct disorder (CD), and 12.9% suffered from oppositional defiant disorder (ODD). When comorbid conditions exist, depressed youth are more likely to experience increased duration and severity of their disorder, as well as decreased response to treatment and poorer utilization of mental health resources (Birmaher et al., 1996; Lewinsohn, Rohde, & Seeley, 1995). Suicide attempts in childhood are generally rare, but depressive disorders substantially increase the risk of suicidality. By one estimate, 76.2% of children who have attempted suicide meet DSM-III criteria for a psychiatric disorder, and of these, 37.5%, 26.2%, 7.1%, and 45.2% meet criteria for major depression, dysthymia, mania, or any mood disorder, respectively (Gould et al., 1998).

Conceptualization of Treatment for Childhood Depression

Despite the widespread rates and sometimes devastating effects of depressive disorders in children, empirically based treatments for them are few in number. We have limited knowledge about overall treatment efficacy and know even less about related treatment issues, such as comorbidity, family involvement, group versus individual format, and relapse prevention. Research on treatments for childhood depression began in the 1980s, but it was not until the late 1990s that most studies began to use formal diagnostic assessments carried out by masked clinical raters and tracked treatment effects and remission in a way that mirrored approaches used in adult treatment research (Weersing, Jeffreys, Do, Schwartz, & Bolano, 2017). Even in recent years, most juvenile depression treatment research has focused on adolescents rather than children ages 12 and under. This chapter summarizes findings from previous systematic reviews (David-Ferdon & Kaslow, 2008; Kaslow & Thompson, 1998; Weersing et al., 2017; Weisz, McCarty, & Valeri, 2006; Zhou et al., 2015) and incorporates novel findings published within the past 2 years. We discuss randomized controlled trials (RCTs) of cognitive behavioral therapy, interpersonal therapy, family-based therapy, dialectical behavior therapy, psychodynamic therapy, and parent–child interaction training for childhood depression.

Evidence-Based Principles or Approaches

Despite many differences in sample, technique, and theory, the overlap in content between therapies is striking. Here, we describe the active components of these treatments.

Psychoeducation. Psychoeducation about the connections between thoughts, emotions, and behaviors is a core evidence-based technique for youth, as it can help children to understand the relationship between destructive thoughts and feelings that lead to depressive symptomatology (Butler, Miezitis, Friedman, & Cole, 1980). For example, Fristad and colleagues’ multifamily and individual-family psychoeducational psychotherapy (MF-PEP, IF-PEP) contains psychoeducation on mood disorders and their treatments tailored to parents and children, and also educates families on the importance of improving sleep, eating, and exercise (Fristad, Verducci, Walters, & Young, 2009; Fristad, 2006). Psychoeducation may also be an initial step toward building emotion regulation skills; many evidence-based interventions for childhood depression include education in how to identify and label different emotions (Nelson, Barnard, & Cain, 2003; Vosantis, Feehan, Gratton, & Bickerton, 1996).

Cognitive restructuring. Children as young as 8–11 with mood disorders report depressive cognitions similar to those found in adults (Harrington, 2005). Cognitive behavioral therapy (CBT) is based on the premise that depressive disorders are maintained by unrealistically negative interpretations of events and pessimistic beliefs about oneself, other people, and the future (Beck, 1976), which in turn lead to maladaptive behaviors. Thus, CBT and other intervention approaches seek to teach children strategies such as self-monitoring, identification of underlying assumptions or “automatic thoughts,” and replacing unrealistically negative self-evaluations with more positive evaluations (De Cuyper, Timbremont, Braet, Backer, & Wullaert, 2004; Nelson et al., 2003). For example, in Fristad and colleagues’ MF-PEP (Multi-family Psychoeducational Psychotherapy) and IF-PEP (Individual-family Psychoeducational Psychotherapy) interventions, the “Thinking-Feeling-Doing” (T-F-D) exercise is designed to teach children the relationships between their thoughts, feelings, and behaviors and how to modify “hurtful” (e.g., negative) thoughts and behaviors into “helpful” (e.g., positive) thoughts and behaviors.

Skills training. Problem-solving skills are often targeted in psychosocial interventions and may also involve helping children change maladaptive thought patterns. Children are coached in using cognitive strategies such as breaking problems down into smaller steps and creating pros and cons lists to aid in decision-making. Some evidence-based treatments emphasize differentiating distressing conditions that are changeable from conditions that are not changeable, and using appropriate problem-solving strategies in each case (Weisz, Thurber, Sweeney, Proffitt, & LeGagnoux, 1997; Weisz et al., 2009).

Several evidence-based interventions for childhood depressive disorders include components aimed at social problem-solving. Peer stress has emerged as a major predictor of childhood and adolescent depressive disorders (Hankin et al., 2015). As children develop depressive symptoms, they may become more socially withdrawn, which exacerbates feelings of loneliness. This positive feedback loop can be especially damaging in children because childhood is an important period for the development of adaptive social behaviors as well as brain development; children who are deprived of opportunities to practice and build social skills and healthy social relationships during this sensitive period have significantly poorer outcomes that last into adulthood (Geller, Zimmerman, Williams, Bolhofner, & Craney, 2001). Thus, treatments may aim to improve peer relationships by building social skills and increasing opportunities for positive peer interactions, and by teaching strategies for social problem-solving. Social skills are often taught and practiced through role-playing or group discussion. For example, Liddle and Spence (1990) tested a social competence training (STC) intervention wherein children were given opportunities through role-playing to practice skills such as beginning, joining, and ending conversations, using nonverbal signals in conversation, and social problem-solving skills such as saying no, responding to teasing, accepting compliments, and making requests.

Emotion regulation. Many evidence-based psychosocial treatments also include components aimed at boosting emotion regulation. By helping children better understand and label their emotions and detect emotional reactions early in their course, these interventions aim to foster a greater sense of agency and allow children to communicate more effectively about their emotional states (e.g., asking for breaks from stressful situations), receive emotional validation, and employ self-soothing or relaxation techniques to downregulate negative emotions before they become maladaptive (Kovacs et al., 2006). Emotion regulation strategies can also help increase positive emotions. Emotion regulation skills are not only taught in traditional CBT models, but are also core components of treatments such as dialectical behavior therapy (DBT; Perepletchikova et al., 2017). Skills training in DBT includes a module dedicated to emotion identification and labeling, the functions of different emotions, and techniques for self-regulation. Techniques such as deep breathing and positive imagery can also be helpful in emotion regulation (Kahn, Kehle, Jenson, & Clark, 1990).

Behavioral techniques. Core behavioral techniques include exposure, behavioral contingencies, self-reinforcement, behavioral activation through scheduling of pleasant activities, and relaxation training (Harrington, 2005). Behavioral activation is a strategy for increasing the number of pleasant or rewarding experiences in a child's life as a means of increasing positive emotion. It can be helpful to schedule pleasant activities, given that depressive disorders can reduce a child's motivation to spontaneously seek out such activities. Family members can be encouraged to provide positive reinforcement such as praise or quality time. Progressive relaxation skills may be taught as a means of reducing arousal and negative affect and then modified to be more versatile in subsequent sessions (e.g., teaching relaxation of fewer muscle groups and relaxation through recall, counting, mental imagery, and breathing), and finally applied to specific anxiety-inducing experiences (Kahn et al., 1990). Children may also be trained to identify and increase non-depressive behaviors such as appropriate eye contact, expressions of positive affect (e.g., smiling, laughing, gesturing), and verbalizing positive self-attributions (Kahn et al., 1990).

Parenting and family systems interventions. Children develop in complex environments and are influenced by a variety of factors, creating a dynamic, intricate, and interactive process (Cummings, Davies, & Campbell, 2000). The family is a very important context for a developing child; children are highly dependent upon parents for positive reinforcement, examples of healthy social relationships, modeling of emotion regulation, and opportunities to participate in social activities and programs that aid in development. Family conflict is a major risk factor for depression in children and adolescents; likewise, depressive symptoms in youth can lead to poorer parent–child relationships (Branje, Hale, Frijns, & Meeus, 2010). On the other hand, positive parent–child relationships can buffer against the negative impact of peer stress and help to build a child's resilience (Hazel, Oppenheimer, Technow, Young, & Hankin, 2014).

Parenting and family systems interventions often seek to establish more positive family environments by teaching parenting skills such as behavior management techniques, strategies for parents to increase their child's self-esteem and to adjust their child's role in the family, and ways to reduce destructive conflicts (Stark et al., 1996). For example, Kahn and colleagues (1990) provided parents with instruction in the cognitive and behavioral skills taught to their children, with the intention that parents would understand and monitor their child's progress, offer guidance, and adapt to treatment gains. In family-based interpersonal psychotherapy (FB-IPT), children engage in role-playing with parents and therapists to build communication skills and reduce parent–child conflict that may be contributing to a child's depressive symptoms (Dietz, Weinberg, Brent, & Mufson, 2015). Other family interventions instruct families to engage in positive behaviors such as such as writing family thanks notes in each session and scheduling pleasant activities for families to do together, in order to increase positive reinforcement among family members (Tompson, Sugar, Langer, & Asarnow, 2017). Parent–child interaction therapy (PCIT) has also been used to treat childhood depression by using in vivo coaching during parent–child interactions to increase nondirective play and positive reinforcement of desirable behaviors, train parents to give effective commands and respond to noncompliance in a firm and consistent manner, and to help parents better respond to and regulate their child's emotions (Luby, Lenze, & Tillman, 2012).

Clinical Considerations

Group versus individual therapy. Group and individual therapy each have distinct advantages and disadvantages. Individual therapy allows the therapist to tailor therapy to the patient's distinct needs, making it focused and specialized (Lewinsohn & Clarke, 1999). Also, the child may not feel comfortable sharing personal information with a peer group, so the relationship with an empathic individual therapist can help address these more personal issues (Stark et al., 1996). Group therapy, however, provides a supportive atmosphere in which to practice communication and social skills. Additionally, group treatment is cost-effective, can be conducted in school-based or community health clinics, and provides care to a larger number of patients in a shorter period of time (Mufson, Gallagher, Dorta, & Young, 2004). In their proposed treatment model, Stark and colleagues (1996) suggest a combination of group and individual therapy, citing the distinct advantages of both types. Weisz and colleagues (2006) found no significant difference in treatment effects when comparing group and individual psychotherapy, though their meta-analysis combined child and adolescent studies when examining this covariate.

Accessibility and technology. Telemedicine and technological advances such as internet-based and smartphone-based interventions can theoretically expand access to treatments for childhood depressive disorders. One RCT found greater improvements in depressive symptoms in children who received CBT via videoconferencing compared to in-person CBT. It may be fruitful to adapt evidence-based treatments for childhood depressive disorders to be delivered in a telemedicine format, but much more research is needed to replicate and extend this finding (Nelson et al., 2003). A meta-analysis of RCTs examining internet- or mobile-based CBT for anxiety and depression in youth identified six studies that targeted depression or transdiagnostic depression and anxiety symptoms and found that these interventions significantly outperformed controls, but the studies were carried out with adolescents, so it remains unclear whether findings are generalizable to children (Ebert et al., 2015).

Prevention and relapse prevention. Werner-Seidler and colleagues recently completed a meta-analysis of school-based programs for the prevention of depression and anxiety in youth (Werner-Seidler, Perry, Calear, Newby, & Christensen, 2017). Interventions tested included CBT, interpersonal psychotherapy, mindfulness-based approaches, well-being therapy, and psychoeducation; these active prevention programs were compared to school-as-usual (i.e., no treatment control), waitlist control, or attention placebo conditions (Werner-Seidler et al., 2017). The authors identified 5 RCTs aimed at preventing depression in school-aged children (<10 years) and 32 RCTs of depression prevention programs delivered to early adolescents (10–14 years); for both age ranges children who received the active intervention exhibited lower levels of depression than those in control conditions (Hedges' $g = 0.50$ for children <10, medium effect; $g = 0.23$ for children 10–14, small effect).

Relapse is common following successful treatments of childhood depressive disorders. Kazdin (1997) suggests a model for continued treatment, such that even after improvement, "treatment is modified rather than concluded" (p. 122). In other words, treatment may continue in a more intermittent format. However, it is difficult to test maintenance treatment results, and few such studies have been conducted (e.g., Kroll, Harrington, Jayson, Fraser, and Gowers, 1996). For example, Jayson, Wood, Kroll, Fraser, and Harrington (1998) administered a cognitive behavioral treatment program to assess predictors of relapse in children and adolescents with MDD after having received CBT. The treatment package administered was based on research findings from studies of cognitive abnormalities found in children with depression, and its aims are, "the recognizing and labelling of emotions, the change of negative cognitive attributions, and the enhancement of social skills" (Vostanis & Harrington, 1994, p. 111). The researchers found that overall, 60% of patients remitted by the end of treatment. Younger and less severely impaired youth were more likely to respond to CBT (Jayson et al., 1998). Relapse prevention is an important part of treatment of depression, and future research is warranted on this topic.

Pharmacotherapy. Though this chapter focuses on psychosocial treatments for childhood depressive disorders, it is worth briefly mentioning recent meta-analytic findings regarding the efficacy and tolerability of pharmacotherapy for childhood depression. Cipriani and colleagues (2016) conducted a network meta-analysis of antidepressant medication for the treatment of major depressive disorder in children and adolescents. Only one of the studies focused specifically on children, the mean age in the other 33 studies ranged from 11.4 to 16.1; only 13 of the 34 studies included youth under the age of 12. They found that across 34 trials (average duration 8 weeks), youth (average age 13.6) who received fluoxetine showed significantly greater improvement in depressive symptoms than those in placebo conditions, but that the overall quality of evidence was low and the confidence interval for this meta-analytic finding was large. As the authors state, "However, the large credible interval and its upper limit close to the point of no difference raise the question of whether the estimate is robust enough to inform clinical practice" (Cipriani et al., 2016, p. 887). No other antidepressant medication was found to outperform placebo. Imipramine, venlafaxine, and duloxetine were found to have significantly poorer tolerability than placebo (i.e., more frequently discontinued due to adverse events), with venlafaxine being associated with significantly elevated risk for suicidality. The American Psychological Association's most recent Clinical Practice Guideline for the treatment of depression in children concluded there is not enough evidence to either recommend or not recommend pharmacotherapy for depression in children (American Psychological Association, 2019).

Review of Treatment Efficacy or Effectiveness

Zhou and colleagues (2015) conducted a systematic review and network meta-analysis of findings from 52 RCTs of psychosocial treatments for depressive disorders in children and adolescents and computed standardized mean differences (SMDs; the mean difference in posttreatment depressive symptoms when comparing a treatment group to a comparison condition, divided by the pooled standard deviation of the two groups). Interpretation of SMDs is the same as that for Hedges' *g* or Cohen's *d* (both of which are versions of SMDs), with 0.2 representing a small effect, 0.5 a medium effect, and 0.8 a large effect—however, in this meta-analysis SMDs were computed such that negative values represent greater symptom reduction. Zhou and colleagues concluded that both CBT and interpersonal psychotherapy (IPT) produce significantly greater improvements in depressive symptoms than do control conditions (i.e., no treatment, treatment as usual [TAU], waitlist, or psychological placebo), both immediately posttreatment and at follow-up (for CBT, small to medium posttreatment SMDs ranging from −0.37 to −0.55 for control conditions other than waitlist, large posttreatment SMD = −0.83 for comparison to waitlist; for IPT, medium posttreatment SMDs ranging from −0.50 to −0.68 for control conditions other than waitlist, large posttreatment SMD = −0.96 for comparison to the waitlist). Treatments other than CBT and IPT were not more effective than control conditions posttreatment. In addition, CBT and IPT outperformed play therapy immediately posttreatment and outperformed problem-solving therapy at follow-up. Regarding the acceptability of various psychosocial treatments, IPT and problem-solving therapies were associated with fewer discontinuations than CBT and cognitive therapies. Zhou and colleagues included both child and adolescent samples in their meta-analysis (mean age = 14.7) and note that "IPT and CBT had less significant effects in studies in which patients were children" (Zhou et al., 2015, p. 219). In light of Zhou and colleagues' meta-analytic findings, the American Psychological Association's most recent Clinical Practice Guideline for the treatment of depression in children concluded that there is not enough evidence to either recommend or not recommend psychotherapy for depression in children with depressive disorders (American Psychological Association, 2019).

In Weisz and colleagues' 2006 meta-analysis, effect size (ES) was the posttreatment difference in mean depression scores between treatment and control groups, divided by the control group standard deviation, and in this case positive values indicated an advantage of treatment over control, and results were reported for analyses including age group (children or adolescents) as a covariate. Weisz and colleagues found a small–medium weighted least squares ES of 0.41 for studies treating depression in children (seven studies, participants ages 12 years and under). This overall effect was significantly different from zero and not significantly different from the effect size in adolescents (Weisz et al., 2006). However, for 15 studies (child and adolescent) that used active control conditions, ES = 0.24, a small effect. Weersing and colleagues (2017) also separated the child from adolescent studies in their recent systematic review and identified 10 RCTs of psychosocial treatments for depressive disorders in clinical samples of children. Applying criteria set forth in *Journal of Clinical Child and Adolescent Psychology* (Silverman & Hinshaw, 2008), Weersing and colleagues concluded that no psychosocial treatments met criteria to be considered *well-established* or *probably efficacious* for the treatment of depression in children. Overall CBT, group CBT, technology-assisted CBT, and behavior therapy were deemed *possibly efficacious*, whereas individual CBT, psychodynamic therapy, and family-based interventions were deemed *experimental*.

Empirical Evaluation of Treatments

The following summary of evidence includes peer-reviewed, published findings from RCTs carried out in samples of children (mean age <13) with clinical and subclinical symptom severity. Where possible, effect sizes (Cohen's *d* or odds ratios) for depression outcome measures are provided for individual studies that were not included in meta-analyses already discussed in the previous section (i.e., Weisz et al., 2006; Zhou et al., 2015). Studies of depression prevention programs were beyond the scope of the present review, though such studies were included in a recent meta-analysis of school-based depression and anxiety prevention programs (Werner-Seidler et al., 2017), discussed in the Prevention and Relapse Prevention section of this chapter.

Group CBT. Seven RCTs have examined the effects of group CBT for the treatment of depression in children. Most incorporated a range of cognitive, behavioral, emotion regulation, and general problem-solving strategies as well as training in interpersonal problem-solving and social skills. Six of these RCTs (8–12 sessions) found significantly greater improvement in depressive symptoms among children who received group CBT than in children assigned to waitlist, attention placebo, or no treatment control conditions (Asarnow, Scott, & Mintz, 2002; Butler et al., 1980; De Cuyper et al., 2004; Kahn et al., 1990; Stark, Reynolds, & Kaslow, 1987; Weisz et al., 1997). In the seventh RCT (8 sessions) children in all conditions experienced reductions in depressive symptoms, but the active intervention condition did not outperform attention placebo and no treatment control conditions (Liddle & Spence, 1990).

Individual CBT. Three RCTs have evaluated individually administered CBT for the treatment of childhood depressive disorders (Nelson et al., 2003; Vostanis, Feehan, Grafton, & Bickerton, 1996; Weisz et al., 2009). Nelson and colleagues (8 sessions) found that children in both in-person and video teleconference CBT conditions showed significant improvement in depressive symptoms (medium effect size = 0.56), and those in the video teleconferencing condition improved more rapidly (2003). Two other studies compared individual CBT to treatment as usual in the community (24 sessions, small effect size = 0.06; Weisz et al., 2009) or non-directive supportive counseling (9 sessions; Vostanis et al., 1996) and in both cases, the CBT intervention failed to outperform the control condition, though substantial improvement in depressive symptoms was observed across all conditions.

Family-based psychotherapy. Two RCTs (8 and 15 sessions) tested family-based interventions modeled on CBT principles and in both cases children in the family-based CBT conditions experienced significantly greater improvements in depressive symptoms than did children in comparison conditions (waitlist plus TAU and individual non-directive supportive therapy, respectively; medium effect size = 0.53 for Fristad, Verducci, Walters, & Young, 2009; adequate clinical response odds ratio of 2.29 for Tompson et al., 2017). The study by Fristad and colleagues (2009) also included children with bipolar disorder; approximately 30% of the children in each condition had unipolar diagnoses. A third study (14 sessions) found greater improvements in depressive symptoms following family-based interpersonal psychotherapy than individual non-directive supportive therapy (remission odds ratio = 4.0; Dietz, Weinberg, Brent, & Mufson, 2015). A fourth study compared 16–30 sessions of individual psychodynamic psychotherapy to 8–14 sessions of a family-based intervention focused on family relationships and found significant reductions in depressive symptoms across both conditions (medium effect size = 0.56) but no differences between conditions (Trowell et al., 2007).

Other psychosocial interventions. In addition to the 2007 study by Trowell and colleagues, one RCT has evaluated individual psychodynamic psychotherapy for the treatment of childhood depressive or anxiety disorders; 60–70% of children had a depressive diagnosis across conditions (Muratori, Picchi, Bruni, Patarnello, & Romagnoli, 2003). The intervention condition consisted of 11 sessions of individual psychodynamic therapy with a parent component, or TAU. Children in both conditions showed significant improvement. The psychodynamic intervention did not outperform TAU immediately posttreatment (effect size not reported) but did at follow-up (medium effect size at follow-up = 61; Muratori et al., 2003). Luby and colleagues conducted an RCT comparing a modified version of parent–child interaction therapy (PCIT) to a psychoeducation control condition for the treatment of depression in a clinical sample of preschool-aged children (2012). In this study (14 sessions) children in both conditions showed significant decreases in depressive symptoms over time, but PCIT (medium pre-post effect size = 0.49) did not outperform psychoeducation (medium pre–post effect size = 0.52). One RCT compared DBT with skills training delivered to family units (32 sessions) to TAU for the treatment of DMDD in a child clinical population. Results showed significantly greater reductions in DMDD symptoms and higher rates of remission in children who received DBT than those in the TAU condition (positive treatment response odds ratio = 11.40; Perepletchikova et al., 2017).

Finally, one RCT examined IF-PEP versus active monitoring with or without concomitant omega 3 fatty acid (Ω3) supplementation in depressed youth aged 7–14 (Fristad et al., 2019). While IF-PEP did not outperform placebo in terms of depression symptom reduction for the entire sample (small effect size <0.10), youth with fewer social stressors responded significantly better to IF-PEP plus placebo and IF-PEP plus Ω3 than to placebo plus active monitoring (large effect sizes of 1.07 and 0.73, respectively) and those with maternal depression responded better to IF-PEP than did those without maternal depression.

Clinical Vignette

Case Description

Haley is an 11-year-old girl in the 6th grade who was referred to the clinic for cognitive behavioral therapy (CBT) by her school counselor due to emotional concerns. Haley's previous diagnoses included ADHD and a specific learning disorder in mathematics. During the intake, Haley's mother and father provided background information about her functioning and symptoms. Haley is an only child who was adopted as an infant. She is an avid reader who also enjoys writing and illustrating her own stories. She participates on a competitive swim team, but recently she has been missing practice, citing vague physical concerns and exhaustion. Historically, Haley struggled with emotion regulation from a young age, but depressive symptoms were first observed 4–5 months ago, when Haley began middle school. At home, Haley is increasingly irritable and sad. She prefers to stay in her room and has declined playdates with friends. Haley and her parents described conflict related to completing homework and chores. Haley often responds to limit-setting with temper outbursts. Her parents admitted that they often threaten consequences that they do not enforce. Academically, although previously an A/B student, Haley's first semester grades were lower than expected (B's, C's, and a D in math). Further, school personnel expressed concerns that Haley seemed sad and isolated. On a couple of occasions, she has asked to leave math class to retrieve something from her locker and was instead found wandering the halls. Also, she had grabbed a classmate's notebook because she was certain that the classmate was writing negative things about her.

During her portion of the clinical interview, Haley acknowledged feeling "sad, upset, and angry for no reason." She had difficulty identifying personal strengths. She admitted that if her swimming performance did not meet her high expectations, she felt worthless. Haley acknowledged that because she was adopted, she felt different from her friends and wondered if she was "unlovable." She considered herself "dumb" because of her ADHD and learning disorder and worried that she would never achieve her goal to become a writer. She often believed that her teachers and classmates disliked her and reacted defensively. Recently, she had considered "whether it would be easier if I wasn't here anymore," but denied active suicidal ideation, intent, plan, or attempt. Haley reported difficulty falling asleep at night, which resulted in her either sleeping late or napping after school.

Treatment Plan and Overcoming Barriers

Haley was diagnosed with major depressive disorder in addition to her comorbid ADHD and learning disorder. Several considerations were taken into account when selecting an evidence-based CBT. Haley's parents desired to be actively involved in therapy. They wished to learn strategies to help her cope, and also were eager to make adjustments to reduce stress and improve communication at home. The family needed additional tools to navigate Haley's systems of care including her school and medication management. Based on these factors, as well as the therapist's personal expertise, manualized Individual-Family Psychoeducational Psychotherapy (IF-PEP; Fristad, Goldberg-Arnold, & Leffler, 2011) was flexibly administered to address Haley's specific needs. IF-PEP included 24 sessions during which Haley and her parents met with the therapist on alternate weeks for 45-min sessions.

Haley initially expressed reluctance to attend therapy weekly, citing concerns about missing swim practice and also doubting if it would be helpful. She expressed frustration that she would be expected to complete homework and practice skills outside of the session in the form of Take-Home Projects. The therapist talked with Haley and helped her identify personally meaningful goals. Haley eventually acknowledged that she would like to "feel better about myself and have less arguing at home." She brightened when the therapist explained she could earn points for homework completion, which she could trade in for desirable prizes. Her parents suggested that they could go to her favorite fast food restaurant after the session to reward her participation. Haley later admitted that she worried that attending therapy meant "there was something wrong with me." Learning the IF-PEP motto, "It's not your fault, but it's your challenge" empowered her to reduce self-blame and take charge of her symptoms. Also, she appreciated that her parents were also committed to making changes to their own behaviors.

Specific Treatment Components

The current illustration is not exhaustive in describing the course of therapy for a client like Haley but highlights pertinent areas of treatment.

During the first therapy session, Haley and her parents created a Family Fix-It list in the areas of home, school, and friends that guided subsequent treatment. The family was educated about her diagnosis and Haley learned to identify and rate the intensity of her feelings. Haley began to refer to her depression as "wearing my dark glasses," acknowledging that it cast a negative light over her views of herself, others, and her circumstances.

The third session focused on Haley's sleeping habits. Specific goals included limiting the duration of daytime naps, engaging in quiet activities for an hour prior to bedtime, and maintaining a consistent sleep–wake schedule. Haley applied breathing techniques practiced during her IF-PEP sessions to help her fall asleep. Her parents particularly benefited from IF-PEP parent sessions 3 and 6, which empowered them to be more outspoken regarding Haley's 504 plan. They advocated for modifications to Haley's accommodations, including additional support with her organizational skills, a special pass to see her counselor when she was upset, and the opportunity to participate in a counselor-led group during lunch that focused on peer conflict. Upon the therapist's recommendation, Haley's parents hired a private math tutor for Haley.

In session 4, Haley generated a tool kit for coping with her "mad, sad, or bad" feelings. She recognized her triggers to include perceived failure and rejection. She identified body signals and resulting actions, which for her, included withdrawing and/or arguing with others. She then generated a tool kit of creative, active, rest and relaxation, and social actions to help her cope with her mood symptoms. Just as cars can transport us where we want to go, these CARS helped to take Haley's emotions where she wanted them to go. Haley and her parents worked to examine and modify their negative thoughts and actions in "thinking-feeling-doing" (IF-PEP child session 5 and parent session 4). Her parents benefited from distinguishing between "can't" versus "won't" regarding Haley's behavior at home. For instance, her nightly struggle to complete homework after her stimulant medication had worn off was conceptualized as a "can't;" however, her refusal to attend tutoring on the weekends was categorized as a "won't." Her parents agreed on a set of established contingencies for Haley's acting out behaviors, which helped them refrain from threatening consequences in the moment that they later did not enforce. Haley learned to identify her hurtful thoughts (e.g., "I am a failure because I did not swim a personal best in the meet") and actions (e.g., skipping practice the next day) and replace them with helpful thoughts (e.g., "I didn't meet my goal today, but I can try again next time") and actions (e.g., talking with her coach).

Treatment Outcome

Following the 24 sessions, while Haley continued to experience occasional depressive symptoms, she and her parents described feeling empowered with skills to cope with them. The therapist provided the family with a list of resources to help Haley further address her feelings related to her adoption. It was decided that Haley would continue with monthly sessions to monitor symptoms and troubleshoot any difficulties applying the CBT skills.

Future Directions

In conclusion, many advances have been made in developing and testing psychosocial treatments for children with depressive disorders. However, much work remains to be done. Different populations of affected children, different styles of therapies, and different treatment methods all need further examination. First, more studies are needed with young children. Second, almost no progress has been made in determining the efficacy of psychosocial treatments for children of varying demographic, ethnic, and socioeconomic backgrounds (Lofthouse & Fristad, 2004). Several of the studies in the current treatment review did not report demographic information such as ethnicity or socioeconomic background. Of those that did, the representation of minorities in the samples ranged from only 10% of the sample to 43%. Rossello and Bernal (1999), pioneers in their studies with Latino adolescents, assert that "to the extent that minorities are systematically excluded from treatment research, we run the risk of constructing an ethnocentric psychological science" (p. 735). Finally, many have identified the need for treatment research to more closely resemble clinical practice. Specialized research clinics have many advantages over clinical settings, such as highly trained clinicians, paid research staff, and narrow inclusion criteria. While there clearly is a role for laboratory-based studies in the development of psychosocial treatments, future child treatment studies also should be conducted in non-laboratory settings.

Key Points

- Overall, cognitive behavioral therapy (CBT), group CBT, technology-assisted CBT, and behavior therapy (BT) for depression have been labeled possibly efficacious in children.
- Meta-analytic findings suggest that CBT yields significant small to medium effect sizes relative to control and waitlist conditions immediately posttreatment and at follow-up assessments.
- Active components of treatment generally include psychoeducation, cognitive restructuring, problem-solving or social problem-solving skills training, emotion regulation, and behavioral techniques (e.g., behavioral activation).
- Parenting and family systems interventions (e.g., behavior management techniques) may strengthen the child's role in the family and increase self-esteem.
- Fewer studies have directly examined the efficacy of pharmacological interventions in children younger than 13, limiting conclusions that can be drawn about those interventions.

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Evidence-Based Psychosocial Treatments of Depression in Adolescents

John F. Curry and Allison E. Meyer

Abstract

Depression is one of the most common psychiatric disorders of adolescence and is much more prevalent in adolescents than in younger children. Beginning around age 14, it is more prevalent in females than in males. Most of the evidence-based treatments for youth depression have addressed Major Depressive Disorder, although some studies have included milder forms of depression. Two psychological treatment approaches are considered well-established interventions for adolescent depression: cognitive behavior therapy and interpersonal psychotherapy, both attaining the level of well-established interventions. The authors outline that therapeutic alliance and psychoeducation are critical to effective depression treatment. The authors indicate that the effect size in meta-analytic studies for evidence-based treatments of adolescent depression is significant but of modest magnitude. They note that the generalizability of the efficacy of psychotherapy for depression with minority youths needs further investigation, although interpersonal therapy is considered well-established with Hispanic youth. The authors conclude there is a need for novel interventions that ameliorate adolescent depression more quickly and/or lead to greater protection from recurrent episodes.

Colloquially, "depression" can refer to a feeling of sadness that is in the normal range of human emotions. However, as a condition requiring intervention, "depression" is a syndrome marked by prominent sad or irritable mood and/or loss of interest or pleasure, along with other characteristic symptoms. In some psychological studies of depression, the depressive syndrome is defined by elevated scores on self-report or interviewer-completed rating scales. In other psychological studies and in most psychiatric studies, a depressive syndrome constitutes a categorical disorder with a recognizable onset, duration, and associated functional impairment. The current Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013), lists multiple depressive disorders: Disruptive Mood Dysregulation Disorder, Major Depressive Disorder, Persistent Depressive Disorder (formerly Dysthymia), Premenstrual Dysphoric Disorder, Depressive Disorders induced by substances or medications, or attributable to another

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_9

medical condition, as well as Other Depressive Disorders that do not meet full criteria for one of the above categories. Among the DSM-5 stressor-induced disorders is Adjustment Disorder with Depressed Mood.

This set of depression diagnoses differs somewhat from the set included in the previous edition of the DSM (DSM-IV; American Psychiatric Association, 1994), on which most treatment research to date has been conducted. However, the bulk of that research focused on Major Depressive Disorder (MDD), for which the definition was essentially unchanged in DSM-5. In addition to adolescents with MDD, some of the treatment research reviewed in this chapter included adolescents diagnosed with Persistent Depressive Disorder or Adjustment Disorder with Depressed Mood, or identified by elevated scores on depression rating scales. Their inclusion is well justified because levels of depression that fall short of full MDD can cause significant impairment and convey risk for future MDD (Lewinsohn, Rohde, Klein, & Seeley, 1999). Next, we describe the three diagnoses most commonly represented in psychotherapy studies.

A diagnosis of Major Depressive Disorder requires at least one Major Depressive Episode (MDE). An MDE is a period of at least 2 weeks during which the adolescent has five or more symptoms most of the time on most days, of which one must be depressed (or irritable) mood, or anhedonia. Other possible symptoms include: (1) insomnia or hypersomnia; (2) appetite or weight decrease or increase; (3) psychomotor slowing or agitation; (4) fatigue or low energy; (5) feelings of worthlessness or unrealistic guilt; (6) trouble thinking, concentrating or making decisions; or (7) recurrent morbid or suicidal ideation, or a suicide plan or attempt. The diagnosis also requires that the adolescent has never experienced a manic or hypomanic episode, and that the depressive episode is not better explained as part of a schizophrenic, schizoaffective, schizophreniform, or delusional disorder. An MDE can be mild, moderate, or severe, in some cases so severe as to include delusions or hallucinations.

Persistent Depressive Disorder requires fewer symptoms but a longer duration than MDD (at least one year in youth). Depressed or irritable mood is required, along with two other symptoms, which can be appetite disturbance, sleep disturbance, low energy, low self-esteem, trouble concentrating or deciding, or feelings of hopelessness. An Adjustment Disorder with Depressed Mood is an episode of depressed mood that develops after the onset of a stressor, is accompanied by marked distress or functional impairment, but lacks enough symptoms to warrant a diagnosis of MDD, and is not better understood as normal bereavement.

Clinicians assessing young people for depression also need to consider frequently comorbid conditions (anxiety, disruptive behavior, and substance use disorders), and must rule out current or past manic or hypomanic episodes.

Prevalence, and Demographic Differences

Depression is one of the most common disorders of youth. Across multiple countries, it affects approximately 2.6% of 6- to 18-year olds (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). It is more prevalent in adolescents than in children, and beginning in adolescence, in girls than in boys (Costello, Erkanli, & Angold, 2006). By age 18, 15.9% of girls and 7.7% of boys in the United States will have experienced either MDD or Dysthymia (Persistent Depression) in their lifetime, with MDD far more prevalent than Dysthymia (11.7% vs. 1.8%; Avenevoli, Swendsen, He, Burstein, & Merikangas, 2015; Merikangas et al., 2010).

Data on racial and ethnic differences in rates of MDD in US samples do not suggest significant disparities in prevalence (López et al., 2017). Regarding socioeconomic status, an earlier school-based survey found a strong link between poverty and depressive symptoms (Schraedley, Gotlib, & Hayward, 1999).

Evidence-Based Psychological Treatment Approaches to Adolescent Depression

The *Journal of Clinical Child and Adolescent Psychology* has published systematic reviews of treatment efficacy for youth disorders over the past two decades. Most recently, Weersing, Jeffreys, Do, Schwartz and Bolano (2017) applied criteria for evidence-based treatments to interventions for depression. The strongest body of supportive evidence has been garnered by cognitive behavior therapy (CBT) and interpersonal psychotherapy (IPT), both attaining the level of well-established interventions. The authors noted that this conclusion must be qualified by the small number of IPT studies, and the attenuated effect of CBT with more complex clinical samples and in comparison with active treatment conditions. We will focus on CBT (including cognitive therapy and behavioral activation) and IPT, and suggest that readers familiarize themselves with the broader findings of Weersing et al. (2017) on other probably and possibly efficacious youth depression treatments. We first review two more general topics critical to effective depression treatment: the therapeutic alliance and psychoeducation.

The Therapeutic Alliance

Regardless of specific treatment approach, treatment of youth disorders requires the establishment of a working alliance between the therapist and the adolescent, and except for unusual circumstances, an alliance between the therapist and the adolescent's parent(s) or caregivers. The former is associated with improved outcome, the latter with improved retention, and both with greater satisfaction with treatment (Hawley & Weisz, 2005). Recently, Karver, De Nadai, Monahan, and Shirk (2018) completed a meta-analysis showing that child– or adolescent–therapist alliance was significantly correlated with outcome, with a medium standardized effect size ($d = 0.39$). These authors also reviewed several definitions of a therapeutic alliance. In general, they involve: a positive emotional bond between therapist and adolescent; therapist–adolescent agreement on the goals of therapy; and similar agreement on the tasks involved in therapy. Because adolescents are often referred by parents or other adults, establishing a working alliance with them can present challenges to clinicians (chapter "Client, Therapist, and Treatment Characteristics in Evidence-Based Therapies for Children and Adolescents").

Psychoeducation: A Theory of Depression and a Theory of Treatment

Whereas the emotional bond between therapist and client, and the shared understanding of the goals of treatment may be more or less independent of the treatment approach, a shared understanding of the therapy tasks depends on the theoretical model that undergirds the intervention. An evidence-based treatment matches an intervention to a clinical problem on the basis of a theoretical understanding of the problem that guides the treatment. Psychoeducation helps the adolescent and parent to understand how the treatment addresses processes core to the disorder. To give two overly simplified examples, a CBT therapist may explain depression as caused or maintained by faulty information processing, and treatment as a means of improving information processing; whereas an IPT therapist may explain depression as caused or maintained by problems in interpersonal relationships, and treatment as a means of improving relationships. Of course, in any given case, the therapist will formulate a more complete and individualized understanding of the young person's depression, enriching and modifying it as treatment progresses. But even at the outset of treatment, all involved need a shared understanding of the problem, and the proposed ways in which treatment will address it.

Evidence-Based Principles in Cognitive Behavioral Therapy (CBT) for Depression

Although there are several prominent models of CBT, such as cognitive therapy (Beck, Rush, Shaw, & Emery, 1979), cognitive behavior therapy (Lewinsohn, 1974), and more recent models of behavioral activation they share an understanding that depression is caused or maintained by problems in the behavioral and/or cognitive processes that are evoked in clients by stressful events. In Beck's cognitive therapy, for example, such stressful life events as failure or loss trigger negative automatic thoughts, assumptions, and core beliefs that lead to depression. In Lewinsohn's more behaviorally oriented therapy, depression is attributable to a low level of response-contingent reinforcement, which in turn is based on a limited number of potentially reinforcing events that are actually available to the person and/or to the person's deficits in skills needed to elicit reinforcement. In the absence of available reinforcers or skills for eliciting reinforcement, stressful events lead to cycles of ineffective behaviors (e.g., social withdrawal) and to negative thoughts that depress mood in a "downward spiral" (Clarke, Lewinsohn, & Hops, 1990). In an attempt to summarize the basic conceptual framework within which CBT is conducted, we rely in this chapter on the principles of CBT. By "principle", we are referring to general propositions that serve as the foundation for specific treatment strategies designed to lead to desired outcomes. The derivation of these particular principles is ours and other authors may conceptualize the principles of these evidence-based treatments in other ways.

Principle 1: Depression Is an Emotion or Mood Associated with Identifiable Behaviors and Thoughts, and Likely to Be Associated with Certain Situations

Most cognitive behavioral treatments are based on a functional analysis of the presenting problem. In such an analysis the therapist collaboratively investigates with the adolescent the circumstances under which she or he is most likely to feel depressed, the thoughts associated with depressed mood, the behaviors that the adolescent is engaged in when depressed, and the immediate and longer term consequences of those thoughts and behaviors. By clarifying these linkages, the therapist and adolescent come to a joint understanding of the problem, which may in itself provide considerable relief to the adolescent.

In order to complete a functional analysis, the adolescent will need to learn how to monitor his or her mood across time and across different situations, typically by using a mood monitor that is completed at set intervals (e.g., three times per day) or in various circumstances (e.g., at school, at home, with peers outside of school). Successful mood monitoring lays the groundwork for effective intervention by identifying behavioral and cognitive targets for change.

Principle 2: Engaging in Active, Intentional Behavior Alleviates Depressed Mood

All models of CBT rely on the principle that acting in an intentional manner, as opposed to remaining inactive or passive, is an element of successful depression treatment. This principle underlies the treatment strategies of behavioral activation and activity scheduling. There are some differences among the CBT approaches in how this principle is conceptualized or how behavioral activation is integrated into the overall treatment. In cognitive therapy, behavioral activation or activity scheduling is usually enacted early in treatment, partly in order to help the client to recover a sense of pleasure or mastery, but primarily as a way to uncover the depressive thoughts that occur during activation attempts. These thoughts then become the targets of cognitive restructuring, which is thought to be the primary mechanism of change.

In Lewinsohn's more behavioral model, activation focuses on engaging in pleasant activities, in order to rekindle hedonic capacity and provide opportunities for reinforcement, especially social reinforcement. As discussed below, behavioral activation often needs to be coupled with training in social and problem-solving skills, in order to provide opportunities for response-contingent reinforcement and the ability to evoke such reinforcement.

In contemporary behavioral activation approaches, activation is broadened beyond pleasant activities to include activities that the client values; that contribute to her or his goals; and that counter the tendency to engage in avoidance. As a strategy, behavioral activation is almost always linked with other strategies to enable its effectiveness, such as mood monitoring and identifying barriers to implementation, which might include negative cognitions (McCauley, Schloredt, Gudmundsen, Martell, & Dimidjian, 2006). Behavioral activation identifies and addresses the adolescent's tendency to engage in avoidant behaviors, which may convey short-term positive reinforcement, such as relief from stress, but at the price of long-term deprivation of positive (especially social) reinforcement.

Principle 3: Active Efforts to Change Stressful Situations Alleviate Depressed Mood, if the Adolescent Can Effect Situational Change

The social and problem-solving skills noted above are examples of efforts to change and ameliorate stressful situations. Adolescents can increase their experience of positive reinforcement, and thereby alleviate depressed mood, if they are able to effect change in circumstances contributing to their depression. Doing so is an example of "primary control" (Weisz, Thurber, Sweeney, Proffitt, & LeGagnoux, 1997). Examples where this might be possible include improving a relationship with a friend or a parent by modifying one's behavior; or improving a stressful academic situation by increasing efforts to master academic material. Several common elements of CBT involve helping the adolescent to learn skills to effect change in stressful situations. These include: setting and working toward specific goals; improving social engagement and communication skills, and rational problem-solving. McCarty and Weisz (2007) showed that in six of nine psychotherapy studies of any theoretical orientation, and in four of six CBT studies that demonstrated a positive effect on youth depression, problem-solving was an element of the treatment. Skills to improve relationships, such as improving communication, were even more frequently incorporated into CBT for youth depression, occurring in five of the six successful CBT protocols reviewed by these authors. Achieving measurable goals was a component of every successful CBT protocol.

Principle 4: Cognitive Restructuring Alleviates Depressed Mood in Circumstances Where the Adolescent Cannot Effect Situational Change

Adolescents can reduce negative affect and possibly increase positive reinforcement if they accept and adjust to stressful situations that they cannot change. This involves changing the way in which the adolescent perceives or thinks about the stressful circumstance, an example of "secondary control" (Weisz et al., 1997). Circumstances that the adolescent cannot change could include: having a parent with mental health or substance abuse problems; being limited in athletic or academic talent; or having a physical handicap. The skill that can be used in such circumstances, cognitive restructuring, appears to be part of every successful CBT protocol for youth depression (McCarty & Weisz, 2007).

The emphasis on cognitive restructuring differs across models. Cognitive therapy places primacy on cognitive restructuring as the essential mechanism of change. More behavioral models (Clarke et al., 1990) by contrast, view the ability to change one's thinking as one skill among others, equal in importance to behavioral activation or improving social skills.

Evidence-Based Principles in Interpersonal Psychotherapy for Depression (IPT)

Interpersonal Psychotherapy for Adolescents (IPT-A) is a time-limited therapy adapted by Mufson, Dorta, Moreau, and Weissman (2004) from adult IPT. IPT-A focuses on the adolescent's current interpersonal problems, with the goal of reducing depressive symptoms and improving interpersonal functioning. Treatment typically focuses on one or at most two problem areas related to the onset or maintenance of the depression. Identified problem areas include: *loss or grief* (e.g., death of a loved one); *role transitions* (e.g., moving from middle school into high school); *role disputes* (e.g., parent–adolescent conflicts), and *skills deficits* (e.g., deficits in communication skills). In deriving principles of IPT-A, we relied on Mufson, Dorta, Wickramaratne, et al. (2004) and Mufson, Verdeli, Clougherty and Shoum (2009).

Principle 1: Depression Is Associated with Identifiable Interpersonal Relationships and Interactions

IPT-A is based on the interpersonal theory of depression, which holds that depression is maintained by, and in some cases caused by, maladaptive behaviors and communications in important interpersonal relationships. As in CBT, adolescents in IPT learn to monitor their mood. In contrast to CBT, which involves exploration of linkages between mood and thoughts or behaviors, IPT-A involves exploration of linkages between mood and interpersonal events and interactions. At the beginning of IPT-A, the adolescent is asked to collaborate with the therapist to complete an "Interpersonal Inventory" of relationships, including feelings, thoughts, and kinds of interactions associated with each relationship. This enables the therapist and adolescent to see how events or developments in any of these relationships may have triggered the depression or serve to maintain it. The interpersonal approach may have an intuitive appeal to adolescents given their normal developmental focus on relationships with peers and significant adults.

Principle 2: Focusing on One or Two Interpersonal Problems Will Lessen Depressed Mood

IPT-A is a short-term intervention in which the therapist focuses on the present, rather than the past, and on one or two of the four interpersonal problem areas outlined above: *grief, interpersonal disputes, role transitions,* or *skill deficits*. Goals and strategies for addressing each of these four problem areas are suggested within the IPT-A framework. For example, communication training may help with interpersonal disputes; and social skill training with interpersonal deficits. As these examples show, despite different theories of depression and of treatment there can be considerable overlap between CBT and IPT. It appears that IPT-A for grief is the most distinct from CBT, as it focuses on mourning, and establishing new relationships; whereas IPT-A for skill deficits is virtually identical to aspects of CBT.

Principle 3: Improving Interpersonal Relationships Alleviates Depressed Mood

The essence of IPT-A is that improving relationships that contribute to the depression will alleviate the depression. Identifying the positive and negative aspects of important relationships, establishing new relationships or new roles, improving communication patterns and social skills, and making good decisions (similar to interpersonal problem-solving) are elements of effective IPT-A. There is an overlap between IPT-A and CBT in the potential cognitive targets of treatment. For example, IPT-A therapists may work with adolescents to develop more realistic expectations about significant relationships, and may enhance "secondary control" by helping adolescents to accept realistically losses or changes in relationships over time.

Efficacy of Evidence-Based Treatments: Cognitive Behavior Therapy

In this section we will summarize findings of several large studies evaluating CBT for adolescent depression, and of relevant meta-analyses. We will not include prevention studies, or studies testing new models of treatment delivery, such as online CBT (chapter "Expanding the Reach of Evidence-Based Psychotherapy Through Remote Technologies").

After several small studies in the 1980s showed that CBT was superior to a waitlist condition, larger, more adequately powered studies appeared in the 1990s. Two tests of the *Adolescent Coping with Depression* course (CWD-A; Lewinsohn, Clarke, Hops, & Andrews, 1990 ($N = 59$); Clarke, Rohde, Lewinsohn, Hops, & Seeley, 1999 ($N = 123$)) showed its superiority to a waitlist condition, but no benefit of adding a concurrent parent group.

Brent et al. (1997) adapted cognitive therapy (CT) for adolescents with MDD, and compared it to two active treatments: systemic behavioral family therapy (SBFT) and non-directive supportive therapy (NST) in a sample of 107 youths with moderate to severe depression. After 12–16 weeks of treatment, CT had a significantly higher rate of remission and was rated by parents as a more credible intervention for depression than the other interventions.

By the turn of this century, there was evidence supporting both CBT and fluoxetine as treatments for adolescent depression (Emslie et al., 1997). Clinical and research interest turned to issues of their relative and combined efficacy. In the Treatment for Adolescents with Depression Study (TADS), 439 moderately to severely depressed adolescents were randomized to the double-blind conditions of fluoxetine (FLX) or pill placebo (PBO), or to the single-blind conditions of CBT or combined CBT plus fluoxetine (COMB). At week 12, only COMB surpassed PBO on the primary outcome measure (slope of change in the severity of depression); both COMB and FLX, but not CBT, surpassed PBO on the secondary outcome (global depression improvement: much or very much improved) (TADS TADS Team, 2004). By week 18, CBT was equivalent to FLX on global improvement in depression. Both COMB and CBT were associated with fewer suicidal events than FLX (TADS Team, 2007). The TADS Team concluded that COMB offered the best combination of efficacy and safety for moderately to severely depressed adolescents.

Further evidence in support of combination treatment came from a study of adolescents with medication-resistant depression (Brent et al., 2008). Adolescents with MDD who had not responded to an adequate 8-week trial of a selective serotonin reuptake inhibitor ($N = 334$) were randomly assigned to one of the four conditions: (1) a different SSRI; (2) venlafaxine; (3) a different SSRI and CBT; (4) venlafaxine and CBT. The two CBT-containing conditions proved superior to the two medication-only conditions, whereas neither medication surpassed the other.

By contrast, superior efficacy of combination treatment was not supported in a British study of depressed adolescents (Goodyer et al., 2007). Participants were 208 adolescents with MDD being seen in the British National Health Service, all of whom received routine specialist counseling and fluoxetine. There were very few exclusion criteria in this study: neither ongoing substance abuse nor psychotic depression were exclusionary. Half were randomly assigned to add CBT to routine care and fluoxetine, but CBT demonstrated no additive effect.

The relative efficacy of CBT versus other psychosocial interventions has continued as a focus of study. Most recently, Goodyer et al. (2017) compared CBT, short-term psychoanalytical psychotherapy, and a brief psychosocial intervention, with 465 adolescents with MDD. There were no significant differences in self-reported depressive symptoms between conditions.

Overall results for CBT for adolescent depression confirm its superiority to a waitlist condition, and in some but not all studies, to alternative psychosocial treatments. In TADS, CBT showed a slower time to response than fluoxetine but was associated with fewer safety concerns. Adding CBT to antidepressant medication had significant benefits in two of the three large trials.

Meta-analyses can provide a broader basis for evaluating the efficacy of CBT and other treatments. A recent meta-analysis of psychological interventions for children or adolescents yielded an overall effect size of 0.29 for depression, a lower effect size than those for anxiety (0.61) or conduct problems (0.46) (Weisz et al., 2017). An earlier meta-analysis (Weisz, McCarty, & Valeri, 2006) of psychotherapies targeting child or adolescent depression had found an effect size of 0.35 for interventions that included a cognitive component; and a meta-analysis of CBT for adolescent depression reported an average effect size of 0.53 (Klein, Jacobs, & Reinecke, 2007). The latter authors noted that effect sizes were smaller in trials using intent-to-treat (as opposed to completer) analyses, with clinical samples, and active treatment comparison conditions.

Efficacy of Evidence-Based Treatments: Interpersonal Psychotherapy

Versions of IPT have been compared both to control conditions and to CBT. The first efficacy trial of IPT-A compared it to a minimal-contact control condition with 48 adolescents diagnosed with MDD (Mufson, Weissman, Moreau, & Garfinkel, 1999). Adolescents received 12 weekly sessions of IPT-A or monthly clinical monitoring. Three-quarters of the IPT-A adolescents recovered from their depressive episode versus 46% in the control condition.

Next, the effectiveness of IPT-A was compared to usual care in a trial in school-based health clinics (Mufson, Dorta, Moreau, et al. 2004). Participants had MDD, dysthymia, adjustment disorder with depressed mood, or depressive disorder not otherwise specified. The IPT-A intervention was administered across 12- to 16-weeks. IPT-A significantly surpassed the control condition, in this case, school-counseling-as-usual. IPT-A adolescents had greater improvements in depressive symptoms, recovery from the depressive episode, and general and social functioning.

A somewhat different version of IPT has been adapted for Spanish-speaking, Puerto Rican adolescents. First, this iteration of IPT was compared to CBT and a waitlist control in a sample of 71 adolescents, most of whom had comorbid major depression and dysthymia (Rosselló & Bernal, 1999). At posttreatment, IPT and CBT produced equivalent decreases in depressive symptoms and both performed better than the waitlist control. At posttreatment, 82% of IPT adolescents and 59% of those in CBT were in the nonclinical range for depression. Gains were maintained at 3-month follow-up in both actively treated groups.

However, results were somewhat different in a study comparing individual and group modalities of CBT and IPT. CBT modalities produced greater decreases in depressive symptoms and improvements in self-esteem than IPT. Among CBT adolescents, 62% were in the nonclinical range of depression at posttreatment, compared to 57% in the IPT condition (Rosselló, Bernal, & Rivera-Medina, 2008).

In sum, IPT adapted for adolescents has consistently been found to be more effective than waitlist controls and in one study more effective than treatment-as-usual, but trials comparing IPT directly with CBT have produced inconsistent results.

Within a meta-analysis of 38 studies of IPT for depression, Cuijpers et al. (2011) reported an average effect size of 0.63 for five studies involving adolescents. Considering all 38 studies of adults and adolescents, IPT was found to be efficacious but not superior to other psychological treatments.

As is suggested in this brief review and documented elsewhere (Curry & Meyer, 2019), the investigations of CBT have been more numerous and have involved more types of comparisons than those of IPT. For example, unlike IPT, CBT for adolescents has been compared to pill placebo, antidepressant medication, and combined treatment. Both CBT and IPT have consistently surpassed waitlist or minimal-contact conditions and are well-established as efficacious treatments for depression in adolescents.

Efficacy of Evidence-Based Treatments: Diversity Considerations

Because many evidence-based treatments were developed with primarily Caucasian adolescents, it is reasonable to ask whether their efficacy generalizes to adolescents from other racial or ethnic groups. One approach to this question is to determine whether minority adolescents were adequately included in the study samples, i.e., included at a percentage commensurate with their proportion of the national population. This goal was reached in the TADS as 74% of the depressed adolescents were Caucasian, 12% were African American, and 8% were Hispanic, proportions that reasonably reflected the US population as of the year 2000 when recruiting began. Minority status did not moderate treatment outcome in TADS (Curry et al., 2006). However, the argument could be made that the proportion of minority youth was too small to provide adequate power for detecting a difference in efficacy. It was certainly too small to permit further evaluation based on different minority subgroups. Studies conducted at a single geographic location or with more restrictive entry criteria (e.g., failure to respond to previous medication treatment) may have more difficulty recruiting representative proportions of minority adolescents, because there may be fewer minority adolescents in proximity to a given single site, or minority adolescents might not have had access to previous treatment.

A second approach is to develop and/or test an intervention with a primarily minority sample. This approach protects against the possibility that null findings on racial or ethnic group differences are attributable to an excessively small proportion of minority youth in the treatment sample. Here IPT and to some extent CBT have considerable support. Mufson et al. (1999) and Mufson, Dorta, Wickramaratne et al. (2004) developed and tested IPT-A with largely Hispanic and female samples. Moreover, Rosselló and Bernal (1999) and Rosselló et al. (2008) tested both IPT and CBT with Puerto Rican adolescents, showing support for CBT in two studies and for IPT in one. In their recent review of evidence-based treatments for racial and ethnic minority youth, Pina, Polo, and Huey (2019) rated IPT as probably efficacious for the treatment of depression in Hispanic adolescents.

Given the increasing proportion of minority adolescents in the US population and the lack of significant representation of many minority groups in psychotherapy treatment studies to date, much more remains to be accomplished to determine whether existing treatments need to be modified for minority youth of various backgrounds, and if so, at what level the adaptations need to be made. For example, are adaptations in language sufficient or are deeper adaptations in treatment content or theoretical orientation required? Pina et al. (2019) discuss this issue, and the reader is referred to their article for a more comprehensive review of the concepts and the evidence related to interventions for minority youth (see also chapter "Incorporating Cultural Competence into Clinical Care of Children and Adolescents").

Case Application of CBT Principles for Adolescent Depression

Sarah (a composite case) is a 16-year-old Caucasian female who lives with her mother, father, and older brother. She attends a large public high school and has a history of generalized anxiety disorder. Sarah's parents sought outpatient treatment during the fall of her 10th grade year due to Sarah's social withdrawal, lethargy, and decreased school performance.

Principle 1: Connect the Links Among Mood, Thoughts, and Behaviors

This principle acts as a starting place for a therapist's understanding of the adolescent's depression. Through psychoeducation, the therapist can share this individualized conceptualization with the adolescent and her family to develop a shared understanding of how the depression developed, and how treatment can help. For example, after conducting a thorough assessment, a therapist may share her conceptualization in the following way: "*Sarah, I'm hearing that it was difficult for you when your best friend moved away, and your grandfather was hospitalized. After those stressful experiences, you stopped spending as much time with your remaining friends and you began to feel badly about yourself. We will begin by encouraging you to do more things you used to enjoy and to help you to look at thoughts that might be getting in the way of feeling better. With time and practice, I am confident you'll start to feel better.*"

This case conceptualization, when shared with the adolescent, can build hope and help to formulate joint goals for treatment. Equally important is the adolescent building awareness of her thoughts, feelings, behaviors, and contexts in "real-time". The skill of mood monitoring can assist an adolescent in tracking which situations or experiences are associated with worsened mood, and conversely, which situations or contexts are associated with improved mood. Mood monitoring can contribute to an adolescent's self-efficacy derived from knowledge of the linkage between situations and moods. For example, Sarah and her therapist agreed that Sarah would track her moods three times daily by making brief notes on her phone. She discovered that her mood worsened when she stayed up late into the night browsing social media.

Once the therapist and adolescent have jointly developed an understanding of situations (social isolation) and moods (sadness, loneliness), the therapist can introduce the triangle model of linkages among thoughts, feelings, and behaviors. The therapist and Sarah explored this topic by investigating Sarah's reactions to viewing her peers' social media posts of fun activities. She reported thinking "*They're having fun and didn't think to invite me*" and then assuming, "*They don't like me.*" The therapist identified that these thoughts would make her less likely to reach out to friends to hang out with in the future, increasing her social isolation. Articulating these linkages among thoughts, behaviors, and feelings lays the groundwork for later treatment.

Principle 2: Increase Activity and Social Connection

Once the adolescent begins to grasp the linkages between situations and moods, Principle 2 emphasizes initiating and sustaining daily activities associated with a positive mood. The repertoire of activities can be initially generated from discoveries made during the mood monitoring stage. Activities that can be targeted in this stage are those associated with a more positive mood, those that promote feelings of competence and mastery, and/or are value-guided (e.g., personal health; family). One approach would be to set a frequency goal (e.g., "*Three times this week, take your dog for a 15-minute walk*") or for a more depressed adolescent, to schedule a specific time and date for a pleasurable activity, "*On Monday at 4 p.m., read one chapter of your favorite book.*" At times, the adolescent will seek out grand, but unlikely, excursions (e.g., a visit to the waterpark). Maintaining a focus on activities that could reasonably and consistently occur and do not overtax caregivers for funding or logistical support is likely best. At the same time, the therapist may need to work with parents to advocate the importance of this approach, even if the adolescent may continue to struggle with motivation for school or other pursuits.

For Sarah, initial behavioral activation focused on structured peer-centered activities (e.g., an after-school dance group) and intentionally filling time periods where she was most vulnerable to low mood. Adolescents often report that they do not "feel like doing" or are "not in the mood to" engage in an activity; nonetheless, it is important to emphasize the importance of doing the activities anyway, with the expectation that mood will improve afterward. It may be helpful to frame this phase as an experiment to figure out which activities are most effective.

Principle 3: When Possible, Act to Change Stressful Contexts and Situations

Stressful experiences may contribute to both onset and continuation of depressive episodes. Increasing adaptive coping skills and strategies may decrease the occurrence and severity of stressful situations and accompanying depressive symptoms. Many skills could be integrated under the banner of this principle, including problem-solving, social skills, communication, relaxation, and even sleep hygiene.

For Sarah's difficulty in building friendships in school settings, which was compounded by distress related to academic demands, the skills of assertiveness and problem-solving were particularly helpful. For example, the therapist encouraged Sarah to identify acquaintances whom she was interested in knowing better, and then practice assertively initiating social contact, instead of passively hoping someone might seek out her friendship. For Sarah, these skills contributed to decreased loneliness and increased social support.

To address distress related to academic demands, problem-solving can be an effective general skill to teach. We use the acronym "RIB EYE" to help the adolescent remember problem-solving steps: *Relax*, *Identify the Problem*, *Brainstorm, Evaluate each possible solution*, *Say Yes to one*, and *Encourage yourself.* Sarah and the therapist identified a number of possibilities to deal with stress associated with getting behind on math homework, including dedicating more time to homework in a quiet space, and seeking extra support from her teacher or parents. Adolescents with depression often preemptively discount the effectiveness of brainstormed solutions. Thus, it is important to make an extensive list before evaluating which ones may or may not work, and then choose one approach to try. Therapist modeling, role-plays, and engaging in in-session skill practice are helpful strategies to increase successful application.

Principle 4: If You Cannot Change the Situation, It May Be Possible to Change Your Thoughts

After an adolescent has an individualized understanding of the relations among her moods, thoughts, behaviors, and situations, is engaged in some positive activities, and has skills to effectively cope with stressors, situations may continue to arise that she cannot control. In these situations, the therapist can teach the skill of cognitive restructuring. These steps include identifying negative automatic thoughts, cognitive distortions, or core beliefs about the self and challenging them with realistic counter-thoughts. This strategy should be done in a collaborative, curiosity-driven, way. It is sometimes helpful to give the frame that the skill allows the adolescent to act as her own therapist.

Even after incorporating social skills and problem-solving, Sarah tended to be pessimistic, especially about her potential for deepening her friendships. She expressed the belief that "I'm too quiet and boring for people to be interested in me." With curiosity, discussion, and challenging ("*What's the evidence? What's an alternative thought?*"), she was able to develop a more effective thought of "*I've made friends before. Maybe I could get to know a couple friends better*". When adolescents have difficulty identifying their own cognitions, it may be helpful to ask them to guess what friends or family members may think or what they might tell a friend in a similarly challenging situation.

We have briefly described the ways that principles can be incorporated into cognitive behavioral treatment for adolescent depression through using specific strategies involving teaching the adolescent relevant skills. However, these principles can (and should) be applied flexibly and creatively. By providing adolescents with a conceptualization and teaching them to monitor their mood in real time, they can gain self-efficacy and awareness (Principle 1). Intentional engagement in situations and activities affect and contribute to improved mood (Principle 2). A focus on active coping with stressful situations, including problem-solving and broad applications of social skills, can improve mood by improving challenging circumstances (Principle 3). Finally, identifying and challenging negative cognitions can contribute to improved mood in situations where the adolescent cannot control or change the situation (Principle 4).

Directions for Future Research

As indicated in the meta-analyses previously cited, the efficacy of evidence-based treatments for adolescent depression is significant but of modest magnitude. As reviewed in this chapter, CBT and IPT are superior to passive comparisons such as waitlist or minimal-contact controls, and in some studies superior to alternative psychosocial treatments. Of note, differences between interventions occur during or shortly after treatment of 12–18 weeks duration, with the groups later converging over time as the vast majority of depressed adolescents experience recovery from their index episode. However, MDD recurrence is common, affecting about half of the treated depressed adolescents within 5 years (Curry et al., 2011).

Obviously there is a great need for better or more enduring treatments. Elsewhere, the first author has written more extensively on future directions for research on psychotherapy for adolescent depression (Curry, 2014). Here, we offer a summary of potential future directions.

First, there is a need to develop and test newer approaches to treating youth depression. Work in this area has begun, including tests of “third wave” behavioral treatments, family interventions, and psychodynamic treatments. Rather than testing them against passive controls, investigators should test them against existing evidence-based treatments: It is well-established that some depression treatment is better than no treatment. In addition to new treatments, new treatment delivery models are being investigated, including computer-assisted or online methods. These might contribute not only to treatment access, but also to durability of response or relapse prevention following short-term treatment.

Second, the focus of efficacy studies for youth depression needs to expand beyond the 12- or 16-week outcome to include both shorter term and longer term outcomes. Shorter term outcomes involve speed of response, an important variable because of the episodic nature of depression: if most people eventually get better it is important to see what interventions can lead more quickly to symptom remission. Longer term outcomes include time to relapse or recurrence, as a way of evaluating the durability of treatment effects.

Third, related to durability of treatment efficacy is the question of whether adolescents actually learn anything in psychotherapy that they can use later to prevent relapse. We know remarkably little about what adolescents actually take away from the evidence-based treatments, and whether the elements that psychotherapists think are ameliorative actually have an impact.

Fourth, given the high rates of comorbid disorders among depressed adolescents, there is a need to determine how best to deal with them. In addition to the potentially useful approach of maintaining a sole focus on the depressive disorder, and not immediately addressing the comorbid conditions, other approaches include: (1) combining simultaneous treatments for more than one disorder; (2) treating the disorders in a planned sequence; (3) using a modular approach to address specific elements of the disorders; (4) adaptive treatment, i.e., addressing one disorder first and adding a second treatment only if needed; and (5) transdiagnostic treatment, i.e., addressing common processes underlying the comorbid conditions.

Fifth, in line with the NIMH Research Domain Criteria (Insel et al., 2010), it may prove beneficial to focus more microscopically in smaller studies of psychopathological processes that are core elements of depression and that can be investigated at various levels of analysis, ranging from genetic and cellular levels through levels appropriate for neuroscientific and social psychological investigation.

Summary

Depression is one of the most common psychiatric disorders of adolescence, and is much more prevalent in adolescents than in younger children. Beginning around age 14, it is more prevalent in females than in males. Most of the evidence-based treatments for youth depression have addressed Major Depressive Disorder, but some studies have included milder forms of depression. Two psychological treatments are considered well-established interventions for adolescent depression: cognitive behavior therapy (CBT) and interpersonal psychotherapy (IPT). Relative to IPT, the evidence base for CBT is more extensive, but both treatments have proven consistently superior to passive or minimal comparison conditions. Only one group of investigators has conducted head-to-head comparisons of CBT and IPT (Rosselló & Bernal, 1999; Rosselló, Bernal, & Rivera-Medina, 2008) and the results have not consistently favored one approach over the other. CBT has been superior to other psychotherapies in some but not all comparative trials.

Both CBT and IPT require a collaborative therapeutic alliance; both include psychoeducation about depression and about how the treatment will address depression; and both require that the adolescent monitor her or his mood in the context of theoretically relevant cues. In CBT, these cues include the situation in which the adolescent feels depressed, and the associated thoughts and behaviors. In IPT, the cues include the situation, with an emphasis on interpersonal interactions (including expectancies) and events.

The principles of CBT emphasize the importance of self-directed activity (behavioral activation); active attempts to improve situations that the adolescent might be able to improve; and cognitive restructuring to cope with situations that the adolescent cannot ameliorate. The principles of IPT include the importance of focusing on one or two central interpersonal experiences: grief or loss, role transitions, conflicts, or skill deficits; and on improving the interpersonal issue to ameliorate depressed mood. Both treatments are time-limited and focused on the present rather than the past. Although CBT places a more obvious emphasis on learning new skills, IPT also includes work on communication, problem-solving, and interpersonal relationship skills.

Key Points

- The overall efficacy of psychotherapies for adolescent depression is well-established but modest. There is a considerable need for novel treatments that are more efficacious, faster to take effect, and/or more enduring in the prevention of relapse or recurrence.
- CBT and IPT are well-established psychotherapeutic treatments for adolescent depression.
- Limited data are available on the generalizability of the efficacy of psychotherapy for depression with minority youths, although IPT is considered well-established with Hispanic youth.
- There is a need for novel interventions that ameliorate adolescent depression more quickly and/or lead to greater protection from recurrent episodes.

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Evidence-Based Interventions for Bipolar Spectrum Disorders in Youths

Anna R. Van Meter and Eric A. Youngstrom

Abstract

The term “bipolar disorder” refers to a set of diagnoses, including bipolar I, bipolar II, cyclothymic disorder, other specified bipolar and related disorder, and unspecified bipolar and related disorder. This chapter describes the importance of treatment conceptualization which must address the needs of patients and their families including pharmacological and psychosocial treatment approaches. Psychoeducation, family-focused therapy, and Cognitive behavioral therapy are among the psychosocial treatments for bipolar spectrum disorders with empirical support. Although pharmacological interventions remain the front line treatment for mania, psychotherapy may be as or more effective at addressing depression, and is key for implementing the lifestyle changes that reduce risk of relapse, prolong periods of wellness, and improve overall quality of life and functioning. Comprehensive treatment should focus on family communication, maintaining routine, emotion regulation, coping skills, problem solving, and lifestyle changes.

The term “bipolar disorder” refers to a set of diagnoses, including bipolar I, bipolar II, cyclothymic disorder, other specified bipolar and related disorder, and unspecified bipolar and related disorder (American Psychiatric Association, 2013; World Health Organization, 2018). Taken as a set, bipolar spectrum disorders (BPSD) are more common among youth than often realized. They also tend to be recurrent, with episodes that remit but then relapse. Although hypomania and mania symptoms are what distinguish bipolar from other mood disorders, most people with bipolar disorder have as many or more depressive symptoms and episodes. Bipolar also can dramatically affect functioning, with some people having periods of high performance, but more often considerable impairment. In short, the presentation of bipolar disorder is heterogeneous, making accurate diagnosis challenging.

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_10

Ontology and Development

The etiology of BPSD is not fully understood, but clearly involves both genetic and environmental factors. It has perhaps the highest genetic loading of any major psychiatric disorder (Schulze & McMahon, 2009; Smoller & Finn, 2003). The rate of BPSD among people with an affected first degree relative is roughly five times higher than the general population, with rates of 5–15% (Birmaher et al. 2009; Singh et al. 2007). Yet concordance rates are 50–60% for monozygotic twins (Goodwin & Jamison, 2007), underscoring the role environmental factors must play as well. The risk of BPSD roughly triples with the onset of puberty, which has become younger as a secular trend (Goldstein et al., 2017). There are several reasons that puberty could be associated with risk, including changes in hormones, shifts in sleep patterns, and changes in interpersonal relationships (Alloy & Nusslock, 2019). The kindling/sensitization model (Post, 2007) posits that stress—potentially including substance use, life events, trauma—sensitizes biologically vulnerable people to the onset of a mood disorder (Dienes, Hammen, Henry, Cohen, & Daley, 2006; Johnson, 2005). Kindling could explain episodes becoming more frequent, protracted, and treatment-resistant, heightening the potential value of earlier identification and intervention (Post, 2007).

Diagnostic Considerations

The primary DSM-5 (A criterion) symptoms of mania are elated and irritable mood. In addition to noticeable mood changes, the youth must also experience shifts in his/her energy, along with three (or four if the primary mood state is irritable). B criterion symptoms, including inflated self-esteem or grandiosity; decreased need for sleep; increased talkativeness or pressured speech; racing thoughts; increased distractibility; more goal-directed activity motor agitation; and more pursuit of risky acts. Teens with hypomania or mania often have less need to sleep and function well with fewer hours than they would normally require. During such periods, the youth may begin many more activities or projects, such as seeking to join in many new clubs or sports teams at school, beginning a number of new arts and crafts projects or developing interests in new topics and pursuing them intensely.

Episodes. Episodes are the periods of time when a person's mood has changed from their typical functioning. DSM-5 (American Psychiatric Association, 2013) specifies three types of bipolar episodes: Manic, hypomanic, and depressed. ICD-10 also includes mixed episodes (concurrent depressive and manic symptoms; World Health Organization, 2018). Two months with few or no symptoms is the operational definition of the end of an episode. DSM-5 requires that the manic symptoms last much of the day, most days, for at least a week, or else be severe enough to require hospitalization. Approximately 20% of manic episodes involve psychotic features (Van Meter, Burke, Kowatch, Findling, & Youngstrom, 2016), and people often confuse BPSD with schizophrenia, especially in minority groups (DelBello, Lopez-Larson, Soutullo, & Strakowski, 2001).

Hypomanic episodes have the same symptoms as mania, but with less intensity and impairment, although other people must still notice the change in behavior. Hypomania does not involve psychotic features and cannot lead to hospitalization; either of these would change diagnosis to a manic episode. DSM-5 stipulates that a hypomanic episode involves symptoms much of the day for at least four consecutive days, in order to distinguish it from everyday variations in functioning. However, epidemiological, longitudinal, and more intensive ecological momentary assessment studies all indicate that hypomanias are often as short as two days (Goldstein et al., 2017). Depressive episodes, required for bipolar II, follow the same criteria as major depressive disorder, requiring depressed mood or loss of interest, plus at least four additional symptoms for at least two weeks.

Diagnoses. Licensed clinicians agree slightly better than chance about whether a client has BPSD. Why so bad? First, the BPSD criteria are more complex than for most psychiatric diagnoses. They require first diagnosing mood *episodes*, and also considering past mood episodes, in order to establish the right type of mood disorder. DSM-5 specifies four bipolar diagnoses: Bipolar I, bipolar II, cyclothymic disorder, and Other Specified Bipolar and Related Disorder (OSBRD). Each diagnosis is tied to an index mood episode. A single lifetime manic episode sets the diagnosis to Bipolar I. Bipolar II requires the combination of least one hypomanic episode and at least one major depressive episode. Cyclothymic disorder is characterized in youths as at least 10 out of 12 months during which both depressive and manic symptoms are present most of the time, but not severe enough to meet criteria for a major depression or hypomania. Mood can be extremely variable, even within the same day, for people with cyclothymic disorder, appearing similar to how borderline personality might—but it must represent a change in functioning. OSBRD requires manic symptoms, yet but not meeting criteria for bipolar 1, bipolar II, or cyclothymic disorder. Prototypic scenarios could be having too few symptoms to meet strict criteria, or insufficient episode durations. Epidemiological studies tend to focus more on variations in symptom count, whereas insufficient duration is a common variant in clinical samples. Technically, OSBRD could also present as repeated hypomanias with no lifetime history of mania or major depression. This variant has been documented in family studies and college student samples, but it is rarely seen at the clinic, because hypomania is less impairing, and usually not distressing to the person experiencing it.

Prevalence and Differences in Youth Presentation

There are now at least 19 published epidemiological studies of BPSD in youths, encompassing more than 52,000 youths from a dozen countries. The average estimated prevalence of BPSD across samples is 3.9% (95% CI 2.6–5.8%). Bipolar I has a prevalence of 0.6% (Van Meter, Moreira, & Youngstrom, 2019). These are rates in the general community, not in treatment-seeking samples. They indicate that BPSD is more common than autism spectrum disorder or schizophrenia in youths, but less common than ADHD or unipolar depression. Rates are higher in clinical settings, approximately 5–12% in outpatient clinics and 20–30% in inpatient and residential treatment (Goldstein et al., 2017).

Conceptualization of Treatment

BPSD can affect any aspect of a person's life. It often limits educational and professional achievement (Kleinman et al., 2005), adds conflict to relationships (Michalak, Yatham, Kolesar, & Lam, 2006), and is associated with high medical comorbidity (Kemp et al., 2013), low quality of life (Freeman et al., 2009; Michalak et al., 2006), more impulsivity, risky behavior, and substance misuse (Stewart et al., 2012), and high risk of suicide (Pompili et al., 2013). Treatment conceptualization must make use of different treatment strategies to address the needs of patients and their families. There is no cure for BPSD, and relapse rates are high (Thase, 2007; Vieta et al., 2013). Adding to the challenge, techniques that might work for one symptom may worsen others, and the biggest problem often changes from week-to-week. Careful selection of components from empirically supported treatments offers the possibility of flexible, patient-focused therapy. Similarly, the few treatments developed specifically for youth with BPSD tend to have a modular format to cover multiple domains of functioning as needed.

Although pharmacological inventions have made progress, particularly with reducing manic symptoms, BPSD etiological models suggest that consistency in daily activities, and reducing stress, may be the best way to prevent or forestall the onset of BPSD (Goldstein et al., 2017). And, in fact, most extant therapies identify lifestyle and stress management/coping skills as important treatment targets (e.g., Fristad & MacPherson, 2014). Picking the best treatment targets can be hard, in part due to the heterogeneity of presentation. Collaborative approaches to matching goals and methods are likely to produce better engagement and results.

Evidence-Based Assessment

A number of free rating scales have good validity for discriminating between BPSD and other clinical presentations, with parent report being more useful than teacher or adolescent self-report (Youngstrom, Genzlinger, Egerton, & Van Meter, 2015). Adding any of the validated and reliable free scales to the assessment is a fast way of improving accuracy, and also can provide an efficient way of measuring severity and tracking response to treatment (Youngstrom et al., 2013). Copies of free and validated scales are available on Wikipedia and Wikiversity at https://en.wikiversity.org/evidence-based-assessment.

When a youth has a positive screen, it is important to conduct a semi- or fully-structured interview. This approach will ensure that all symptoms are assessed and that comorbid conditions, which are common among youth with BPSD, are also evaluated (Youngstrom, Choukas-Bradley, Calhoun, & Jensen-Doss, 2014). Additionally, taking a systematic approach to assessing symptoms will help to reduce the influence of cognitive biases (Jenkins & Youngstrom, 2016). It is also important to establish that the symptoms of BPSD follow an episodic pattern—rather than a chronic one—in order to distinguish the symptoms of BPSD from those that overlap with other, chronic childhood disorders (e.g., distractibility, irritability, hyperactivity). The clinical picture in youths is very similar that in adults, and with a higher rate of mixed mood presentations being the most notable exception.

The presentation of BPSD can be highly heterogeneous. In addition to variability in mood and behavior due to [hypo]manic or depressive episodes, there is also great diversity across people in terms of how [hypo]mania and depression present. Over the course of illness for an individual, there could be manic moods, depressive episodes, and periods of relative wellness, each of which will likely warrant a different approach to treatment or maintenance. Consequently, managing BPSD typically requires a multi-faceted treatment approach. Treatment tends to be informed more by specific symptoms and current functioning than specific diagnostic subtype (Goldstein et al., 2017). The treatment targets that are likely to produce the biggest gains in overall functioning are sleep disturbance, emotion dysregulation, poor social support, weak problem-solving skills, and problem behaviors.

Sleep/schedule irregularities. Disrupting sleep cycles and circadian rhythms may trigger or worsen mood episodes (Grandin, Alloy, & Abramson, 2006; Murray, 2010). Sleep changes—even a single all-night party or transoceanic flight—can trigger a mood episode, with measurable changes in circadian biomarkers (melatonin, cortisol, body temperature) and clear genetic links (Benedetti et al., 2003). Manipulating the circadian rhythm can have marked positive effects on mood (Murray, 2010).

Emotion dysregulation. Poor emotion regulation is likely a risk factor for mood episodes (Green, Cahill, & Malhi, 2007; Townsend, 2012). People with BPSD are also more likely to have intense emotional responses to events (Gruber, Harvey, & Purcell, 2011). Intense reactivity plus poor regulation can cascade into extreme emotions states, adversely affecting other areas of functioning, Psychosocial methods teaching emotion regulation skills play a role in maintenance, relapse prevention, and improving interpersonal functioning.

Poor social functioning and interpersonal support. People with BPSD often lack good social support (Michalak et al., 2006), which predicts poor treatment response and faster relapse (Geller, Tillman, Bolhofner, & Zimerman, 2008). Conversely, more social support correlates with better treatment outcomes and fewer mood episodes (Cohen, Hammen, Henry, & Daley, 2004). Youth with BPSD may be at especially high risk for poor social functioning. Because they struggle to make friends, these youth may not have adequate opportunity to develop social skills, which has serious implications for their social functioning as an adult (Siegel, La Greca, Freeman, & Youngstrom, 2015).

Poor problem-solving skills. People with BPSD often lack insight into their problems (Dell'Osso et al., 2002) or the effects of their behavior on others (Freeman, Youngstrom, Freeman, Youngstrom, & Findling, 2011), which can result in more frequent conflict and challenging situations. Unfortunately, many youth with BPSD also lack the problem-solving skills necessary to effectively cope with these situations (Doyle et al., 2005; Scott, Stanton, Garland, & Ferrier, 2000). This can exacerbate problems and lead to declines in both relationships and general functioning.

Problem behaviors. BPSD has the highest suicide rate of any illness, with 50% of some samples having histories of attempts, and with completed suicide rates around 15% (Pompili et al., 2013). BPSD also is associated with self-harm behaviors (Singhal, Ross, Seminog, Hawton, & Goldacre, 2014) and other risky, impulsive behaviors (e.g., unprotected sex, theft, violence; Holmes et al., 2009) and substance use disorders (Merikangas et al., 2008). Beyond health and safety implications, these behaviors can undermine treatment itself.

Pharmacological Treatment Approaches

Current practice parameters indicate that medication is the first-line treatment for mania in youths (McClellan, Kowatch, & Findling, 2007). Though there are now several medications approved for treatment of mania, response varies widely, side effects can be substantial, and it often takes weeks or months of trial-and-error to arrive at an approach that helps.

Lithium is still considered a front line intervention, with decades of data, and it is perhaps the only treatment—pharmaceutical or psychosocial—that is bipolar specific (Geddes & Miklowitz, 2013). However, atypical antipsychotics (e.g., risperidone, aripiprazole), as a class of drugs, have better antimanic properties than mood-stabilizing drugs (Cipriani et al., 2011). The side effects can range from inconvenient to dangerous. Finding the right balance between efficacy and tolerability is important (Baldessarini, Perry, & Pike, 2008). Additionally, though atypical antipsychotics and lithium are effective for treating mania in the short-term, about half of patients in treatment are likely to have a mood relapse within two years (Geddes et al., 2010; Gonzalez-Pinto et al., 2011).

The use of anti-depressants for BPSD is controversial; though there is substantial evidence that serotonergic medications do not increase risk of mania, particularly when prescribed in combination with a mood stabilizer (Joseph, Youngstrom, & Soares, 2009), many clinicians are hesitant to prescribe them. Additionally, their efficacy for the treatment of bipolar depression is questionable (Pacchiarotti et al., 2013; Sidor & MacQueen, 2011). Psychosocial treatments fill a key niche not currently well met by available pharmaceutical treatments. Additionally, adherence to medication among people with BPSD tends to be poor, which contributes to relapse and poor outcomes (Baldessarini et al., 2008). Psychoeducation and cognitive and behavioral strategies are often important to improving motivation and helping patients make treatment adherence part of their daily routine. A direct comparison of three psychosocial interventions (family-focused therapy, CBT, and interpersonal and social rhythm therapy [IPSRT]) found that all three improved on the medication-only comparison (Miklowitz et al., 2007).

Psychosocial Approaches

Because the best-established BPSD treatments have similar theoretical mechanisms and common elements, our description is organized around therapeutic components and treatment targets to help clinicians make the best use of the existing evidence. At present, manualized versions of BPSD psychotherapies with empirical support are available at only a few research institutions, creating a serious problem of access to "name brand" modalities. Whereas pharmaceutical treatment guidelines are more easily disseminated, psychosocial treatment research is time-consuming and resource-intensive, and dissemination and implementation are difficult. Fortunately, because many core elements are included in a solid cognitive and behavioral therapy (CBT) foundation, practicing clinicians may be able to adapt some of those skills into their approach with good effect. Because of BPSD's episodic presentation, patient needs will change, and the best therapists may choose in a theoretically guided way from a menu of therapy modules and techniques (Jones, 2004). Evidence-based entrees include

Psychoeducation. Psychoeducation offers patients an understanding of their illness to prevent or combat habits that work against their health. Psychoeducation explains etiology of the disorder and mood episodes, emphasizing both biological and environmental factors in lay terms, along with the rationale for medication adherence and avoiding triggers (e.g., staying up too late). Core content usually includes (a) treatment adherence, (b) understanding mood episodicity and illness course, (c) triggers, (d) recognizing episode onset, and (e) stress management/coping skills; the order is flexible to match patient needs. Both group and individual psychoeducation have shown good results, including reduced hospitalizations and symptom severity, along with better quality of life (Candini, 2013; Colom et al., 2009; Feeny, Danielson, Schwartz, Youngstrom, & Findling, 2006; Fristad, Verducci, Walters, & Young, 2009; Michalak et al., 2006), with medium effect sizes at treatment end (Cohen's $d = 0.45$) and at 12-month follow-up ($d = 0.60$; Fristad & MacPherson, 2014).

Psychoeducation also can empower patients. People with BPSD often feel as if they have no control over their mental health. Arming them with concrete examples of ways to shift their mood and functioning can have immediate benefits and improve long-term therapeutic engagement (Richardson, 2010; Sorensen, Done, & Rhodes, 2007). Psychoeducation also helps family members separate the illness and the individual—reducing blame and resentment. It also can teach improved communication tactics and promote social support (Goldstein & Miklowitz, 1994; Pavuluri et al., 2004).

Psychoeducation may scale more easily and at lower cost than some other promising psychotherapies: It is often delivered in a group format by people who have relatively minimal training (Leff et al., 1989). Group formats also improve understanding and management of mood disorders, with better adherence to treatment, as well as decreased familial conflict and mood symptoms (Fristad et al., 2009; MacPherson, Algorta, Mendenhall, Fields, & Fristad, 2013).

Enhancing emotion regulation strategies. Emotion dysregulation is a core feature of BPSD, and effective emotion regulation improves mood stability. Depending on developmental level, it may help to first focus on emotion recognition and then progress to how emotions and thoughts are related (e.g., noticing that being ignored in class leads to frustration, while winning a soccer game leads to happiness; Fristad et al., 2009). For example, in child and family-focused CBT (CFF-CBT) the affect-regulation module is focused on helping youth see the different moods and emotions they experience, before looking for triggers leading to negative moods (Pavuluri et al., 2004; West et al., 2014).

Dialectical behavior therapy (DBT) also includes a functional analysis of situations that lead to maladaptive emotions. Patients use diary cards to track activities and mood on a daily basis, and therapists help deconstruct events that led to disruptive emotions (Goldstein, Axelson, Birmaher, & Brent, 2007; Goldstein et al., 2014; Van Dijk, Jeffrey, & Katz, 2013). DBT also incorporates strategies geared toward enhancing control over emotional responses, including learning how to be less vulnerable to "emotion mind," pleasant activity scheduling, and acting opposite to current emotions. Adaptation of DBT for BPSD targets excessive negative and positive emotion (Goldstein et al., 2007).

Family therapies also focus on how emotions and moods can be "contagious" and affect others in the family system. The skills both reduce negative, and increase positive emotions among family members. High levels of "expressed emotion"—criticism and emotional over-involvement—correlates with higher rates of relapse and more severe symptomatology (Kim & Miklowitz, 2004). Reducing expressed negative emotion aids recovery and the maintenance of stable mood (Honig, Hofman, Rozendaal, & Dingemans, 1997), perhaps by reducing stress exposure that would accelerate mood episode recurrence (Miklowitz & Johnson, 2009).

Building sleep/schedule regularity. Therapies targeting social rhythms aim to increase structure in patients' lives and promote regular sleep schedules (Frank, Swartz, & Kupfer, 2000). Monitoring of the patient's activities for a week provides a baseline assessment of current routines—or lack thereof. The therapist and patient then decide on tactics for improving regularity, such as aiming for a consistent bedtime, paired with tracking and debugging as needed. IPSRT uses the Social Rhythm Metric, which tracks interpersonal interactions as well as daily activities with the goal of increasing the number of regular zeitgebers (Hlastala & Frank, 2006). CBT uses homework assignments to build schedule regularity, or other desirable behaviors, outside session (Feeny et al., 2006). Increased schedule regularity also improves medication adherence and therapy attendance by building it into the weekly routine, and builds social support by creating opportunities for interaction with other people.

Improving social functioning. BPSD are associated with difficulty with "social cognition," or understanding others' emotions and perspectives. Helping patients see how their actions appear to others, and practicing more effective communication, lays the groundwork for better relationships. DBT has an interpersonal effectiveness module teaching attentiveness to both the patient's goals and to the other person's perspective when planning an interaction (Linehan, 1993). Pre-planning for important conversations can smooth potentially volatile emotions or impulsive actions. Family-focused therapies (FFT) also emphasize rehearsing and implementing communication skills, improving family relationships and honing skills for interacting effectively with people outside the family.

Teaching problem-solving skills. Problem-solving deficits reduce quality of life in people with BPSD. On top of not knowing effective strategies, people with BPSD often also have low self-esteem and self-efficacy, both hampering their ability to negotiate tough situations. Teaching problem-solving can expand their repertoire and boost confidence in their ability to handle challenges. CFF-CBT encourages patients to think about their positive qualities and to develop a "can do" attitude. Patients brainstorm things they can *think* and that they can *do* when they encounter a problem. Family-focused therapy teaches patients to break problems into smaller, more manageable pieces before attempting a solution. Integrating families in problem-solving adds scaffolding for patients when they struggle to confront a problem outside of therapy. Improved problem-solving can also generalize to relationships with other people, reducing the number and duration of conflicts.

Reducing problem behaviors, building coping skills. The impulsivity and hypersexuality common in BPSD can lead to risky behaviors. Psychoeducation can improve recognition of how mood states influence behavior. However, it is also useful to promote alternative ways to channel both manic states, when risky behaviors are likely, and also depressed moods, when patients are more likely to become suicidal, engage in self-harm, or misuse substances. Basic CBT skills can be very effective, helping reframe negative thoughts and challenge thought distortions that contribute to depression or grandiosity. Behavioral activation can help treat depressed mood and offer healthy alternatives to problem behaviors. DBT uses behavior analysis to help patients learn to avoid triggers and expand the toolkit of coping behaviors. Another helpful DBT component is the distress tolerance skills, which help patients to accept that, although unwanted emotions/situations will occur, it is possible to minimize *suffering* by finding ways to self-soothe that do not make problems worse (Linehan, 1993). Because criticism and expressed negative emotion worsen negative outcomes, learning to effectively parent a moody child is important. Interventions for youths also use behavioral techniques to help parents learn behavior management without escalating emotion.

Review of Treatment Efficacy and Effectiveness

Adjunctive psychotherapy improves long-term maintenance of euthymic mood. Psychotherapy can address predictors of relapse, such as residual mood symptoms and medication non-adherence (Schöttle, Huber, Bock, & Meyer, 2011), with up to 40% risk reduction compared to relying on medication alone (Mikowitz et al., 2007; Scott, 2007). Very few trials of psychosocial interventions for pediatric bipolar disorder have been conducted. In general, effect sizes from youth trials are similar to those found in adults; a meta-analysis found that individual therapy is associated with small effect sizes for reducing depression (standardized mean difference = −0.23) and rehospitalization (relative risk = 0.14), whereas family-focused therapy has medium effects on depression (SMD = −0.73) and mania (SMD = −0.66; Oud, Mayo-Wilson, Braidwood, Schulte, Jones, Morriss et al., 2016).

Cognitive behavioral therapy is among the psychosocial treatments for BPSD with the strongest empirical support (Feeny et al., 2006; Scott et al., 2006; West et al., 2014). CFF-CBT improves both manic (Cohen's $d = 0.69$) and depressive symptoms (Cohen's $d = 0.06–0.55$) over psychosocial treatment-as-usual (West et al., 2014). Similarly, a trial of CBT showed positive effects on both manic (Cohen's $d = 0.62$) and depressive symptoms (Cohen's $d = 0.90$) following treatment (Feeny et al., 2006).

Family-focused therapy (Miklowitz et al., 2008, 2019; O'Donnell et al., 2017) also has strong evidence of effectiveness across multiple trials. In adolescents with BPSD, FFT reduces depression (Cohen's d = 0.65) and mania (Cohen's d = 0.79; Miklowitz et al., 2004) and is associated with swifter recovery from depression than treatment-as-usual (HR = 1.85; Miklowitz et al., 2008). FFT has also been adapted for symptomatic youth at risk for BPSD and is superior to an enhanced care condition for recovery from baseline symptoms (HR = 2.69; Miklowitz et al., 2013).

Dialectical behavior therapy (Goldstein et al., 2007, 2014; Van Dijk et al., 2013) is associated with large effect sizes for reducing depression (Cohen's $d = 0.7–0.98$) and suicidality (Cohen's $d = 0.9$ to 1.2), but has no demonstrable effect on manic symptoms in the existing trials (Goldstein et al., 2007, 2014). Participants receiving DBT also spent, on average 1.6 times more weeks *not* depressed and 1.4 times more weeks *not* [hypo]manic than adolescents receiving TAU (Goldstein et al., 2014).

Interpersonal social rhythm therapy for adolescents and young adults, when compared with enhanced care in an RCT, was associated with significant reductions in manic and depressive symptoms and with improvements in social adjustment (Inder et al., 2015). However, the IPSRT outcomes were no statistically different from enhanced care. In a smaller, open trial participants had significant improvements in manic (Cohen's $d = 0.95$) and depressive symptoms (Cohen's $d = 0.77$), and global functioning (Cohen's $d = 1.70$). Similarly, in an open trial for at-risk youth.

Psychoeducation (Fristad et al., 2009, 2015; MacPherson, Mackinaw-Koons, Leffler, & Fristad, 2016) has been evaluated most extensively and all other treatments for bipolar disorder include some component of psychoeducation. Its effects on mood range from small (mania Cohen's $d = 0.34$) to large (depression Cohen's $d = 1.18$; MacPherson et al., 2016).

Applying the Literature to Clinical Cases

Treating BPSD requires a mix of patience, sensitivity, and a willingness to improvise. Poor social functioning and chaotic lives can interfere with a strong therapeutic working alliance (Hasson-Ohayon, 2009) and periods of relative wellness can lead to poor adherence. Good communication helps negotiate changes in severity, functioning, and the targets and intensity of treatment in tandem.

Consider Christopher, a 14-year-old White male who was recently referred to your clinic. Based on the phone intake with his mother, Donna, you know that historically he has been "bright and accomplished;" he skipped third grade and was the goalie of his middle school's winning soccer team. He is also outgoing and generally well-liked by his peers and adults. However, within the last six months his behavior changed. His music tastes shifted from top-40 hits to heavy metal and grunge and he started wearing spiked leather armbands and heavy boots. His mother reports that she has found him hooking up with girls in the house more than once, and that he has been reckless in other ways—running up a huge bill from online gaming and drinking beers she had in the refrigerator. She is also worried because Christopher has been complaining of fatigue and general physical symptoms for months, which have resulted in him staying home from school, but tests have ruled out most physical explanations. The school system is now saying that Christopher will fail the semester unless they get a doctor's note explaining his absences.

Before intake, you collect the Child Behavior Checklist and Youth Self Report from Donna and Christopher. Although the broad Externalizing and Internalizing *T*-scores are not clinically elevated, you take note that the Attention Problems and Thought Problems scales are elevated on both measures. This is an unusual combination of scores, and suggests that Christopher is experiencing symptoms across multiple domains. When Donna and Christopher arrive, you ask them to complete a few more brief measures that assess mood and attention problems with greater specificity. They complete the parent- and youth-report of the General Behavior Inventory 10-Item Depression and 10-Item Mania Scales (Youngstrom, Van Meter, Frazier, Youngstrom, & Findling, 2018), along with the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, Khetarpal, Brent, Cully, Balach, Kaufman, & Neer, 1997), and the Vanderbilt ADHD Diagnostic Rating Scale (Wolraich, Lambert, Doffing, Bickman, Simmons, & Worley, 2003).

Both Christopher and his mom endorse significant symptoms on the mania and depression scales, as well as the ADHD scale. Neither indicate that he has impairing anxiety though. Based on the results from the symptom scales, you decide to administer the mood and ADHD modules from the KSADS and to add additional modules as necessary.

After completing the clinical interview and KSADS modules, it is clear that Christopher has had at least two periods of hypomania, one about a year ago and one about three months ago. His symptoms included elated mood, decreased need for sleep, impulsive—sometimes reckless—behavior, and increased goal-directed activity. Each time, the symptoms lasted "about 4 or 5 days" according to his mother. Christopher also met criteria for two episodes of major depression. Although he has been struggling with low mood for about six months, his mother reports that his mood was "up and down" until about three months ago when, following a period of hypomania, he became more seriously and consistently depressed. He has struggled with low mood, lack of energy, somatic complaints, hypersomnia, anhedonia, and poor appetite. He had similar symptoms for a month in sixth grade.

When you ask the detailed questions from the KSADS ADHD module, it becomes clear that Christopher's concentration has been affected by his physical symptoms and low motivation, but you don't think he meets criteria for ADHD.

Based on your care assessment, you diagnose Christopher with bipolar II. His mother expresses surprise and some guilt—she reports that she thought his symptoms were due to "normal teenage stuff" and maybe "mono or something." Christopher seems relieved to have an explanation for how he has been feeling and asks right away if this will "get him out of failing school." Because Christopher's current symptoms are primarily related to depression, you decide to develop a treatment plan that includes both CBT and psychoeducation. CBT is as efficacious at reducing depressive symptoms as any of the other treatments for bipolar disorder, and is consistent with Christopher's mother's request for him to have individual therapy. You also recommend that Christopher and his mom attend a family psychoeducation group; psychoeducation is especially important for newly diagnosed people and can help the family learn about bipolar disorder and about the lifestyle choices that are recommended.

In your individual CBT with Christopher, you focus on cognitive work to challenge his negative thoughts and low motivation. You also encourage him to set a strict sleep schedule and to follow a nutrition and exercise plan—you want him to feel better physically, but know that traditional behavioral activation may carry some risks for people with bipolar disorder. You implement mood tracking, so that Christopher can begin to better understand how his mood is influenced by his sleep and other activities. Finally, you refer Christopher to a colleague for mediation management where he is prescribed an antidepressant with a mood stabilizer.

Christopher and his mother attend the group for a few weeks, but then stop coming because they feel too much time is being spent on therapy. Your work with Christopher proceeds fairly well and his mood improves. He returns to school and after about six months, you taper to bimonthly sessions. However, as the end of the spring semester approaches, Christopher's mood seems to change. He is talking more and has many, many plans for the summer. He reports that he is not sleeping much and that he has started working out "like crazy," so he can try out for football in the fall. You wonder about medication adherence, but Christopher assures you he is consistent. You consult with the psychiatrist who agrees to make some changes to try to prevent further escalation of Christopher's hypomania. You decide to shift your work to include Christopher's mom in order to refresh their knowledge about bipolar disorder and to discuss how family dynamics can contribute to mood episodes. Your experience has taught you that close monitoring and flexibility in applying evidence-based treatment principles is the best way to help your patients maintain relative stability.

Treatment Moderators

There is nascent literature investigating treatment moderators suggests that youths and families with *worse* baseline functioning show greater response to psychotherapy (MacPherson et al., 2013). This contrasts with studies finding that adults who have experienced more mood episodes may be less likely to benefit from treatment (Colom et al., 2010; Scott et al., 2006). Comorbid disorders, caregiver psychopathology, current mood, and cognitive functioning all are plausible moderators based on other research. People for whom hypomania or mania are mostly positive are likely to be less treatment adherent as their mood elevates and insight into their symptoms declines (Sorensen et al., 2007). Although the empirically supported psychosocial treatments for BPSD all show some benefits

(Schöttle, Huber, Bock, & Meyer, 2011), there is still substantial room for improvement; although effect sizes for depression are in the moderate-to-large range; most treatments have minimal impact on manic symptoms, and relapse is common even for those in consistent treatment.

Directions for Future Clinical Research

"Virtual dark" therapy is a promising way to regulate circadian rhythms by wearing glasses that reduce the effects of artificial light and help the brain's clock better sync with day and night (Henriksen et al., 2016). There also are apps designed to monitor habits and moods, helping identify episodes earlier during onset (Faurholt-Jepsen et al., 2015). The apps could be a shared tool for communication and tracking, helping to maintain a flexible, as-needed therapeutic relationship. Data from the apps also can inform the therapy process as a way to track thoughts or efforts to practice new skills (Nicholas et al., 2015; Stawarz et al., 2018).

The empirically supported treatments for BPSD are intensive and require a significant time investment from patients and a therapist with adequate skills to implement the intervention in this challenging population. Because the lives of people with BPSD and their families can be chaotic, a key future direction will be to develop resources and delivery models that are more accessible than traditional individual therapy. Additionally, dismantling studies are needed to evaluate the relative worth of treatment components. The current focus is more on augmentation studies (Geddes & Miklowitz, 2013); although this may increase the effect size in a research trial, it slows the identification of key ingredients or ways to reduce costs and facilitate dissemination.

Summary

Psychotherapy has a great deal to offer in the management of bipolar disorder. Although pharmacological interventions remain the front line treatment for mania, psychotherapy may be as or more effective at addressing depression, and it is key for the lifestyle changes and proactive behaviors that reduce risk of the next episode, prolong periods of wellness, and improve overall quality of life and functioning. Working with patients to build skills and modify behaviors while incorporating families to provide stability and support will provide a strong foundation for a flexible, patient-focused treatment.

Key Points

- Good assessment improves differentiation of BPSD from unipolar depression or other disorder, leading to important differences in treatment planning.
- Psychotherapy has moderate-to-large effects on depressive symptoms and can help prevent relapse; the most effective intervention strategy incorporates both medication and psychosocial intervention including psychoeducation.
- Psychoeducation, family-focused, cognitive behavioral, and dialectical behavioral approaches are all gaining support with youth as well as adults. These interventions are similarly effective at treating depressive symptoms and CBT and FFT both have moderate effects on manic symptoms.
- Lifestyle changes, especially with sleep, are key to maintaining wellness.
- Comprehensive treatment will focus on communication, maintaining routine, improving functioning, emotion regulation, coping, and lifestyle changes, not just symptom reduction.

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Disruptive Behavior Disorders and Neurodevelopmental Problems

Evidence-Based Treatments for Attention-Deficit/Hyperactivity Disorder (ADHD)

Caroline P. Martin and Betsy Hoza

Abstract

Attention-Deficit/Hyperactivity Disorder (ADHD) is a chronic and highly prevalent psychological disorder, for which the appropriate assessment relies on a multi-modal, multi-informant approach consisting of symptom rating scales, structured clinical interviews, and rule out of other conditions. This chapter overviews evidence-based psychosocial interventions, reviewing the underlying principles and the current state of the literature regarding their efficacy. In addition to pharmacotherapy, behaviorally focused psychosocial interventions remain significant for treating childhood and adolescent ADHD. The authors describe the Behavior Management Interventions and Training Interventions including parent-focused, classroom-focused, peer-focused, and combined interventions. Only these treatment approaches, and their combination, can be considered evidence-based treatments for ADHD. Effective treatments include pharmacotherapy, largely (but not exclusively) stimulant medication (e.g., methylphenidate), and psychosocial interventions emphasizing behavior management principles. These interventions and multi-component interventions demonstrate moderate to large effect sizes for reducing ADHD symptoms and improving common areas of functional impairment. The development of more specific and customized intervention packages will help address some barriers to treatment engagement and response (e.g., parental depression, access to care). No available treatments are currently able to completely "normalize" functioning or to produce treatment effects that maintain well beyond the discontinuation of active treatment.

Attention-Deficit/Hyperactivity Disorder (ADHD) is a chronic and highly prevalent psychological disorder, impacting an estimated 5% of children worldwide (Polanczyk, Silva de Lima, Horta, Biederman, & Rohde, 2007). The disorder is defined by developmentally inappropriate levels of inattention, hyperactivity, and impulsivity, often persisting into adolescence and adulthood (Ingram, Hechtman, & Morgenstern, 1999; Lahey et al., 2016). ADHD is also characterized by impairments in a variety of functional domains (e.g., social, academic). Children with ADHD may have associated

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_11

neuropsychological deficits, but the presence of such impairments is neither sufficient nor necessary for an ADHD diagnosis (Sjöwall & Thorell, 2018). ADHD as currently conceptualized is extremely heterogeneous in nature, meaning that any two children with a diagnosis may present with highly variant profiles of functioning. Importantly, ADHD is currently categorized as a neurodevelopmental disorder in the *Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition* (DSM-5; American Psychiatric Association, 2013), reflecting the view that the disorder stems from early developmental alterations in the nervous system (Castellanos et al., 2002; Shaw et al., 2007).

To date, there is no single test for diagnosing ADHD. Instead, gold-standard assessment relies on a multi-modal, multi-informant approach consisting of symptom rating scales, structured clinical interviews, and rule out of other conditions that may mirror ADHD symptoms (e.g., learning disorders, hearing problems, sleep apnea). Further, comorbid anxiety, mood, and conduct disorders are common (Brown et al., 2001), making the use of comprehensive evaluation procedures, including assessment of additional psychiatric conditions, imperative.

Although ADHD is most often diagnosed in early elementary school, research documenting the validity of diagnoses made in preschoolers has informed current practice guidelines that now include children as young as four (Wolraich et al., 2011). Updates made to the DSM-5, such as raising the age criterion from 7 to 12 and lowering the symptom thresholds for adults, has also made it easier to diagnose ADHD for the first time in adolescents and adults (Epstein & Loren, 2013). Other important diagnostic considerations include child sex and a variety of well-established risk factors, such as low birth weight/prematurity, extreme early adversity, and pre- and postnatal exposure to lead, drugs, and alcohol (Thapar, Cooper, Eyre, & Langley, 2013). Despite their lack of specificity in predicting ADHD, knowledge of these key risk factors may help clinicians, educators, and parents identify ADHD and intervene early. ADHD continues to be more prevalent in boys than girls (Willcutt, 2012), though debate remains as to whether these sex differences represent true differences or gender-based biases (Arnett, Pennington, Willcutt, Defries, & Olson, 2015; Bruchmuller, Margraf, & Schneider, 2012).

Over the past several decades, the scientific community has generally agreed that only two treatments, and their combination, can be considered evidence-based treatments for ADHD. These treatments include pharmacotherapy, largely (but not exclusively) stimulant medication (e.g., methylphenidate), and psychosocial interventions emphasizing behavior management principles. Despite continued debate as to which is the best first-line treatment, and what is the optimal method of sequencing interventions when used in combination (Hoza, Kaiser, & Hurt, 2007; Pelham, 1999), the classification of each intervention as “well-established” and evidence-based is, with few exceptions (Sonuga-Barke et al., 2013), rarely a source of dispute among the scientific community.

Pharmacotherapy continues to be widely used for treating ADHD (Zuvekas & Vitiello, 2012), but its use can correspond with negative side effects (e.g., insomnia, appetite suppression; Meijer, Faber, Den Ban, & Tobi, 2009) and often does not sufficiently address core functional impairments (e.g., social skill deficits). Further, some individuals do not respond to medication alone (Pelham, Wheeler, & Chronis, 1998). Hence, there is a continued interest in, and a clear need for, effective psychosocial interventions to treat ADHD symptoms and corresponding functional impairments. Indeed, in the past decade, there have been numerous psychosocial interventions developed and evaluated (e.g., organizational training), warranting continued debate and discussion as to which psychosocial treatments for ADHD should be considered gold standard. The primary goal of the current chapter is to provide an overview of evidence-based psychosocial interventions, reviewing the principles underlying them and the current state of the empirical literature regarding their efficacy.

What Does It Mean to Be “Evidence-Based”?

To date, there is no single consensus as to what constitutes an evidence-based treatment. This chapter follows the guidelines established by the *Journal for Clinical Child and Adolescent Psychology* (JCCAP), which include rigorous review criteria that have been continuously updated to follow best practices in the field (see Southam-Gerow & Prinstein, 2014 for an overview of current JCCAP review criteria). Four *JCCAP* reviews have been published specific to ADHD (Evans, Owens, & Bunford, 2014; Evans, Owens, Wymbs, & Ray, 2018; Pelham & Fabiano, 2008; Pelham et al., 1998). Below, we focus our review on the therapies categorized as “well-established” by the most recent *JCCAP* evidence-based update (Evans et al., 2018). We also consider additional review articles, meta-analyses, and individual studies to supplement our discussion and to highlight the strengths and limitations of the literature more broadly.

Following the format of Evans et al. (2018), the treatments discussed below are organized into two primary categories: Behavior Management Interventions (BM) and Training Interventions (TI). These two intervention categories share some commonalities but are distinguished by who they are directed toward (e.g., parent/teacher vs. child directly). BMs focus on training parents, teachers, or other adults on behavior management principles to be incorporated into the child’s daily environment; TIs focus on training the child or adolescent directly.

Behavior Management Interventions (BMs)

Behavioral Parent Training (BPT). BPT is a long-established therapy used to target symptoms and impairments of ADHD, as well as other associated behavior problems (e.g., oppositional and aggressive behavior). Based on the principles of operant conditioning and social learning theory, parents are trained in behavior management strategies to target challenges in the home environment. Further, because the behaviors that characterize ADHD often result in challenges for the parent–child relationship, creating stress in the household (Theule, Wiener, Tannock, & Jenkins, 2013), BPT aims to modify maladaptive parenting strategies that serve to maintain such stressors. There are a number of well-established treatment packages (e.g., Parent–Child Interaction Therapy: McNeil and Hembree-Kigin, 2010; Helping the Noncompliant Child: McMahon & Forehand, 2003) that follow core parenting principles that are emphasized across most programs. For example, parents are taught to identify antecedents to and consequences of their child’s negative behavior and to consider ways to modify the child’s environment to address factors that are serving to maintain these unwanted behaviors. Parents learn to effectively phrase their instructions to optimize their child’s compliance, identify and reward prosocial behaviors using a variety of techniques (e.g., praise, token reinforcers, tangible rewards), and monitor and track problematic behaviors. Unwanted behaviors are decreased with skills such as time out, planned ignoring, and removal of privileges. Parents also are taught to incorporate regular one-on-one time that is not contingent on good behavior to help foster a positive parent–child relationship. Most treatment packages emphasize the importance of setting expectations, creating routines, and consistently reinforcing behavior. Clinicians are thus tasked with helping parents implement these skills successfully, which often requires problem-solving specific barriers that present themselves to individual families (e.g., resources, parental psychopathology).

The efficacy of BPT in treating ADHD has been evaluated for many decades, with numerous well-designed studies documenting positive effects across an array of outcomes, including, most notably, ADHD symptoms (e.g., Sonuga-Barke, Daley, Thompson, Laver-Bradbury, & Weeks, 2001), comorbid behavior problems (e.g., Bor, Sanders, & Markie-Dadds, 2002), and overall family functioning (e.g., Anastopoulos, Shelton, Dupaul, & Guevremont, 1993). Yet, there are a number of important limitations of the research that need to be considered. First, because effect sizes for BPT interventions tend to be stronger for domains of functional impairment as compared to the effects found for core symptoms of ADHD (Daly, Creed, Xanthopoulos, & Brown, 2007; Hoza, Kaiser, & Hurt, 2008), some researchers have questioned whether BPT should indeed be classified as well established for treating ADHD specifically (Sonuga-Barke et al., 2013). However, others have argued that the day-to-day functional impairments of ADHD are typically the cause for clinical referral, and thus, they should be the primary focus of intervention (Evans et al., 2018). Second, there is often a reliance on parent symptom ratings as a key outcome measure, which raises concern regarding expectancy effects and common rater biases. Although it is acknowledged that expectancy bias is a noteworthy concern, Evans and colleagues (2018) point out that this is not a limitation only among the ADHD literature as many adult-based treatments that are considered evidence-based (e.g., Cognitive Behavioral Therapy (CBT) for depression) base their conclusions on self-report, which deals with the same expectancy bias issue. Third, much of the BPT empirical literature fails to find treatment effects that generalize to other settings, such as the classroom (see Pelham & Fabiano, 2008). However, as Evans et al. (2018) emphasize, unless the intervention involves a classroom component, it is not typically expected to produce improvements in the classroom context. All of these limitations are important to note and consider when critically evaluating the BPT literature. Although some experts point to these limitations as reasons to be cautious in drawing strong conclusions about the efficacy of BPT (Barkley, 2016; Sonuga-Barke et al., 2013), others are less critical (Chronis, Jones, & Raggi, 2006; Daly et al., 2007; Evans et al., 2018). In sum, it is clear that no individual study, or even broader treatment literature, is without its limitations. However, given the numerous supportive studies spanning many decades of research, it is generally concluded that BPT is a key component in addressing the symptoms and impairments that correspond with ADHD in childhood.

Because BPT has been evaluated extensively, research in the decade since the previous edition of this chapter has largely focused not on whether BPT works, but instead on *how* it works, for *whom* it works, and ways to improve outcomes across various populations. For example, several recent review articles have examined BPT for preschool children (Charach et al., 2013; Laforett, Murray, & Kollins, 2008; Mulqueen, Bartley, & Bloch, 2015) and adolescents (Chan, Fogler, & Hammerness, 2016; Sibley, Kuriyan, Evans, Waxmonsky, & Smith, 2014), two age groups that historically have been understudied. The adolescent literature, in particular, has grown to include more rigorous evaluations of BPT adapted for use with teens (Sibley et al., 2013, 2016). These adaptations, such as those found in Sibley's "Supporting Teens' Autonomy Daily" (STAND) program, typically modify traditional BPT to include the adolescent in therapy meetings, allowing teens to provide input in the creation of behavioral contingencies and promoting positive problem-solving discussions between teens and parents. Of note, although BPT for preschool and elementary children has enough evidence by *JCCAP* standards to be considered well established, BPT for adolescent populations remains at the probably efficacious level until more research is available supporting its positive effects.

Other notable adaptations to traditional BPT have been made such as BPT delivered via video conference (Xie et al., 2013) or telephone (McGrath et al., 2011), BPT + CBT for maternal depression (Chronis-Tuscano et al., 2013), BPT with extended 2.5-hour sessions (Chacko et al., 2009), and BPT targeted specifically to fathers (Fabiano et al., 2012); most of these treatments showed positive outcomes compared to control conditions, though not always superior effects compared to traditional BPT (see Evans et al., 2018 for a more detailed review). Further, given that many BPT studies examine treatment packages, limiting our understanding of core mechanisms of effect, more work is needed to dismantle these treatment packages. Finally, more research is needed to understand the effect of different "doses" and durations of BPT to provide insight into ways to adapt traditional BPT programs to improve outcomes.

Behavioral Classroom Management (BCM). Based on the same behavior management strategies and social learning principles as BPT, BCM is focused on modifying behaviors in the classroom context to promote academic and social success among individuals with ADHD. BCM typically involves consultation with the classroom teacher to provide ADHD psychoeducation, training on strategies that increase positive behaviors (praise, contingency management) and decrease inappropriate behaviors (e.g., planned ignoring, time out), and training on how to structure the physical environment to foster improved attention and performance. Further, many BCM interventions may include a Daily Report Card (DRC; Dougherty & Dougherty, 1977), which is used to provide an at-home reward for academic performance or positive prosocial behaviors that take place in the school environment.

Like BPT, BCM has been studied for many decades with numerous empirical investigations documenting positive outcomes across various domains, most notably, ADHD symptoms and academic, behavioral, and social functioning (e.g., Fabiano et al., 2010; Miranda, Presentación, & Soriano, 2002; Strayhorn & Bickel, 2002). These findings and conclusions are in line with all four *JCCAP* evidence-base updates which have categorized BCM as a well established intervention for ADHD. Of note, the intervention components included in BCM vary widely across studies. Some focus on the implementation of a single component, such as the DRC (e.g., Fabiano et al., 2010), whereas others evaluate a multi-component intervention package, such as Child Life and Attention Skills (CLAS; Pfiffner et al., 2007). Strengths of this literature include the variety of well-designed and methodologically diverse studies (e.g., between-subjects, within-subjects, single-subject case design), as well as documentation of effects both by teacher report and independent observations of classroom behavior. This body of research, however, is limited in its application to the adolescent population; there is only sufficient research to date to consider BCM well established for preschool and school-age children (Evans et al., 2018). As one can imagine, there are a number of factors that make BCM more difficult for middle and high school students, such as their daily schedule (i.e., moving between multiple classrooms) and a shift toward greater affinity to peers compared to adults (Berndt, 1979), that might make a contingency management program less effective. Further, BCM is reliant on the cooperation of the classroom teacher/school staff, meaning that the feasibility of this intervention varies widely from teacher to teacher. Nonetheless, research to date highlights behaviorally focused classroom interventions as a very effective way of managing behavior and improving school-related outcomes for preschool and elementary-aged children with ADHD.

Behavioral Peer Intervention (BPI). Based on research linking ADHD with poor social functioning (Hoza, 2007), a number of interventions focus specifically on improving peer relationships and social functioning among children with ADHD. Like BPT and BCM, BPI involves the training of key adults (i.e., parents, other adults) to use behavior management techniques grounded in social learning principles, but unlike BPT and BCM, BPI centers specifically on the promotion of *social* and *peer* functioning. Importantly, BPI differs from other peer-focused interventions, namely, Social Skills Training (SST). SST is delivered directly to children with ADHD, typically in weekly clinic-based sessions, and involves the teaching of specific social skills and prosocial behaviors that are meant to generalize to other settings. Although BPI may incorporate elements of SST, BPI is often distinguished by the use of behavioral contingency management implemented directly within the environments where daily social interactions take place. Of note, past research examining the efficacy of SST in the absence of behavioral contingency management has generally lacked empirical support (e.g., Quinn, Kavale, Mathur, Rutherford, & Forness, 1999).

Evidence for the benefits of BPI is drawn most extensively from evaluations of the Summer Treatment Program (STP; Pelham et al., 1996), a multi-component treatment taking place in a recreational summer setting. Yet, no study to date has dismantled the STP treatment package, and thus, it remains unclear which of these components is uniquely responsible for peer-related outcomes.

From this perspective, we would argue, results achieved from the overall STP treatment package should not be used to draw conclusions specifically about BPI effects on peer outcomes. Hence, we question whether sufficient support actually exists to consider BPI a "well-established" treatment. In addition to STP studies, BPI was recently extended to a new context with a program focused on training parents to promote positive peer outcomes among their children (Mikami, Lerner, Griggs, McGrath, & Calhoun, 2010). In this study, parents receiving the Parental Friendship Coaching (PFC) intervention demonstrated improved parental facilitation and feedback skills during parent-led child playgroups. In addition, compared to children in the control condition, children whose parents participated in the PFC group showed improved parent-rated social skills and peer relationships and teacher-rated peer acceptance and rejection scores. Positive findings based on teacher report were noteworthy given that teachers were blinded to condition. Overall, results suggest that a parent-targeted behavioral intervention may be an effective method for addressing peer problems among children with ADHD. However, given that the PFC intervention awaits replication, and considering the limited conclusions about treatment subcomponents that can be drawn from studies of the STP, we argue that the evidence base for BPI is not nearly as strong as that of BPT and BCM. Hence, additional research examining the effects of BPI, unconfounded with other treatment components, remains an area in need of continued investigation.

Combined Behavioral Treatment Studies. Past research has examined the combination of BPT, BCM, and/or BPI techniques through the use of multi-component interventions, with research documenting the positive effects of combined behavioral treatments as compared to no-treatment controls or other active control groups (Abikoff et al., 2013; Pfiffner et al., 2007; Power et al., 2012; Webster-Stratton, Reid, & Beauchaine, 2011). The STP, referenced above, is one of the most widely studied multi-component treatments. Indeed, in the previous edition of this chapter, we reviewed two well-designed studies of the STP treatment package, which provide support for the STP in both the academic and behavioral domains (Chronis et al., 2004; Coles et al., 2005). In the last decade, there have been additional studies from the STP setting that provide empirical support for combined BM treatments in a summer setting (e.g., Hart et al., 2016; Merrill et al., 2017). Recently, several combined home-school interventions outside of the STP context have also shown initial positive results (DuPaul et al., 2013; Pfiffner et al., 2007; Power et al., 2012). For example, in a large study of children with ADHD, families participated in either the Family-School Success (FSS) intervention or a psychoeducational comparison group (Power et al., 2012). Findings showed the superiority of FSS over the comparison group across multiple domains, including the family–school relationship, homework performance, and parenting behavior. However, no differences were obtained between groups on teacher-rated academic performance or parent- and teacher-rated ADHD and ODD symptoms. Hence, FSS has initial support as a viable intervention strategy to promote academic success among children with ADHD, though it appears limited in its ability to manage core ADHD symptoms.

Despite evidence for the effectiveness of multi-component treatments for ADHD when compared to a no-treatment control group or support/education group, there remain a number of clinically important questions: *Is more always better? What is the best combination of therapies? How should these treatments be sequenced to promote the best outcomes?* Historically, much of the research addressing these questions has been plagued by methodological limitations that make it difficult to draw strong conclusions and clear answers (see Hoza et al., 2007). Fortunately, more recent work has been better equipped to shed light on topics such as the sequencing and dosage of treatments (Evans, Schultz, & DeMars, 2014; Pelham et al., 2014, 2016). Nonetheless, continued research is needed in this important area.

Effect Sizes for BM Treatments. More than 10 meta-analyses and systematic reviews published to date synthesize behavioral treatment outcomes for childhood ADHD (e.g., Fabiano et al., 2009;

Mulqueen et al., 2015; Van Der Oord, Prins, Oosterlaan, & Emmelkamp, 2008). Despite the number of reviews on this topic, it remains difficult to draw clear conclusions regarding the exact effect size of each type of treatment as a result of widely varying study designs, outcome measures, and informant perspectives. Further, meta-analyses themselves differ widely in their approaches to categorizing and synthesizing the literature. For example, a meta-analysis conducted by Fabiano et al. (2009) examined all behaviorally focused psychosocial interventions and calculated unweighted mean effect sizes that were averaged across outcome domains and reported separately by study design. Results documented moderate to large effects across study categories (Between Groups: $d = 0.83$; Pre–Post ES = 0.70; Within Groups ES = 2.64; Single Subject ES = 3.78). Presented differently, Van Der Oord et al. (2008) investigated randomized controlled studies of psychosocial interventions and calculated weighted mean effect sizes, separately reported by outcome domain and informant (parent, teacher). Findings highlighted primarily moderate effect sizes across outcome domains (ADHD symptoms: d range = 0.75–0.87; ODD symptoms: d range = 0.43–0.66; social functioning: d range = 0.54–0.71; academic functioning: $d = 0.19$). Despite different approaches to synthesizing the literature, the overall message is clear: behavioral treatments significantly improve outcomes for children with ADHD.

Training Interventions (TIs)

In the past decade, there has been a growth in the development and evaluation of interventions designed to directly train children or adolescents with ADHD to improve areas of common deficit (e.g., organization, working memory). These treatments do not emphasize contingency management or other behavior management techniques as the primary component, though may involve these strategies in some capacity. Although there is far less research to date on TIs as compared to BMs, there is reason to be optimistic about the use of TIs to address common areas of functional impairment among individuals with ADHD, particularly when it comes to improving children's organizational skills. Treatments falling under the umbrella of TIs include organizational training, neurofeedback training, cognitive training, social skills training, and combined training programs. Reviewed in this section is the only TI that currently meets the *JCCAP* standards for well established: Organizational Training. To obtain an overview of the current empirical evidence base for other TI programs, the interested reader is directed to Evans et al. (2018), Cortese et al. (2015), and Gevensleben, Rothenberger, Moll, and Heinrich (2012).

Organization Training (OT). OT therapies are targeted toward improving organization, time management, and planning skills in an effort to advance academic functioning among children and adolescents with ADHD. Several OT programs have been developed for the school or clinic setting, most notably, Organization Skills Training (OST; Abikoff et al., 2013) and Homework, Organization, and Planning System (HOPS; Langberg, Epstein, Becker, Girio-Herrera, & Vaughn, 2012). Both programs involve training children (ages 8–14) to organize school materials, track assignments, and plan for homework completion, with rewards provided for successfully completing goals and maintaining organization. Both treatments were shown to have positive effects across a number of domains (e.g., parent or teacher ratings of organization, academic functioning, homework completion, and family conflict) as compared to a waitlist or no-treatment control condition (Abikoff et al., 2013; d range = 1.18–2.77; Langberg et al., 2012; d range = 0.63–1.05). Of note, findings from the evaluation of HOPS only produced significant effects for parent-rated outcomes, whereas the OST intervention produced effects based on both parent and teacher report. More recently, Bul et al. (2016) developed a computerized version of an OT program, called *Plan-it Commander*, adding additional support for the use of OT for improving organization and time management skills among children with ADHD. Indeed, in a recent meta-analysis of 12 empirical investigations of OT among children with ADHD, Bikic, Reichow, McCauley, Ibrahim, and Sukhodolsky (2017) reported moderate weighted mean effect sizes for teacher-rated improvements of children's organizational skills (g = 0.54), and large effect sizes for parent-rated improvements (g = 0.83). Further, the authors reported small to moderate effect sizes for ADHD symptoms (teacher: g = 0.26; parent: g = 0.56) and overall academic performance (g = 0.33). Together, these studies suggest OT may be effective for improving organizational skills, academic performance, and core symptoms of inattention, among individuals with ADHD.

Based on this small literature, OT is categorized as well established by *JCCAP* standards. However, we would like to emphasize that even with three well-designed RCTs, the evidence base for OT remains far behind that of BM treatments, and more work is needed to understand mechanisms of effect, moderators of treatment response, and to further document its efficacy and effectiveness. Further, OT is not intended to be a comprehensive treatment for ADHD, but rather, is focused on improving one particular area of difficulty for individuals with ADHD. Hence, it is unlikely that OT would suffice as a stand-alone treatment for this population.

Considerations for Clinical Practice

Although knowledge about average effect sizes, such as those summarized above, may initially assist clinicians in selecting treatments for use, there are a number of important family factors to consider when designing an individualized treatment plan. Past research has identified several key moderators of treatment response, such as comorbidity, parental psychopathology, and socioeconomic status (SES), to name a few (Owens et al., 2003; Rieppi et al., 2002; Van den Hoofdakker et al., 2009). As such, it is critical to conduct a comprehensive assessment, not only for diagnostic purposes, but also to identify key familial, cultural, and other environmental factors that may influence treatment adherence and response. For example, the presence of parental depression may indicate the need for a treatment addressing this depression before the implementation of BPT to improve treatment adherence. Further, should a parent have either historical or ongoing substance abuse problems, a physician might execute caution in prescribing any form of abusable medication to the child and recommend BM as a first-line intervention. Given that SES variables are associated with differential response to treatment (Rieppi et al., 2002), adaptations to treatment may be necessary for families coming from disadvantaged backgrounds. As discussed above, there is some initial research on adapted-BPT programs designed to address specific barriers to treatment; however, it is likely that additional problem-solving will continue to be necessary to address each family's individual needs (see Koerting et al., 2013 for a qualitative review of barriers to treatment access and engagement). For example, it may be necessary to collaborate with social work services to ensure that basic needs (e.g., food, shelter) are met before beginning treatment. Other cultural factors and family preferences also must be taken into account, such as the family's attitude toward medication. With regard to BPT, whether extended family members are involved in childrearing (e.g., a grandparent) is important; in the implementation of BPT skills, it is essential that all adults involved in childcare be involved in treatment. By taking into account familial, cultural, and environmental factors, clinicians will be well equipped to develop an individualized treatment plan best suited to improving the outcomes of children and adolescents with ADHD.

Additional Areas for Future Research

Throughout this chapter, we discussed a number of high-priority research areas that represent current gapsin the ADHD treatment literature, such as research on dosage and sequencing of treatments, dismantling of treatment packages, and interventions specific to adolescent populations. There are several additional future research topics of note. First, and perhaps most importantly, all available evidence-based treatments for ADHD are considered acute interventions, meaning strength of the effects are substantially diminished after the cessation of the active treatment (Jensen et al., 2007; Lee, Niew, Yang, Chen, & Lin, 2012). In other words, both pharmacological and psychosocial treatments are only effective so long as they continue to be utilized. Similarly, despite positive outcomes associated with BM interventions, BM often does not serve to "normalize" the functioning of children with ADHD. Hence, there is a critical need for continued innovation and development of new treatment approaches with a focus on identifying and treating underlying mechanisms of disorder and improving outcomes across domains long term. Finally, there have been a number of researchers calling for a greater focus on early intervention among children at risk for ADHD in an effort to prevent disorder onset (Sonuga-Barke & Halperin, 2010). Future work should continue to study ways to reliably identify at risk children and intervention methods that may be preventative in nature.

Summary

In addition to pharmacotherapy, behaviorally focused psychosocial interventions remain the gold standard for treating childhood and adolescent ADHD. BM treatments include parent-focused (BPT), classroom-focused (BCM), peer-focused (BPI), and combined interventions, all grounded in social learning principles. Based on many decades of empirical research, BM therapies are generally shown to reduce core ADHD symptoms and improve key domains of functional impairment (i.e., behavioral, academic, social). In the past decade, research has continued to build upon this robust evidence base and has begun to address other questions of clinical importance, such as, what is the most effective "dose" of behavioral treatment, what is the best way to sequence combined treatments, and how do we improve outcomes for populations that often face barriers to treatment access or response? With a smaller, but promising, evidence base, OT now is considered a well-established therapy among children with ADHD, specifically for improving organization and academic-related outcomes. More research is needed to determine whether other types of training interventions will rise to the same status in the treatment literature.

Key Points

- BPT, BCM, and multi-component BM interventions have a significant empirical evidence base demonstrating moderate to large effect sizes for reducing ADHD symptoms and improving common areas of functional impairment.
- Recent decades have seen the development of more specific and customized intervention packages to help address some of the known barriers to treatment engagement and response (e.g., parental depression, access to care).
- Several training interventions delivered directly to children with ADHD have been developed, though only OT is considered a well-established therapy. OT is primarily considered an adjunct therapy as its effects are specific to academic domain impairments.

- More research is needed to validate the use of BM with adolescent populations and to better understand questions of dosing and sequencing of multimodal interventions.
- No available treatments are currently able to completely "normalize" functioning or to produce treatment effects that maintain well beyond the discontinuation of active treatment. There remains a need to develop new treatments or modifications to existing treatments that may perform better towards these goals.

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Evidence-Based Therapies for Autism Spectrum Disorder

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Abstract

Individuals with autism spectrum disorder (ASD) demonstrate deficits in social communication and the presence of restrictive or repetitive behaviors or interests that result in functional impairment. This chapter describes an evidence-based assessment approach to guide identification of intervention targets and treatment approaches. Psychological intervention should be tailored depending on many variables, such as the scope of intervention (i.e., focused on single domain or comprehensive), the age and functional level of the individual, and the context of treatment. A number of evidence-based interventions exist that span multiple disciplines and theoretical approaches targeting various outcomes for individuals with autism spectrum disorder. Cognitive behavioral therapy appears to be a promising approach to treatment in order to address comorbid symptoms of anxiety as well as core features of autism spectrum disorder (i.e., social communication skill deficits). Comprehensive interventions grounded in behavioral principles of learning yield improvements in various domains for young children. Behavioral and cognitive behavioral interventions exist that increase adaptive, language, cognitive, and communicative functioning and decrease psychological and behavioral symptoms, such as anxiety, depression, and disruptive behavior. Therefore, for older children and, adolescents, the authors describe the evidence base for focal interventions that target specific problem areas.

Individuals with autism spectrum disorder (ASD) demonstrate deficits in social communication and the presence of restrictive or repetitive behaviors or interests that result in functional impairment. Core social and behavioral symptoms are often accompanied by other neurodevelopmental disorders, such as intellectual disability, and psychological disorders, such as anxiety. Due to symptom overlap

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_12

with other conditions and high rates of comorbidity, a comprehensive and evidence-based assessment approach is warranted that guides identification of intervention targets and treatment approaches. For individuals with ASD, psychological intervention will be tailored depending on many variables, such as the scope of intervention (i.e., focused on single domain or comprehensive), the age and functional level of the individual, and the context of treatment. A number of evidence-based interventions exist that span multiple disciplines and theoretical approaches targeting various outcomes for individuals with ASD.

Diagnostic Standards

The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association [APA], 2013) outlines the current diagnostic definition of Autism Spectrum Disorder (ASD). ASD is a neurodevelopmental disorder characterized by dual impairments in (a) social communication and (b) restrictive and/or repetitive behavior and interests (APA, 2013). Social communication impairments are defined as (a) deficits in social reciprocity (e.g., difficulty with reciprocal conversation), (b) deficits in development and maintenance of social relationships (e.g., lack of interest in peers), and (c) deficits in nonverbal communication for the purpose of social interaction (e.g., difficulty understanding nonverbal social cues; APA, 2013). For a formal diagnosis, deficits in all three social communication criteria must be present and the impact of deficits persistent and observed across multiple contexts.

Restrictive and/or repetitive behavior and interests include a wide range of difficulties. Within the restrictive/repetitive behavior domain, four diagnostic criteria appear and include (a) stereotyped or repetitive motor movements, object use, or speech; (b) insistence on routines or ritualized patterns of behavior; (c) restricted or fixated interests or focus; and (d) unusual sensory experiences or interests (APA, 2013). For a formal diagnosis, two of four diagnostic criteria must be met within the restrictive and/or repetitive behavior domain. Restrictive and repetitive behavior may be present in various forms, such as body rocking, hand flapping, and finger flicking movements. Likewise, repetitive speech and echolalia may also be present for some individuals with ASD. Difficulties with managing small changes in routines or transitioning from activities or contexts may be present. Restrictive interests may exist in either *intensity*, such as an age-appropriate, yet exclusive, interest in cartoon characters, on-line gaming, or other topics; or *focus*, such as an unusual interest in train schedules, deep fat fryers, or business cards. Hyper- and hyporeactivity to sensory input has been noted for individuals with ASD for decades; however, the current DSM (APA, 2013) is the first DSM version to identify sensory sensitivities as a diagnostic criterion.

DSM-5 diagnostic standards feature specifiers to identify (a) the presence or absence of intellectual or language impairment and (b) associated medical, genetic, neurodevelopmental, or behavioral disorders. Standards also allow for coding of severity across social communication and restrictive/repetitive behavior domains. Three severity levels are available for each domain as follows: (a) Level 1—“Requiring support,” (b) Level 2—“Requiring substantial support,” and (c) Level 3—“Requiring very substantial support” (APA, 2013). According to the DSM-5 standards, severity should be coded separately for each domain to acknowledge potential differences in impairment and functional adaptation. For example, an individual with ASD may demonstrate significant social communication impairment (“Level 3”) in the presence of less impairing behavioral inflexibility (“Level 1”). In clinical practice, assigned severity codes are typically identical across domains (e.g., Social Communication and Restrictive/Repetitive Behavior both coded as Level 2), and intellectual ability, adaptive functioning, and symptom severity correlate with severity codes across both domains (Gardner, Campbell, Keisling, & Murphy, 2018).

Initial Presentation, Development, and Comorbidities

Parents and other caregivers often notice symptoms of ASD within the second year of life, such as lack of responsiveness to name, lack or limited pretend play skills, and difficulties with social engagement. Social communication difficulties are often accompanied by language delay. For young children with ASD, caregivers may also note unusual toy play (e.g., lining up toy cars repetitively), repetitive interests, or repetitive motor movements. For about 30% of young children with ASD, early development is marked by regression (i.e., losing skills previously mastered) and this frequently occurs between the ages of 20–24 months (Barger, Campbell, & McDonough, 2013). Life course and adult outcomes for ASD are often characterized by limited social integration, underemployment, and difficulties with independent living. Adult outcomes for individuals with ASD vary, however, and more recent research suggests more favorable outcomes than previously reported (Howlin & Magiati, 2017). Although more recent reports suggest improving adult outcomes, ASD is generally considered a life-long condition which requires ongoing support through caregivers and community agencies. Overall, early identification of ASD and enrollment in sustained and programmatic intervention yields more favorable outcomes. Prognosis is improved with higher intellectual functioning, presence of functional speech, and milder severity of ASD symptomatology (Howlin & Magiati, 2017).

Various conditions co-occur with ASD, including other neurodevelopmental disorders, such as intellectual disability (ID), motor delay, and attention-deficit hyperactivity disorder (ADHD). For example, ID affects roughly 31% of individuals with ASD (Baio et al., 2018) and ADHD co-occurs in roughly 21–30% of individuals with ASD (Rosen, Mazefsky, Vasa, & Lerner, 2018). Psychiatric disorders also frequently co-occur with ASD with up to 70% meeting criteria for any disorder (Rosen et al., 2018). Although individual reports yield variable estimates, anxiety co-occurs in roughly 40% of youth with ASD; depression co-occurs in up to 29% of children and adolescents with ASD, and as high as 77% in adult outpatients diagnosed with ASD (Rosen et al., 2018). Externalizing disorders, such as oppositional defiant disorder (ODD) and conduct disorder (CD), also present alongside ASD. Rosen et al. (2018) report up to 28.1% of youth with ASD meet criteria for ODD and roughly 3% meet diagnostic criteria for CD.

Prevalence, Timing of Diagnosis, and Disparities

Recent U.S. population-based surveillance data estimates ASD prevalence at roughly 1 in 59 in 8-year-olds, with males represented at rates 4- to 5-times greater than females (Baio et al., 2018). Despite caregivers reporting first concerns within the first two years of development, the typical age of initial diagnosis of ASD, including Asperger's disorder and pervasive developmental disorder, ranges from 38 to 120 months (Daniels & Mandell, 2014). The age at first diagnosis has decreased over time, a finding likely due to increased public awareness of ASD, improved diagnostic instruments available for early diagnosis, and greater emphasis on early ASD screening and identification within professional training programs. In a comprehensive review of the literature, Daniels and Mandell (2014) found several factors associated with differences in timing of ASD diagnosis. Earlier ASD diagnosis was associated with higher socioeconomic status, greater parental concern, and greater symptom severity (Daniels & Mandell, 2014). Mixed findings are reported regarding the relationship between race/ethnicity on age at first diagnosis. When race/ethnic differences are identified for timing of diagnosis, White children are more likely to be identified earlier than non-White counterparts.

Diagnostic Considerations

At present, no biological marker reliably identifies the presence of ASD; therefore, diagnosis requires a combination of developmental report from caregiver interview and clinical observation. The “gold standard” caregiver interview is the Autism Diagnostic Interview-Revised (ADI-R; Rutter, LeCouteur, & Lord, 2003), which consists of a wide-ranging interview that covers language development, social communication development, and restrictive/repetitive behaviors and interests, among other clinically relevant areas, such as toileting, sleep, and disruptive behavior. Currently, the “gold standard” clinical observation is the Autism Diagnostic Observation Schedule, Second Edition (ADOS-2; Lord, Rutter, DiLavore, Risi, Gotham, & Bishop, 2012). The ADOS-2 consists of various activities and contexts, such as toy play, storytelling, and social conversation, which are administered from one of five modules appropriate for the individual’s age and expressive language ability. The ADOS-2 is built upon “presses” whereby an individual is expected to demonstrate aspects of developmentally appropriate social communication, such as responding to name, engaging in reciprocal conversation, and appropriately requesting items. Observations collected from presses are transformed into clinical ratings which yield a diagnostic result from empirically established algorithms.

Comprehensive, Developmental, and Evidence-Based Assessment

Given the heterogeneity of symptom presentation and high rates of comorbid conditions, a combined *comprehensive-developmental* (Klin, Saulnier, Tsatsanis, & Volkmar, 2005) and *evidence-based* approach are recommended (Campbell, Ruble, & Hammond, 2014). This approach assumes wide variability across domains of functioning, such as well-developed visual cognitive abilities alongside verbal intellectual deficits. The approach also emphasizes assessment of functional adjustment of individuals to guide intervention efforts. *Comprehensive* assessment includes evaluation of cognitive functioning, adaptive behavior, language, behavioral functioning, and psychological adjustment (Klin et al., 2005). The *developmental* component asserts that individual functioning should be interpreted normatively (i.e., same age peers) and ipsatively (i.e., an individual’s developmental age) to assist with differential diagnosis and intervention planning (Klin et al., 2005). The *evidence-based* component asserts that diagnostic decision-making should be based upon empirically validated diagnostic instruments, such as the ADI-R and ADOS-2 (see Phares & Hankinson, this volume).

Conceptualization of Treatment

A key consideration regarding intervention for individuals with ASD centers on the timing and nature of presenting concerns suggesting either a *comprehensive* or *focal* intervention approach. For very young children with ASD, for example, intervention may involve a comprehensive approach that targets various outcomes, such as improving language, social communication, behavioral regulation, and adaptive behavior. *Comprehensive* interventions involve intensive programming that has traditionally occurred within a specialized treatment setting or preschool special education program. In contrast, intervention may focus on a specific presenting problem for an individual with ASD, such as anxiety, depression, aggression, attention, or social skills. Varied *focused* interventions exist that target varied problems encountered across various contexts. For example, various behaviorally based interventions have been shown to reduce aggressive and disruptive behavior for individuals with ASD (e.g., Heyvaert, Saenen, Campbell, Maes, & Onghena, 2014).

Behavioral Principles

For both comprehensive and focused interventions, behavioral approaches to intervention have shown to be effective for a range of difficulties. In general, behavioral principles of learning, particularly operant conditioning and reinforcement, inform approaches to skill acquisition, such as teaching language, social communication skills, and other adaptive skills. Likewise, behavioral principles inform reduction of disruptive behavior, such as understanding positive and negative reinforcement contingencies that may maintain problem behavior. For skill acquisition, behavioral intervention may involve techniques such as task analysis, discrete trail training, and constant time delay, to teach new skills and program for generalization of new skills to new contexts. For example, a young child with ASD may acquire new speech through discrete trials delivered via multiple sessions throughout an instructional day. Assessment and intervention for reduction of problem behavior may involve functional assessment, a set of procedures that identify and modify contingencies that reinforce such behavior. Examples of reinforcing contingencies that may maintain problem behavior include provision of social attention (i.e., positive reinforcement) or removal of task demands (i.e., negative reinforcement) after the behavior is exhibited. Collectively, behavioral principles to intervention inform various interventions that may be described generally as applied behavior analysis (ABA).

Behavioral learning principles have informed development of early intensive behavioral intervention (EIBI) programs that target long-term improvement in various adaptive domains, such as social communication, language, cognitive functioning, and adaptive living skills. Lovaas and Smith (1989) outlined several theoretical tenets guiding EIBI programming, including (a) an emphasis on specific behaviors as opposed to the diagnostic construct of ASD, (b) a focus on the immediate environment to optimize learning, and (c) the proposition that difficulties to learning encountered by individuals with ASD may represent a mismatch between neurobiology and typical learning environments. As such, EIBI programming involves intensive dosage of discrete trial teaching (DTT), traditionally up to 35–40 h per week, delivered as early as possible. DTT is a method of teaching specific skills using massed individual instructional trials where contingencies are delivered for each learning trial. Common criticisms of the EIBI approach, however, include the high intensity and duration of intervention required to produce change and poor generalization of acquired skills, such that new learning is context-dependent for young children with ASD.

Naturalistic developmental behavioral interventions. Contemporary behavioral approaches to intervention have arisen from basic tenets of ABA theory and the successes and limitations of EIBI programming. Combining behavioral approaches with aspects of developmental psychology, a group of interventions collectively described as naturalistic developmental behavioral interventions (NDBI) have been developed over the past several decades (Schreibman et al., 2015). NDBIs utilize principles of ABA to organize early intervention; however, there is departure from the discrete trial training approach used in EIBIs. Longitudinal findings of early symptom presentation and responsiveness to behaviorally based intervention informed modifications to EIBI approaches. For example, developmental studies have identified the important role of joint attention (JA) in subsequent development of social communication and language skills. As a result, JA has been identified as a critical area for early intervention in several NDBI approaches as gains in JA are hypothesized to result in a subsequent cascade of improvements in other areas.

NDBIs collectively identify young children as “constructivist” in their approach to learning, that is, young children with ASD are seen as active learners, who make meaning of new encounters and experiences based on prior experiences. Likewise, NDBIs emphasize the application of behavioral techniques in more naturalistic environments and via naturalistic techniques, such as incidental teaching, naturally occurring reinforcement, and emphasizing child preferred activities (see

Schreibman et al., 2015). There is also a general emphasis on engagement between interventionists and children with ASD, both shared engagement as well as affective connection.

Generally, the group of NBDI share general components and techniques despite specific differences (see Schreibman et al., 2015 for more thorough introduction). Each NBDI targets a range of developmental outcomes, such as cognitive ability, language development, adaptive functioning, and social adjustment, typically through targeting key areas, such as JA. NBDIs also emphasize the need for learning to occur within naturalistic contexts, particularly during activities that are socially meaningful and that incorporate natural contingencies. There are common components to intervention across all NBDIs that are grounded in ABA, such as using an antecedent-response-consequence sequence to provide opportunities for child learning, ongoing assessment of progress, manualized procedures, and individualization of learning goals, among others.

Cognitive Behavioral Principles

Comprehensive review of cognitive behavioral theory falls outside of the scope of this chapter; however, cognitive behavioral principles have been applied to various psychological difficulties experienced by individuals with ASD, particularly anxiety (e.g., Danial & Wood, 2013). Key theoretical assumptions of cognitive behavioral interventions (a) link thought processes with behavior, (b) assert that thought processes can be monitored and changed, and (c) improved behavioral adjustment may result from altering cognitive processes. An example of a cognitive strategy is cognitive restructuring, a technique used to identify maladaptive thoughts and replace such thoughts with more adaptive appraisals of everyday situations. In the case of anxiety, maladaptive thinking and subsequent avoidance of feared situations are countered with adaptive thoughts and, typically, graduated exposure to feared situations (see Chap. 5).

Cognitive behavioral techniques have been modified for use with individuals with ASD to treat anxiety and have included such adaptations as the use of visual supports to improve awareness of emotions and their intensity and the use of concrete examples and preferred interests to support mastery of adaptive strategies (Danial & Wood, 2013). Visually based adaptations are recommended to counter language processing difficulties and emphasize visual processing strengths often present for individuals with ASD. Likewise, translating abstract concepts into tangible examples, such as describing cognitive restructuring as an instrument to solve a scientific problem, is thought to help with difficulties with abstract thinking for some individuals with ASD. Finally, incorporating examples of preferred interests into cognitive behavioral therapy may also prove useful, such as linking adaptive thinking with a preferred character from children's literature or movie.

General Recommendations and Clinical Considerations

Key considerations for selection and implementation of an intervention for ASD include the age of the child, the nature of the referral question, the context of the intervention, and level of cognitive and language capacity. As described above, comprehensive behavioral interventions (either EIBI or NDBIs) are designed to impact various developmental outcomes through early intervention. Focal interventions, such as those relying on cognitive behavioral principles, may be implemented to target specific presenting problems, such as to reduce anxiety, improve compliance, and reduce aggression. Various comprehensive and focal intervention protocols exist as manualized treatments (e.g., Stress and Anger Management Program; Scarpa, Wells, & Attwood, 2013); however, less is known about their effectiveness in authentic intervention settings. Across intervention, however, common treatment recommendations include (a) use of visual supports to communicate key features of an intervention, (b) explicit instruction, (c) concrete examples of intervention techniques and goals, (d) repetition, and (e) individualization of the intervention.

Review of Treatment Efficacy

In recent years, a vast number of studies have been published examining interventions for individuals with ASD ranging from the controversial to the well-established. In part, the increase in ASD treatment research is in response to rapidly rising prevalence rates of ASD (e.g., Baio et al., 2018), as well as the growing emphasis on evidence-based practice within the field of clinical child and adolescent psychology. Evidence-based practice has been defined by the American Psychological Association's (APA) Presidential Task Force on Evidence-Based Practice (2006) as, "the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences" (p. 273). While the empirical evaluation of interventions has garnered significant attention for some time (Chambless & Ollendick, 2001; Southam-Gerow & Prinstein, 2014), these findings are often less accessible to treatment providers and practitioners making it difficult for them to ascertain which treatment protocols have the most promise for positively impacting specific outcomes for their clients (Roberts, Blossom, Evans, Amaro, & Kanine, 2017). As such, the following is a synthesis of several recent systematic and meta-analytic reviews of the intervention literature for children and adolescents with ASD in hopes of clarifying the evidence base behind treatment principles for providers and practitioners who wish to work with the ASD population in their settings.

Behavioral Interventions

Several meta-analyses and comprehensive reviews have specifically examined the efficacy of behavioral approaches at addressing a variety of outcomes for children and adolescents with ASD (i.e., including adaptive functioning, social engagement, and expressive and receptive language skills). Across these reviews, behavioral therapies are noted to have the soundest scientific support, the most notable of which is ABA, which uses principles of operant conditioning to reinforce a variety of target behaviors. Despite reliance on the same set of theoretical principles, ABA services can differ across several dimensions, including whether they are comprehensive (i.e., targeting global functioning) or focused (i.e., targeting more specific outcomes), and whether they are implemented individually or classroom-wide.

A meta-analysis by Smith and Iadorola (2015) examined the efficacy of ABA services across these different dimensions and found promising results. Across the reviewed studies that examined the efficacy of individual comprehensive ABA interventions (i.e., EIBI or Lovaas model), treatment ranged from 6.5 to 28 h per week and continued for upward of 2 years. Significant developmental gains, increases in IQ, and improvements in adaptive functioning were found, with large effect sizes reported across studies ($d = 0.75–1.27$). Based on these findings, the review concludes that individual comprehensive ABA interventions have meaningful impacts on a child's development, and as such are considered to be well-established. Similarly, classroom-wide comprehensive ABA services (e.g., *Learning Experiences: An Alternative Program for Preschoolers and Parents* [LEAP]) were found to have moderate positive effects on ASD symptoms ($d = 0.59$), as well as large positive effects on measures of language ($d = 0.89$) and social interactions ($d = 1.22$) when compared to treatment as usual. These findings suggest that ABA strategies can be implemented on a larger scale and still have promising effects in several critical domains.

The efficacy of individual-focused ABA interventions, which target specific outcomes such as spoken language or use of alternative augmented communication devices, was also reviewed (Smith & Iadorola, 2015). Across studies, positive effects were found with regard to existing social deficits, including improvements in expressive language and adaptive communication skills, with effect sizes in the moderate range ($d = 0.41–0.63$). Finally, the authors of this meta-analysis also examined the efficacy of ABA parent training programs (e.g., parent-mediated Pivotal Response Treatment, PRT), and found that they can have positive effects on challenging behaviors, spoken language, and social communication skills of children with ASD, with effect sizes in the small to moderate range ($d = 0.31–0.69$). While results of this review are promising, Smith and Iadorola (2015) only focused on studies that examined the efficacy of interventions for use with children 5 years or younger who had an ASD diagnosis, thus leaving questions about whether and how these treatment protocols can be extended into adolescence.

Wong et al. (2015) conducted a review of specific ABA techniques (e.g., antecedent-based intervention, discrete trial teaching, prompting, reinforcement) for ASD across early development and adolescence. Results of this review suggest that ABA strategies are effective at addressing a variety of outcomes (e.g., social, communication, and behavioral concerns, play behaviors, school-readiness, academic performance, adaptive outcomes) and are not limited to early development. While these results do suggest that ABA techniques can be employed with older populations, the number of studies that examined the use of these techniques with adolescents over the age of 15 years was more limited, thus suggesting a promising future direction of the literature.

Naturalistic Developmental Behavioral Interventions

While traditional ABA techniques have garnered significant support over the years, interventions that utilize both behavioral and developmental techniques within a naturalistic setting are garnering more interest and scientific support in recent years. Several independent naturalistic developmental behavioral interventions have been developed in recent years (e.g., incidental teaching, Early Start Denver Model [ESDM], Reciprocal Imitation Training [RIT], Joint Attention Symbolic Play Engagement and Regulation [JASPER], PRT; Schreibman et al., 2015) and suggest promising findings. Schreibman et al. (2015) provided a comprehensive review of NDBI and found single-subject, quasi-experimental studies, and RCTs that have documented improvement in communication, language, and other social behaviors for children with ASD. The review also emphasized that NDBIs can be implemented with fidelity by non-specialized professionals outside of clinics, including by the parents in the child's home and by teachers in the school. As such, naturalistic interventions may be particularly appealing with regard to the generalizability of developed skills outside of the clinical setting. Other important qualities of these interventions are that they start early and are provided in an intensive manner. Similar to traditional ABA protocols, these naturalistic interventions fit nicely into the intensive early intervention service model that is recommended for many children with ASD.

Smith and Iadorola (2015) also examined the efficacy of NDBIs and found that 20 hours of ESDM per week for 2 years resulted in medium to large effects on adaptive functioning ($d = 0.79$, meaning that roughly 79% of the ESDM group's adaptive functioning score exceeded the average score in the comparison group), and small effects on ASD symptomology ($d = 0.18–0.24$, meaning that roughly 58% of the ESDM group's symptom score fell below the average score in the comparison group). Studies have also examined the efficacy of focal interventions that employ both behavioral and developmental, social-pragmatic techniques (i.e., RIT; JASPER). According to Smith and Iadorola (2015), several single-subject studies and pilot RCTs have found that RIT improves social imitation

($d = 0.92$–1.20) and joint attention ($d = 0.97$), while JASPER is effective at improving expressive language ($d = 0.59$), joint attention ($d = 0.18$–1.01), social engagement and play behaviors such as pointing, showing, and spontaneous play, when implemented by trained clinicians and teachers. Additionally, the authors reviewed a number of RCTs that examined the efficacy of parent naturalistic developmental interventions (e.g., the PLAY program) and have found significant improvement in communication, social emotional skills, and quality of parent–child interactions, in addition to decreases in ASD symptom severity in children ranging in age 32 months to 6 years of age.

In sum, the experimental evaluation of naturalistic developmental and behavioral interventions suggests promising outcomes, specifically with regard to communication, joint attention, and language in children with ASD. These methods are also able to be implemented with fidelity and efficacy outside of clinic settings, including in a child's home and school, by non-specialized professionals, including teachers and parents. As such, these methods have promise with regard to the generalizability of skills in core domains.

Cognitive Behavioral Therapies

Cognitive behavioral therapy (CBT) is a treatment approach that combines behavioral learning and cognitive principles to varying degrees to address mental health and behavioral concerns, such as anxiety, depression, aggression, and other behaviors that may interfere with adaptive functioning. CBT has been used with neurotypically developing populations for several decades. In more recent years, CBT has been modified to better accommodate the needs of clients with ASD (Scarpa, White, & Attwood, 2013). Several systematic reviews and meta-analyses have specifically examined the efficacy of CBT for addressing symptoms of anxiety and other co-occurring affective disorders (i.e., obsessive compulsive disorder, depression and rumination, anger, insomnia, and general emotion regulation skills) in individuals with ASD and have found promising effects (Gates, Kang, & Lerner, 2017; Sukhodolsky, Bloch, Panza, & Reichow, 2013; Weston et al., 2016).

Sukhodolsky and colleagues (2013) reviewed RCTs examining the efficacy of CBT for youth with ASD and found promising effects on clinically significant symptoms of anxiety; however, the magnitude of treatment gains was variable based on the informant, such that parent- and clinician-rated outcomes demonstrated large effect sizes ($d = 1.21$ and 1.19, respectively), while child-rated outcomes demonstrated moderate effect sizes ($d = 0.68$) across studies. Across the reviewed studies, length of treatment ranged from 6 to 16 sessions, with an average of 12 sessions, within a time frame of 6 weeks to 7 months. Sessions ranged in length from 1 to 2 h. In each of these reviewed treatment protocols, clinicians used a variety of structured CBT manuals, which included critical treatment components such as psychoeducation, exposure to anxiety-provoking stimuli, relaxation training, and cognitive restructuring. Treatment was provided in individual and group format with and without parent involvement, and adaptations were made in order to accommodate the unique needs of participants with ASD. These accommodations included additional explicit instruction on social skills, reliance on distinctive instructional procedures (e.g., video modeling, peer-mediated instruction), use of visual aids and sensory-stimulating objects, incorporation of the perseverative interests of participants in order to enhance engagement, and systematic reinforcement.

Cognitive behavioral techniques have also been used to target core features of ASD. Weston and colleagues (2016) reviewed a total of 24 studies that examined these treatment outcomes. Similar to the use of CBT for addressing symptoms of anxiety, the number of sessions necessary to target core features of ASD varied widely, ranging from five to 70 sessions with sessions lasting from 30 min to "whole day" sessions. Several of the reviewed studies used a structured protocol, including explicit social skill instruction, emotion identification, and problem-solving exercises, with increased use of social stories, role-play, and family involvement included as adaptations. Results of this meta-analytic review indicated small to medium effects on core symptoms of ASD, favoring CBT over control groups. A meta-analysis conducted by Gates et al. (2017) examined the efficacy of group-based social skill interventions that employ a variety of cognitive and behavioral techniques, ranging from explicit social skill instruction to social performance opportunities without didactic instruction, and found positive effects on social competence, with effect sizes ranging from small to large dependent on reporting source.

In sum, with adaptations, CBT appears to be a promising approach to treatment for individuals with ASD. Research suggests that CBT can be particularly useful at addressing comorbid symptoms of anxiety as well as core features of ASD (i.e., social communication skill deficits). Unlike the aforementioned behavioral treatment approaches, CBT appears to be more time sensitive in which participants do not remain under treatment for several years at a time. Additionally, CBT has been examined mainly in individuals with ASD who are "high functioning," in that their IQ score is above 70. As such, the efficacy of these approaches for individuals with more significant language and cognitive impairment is unclear and remains a future direction of this literature.

Mediators, Moderators, and Predictors of Treatment Outcomes

While the aforementioned reviews present promising findings with regard to both behavioral and cognitive behavioral treatment programs for individuals with ASD, the efficacy of these treatment protocols may be impacted by both individual (e.g., age, gender, cognitive functioning) and treatment characteristics (e.g., dose, content). Unfortunately, mediators and moderators have received limited attention, as formal analyses are not frequently the focus of the intervention literature. One exception is the identification of variables that moderate the effects of group social skills interventions (Gates et al., 2017). In their meta-analysis, Gates et al. (2017) found that self-report social knowledge was the only significant moderator of treatment effects, such that self-reported treatment gains were entirely accounted for by self-reported social knowledge. As a result, they suggest that group social skill interventions include opportunities to practice skills in social situations in addition to didactic instruction in order to promote social performance outcomes.

Smith and Iadorola (2015) noted that, despite the dearth of empirical evaluation of moderators and mediators, several predictors of treatment outcomes across comprehensive and focused interventions for children with ASD have been identified. For comprehensive ABA treatments, higher pretreatment IQ scores were largely identified as being associated with better posttreatment outcomes; however, plausible moderators of treatment, including age at the time of intervention, social motivation, supervision, dosage of treatment, parental involvement, and methods and content of the intervention have not been empirically evaluated in RCTs. With regard to focused interventions, response to treatment was found to be moderated by participants' pretreatment interest in objects and limited communication skills, while variables such as joint attention, involvement and enjoyment of treatment, age, parent intervention implementation fidelity, and treatment dosage were identified as predictors of positive treatment outcomes.

In their meta-analytic review of CBT for anxiety in children with ASD, Sukhodolsky et al. (2013) indicated that reported sample sizes were too small to conduct moderator and mediator analyses. However, across all reviewed studies, cognitive behavioral techniques were found to be effective for individuals with "high-functioning" ASD (i.e., IQ above 70). As such, the efficacy of these approaches for individuals with more significant language and cognitive impairment is unclear. Future studies should work to identify these critical mediators, moderators, and predictors of treatment outcomes in order to better understand for whom these studies will be most effective.

Strengths of the Literature

There are a number of strengths of the reviewed literature, one of which is the increased number and quality of studies that have focused on empirically evaluating treatments for children and adolescents with ASD. The use of rigorous research designs has allowed researchers to make more conclusive statements regarding the efficacy of various treatment protocols. For example, due to the significant number of studies aimed at evaluating comprehensive ABA programs and focused developmental, social-pragmatic therapies, Smith and Iadaorola (2015) determined these treatment approaches to be well-established interventions, which adds to the number of evidence-based interventions identified in previous reviews (Rogers & Vismara, 2008). Additionally, focused treatment protocols, which require lower treatment dosage than traditional ABA techniques and have more targeted treatment outcomes, are garnering more empirical support and have the potential to limit the time and cost burden experienced by families, thus illustrating another strength of the treatment literature (Smith & Iadorola, 2015).

Finally, several of the aforementioned reviews described studies that used a combined treatment approach, meaning several different evidence-based techniques (e.g., antecedent strategies and reinforcement) were used over the course of treatment. While this type of treatment design makes it difficult to determine the active ingredient of change, combined treatments reflect a more realistic depiction of what treatment looks like in community settings. By demonstrating that several evidence-based approaches can be combined in unique ways to target specific treatment outcomes, these findings help validate an approach to treatment that service providers are employing frequently in community practice.

Weaknesses of the Literature

Despite these noted strengths, the literature also has several areas of weakness that can be improved upon in future studies. For example, while several of the reviewed studies used reliable and valid outcome measures, they are widely variable across studies. This issue is present even amongst studies that employ similar treatment protocols. Additionally, small sample sizes were observed across many of the reviewed studies. Together, these challenges make it difficult to compare treatment effects across studies, and thus limit the conclusions that can be drawn.

Another area of weakness lies in the limited empirical evaluation of mediators and moderators of treatment efficacy. Because so few studies have examined the effects of mediators and moderators on treatment outcomes, we are not currently able to determine whether the reported treatment effects are partially explained by individual or intervention characteristics, or whether they will differ depending on some variable. By better identifying mediators and moderators of treatment, researchers may be able to determine for whom treatments will be the most effective, when, and under what conditions. Future studies should examine whether individual characteristics, such as gender, race/ethnicity, socioeconomic status, symptom presentation, comorbid psychiatric conditions, and medication use, can differentially impact the efficacy of the aforementioned interventions. Similarly, future studies should examine whether treatment characteristics, such as the content and structure of the intervention, family involvement, and specific adaptations (e.g., sensory modifications) impact treatment outcomes. Finally, analysis of mediators will help researchers understand the underlying mechanism of action. Identification of such mediators and moderators will ultimately improve the ability to provide precision care based on carefully assessed individual needs and appropriate treatment characteristics.

In addition to systematically evaluating mediators and moderators of treatment efficacy, it is important to recognize that the majority of reviewed studies focused on preschool- and elementary-aged children, with less focus on adolescents with ASD. This is largely due to the established importance of early intervention. Future studies, however, should add a focus on evaluating the efficacy of treatment in adolescents and beyond.

Future Directions

With these weaknesses in mind, several areas of improvement and future directions are proposed. First, a sequential approach to research is critical. This involves conducting small-scale feasibility study, creating a standardized approach to treatment, running pilot studies, efficacy studies, and ending in effectiveness studies (Stahmer, Aranbarri, Drahota, & Reith, 2017). Within the ASD intervention literature, several different interventions have demonstrated proof of concept via studies that employ single-subject designs. Standardizing treatment protocols that have demonstrated efficacy in single-subject designs opens up the possibility for pilot studies to evaluate the effects of treatment on a larger scale and also the possibility that independent evaluators will attempt to replicate treatment findings. Additionally, once a standardized treatment protocol has been developed, efficacy and effectiveness studies will follow, thus providing a sounder empirical base for several of the aforementioned techniques.

Another methodological approach to improve the current literature on interventions for children and adolescents with ASD is by conducting larger scale RCTs. Of the group-based studies reviewed in the meta-analyses reviewed above (Gates et al., 2017; Smith & Iadorola, 2015), the majority employed quasi-experimental designs by comparing experimental treatment protocols to either waitlist control or treatment as usual. Future studies should attempt to compare experimental treatment protocols to established, manualized, active treatment control groups, as these types of randomized control studies are critical to determining well-established interventions.

Additionally, while the combined use of several evidence-based techniques described in the above-mentioned reviews represents and validates an approach to treatment frequently seen in community treatment settings, this approach makes it difficult to identify the active ingredients of change. Future studies can consider using component analysis in order to disentangle which components of treatment are indeed responsible for changing behavior. By identifying the active ingredients of treatment, it may be possible to alleviate the burden associated with lengthier treatment options that have less direct impact on treatment outcomes.

In addition to these methodological improvements, future studies should put increased emphasis on identifying the individual and treatment factors that are most likely to result in meaningful treatment outcomes. Small sample sizes and limited diversity with regard to research participants have made it difficult to assess mediators and moderators of treatment. As such, larger scale studies could help to address this shortcoming of the literature.

Finally, it is important to acknowledge that effectiveness studies are limited within the ASD intervention literature. Effectiveness studies are distinct from studies that examine treatment efficacy in that effectiveness studies are pragmatic and measure the effects of treatments in community settings, whereas efficacy studies are focused on determining the effects of treatment in ideal settings (Gartlehner, Hansen, Nissman, Lohr, & Carey, 2006). Future studies should prioritize leveraging relationships with community stakeholders in order to evaluate these treatment protocols in community settings. This will require identification and use of strategies that encourage partnerships between research institutions and community service providers early in the research process. By employing these methodologies, the field can move closer to a future where the findings of intervention-based studies are considerably more generalizable to real-world situations.

Application of Literature to a Clinical Case

The following is an abbreviated assessment and case conceptualization. The presented information is based on a real case with identifying information removed to protect client confidentiality.

Background Information

Eli is a 10-year-old Asian American male, who was referred for a diagnostic assessment and treatment by a community caseworker. Eli's adoptive caregivers reported concerns related to his difficulties with emotion regulation and aggression toward his family members. These emotionally reactive and aggressive behaviors often occurred during transitions, when asked to participate in non-preferred activities, and in situations that required Eli to be more flexible (e.g., when his brother wants to play with him).

Eli and his younger brother were adopted by his maternal grandparents when he was 5-years-old. Eli's grandparents described his upbringing with his biological parents as hostile, with occasional use of corporal punishment (i.e., spanking) to address noncompliance or misbehavior. His grandparents recalled that he met the majority of his developmental milestones later than would be expected. Despite these earlier developmental difficulties, Eli was verbally fluent at the time of treatment and generally performed well academically. Socially, Eli reported several negative interactions and bullying incidents with his peers.

Eli held no previous diagnosis at the time of the evaluation. Previous ASD assessments obtained inconsistent findings: one supporting and one not supporting an ASD diagnosis. During the intake sessions, Eli was observed to say words at random, which lacked integration into the social context (e.g., randomly saying, "Sad"), and demonstrated inconsistent and poorly modulated eye contact.

A diagnostic evaluation was conducted according to principles of comprehensive and evidence-based assessment, which included gold-standard measures of ASD symptoms and developmental history (i.e., ADI-R and ADOS-2), intellectual functioning, expressive and receptive language, adaptive functioning, attention-deficit hyperactivity disorder (ADHD) symptoms, and disruptive behaviors. Based on the findings from this evaluation, Eli met diagnostic criteria for ASD without cognitive or language impairment, ADHD, and oppositional defiant disorder (ODD), according to DSM-5 diagnostic criteria (APA, 2013).

Treatment Plan

In this section, we highlight treatment recommendations suggested earlier in the chapter by using parentheses and italicized text, e.g., (*concrete example of intervention*). Based on the results of the assessment and the referral concerns, goals for treatment centered on promoting compliance in interactions with Eli's grandparents, minimizing aggression toward his grandparents and younger brother, and promoting more awareness of emotions and using of coping skills to improve emotion regulation. To achieve these goals, Eli completed a CBT-informed protocol to manage and reduce anger (Attwood, 2004). The first phase of treatment involved affective education, which involved teaching Eli about positive and negative emotions, including (a) how to identify bodily sensations that are associated with these emotions, (b) appropriate terminology so that Eli can better express how he feels, and (c) the ways in which thoughts, feelings, and behaviors are connected (*visual supports*). The second stage of treatment focused on cognitive restructuring, which involved identifying maladaptive thoughts and learning and practicing new skills for correcting those ways of thinking. For example, Eli was taught how to recognize thoughts that increase his feelings of anger and to replace them with "antidote" (*individualization of the intervention*) thoughts that can help him to better regulate his emotions. Eli was also provided with the opportunity to practice these skills to determine how others might think, feel, or react in similar situations (*explicit instruction*), which is an adaptation that specifically targets deficits in social perspective-taking that is characteristic of ASD.

Over the course of treatment, Eli was also encouraged to explore how he may choose to react to anger-provoking situations. In these exercises, Eli was prompted to explore how his response to certain situations may elicit different consequences. Through working with the clinician, he could identify which behavioral response would result in the most favorable outcome; however, before Eli could demonstrate behavioral changes, he had to be instructed on the various types of emotion regulation techniques that he could use during anger-provoking situations (*explicit instruction*). To make emotion regulation techniques more salient to Eli, the concrete metaphor of a toolbox (*individualization of the intervention, concrete example of intervention*) was used for him to understand that the use of his coping skills can help fix situations, just like tools can help to repair things that are broken. The coping skills that Eli was encouraged to practice both in session and at home (*repetition*) included physical tools (e.g., exercise), relaxation tools (e.g., deep breathing), social tools (e.g., talking to a trusted adult), and special interest tools (e.g., engaging in a separate activity; *individualization of the intervention*), in addition to the aforementioned cognitive restructuring.

Throughout the treatment protocol, Eli was provided with opportunities to practice and then reinforced with praise for his appropriate labeling of emotions, willingness to practice cognitive restructuring with the clinician, and practice and use of the coping skills outside of session. Behavioral techniques (i.e., prompting, reinforcement) were also taught to Eli's grandparents during treatment so that they could use similar strategies during interactions with Eli at home. These techniques were novel concepts and somewhat challenging for Eli's grandparents to learn, due in part to language and culture barriers. In order to address these issues further, the clinician would frequently check in with the grandparents to ensure that they understood the rationale behind treatment, while also reflecting on how it felt employing these parenting practices in light of their cultural backgrounds.

Case Summary

In sum, a thorough assessment and interview with the caregivers and child must first be conducted in order to facilitate conceptualization and appropriate treatment planning. Upon determining diagnosis, it is important to identify areas of impairment, specifically with regard to cognitive functioning and functional language use, as well as individual strengths and weaknesses as this will help guide necessary adaptations to treatment. Other factors that are important to consider include the chronological age and developmental level of the child, as well as important family characteristics that may impact the course of treatment. Finally, the presenting concerns and goals for treatment must be operationally defined in order to find a treatment that will best target desired outcomes, while also taking into account the characteristics of the client.

Ultimately, in the case presented above, a cognitive behavioral approach to treatment was chosen, utilizing both behavioral and cognitive principles to build emotion awareness and emotion regulation skills in this pre-adolescent with ASD, and to positively reinforce those skills. CBT was selected based on several considerations, including that this child had no cognitive or language impairments, was verbally fluent, and primarily had difficulties in understanding and regulating his own emotions in situations where he felt frustrated. Treatment began with psychoeducation before progressing into behavioral skill-building and more complex techniques, such as cognitive restructuring. During treatment, adaptations were made to better accommodate some of the challenges that emerged as a function of Eli's ASD diagnosis (e.g., use of social perspective-taking, making metaphors more concrete) and the family's cultural background. This flexible approach to treatment is critical in terms of promoting client buy-in and finding unique ways to navigate challenges that may emerge during the treatment process, while still maintaining the underlying principles of evidence-based treatment and practice.

Summary

Selecting and implementing evidence-based interventions for ASD depends on a host of factors, such as the age and developmental status of the individual, the nature of the referral question, and the professional context. Evidence-based comprehensive interventions are grounded in behavioral principles of learning that have been shown to yield improvements in various domains for young children with ASD. Therefore, for young children diagnosed with ASD, comprehensive interventions targeting multiple developmental outcomes are generally recommended. Behavioral and cognitive behavioral interventions exist that increase adaptive, language, cognitive, and communicative functioning and decrease psychological and behavioral symptoms, such as anxiety, depression, and disruptive behavior. Therefore, for older children, adolescents, and adults, focal interventions that target specific problem areas are generally recommended. As illustrated in the case study, modifications to standard intervention protocols are often required to tailor intervention to individuals with ASD. As the ASD intervention literature continues to grow, the expectation is that evidence will guide greater specificity of treatment recommendations for different ages, levels of severity, and presenting problems.

Key Points

- For both comprehensive and focused interventions, behavioral (operant) approaches to intervention have demonstrated substantial effects for a range of difficulties related to Autism Spectrum Disorders, including skills acquisition and reduction of problem behaviors.
- Naturalistic developmental behavioral interventions (NDBIs) have demonstrated particular efficacy for adaptive functioning. These approaches emphasize the application of behavioral techniques in naturalistic environments using naturally occurring reinforcement and emphasizing child preferred activities.
- Cognitive behavioral therapy (CBT) techniques have been applied to psychological difficulties experienced by individuals with ASD, particularly anxiety.
- Although few studies have examined moderators of treatment efficacy, it is likely that modifications to traditional CBT approaches may be necessary for some people with ASD.

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Evidence-Based Interventions for Oppositional Behavior and Other Conduct Problems in Young Children

Robert J. McMahon and Dave S. Pasalich

Abstract

This chapter presents and critically evaluates current evidence-based interventions for oppositional behavior and other conduct problems in young children (i.e., aged 3–8 years). Problems displayed by children in the preschool and early school-age periods can vary from annoying but relatively minor oppositional behaviors (e.g., yelling and temper tantrums) to more serious forms of aggressive behavior (e.g., fighting and physical destruction). The focus of this chapter is on family-based interventions, as this is the locus of the evidence base for treatment in young children. A social learning-based "parent management training" model of intervention has the strongest evidence base for the treatment of conduct problems in young children and may have significant preventive effects on the occurrence of later conduct problems and delinquent behavior. Authors reference key reviews and meta-analyses to serve as helpful starting points for the identification of potential interventions.

This chapter aims to present and critically evaluate current evidence-based interventions for oppositional behavior (OB) and other conduct problems (CP) in young children (i.e., aged 3–8 years). CP displayed by children in the preschool and early school-age periods can vary from annoying but relatively minor oppositional behaviors (e.g., yelling and temper tantrums) to more serious forms of aggressive behavior (e.g., fighting and physical destruction). The focus of this chapter is on family-

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Support for the preparation of this manuscript was provided to Robert J. McMahon by a LEEF B.C. Leadership Chair award, a B.C. Children's Hospital Research Institute Investigator Salary Award, and a Canada Foundation for Innovation award. Support to Dave S. Pasalich was provided by a Discovery Early Career Researcher Award from the Australian Research Council.

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_13

based interventions, as this is the locus of the evidence base for treatment of CP in young children (Kaminski & Claussen, 2017; McMahon & Frick, 2018).

Diagnostic Criteria, Epidemiology, and Developmental Pathways

The Diagnostic and Statistical Manual of Mental Disorders (*DSM-5*; American Psychiatric Association; APA, 2013) specifies two different diagnostic categories pertaining to child CP: oppositional defiant disorder (ODD) and conduct disorder (CD). ODD is defined as a persistent pattern of defiance and hostility against authority figures (e.g., parents and teachers) and includes three separate—yet interrelated—affective and behavioral-based dimensions: (a) angry/irritable mood (e.g., temper tantrums), (b) argumentative/defiant behavior (e.g., refusing to comply with requests from authority figures), and (c) vindictiveness (e.g., showing spite) (APA, 2013). ODD can be reliably diagnosed in preschool-aged children and has concurrent and predictive validity (e.g., see Keenan & Wakschlag, 2000).

CD is defined as a basic violation of other people's rights or the norms followed by society. Common CD symptoms include destruction of property, starting fights with other children, and truancy. A distinction is made between childhood- and adolescent-onset, with the presence of one or more CD symptoms prior to age 10 indicative of the former. Reflecting the heterogeneity of child CP (e.g., see Kimonis, Frick, & McMahon, 2014), DSM-5 has incorporated a specifier of "with limited prosocial emotions" to subtype children with CD according to the presence or absence of callous-unemotional (CU) traits (APA, 2013). CU traits are characterized by a lack of regard for other people's feelings, deficient guilt associated with wrongdoing, restricted emotionality, and a lack of concern about poor performance (e.g., at school or work). Children with CD and clinically significant CU traits demonstrate more severe, chronic, and varied CP and antisocial behavior (Frick, Ray, Thornton, & Kahn, 2014).

Noncompliance (i.e., excessive disobedience to adults) is a significant component of ODD and a keystone behavior in the development of early-starting (i.e., childhood-onset) CP (McMahon & Forehand, 2003). It appears early in the developmental progression of CP, often preceding the development of CD, and continues to be manifested in subsequent developmental periods. Excessive noncompliance is integral to the development of Patterson's coercive cycle, the most empirically supported family-based formulation of the ontogeny of early-starting CP (see below; Patterson, Reid, & Dishion, 1992), and is also a major concern and reason for referral for both parents and teachers (Dumas, 1996; Walker & Walker, 1991).

The world-wide prevalence of ODD and CD among youth aged 6–18 years is estimated to be 3.3 and 3.2% for ODD and CD, respectively (Canino, Polanczyk, Bauermeister, Rohde, & Frick, 2010). In general, boys are more likely than girls to display CP; however, this varies across different phases of development (Kimonis et al., 2014). For example, sex differences in ODD are minimal or nonexistent during preschool; however, during the school-age years, boys are two to three times more likely to be diagnosed with CP (ODD, CD) than girls. In adolescence, the rates increase for both boys and girls, and the sex gap diminishes somewhat.

Hinshaw and Lee (2003) suggest that there are at least three developmental pathways that have childhood-onset of CP as a common starting point: (a) early-starters (who persist in high levels of CP behavior throughout the developmental period and into adulthood), (b) desisters, and (c) "low-level chronics," who engage in relatively low but persistent levels of CP throughout the developmental period and into adulthood. Importantly, 50% of children who demonstrate high levels of CP during the preschool period will not follow the early-starter progression of increasingly severe CP as they get older (Campbell, 1995). Thus, CP can first manifest in childhood or adolescence; however, the early-starter persistent trajectory of CP is linked with a greater number of, and more severe risk factors, as well as more adverse outcomes across the lifespan (Kimonis et al., 2014).

In terms of comorbidity, many children with either ODD or CD also manifest clinically significant symptoms of attention-deficit/hyperactivity disorder (ADHD), and experience more negative outcomes. Preschool-aged children with ODD, especially if it is comorbid with ADHD, are at risk not only for the later development of more serious CP (e.g., diagnosis of CD) but also for anxiety, mood, and/or substance use disorders (e.g., Nock, Kazdin, Hiripi, & Kessler, 2007).

Conceptualizing Conduct Problems: Focus on the Family

Patterson's coercion model is the most comprehensive family-based formulation for the development of early-onset CP (e.g., Patterson et al., 1992). It describes "basic training" in CP that occurs in the context of an escalating cycle of coercive parent–child interactions beginning prior to school entry. The proximal cause for entry into the coercive cycle is thought to be ineffective parental management strategies, particularly in regard to child compliance with parental directives during the preschool period. The ineffective parenting practices associated with the development of child CP include inconsistent discipline, irritable explosive discipline, low supervision and involvement, and inflexible rigid discipline (Chamberlain, Reid, Ray, Capaldi, & Fisher, 1997). Recently, parental emotion socialization behaviors (such as emotion coaching, discussion of emotions, reactions to child emotions) have been implicated as small but significant predictors of concurrent and later child CP (Johnson, Hawes, Eisenberg, Kohlhoff, & Dudeney, 2017). Other family risk factors that may impact parenting practices include maladaptive social cognitions, personal (e.g., antisocial behavior, substance use, depression) and interparental (e.g., marital problems) distress, and social isolation (e.g., insularity) (McMahon, Wells, & Kotler, 2006).

Various child characteristics, such as comorbid disorders (e.g., ADHD, mood and anxiety disorders) and developmental phenomena (e.g., temperament, executive functions, emotion regulation, language development, social cognition) can also play a role in the development and maintenance of the coercive cycle (McMahon et al., 2006). There is support for a cumulative risk conceptualization of ODD, in which an increasing number of risks in the domains of parenting practices, child characteristics, attachment, and family adversity increase the likelihood of the development of ODD (e.g., Lavigne, Gouze, Hopkins, Bryant, & LeBailly, 2012).

Family-Based Interventions

A social learning-based "parent management training" (PMT) model of intervention has the strongest evidence base for the treatment of CP in young children (Kaminski & Claussen, 2017). The underlying assumption of PMT models is that parents play the primary role in the socialization of young children. The goal of PMT is to equip parents with skills to improve the quality and consistency of their responding to both negative (e.g., defiance) and positive (e.g., compliance) child behavior. The envisaged outcome of PMT is a pattern of more positive parent–child interaction leading to increased child prosocial behavior and reduced CP.

The core elements of PMT include (a) intervention conducted primarily with the parent or parent–child dyad, with relatively less therapist–child contact; (b) therapists refocus parents' attention from a preoccupation with CP to an emphasis on prosocial goals; (c) content of these programs typically includes instruction in social learning-based parenting techniques (e.g., effective tracking of child behavior, positive parent attention and token or point systems to increase prosocial behavior, training in giving clear instructions or commands, using extinction [e.g., ignoring] and mild punishment for negative behavior [e.g., time out, response cost]); and (d) therapists make extensive use of didactic instruction, modeling, role-playing, behavioral rehearsal, and structured homework exercises to promote effective parenting (e.g., Miller & Prinz, 1990). PMT interventions have been successfully implemented in the clinic and at home, with individual families and groups of families, and in both prevention and treatment contexts. Furthermore, there is now substantial evidence that self-administered PMT (in various forms, including books, videos, Internet-based interventions, smartphone apps) may be efficacious for some families (e.g., O'Brien & Daley, 2011; Turner, Baker, & Day, 2018).

We briefly describe several PMT programs as examples of state-of-the-art family-based interventions for young children with CP. Descriptions of the clinical procedures utilized in these programs are widely available (e.g., therapist manuals, videotapes for therapist training, and/or books for parents), and each of the programs has been extensively evaluated.

The first three PMT programs have their origins in the pioneering work of Constance Hanf (e.g., see Kaehler, Jacobs, & Jones, 2016; Reitman & McMahon, 2013) 50 years ago. They are (a) "Helping the Noncompliant Child" (HNC; McMahon & Forehand, 2003), (b) "Parent-Child Interaction Therapy" (PCIT; e.g., Zisser-Nathenson, Herschell, & Eyberg, 2017), and (c) "The Incredible Years: Early Childhood BASIC Parent Training Program" (BASIC; Webster-Stratton & Reid, 2017). These Hanf-based PMT programs share many common features (including a significant focus on child noncompliance) and were primarily developed for younger children (i.e., preschool and early school age). Each of these interventions is divided into two phases. The primary goal of the initial phase is to break the cycle of coercive interactions by establishing a positive, mutually reinforcing parent–child relationship (e.g., Child's Game). In the second phase, parents are trained in giving clear and effective instructions to their children, and in implementing a systematic time-out procedure to decrease noncompliant behavior. HNC and PCIT are typically administered to individual families, whereas BASIC is designed primarily to be administered to groups of parents. Characteristic of all Hanf-based PMT programs, therapists make extensive use of modeling and role-play during sessions (in addition to didactic instruction and discussion) to teach skills, and they each use home practice assignments and exercises. BASIC also employs a video/modeling group discussion format in which videos of parents interacting with their children in both appropriate and inappropriate ways are used as the impetus for discussion about appropriate ways to deal with child CP behavior. HNC and PCIT both use in vivo parent–child interactions for the purpose of coaching parents while they practice new parenting skills during the session, which has been shown to augment the effectiveness of PMT (Kaminski, Valle, Filene, & Boyle, 2008). Similar to Hanf's (1969) original program, two of the programs (HNC, PCIT) describe behavioral performance criteria that the parent must meet for each parenting skill.

The "Triple P-Positive Parenting Program" (Triple P; Sanders & Mazzucchelli, 2018) comprises five levels of intervention, ranging from universal prevention strategies to an intensive and individualized treatment targeting children with severe CP symptoms. It was designed for use with parents of children from birth to age 16, although the majority of outcome research has focused on families with young children (i.e., 2–8 years; Sanders, Kirby, Tellegen, & Day, 2014). Triple P interventions combine PMT strategies with a range of family support materials and services. Level 4 (Standard Triple P), intended for parents of children with more severe CP symptoms, includes many components of traditional PMT, and has been administered in individual, group, self-administered, and online formats. The Level 5 intervention (Enhanced Triple P), implemented when there is significant family dysfunction in addition to severe child CP, may include home visits focused on parenting practices, training in coping skills, and management of mood problems, marital conflict, and/or family stress.

Another widely used and well-validated PMT program is “Generation Parent Management Training-Oregon” (GenerationPMTO), which is designed for preadolescent children (4–12 years of age) (Forgatch & Gewirtz, 2017). Although most typically delivered using an individual format where children are incorporated into parent sessions “as relevant” (Dishion, Forgatch, Chamberlain, & Pelham, 2016, p. 820), it also can be offered in a group format. Similar to the PMT programs described above, GenerationPMTO targets core parenting skills (e.g., positive reinforcement, positive involvement in children’s activities, limit setting strategies) with significant emphasis on in-session role-playing and at-home practice assignments.

Review of Intervention Efficacy and Effectiveness

The large evidence base for family-based interventions for young children with CP is one of the most impressive for any form of psychosocial intervention, and there are many meta-analytic studies that address issues beyond the basic topics of treatment efficacy and effectiveness. Notably, studies have assessed effective components of PMT (Kaminski et al., 2008), maintenance of treatment effects (van Aar, Leijten, Orobio de Castro, & Overbeek, 2017), implementation (Leijten, Melendez-Torres, Knerr, & Gardner, 2016; Michelson, Davenport, Dretzke, Barlow, & Day, 2013), moderators (e.g., Lundahl, Risser, & Lovejoy, 2006), and specific programs (e.g., BASIC [e.g., Leijten, Gardner, et al., 2018], PCIT [Ward, Theule, & Cheung, 2016], Triple P [Sanders et al., 2014]). Our discussion of the evidence base for family-based treatments focuses on findings from these meta-analytic studies and other systematic reviews.

Comparison Studies

Each of the PMT programs described above (and many others) has been positively evaluated compared with no-treatment, waiting-list, or attention-placebo control conditions (e.g., Lundahl et al., 2006; Piquero et al., 2016; Serketich & Dumas, 1996). As evidence for the efficacy of PMT with young children with CP has accumulated, increased attention has been focused on the relative efficacy of these interventions compared to other forms of treatment. Meta-analytic studies have demonstrated that PMT has stronger effect sizes than home-visiting interventions (*ES* = 0.39 and 0.28, respectively) with young children (5 years old and younger; Piquero et al., 2016) and youth cognitive-behavior therapy in decreasing CP (*ES* = 0.45 and 0.23, respectively) with 6- to 12-year olds (McCart, Priester, Davies, & Azen, 2006). Several PMT programs have been shown to be more efficacious than family systems therapies (e.g., Wells & Egan, 1988) and available community mental health services (e.g., Patterson et al., 1982; Stattin, Enebrink, Ozdemir, & Giannotta, 2015).

Head-to-head empirical comparisons of different PMT programs have been conducted (e.g., Forehand et al., 2016; Stattin et al., 2015). A recent meta-analytic study compared several PMT programs and reported that, while all of the PMTs had positive effects, effect sizes for reduced CP were largest for PCIT (*ES* = 0.98), followed by Triple P (*ES* = 0.56), and then BASIC (*ES* = 0.31) (Piquero et al., 2016).

Generalization and Social Validity

As reviewed above, the short-term efficacy of PMT in producing changes in both parent and child behaviors has been demonstrated repeatedly (e.g., Gardner et al., 2019; Piquero et al., 2016; Sanders et al., 2014; Serketich & Dumas, 1996), as has generalization of effects from the clinic to the home, over time, to untreated siblings, and to untreated behaviors (see McMahon et al., 2006). Each of the PMT programs described earlier in the chapter has documented *setting generalization* from the clinic to the home for parent and child behavior and for parents' perception of child adjustment. However, there is mixed support for setting generalization from the clinic or home setting to the school (e.g., Serketich & Dumas, 1996). Given this inconsistency, it behooves practitioners to monitor the child's behavior in the school setting and intervene as necessary (McMahon & Forehand, 2003).

Recent meta-analyses (e.g., van Aar et al., 2017) have documented the *temporal generalization* of intervention effects for PMT for at least 1-year post-treatment (*ES* = 0.01 from post-intervention to follow-up). van Aar and colleagues noted evidence for occasional sleeper and fade-out effects (i.e., increased improvement or deterioration following treatment, respectively). Individual studies conducted 4.5–15 years after completion of various PMT programs support the long-term maintenance of effects (e.g., Long, Forehand, Wierson, & Morgan, 1994; Smith, 2015).

Several PMT programs have demonstrated *sibling generalization* (e.g., Gardner, Burton, & Klimes, 2006; Humphreys, Forehand, McMahon, & Roberts, 1978). PMT has demonstrated *behavioral generalization* from the treatment of child noncompliance to other CP behaviors (e.g., aggression, temper tantrums) (e.g., Wells, Forehand, & Griest, 1980). Furthermore, a recent meta-analysis of individual participant data from BASIC found significant effects on comorbid ADHD (*ES* = −0.30) but not "emotional problems" (*ES* = −0.06, ns) (Leijten, Gardner, et al., 2018).

PMT programs have provided strong evidence of social validity by documenting high levels of parental satisfaction at post-treatment and/or follow-up periods of a year or more (e.g., Brestan, Jacobs, Rayfield, & Eyberg, 1999; McMahon, Tiedemann, Forehand, & Griest, 1984; Patterson, Chamberlain, & Reid, 1982). They have also provided normative comparisons indicating that by the end of treatment child and/or parent behavior more closely resembles that in non-referred families (e.g., Serketich & Dumas, 1996; Sheldrick, Kendall, & Heimberg, 2001).

The extent to which PMT interventions have resulted in positive changes in parental adjustment is less clear. In their systematic review, Colalillo and Johnston (2016) reported reductions in parenting stress and increases in perceived parenting competence, although other changes in parental adjustment (e.g., parental depression, marital functioning) were less clear. The Leijten, Gardner, et al. (2018) meta-analysis of individual participant data from BASIC found no significant effects for parental self-efficacy, stress, and depressive symptoms (*ES* = −0.32, −0.18, and −0.08, respectively).

Mechanisms and Moderation

Given that a core premise of PMT is that improved parenting behavior is the active mechanism for reducing child CP, surprisingly this issue has received limited empirical attention (e.g., Forehand, Lafko, Parent, & Burt, 2014). Forehand and colleagues identified 25 studies (all conducted since 2000) that examined one or more parenting behaviors as potential mediators of child and adolescent outcomes in family-based treatments. Less than half (45%) of the analyses supported mediation. This was most likely to occur for composite measures of parenting (90% supported mediation), discipline (55%), and positive parenting (45%), and least common for negative parenting (26%) and monitoring (10%). Mediation was more common in prevention as opposed to treatment studies (72% vs 32%) and in samples of younger children (i.e., less than 10 years old; 61% versus 29% for older children), perhaps because the behaviors of younger children are less entrenched, making their behavior more amenable to parental influences.

In general, there has been scant attention paid to the extent to which PMT may be differentially efficacious with different subgroups of children, parents, and families, or as a function of different aspects of PMT (e.g., treatment delivery mode). An early meta-analytic study that examined moderators of PMT found that more severe child CP, single-parent status, economic disadvantage (i.e., low socioeconomic status [SES]), and group-administered (as opposed to individually administered) PMT resulted in poorer child behavior outcomes in PMT (Lundahl et al., 2006). In addition, economic disadvantage and PMT alone (as opposed to multicomponent interventions that included PMT) were also associated with poorer parent behavior and parental perception outcomes. Lundahl and colleagues found that among disadvantaged families, individual PMT was associated with more positive child and parent behavioral outcomes than group PMT. More recent meta-analytic findings regarding moderators of a specific PMT (BASIC) also showed that children with greater CP and emotional problems benefited more from the intervention; however, child ADHD, parent education, and ethnic background were not significant moderators (Leijten, Raaijmakers, et al., 2018). van Aar and colleagues (2019) found that families with both severe harsh/inconsistent parenting *and* severe child CP responded better to BASIC than families only with severe child CP. Family-based treatments appear to be comparably effective for boys and girls (Kaminski & Claussen, 2017), children of different ages (Gardner et al., 2019; Lundahl et al., 2006), and, to the extent examined, for majority and minority families (e.g., Leijten, Raaijmakers, et al., 2018; Reid, Webster-Stratton, & Beauchaine, 2001).

One area of current research interest is the extent to which family-based treatments are efficacious with the subgroup of children with CP who also display CU traits. These children do respond to traditional PMT interventions but to a lesser degree than other children with CP. In their review, Hawes, Price, and Dadds (2014) reported that CU traits were associated with poorer outcomes from PMT in 81% (9 of 11) of the reviewed studies; this was especially true for children with ODD (as opposed to CD). In addition, several PMT studies have documented decreases in CU traits (in addition to decreases in CP). Hawes and colleagues recommended that additional emphasis be placed on promotion of parental warmth and positive reinforcement in PMT interventions with these children. (See Kimonis et al., 2019, for a recent example.)

Effectiveness/Dissemination

Large-scale effectiveness trials of PMT as well as cross-cultural dissemination studies have become common. With respect to effectiveness, a meta-analysis demonstrated that PMT was more effective than waiting-list control conditions when conducted in "real-world" settings, as indicated by (a) clinic-referred samples, (b) non-specialist therapists, (c) routine settings, and (d) as part of a routine service (Michelson et al., 2013). PMT programs have been implemented in local community mental health centers (e.g., Stattin et al., 2015), volunteer organizations (Gardner et al., 2006), and in the child welfare system (e.g., Chaffin, Funderburk, Bard, Valle, & Gurwitch, 2011).

Furthermore, many of these interventions have now been evaluated in international settings. Two recent meta-analytic reviews have demonstrated the transportability of PMT programs from their country of origin to other countries, both Western and otherwise (Gardner, Montgomery, & Knerr, 2016; Leijten et al., 2016). Gardner and colleagues reported effects of PMT in the destination countries comparable to those obtained in the program's country of origin. Interestingly, effects were somewhat stronger in regions that were culturally more distant (e.g., Asia, Latin America, Middle East) as opposed to countries with Anglo/European roots (e.g., Canada, United Kingdom [UK], Ireland, Norway, Sweden). Leijten and colleagues found comparable effectiveness between homegrown and transported programs, regardless of the geographical region (North America, Australia, English-speaking European countries, and other European countries) or the particular brand of PMT program (i.e., BASIC, PCIT, Triple P, GenerationPMTO). These findings support both the ability to disseminate PMT programs to different countries and the utility of locally developed programs that are based on similar principles (e.g., social learning). However, one limitation of these findings is that the regions included in these studies were, for the most part, high-income countries. Thus, more work is needed to establish and evaluate PMT in low- and middle-income countries (e.g., Knerr, Gardner, & Cluver, 2013). Finally, there is also research to suggest that PMT can be acceptable and comparably effective in culturally diverse families (e.g., Reid et al., 2001); however, the extent to which interventions need to be systematically modified to be culturally relevant is unclear (e.g., Gardner et al., 2016; Mejia, Leijten, Lachman, & Parra-Cardona, 2017; van Mourik, Crone, de Wolff, & Reis, 2017).

Economic Analyses

It is well-established that children with CP, especially those who follow the early-starter developmental pathway, have the potential to incur substantial societal and economic consequences. For example, it has been estimated that the potential value of saving a single high-risk youth from a criminal career ranges from $3.2 to $5.5 million (Cohen & Piquero, 2009). Given these figures, PMT has great potential to provide a cost-effective means of preventing future delinquency and perhaps even adult criminal activity. To date, there have been relatively few comprehensive economic evaluations of PMT (e.g., Charles, Bywater, & Edwards, 2011), with tremendous variation in how costs and benefits are counted and weighted across different studies. For example, benefit-cost ratios for the PMT programs discussed in this chapter range from $0.57 to $7.66 (dollar values greater than 1 indicate that the benefits of a program exceed its costs) (Washington State Institute for Public Policy, 2019). Although these findings support the overall economic benefits of PMT for children with CP, additional work is needed to help clarify costs and benefits across different interventions.

Case Example[1]

At age 2, Michael's parents worried that his behavior was more difficult to manage than most children his age: Michael was "very stubborn." A psychological evaluation at age 4 resulted in a DSM-5 diagnosis of ODD and a recommendation of the HNC treatment program. In session 1, Phase I of the program (Differential Attention) was introduced. The attending skill (i.e., ongoing positive parental description of the child's appropriate behavior) then was explained and the therapist modeled attending with the parents. Next, the parents practiced attending with the therapist and then Michael while receiving feedback. Finally, the parents were given handouts reviewing the session and homework was discussed (i.e., daily practice of attending). In sessions 2 and 3, the parents practiced attending with Michael with therapist coaching. Homework consisted of daily practice of attending with Michael. At the beginning of session 4, the parents met behavioral criteria for attends. The therapist then introduced rewards. The parents practiced rewarding with the therapist and then Michael. Homework consisted of daily practice of attending and rewarding with Michael. In session 5, the parents met the behavioral criteria for rewarding. The therapist then discussed the characteristics of effective ignoring, modeled ignoring, and had the parents' role-play ignoring. After demonstrating ignoring to Michael, the parents practiced all of the Phase I skills while receiving prompts and feedback. A differential attention plan using attending and rewarding to increase Michael's age-appropriate language and ignoring his baby talk was developed. In session

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[1] Adapted from McMahon & Forehand (2017).

6, Phase II of the program (Compliance Training) was introduced. The therapist discussed the importance of giving clear instructions. The parents practiced Path A of the clear instructions sequence (attending/rewarding child compliance to clear instructions) with Michael, with therapist prompts and feedback. In session 7, Path B (warning following noncompliance) was role-played and subsequently explained to Michael. Next, Path C (time out for noncompliance) was introduced and role-played. In sessions 8 and 9, the parents practiced the entire clear instructions sequence (Paths A, B, and C) with Michael, while receiving prompts and feedback. In session 10, issues related to the clear instructions sequence and time out that arose at home were discussed. In addition, the therapist introduced standing rules ("if…then" statements) and described how they are used to supplement the clear instructions sequence. In session 11, how to use both Phase I and II skills to address problem behaviors outside of the home was discussed. Session 12 was spent reviewing the various skills, stressing the importance of consistency, encouraging continued use of Phase I skills, and answering parent questions.

Directions for Future Clinical Research

The evidence base for family-based interventions for the treatment of CP in young children is extensive and growing. Future research should continue to focus on extending this research base in the areas covered in the previous section of this chapter (e.g., mechanisms and moderation, comparisons with other treatments, implementation in real-world settings). Some additional topics for future clinical research are described below.

Subgroup-specific interventions

One area for future research is to modify treatments based on particular characteristics of children (e.g., CU traits, comorbid anxiety) and/or families (e.g., foster families, military families). Initial explorations of the roles of neuroendocrine functioning (e.g., Shenk et al., 2012) and gene by treatment interactions (e.g., Chhangur et al., 2017) in predicting or moderating treatment outcome represent exciting avenues for potentially improving family-based treatments for youth with CP. For example, Chhangur and colleagues documented that boys (but not girls) carrying high numbers of dopaminergic plasticity genes demonstrated greater decreases in parent-reported CP behavior as a function of parental participation in the BASIC PMT program.

Common elements/essential components

Researchers have identified "common elements" (AKA "essential components") of PMT programs (e.g., Kaehler et al., 2016; Kaminski et al., 2008), and have also provided empirical support connecting many of these common elements to positive child outcomes. A series of meta-analyses (Leijten et al., 2019; Leijten, Melendez-Torres, et al., 2018) has focused on identifying essential components of PMT interventions for children with CP. For example, PMT with treatment (clinic-referred or indicated) samples benefitted from the inclusion of so-called *relationship enhancement* components (e.g., Child's Game in Hanf-based PMT programs) and more comprehensive sets of components (e.g., parental emotion regulation skills), whereas prevention (universal and selected) samples did better with fewer intervention components.

Parental engagement with PMT

A recent review of 262 PMT studies by Chacko and colleagues (2016) found a combined attrition rate of 51% (i.e., failure to enroll in or to complete treatment). Although there has been increasing attention to developing and evaluating different forms of engagement (e.g., attendance, adherence, parental attributions), as well as strategies designed to facilitate engagement (e.g., Chacko et al., 2016; Piotrowska et al., 2017), additional research is sorely needed.

Technology-based intervention delivery

There is emerging evidence that family-based interventions delivered using various technologies (either stand alone [e.g., self-guided mobile apps, Internet-based treatments] or involving some level of therapist involvement [e.g., video teleconferencing, telephone support] can be effective with a variety of families of children with CP (e.g., Anton & Jones, 2017; Turner et al., 2018). Researchers are now drawing attention to various challenges and issues involved in the uptake and implementation of technology-based interventions (e.g., Anton & Jones, 2017; Chou, Bry, & Comer, 2017). These approaches hold promise for increasing the reach of such interventions to families (e.g., those in rural or under-resourced communities) who may not typically receive them, or who, for various reasons, are difficult to engage in traditional mental health services.

Broadening intervention models

A final direction for future research concerns recent developments in the translation of competing, or perhaps complementary, theoretical conceptualizations on the development of youth CP into novel family-based interventions. Historically, much of the empirical support on PMT interventions for child CP has been from interventions based on a social learning (or behavioral) model. There is some, but not uniform, support for the contention that social learning-based interventions are more effective than non-behavioral family-based interventions (e.g., Kaminski & Claussen, 2017), although several recent individual studies have found comparable effects to social learning-based interventions for interventions based primarily on emotion coaching (Duncombe et al., 2016) and problem-solving (Ollendick et al., 2016). Others (e.g., Fisher & Skowron, 2017) have suggested the compatibility of social learning and attachment perspectives for family-based interventions.

Summary

Since the previous edition of this chapter (McMahon & Kotler, 2008), substantial progress has been made in the implementation and evaluation of PMT interventions for young children with OB and other CP. PMT is clearly the intervention of choice, given the substantial empirical support for its efficacy, generalization, social validity, and effectiveness in a wide variety of settings and with various populations in the real world. Furthermore, there is increasing evidence for the benefits of PMT from an economic perspective. There is also modest empirical support for the premise that change in parental behavior serves as a primary mechanism in producing child behavior change (Forehand et al., 2014). Meta-analytic research suggests that the efficacy of PMT for child behavior change is less for single-parent and economically disadvantaged families; greater when provided to children with more severe CP (especially in families with severe harsh and inconsistent parenting);

perhaps greater when administered to individual families rather than in groups; and comparable for boys and girls and for majority and minority samples.

In conclusion, although PMT interventions have much to contribute to the treatment of young children with OB and other CP, they are clearly not a panacea. Too many children and families fail to respond sufficiently to these interventions—this must be a major focus of research and clinical practice moving forward. As noted above, there is much research activity focused on various aspects of this issue, and there is reason to be optimistic that the field will continue to advance. We owe this continued pursuit to the children and families who allow us (as clinicians, researchers, and policy-makers) to enter their lives.

Key Points

- PMT is an essential stand-alone intervention for reducing CP in children aged 3–8 years.
- PMT as a *treatment* for young children with CP may have significant *preventive* effects on the occurrence of later CP and delinquent behavior.
- It is critical that clinicians and policy-makers select PMT programs that have sufficient empirical support, given the many commercially available interventions with little or no empirical support in wide use (Petrosino, MacDougall, Hollis-Peel, Fronius, & Guckenberg, 2015), the scarcity of resources in clinical care settings, and clinicians' ethical obligation to service clients according to "best practice" guidelines. Reference to key reviews and meta-analyses (e.g., Kaminski & Claussen, 2017) can be a helpful starting point for the identification of potential PMT interventions.
- Specific guidelines for the selection of particular modalities, formats, and delivery methods of PMT are needed (e.g., Sanders & Mazzucchelli, 2018).
- Novel approaches to advance the reach and effectiveness of PMT in real-world settings include (a) embedding common elements of PMT into modular treatment protocols that target comorbid mental health symptoms; (b) improving family engagement in PMT; and (c) employing technology-based interventions (both stand alone and as adjuncts to traditional PMT).

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Treating Conduct Problems, Aggression, and Antisocial Behavior in Children and Adolescents

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Abstract

Conduct Disorder is defined as a repetitive and persistent pattern of behavior that violates the rights of others, age-appropriate social norms, and/or the law. This disorder is typically caused by multiple processes in the child and his or her social context that can negatively influence important developmental processes (e.g., identity formation, emotional regulation, conscience development) thereby placing him or her at risk for behavior problems. The authors review research that places conduct disorder and related conduct problems into a developmental psychopathology framework for guiding evidence-based approaches to treatment. They focus specifically on empirical findings that are important for guiding intervention. The chapter reviews evidence-based treatment approaches, along with examples of current best-practice interventions. Parent management treatment approaches to intervention have proven to be highly effective in reducing conduct problems in young children and are thus, an important way for preventing the development of conduct disorder. Comprehensive and individualized approaches to intervention are typically needed to successfully treat CD in adolescents. The authors outlined how evidence-based practices might translate into "real-world" everyday clinical practice for treating children and adolescents with conduct disorder.

Conduct Disorder (CD) is defined as a repetitive and persistent pattern of behavior that violates the rights of others, age-appropriate social norms, and/or the law and is included in a class of disorders labeled, "Disruptive, Impulse Control, and Conduct Disorders" in the *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM-5; American Psychiatric Association, 2013). DSM-5 symptoms for CD cluster into the following four categories: (1) aggression to people and animals (e.g., bullying, initiating physical fights, physical cruelty toward animals); (2) destruction of property

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_14

(e.g., vandalism, setting fires with intent to cause serious damage); (3) deceitfulness or theft (e.g., lying to obtain goods, breaking into private property); and (4) serious violation of rules (e.g., staying out past curfew, truancy from school). At least three of the 15 DSM-listed symptoms must be present for 12 months, with at least one present for the previous six months, for an individual to be diagnosed with CD (American Psychiatric Association, 2013).

CD is associated with a variety of functional impairments and personal costs for the individual youth, including academic failure, peer rejection, legal involvement, and comorbid psychopathology (Frick, 2016), and predicts later problems in adolescence and adulthood, ranging from mental and physical health problems (e.g., depression, substance abuse, poor cardiovascular health) to social, occupational, and legal problems (e.g., low-quality marital relationships, poor job performance, risk for arrest; Odgers et al., 2007, 2008). Further, CD often inflicts great costs to other individuals and society. Specifically, youth with CD cause monetary damage and emotional and physical pain and suffering in other individuals, both directly through aggressive and violent acts and indirectly by causing emotional distress and reduced quality of life through theft and destruction of property (Borduin & Dopp, 2015). Additionally, youth with CD cause a significant economic burden to tax payers due to healthcare costs (e.g., mental health services) and costs to maintain juvenile justice systems (e.g., adjudication and detention costs; Rivenbark et al., 2018).

Developmental Foundations

Research has made great strides in uncovering the risk factors that contribute to the development of serious conduct problems including dispositional factors such as neurochemical (e.g., low serotonin) and autonomic (e.g. low resting heart rate) irregularities; neuropsychological deficits (e.g., executive function deficits); abnormalities in social information processing (e.g., hostile attributional bias, viewing aggression as an acceptable means to obtain goals); temperament (e.g., poor emotional regulation, fearlessness); and certain personality traits (e.g., impulsivity, rebelliousness, callous-unemotional traits) (see Fairchild et al., 2019; Frick & Viding, 2009; Moffitt, 2018, for reviews). In addition, a large number of environmental variables have proven to place a child at risk for CD, including the child's prenatal development (e.g., exposure to toxins in utero), child's family environment (e.g., hostile and coercive discipline, marital conflict, parental psychopathology), social relationships (e.g., rejection by peers, association with deviant peers), and neighborhood dysfunction (e.g., decay/disorganization, exposure to violence).

While research has been very successful in documenting a number of risk factors that are associated with CD, there has been extensive debate over the best way to integrate these factors into comprehensive causal models that guide effective treatment approaches. However, there are a few points of agreement (Frick, 2012, 2016). First, to adequately explain the development of CD, causal models must consider the potential role of multiple risk factors and not focus on any single causal variable. Second, causal models must consider the possibility that subgroups of antisocial youth may have distinct causal mechanisms underlying their problem behaviors. Third, causal models need to integrate research on the development of CD with research on normally or typically developing youth. To illustrate this third point, research has suggested that the ability to adequately regulate emotions and behavior and the ability to feel empathy and guilt toward others seem to play important roles in the development of CD (Frick & Viding, 2009). As a result, understanding the processes involved in the normal development of these abilities is critical for understanding how they may go awry in some children and thus place them at risk for acting in an aggressive or antisocial manner.

Based on these points of agreement, most current conceptualizations of CD recognize that there are likely multiple causal pathways leading to these behavior problems, with each pathway involving multiple interacting risk factors. Further, these risk factors disrupt critical developmental processes that make a child more likely to engage in antisocial and aggressive behavior. Consideration of these pathways could be critical for guiding individualized approaches to treating children and adolescents with CD (Frick, 2012). In the following sections, we summarize several areas of research that have proven particularly important for developmental models of CD and that we view as being crucial for guiding prevention and treatment.

Diagnostic Considerations

Childhood-onset versus adolescent-onset. The most widely accepted method for delineating pathways in the development of serious conduct problems is the distinction between childhood-onset and adolescent-onset trajectories. The DSM-5 provides separate specifiers for youth who begin to show severe conduct problems before age 10 (i.e., childhood-onset) and those whose conduct problems begin after this age (i.e., adolescent-onset; American Psychiatric Association, 2013). Research has discovered important differences between youth on these different developmental trajectories (see Frick & Viding, 2009; Moffitt, 2018, for reviews). Specifically, the childhood-onset group displays a more severe and persistent trajectory of problem behavior, with mild conduct problems starting as early as preschool and behavior problems often increasing in rate and severity throughout childhood and adolescence. This early-onset group is more likely to continue to show antisocial and criminal behavior into adulthood (Odgers et al., 2008). Furthermore, childhood-onset CD appears to be more strongly related to enduring vulnerabilities, including neuropsychological (e.g., executive function, attention) and cognitive (e.g., low intelligence) deficits, temperamental and personality risk factors (e.g., impulsivity), and problems in emotional regulation. This group also exhibits higher rates of family instability, family conflict, and ineffective parenting (Frick & Viding, 2009).

In contrast, youth in the adolescent-onset group are less likely to show severe aggression (Moffitt, 2018), while they do show higher levels of rebelliousness, rejection of conventional values and traditional status hierarchies, and less bonding with prosocial institutions (e.g., Moffitt, 2018). Based on these findings, Moffitt (2018) has theorized that children in the adolescent-onset group show an exaggeration of the normative developmental process of adolescent rebellion, as part of identity formation. Furthermore, engagement in antisocial and delinquent behavior is conceptualized as a misguided attempt to obtain a subjective sense of maturity and adult status in a way that is maladaptive (e.g., breaking societal norms) but encouraged by an antisocial peer group. Given that the behavior displayed in adolescent-onset CD is viewed as an exaggeration of a process specific to adolescent development, and not due to enduring vulnerabilities, conduct problems are less likely to persist beyond this developmental stage. However, individuals in the adolescent-onset group may still have impairments that persist into adulthood due to the consequences of their serious behavior problems (e.g., a criminal record, school dropout, substance abuse; Moffitt, 2018).

Limited prosocial emotions. Recent research also suggests that there may be several different types of vulnerabilities within the childhood-onset group that lead to distinct developmental consequences for the child and that could have treatment implications (Frick, 2012). Specifically, 20–30% of youth with CD meet criteria for the DSM-5 specifier, “with limited prosocial emotions” (LPE), referring to a subgroup of youth with serious behavior problems who are elevated on callous-unemotional (CU) traits (Kahn, Frick, Youngstrom, Findling, & Youngstrom, 2012). Criteria for the LPE specifier consist of four indicators of CU traits, two of which must be met for the previous

12 months and must be displayed across multiple relationships and settings: (1) lack of remorse or guilt; (2) callousness or lack of empathy; (3) lack of caring about performance in important activities (e.g., academic performance); and (4) shallow or deficient emotions (American Psychiatric Association, 2013). CU traits are sometimes considered to be the affective features of the construct of psychopathy (Hare & Neumann, 2008) or the affective components of conscience (Thompson & Newton, 2010).

Importantly, youth high on CU traits show serious antisocial behavior that is more stable, aggressive, and less responsive to typical treatments (Frick, Ray, Thornton, & Kahn, 2014). Furthermore, youth with serious conduct problems with and without elevated CU traits show very different genetic, cognitive, emotional, and social characteristics (Frick et al., 2014). These findings suggest that the causes of the behavior problems are different in those with and without elevated CU traits and have led Frick (2016) to propose that children with serious conduct problems and elevated CU traits have a temperament (i.e., fearless, insensitive to punishment, low responsiveness to cues of distress in others) that interferes with the normal development of conscience and places the child at risk for a particularly severe and aggressive pattern of antisocial behavior. In contrast, children and adolescents in the childhood-onset group with normative levels of CU traits appear to be highly reactive to emotional cues in others and are highly distressed by the negative effects of their behavior on others (Frick & Viding, 2009). Children in this group seem to show a temperament characterized by strong emotional reactivity combined with inadequate socialization that makes it difficult for them to develop the skills needed to adequately regulate their emotional reactivity (Frick & Morris, 2004).

Epidemiology

There is evidence that suggests CD is relatively common prior to adulthood. The worldwide prevalence of CD among children and adolescents is estimated to be 3.2% (Canino, Polanczyk, Bauermeister, Rhode, & Frick, 2010), with rates largely consistent across the various countries upon which these data were based. Within the United States, higher rates of diagnosed CD in minority populations, particularly African-American and Latino youth, have been reported (Mizock & Harkins, 2011). However, it is unclear whether any association between minority status and conduct problems is independent of other factors, including socioeconomic status, economic hardship, and neighborhood environment (Lahey, Waldman, & McBurnett, 1999). Most studies find that boys are more likely to display serious conduct problems and antisocial behavior than girls, leading to a preponderance of boys with CD (Eme, 2007). However, gender differences in CD vary across development. That is, there are small to no differences in rates of CD in young children (5 years and younger; Maughan, Rowe, Messer, Goodman, & Meltzer, 2004). Then, after age 5, boys are two to three times more likely to be diagnosed with CD than girls (Moffitt, Caspi, Rutter, & Silva, 2001). Finally, girls are more likely to show an adolescent-onset to CD and, as a result, the gender gap closes to about a 2:1 boy-to-girl ratio in adolescence (e.g., Berkout, Young, & Gross, 2011).

Evidence-Based Interventions for Conduct Disorders

The literature offers several general principles that should guide evidence-based interventions for conduct problems in children and adolescents. One key implication is the importance of prevention. As noted previously, the most aggressive youth, who are also most likely to continue their antisocial behavior into adulthood, tend to show a childhood-onset to their antisocial behavior. Thus, intervening early in the developmental trajectory of childhood-onset conduct problems is an important goal for preventing later serious aggression and antisocial behavior. A second implication is that interventions need to be comprehensive and target multiple risk factors. As noted throughout this chapter, CD is typically the result of a number of risk factors that can negatively influence child development. Thus, it is not surprising that some of the most effective interventions for CD target multiple potential risk factors (Conduct Problems Prevention Research Group, 2004). Third, interventions for CD need to not only be comprehensive, but also individualized. Given that the causal processes leading to antisocial behavior appear to be different across subgroups of youth, it is also likely that treatments will need to be different across these groups as well.

Research on the various developmental pathways to antisocial behavior could be particularly important for guiding these comprehensive and individualized treatment approaches. That is, knowledge of the different developmental processes that may be operating in the various subgroups of antisocial youth could help in determining the most effective combination of services for an individual child. For example, interventions that focus on enhancing identity development and increasing contact with prosocial peers, such as mentoring programs (Grossman & Tierney, 1998) or programs that provide structured after-school activities (Mahoney & Stattin, 2000), may be particularly effective for youth within the adolescent-onset group. In contrast, interventions that focus on anger control (Larson & Lochman, 2003) or that focus on reducing harsh and ineffective parenting (Forgatch & Patterson, 2010) may be more effective for children in the childhood-onset group who do not exhibit elevated CU traits but often show problems with emotional regulation and come from families that use dysfunctional parenting practices. Finally, interventions that seek to teach children how to pay attention to the emotional cues in others and motivate them to change their behavior in ways that capitalize on their self-interest, rather than punishment, may be more effective for children with elevated CU traits (Caldwell, Skeem, Salekin, & Van Rybroek, 2006; White, Frick, Lawing, & Baeuer, 2013).

Selective Review of Effective Treatments

Parent Management Training. Since the most serious forms of conduct problems start early in development and persist over time, interventions that prevent symptom worsening via early intervention in young children displaying mild conduct problems are of critical importance. Fortunately, there are a number of effective interventions for treating emerging conduct problems early in development (Eyberg, Nelson, & Boggs, 2008). Specifically, a group of treatment programs called parent management training (PMT) have been systematically tested and evaluated across multiple studies. Goals of PMT programs are to teach parents how to develop and implement structured contingency management programs, use more effective discipline strategies (e.g., increase consistency with and use of a variety of approaches), and improve the quality of parent–child interactions (e.g., improve parent–child communication, increase parental warmth and responsiveness; McMahon & Forehand, 2003). PMT interventions have been successfully utilized in the clinic and home settings and have been implemented with families in individual and group formats. Recent evidence demonstrates the effectiveness of various forms of self-administered PMT as well, including interventions provided via books, video, and Internet and smartphone applications (MacDonell & Prinz, 2017).

The majority of these PMT programs were developed based on the work of Constance Hanf (see McMahon & Frick, 2019). Examples of such programs are (a) “Helping the Noncompliant Child” (HNC; McMahon & Forehand, 2003); (b) “Parent-Child Interaction Therapy” (PCIT; e.g., Zisser-Nathensen, Herschell, & Eyberg, 2017); and (c) “The Incredible Years: BASIC Parenting Programs” (BASIC; Webster-Stratton & Reid, 2017). As a result, PMT programs typically share a number of common features. Most notably, they are typically implemented in two phases. The first phase focuses on reducing coercive parent–child interactions by teaching parents how to interact with their child in a warm and positive manner and how to use positive reinforcement to encourage compliant and prosocial behavior. The second focuses on helping parents to give clear and effective instructions to their children and to use consistent and non-corporal punishments, such as time-out, to decrease noncompliant and other negative behavior. In most PMT packages, therapists model the skills for the parent during treatment sessions, in addition to providing didactic instruction and discussion. Further, most PMT programs rely on home practice assignments and exercises to help parents learn the parenting skills.

PMT programs have an extensive evidence base supporting their effectiveness, especially for younger children aged 3–9. An integrative meta-analysis (1,075 studies) of interventions for young children with conduct problems published between 1990 and 2008 found that PMT interventions had a larger effect size than either child-focused or school/community-based interventions for the prevention of serious conduct problems ($d = 0.56$, 0.41, and 0.28, respectively; Beelmann & Raabe, 2009; see also Farrington, Gaffney, Lösel, & Ttofi, 2016). Further, studies have reported that the positive effects of PMT can be maintained from 4 to 15 years following intervention completion (Scott, Briskman, & O'Connor, 2014).

Skills Training Interventions. Another approach to treating childhood conduct problems includes skills training interventions that target specific deficits that have been linked to conduct problems (McMahon & Frick, 2019). One example of such an intervention is the Webster-Stratton and Reid (2017) "Dinosaur School" program that was designed to be implemented in schools. Small groups of children with conduct problems receive 2 hours of intervention per week designed to promote appropriate classroom behavior, social skills, conflict-resolution skills, and positive peer interactions. These skills are taught through a range of instructional methods, including didactic videotape vignettes. In addition, role-playing of appropriate responses and feedback are used throughout training. Further, some method of skills reinforcement is a critical component to the intervention. Outcome studies have indicated that this intervention has resulted in improved social skills when used alone (Webster-Stratton & Hammond, 1997; Webster-Stratton, Reid, & Hammond, 2001, 2004), but the results were enhanced when combined with a PMT intervention (Webster-Stratton & Reid, 2017).

One of the most common goals of skills training interventions for children with CD is to address issues with anger control. These programs are typically derived from social-cognitive theory of the development of aggression, which posits that aggression is maintained by crystallized cognitive structures (e.g., attitudes, beliefs) and information processing skills (e.g., attention, problem-solving). In practice, most of these programs target social-cognitive processes through fairly standard cognitive-behavioral techniques, such as self-control training, reframing, and perspective-taking, with an explicit focus on the problematic cognitive processes commonly associated with aggression (Boxer & Dubow, 2002). In a meta-analysis conducted by Sukhodolsky and colleagues (2004) of 40 outcome studies that used a cognitive-behavioral approach to reduce anger in children and adolescents, the overall effect for cognitive-behavioral interventions was in the medium range (mean $d = .67$).

The Coping Power Program is an example of manualized treatment for anger control that was developed by Lochman and colleagues (1992, 2004). Coping Power has been shown to be effective when delivered either individually or in groups and is typically targeted toward children aged 9–12 (Lochman, Dishion, Powell, Boxmeyer, Qu, & Sallee, 2015). As with other skills-building approaches, this intervention targets a range of skill deficits that research has been linked to CD, including academic skills, emotional awareness, emotional coping, perspective-taking, and social problem-solving. The efficacy and effectiveness of the Coping Power Program alone have been documented in a number of different samples (Lochman, Boxmeyer, Andrade, & Kassing, 2019). However, as is the case with most skills-building approaches, the biggest reductions in conduct problems occur when it is combined with PMT (Lochman & Wells, 2004). Thus, while there has been some success in targeting individual risk factors (e.g., hostile and inconsistent parenting) and skills (e.g., anger control) for treating serious conduct problems, the most successful approaches are of a combined nature in order to address multiple factors that can lead to or maintain the child's behavior problems.

Individualized Treatment Across Systems: Interventions for Severe Conduct Problems

The fact that most successful interventions are multi-component or multimodal is consistent with the research reviewed showing that CD is typically caused by a number of different processes both within the child and in the child's social context. Furthermore, as the child develops, the importance of such contexts expands beyond that of the family to include a host of other relevant systems (e.g., peers, school, neighborhood, community) in which the youth is embedded (McCart & Sheidow, 2016). In addition, given that the causes of CD can vary within children and adolescents with the disorder, it is becoming increasingly clear that interventions must be individually tailored to the needs of the child (Frick, 2012).

Functional Family Therapy. One example of an individualized approach to treating CD in adolescence is the Functional Family Therapy (FFT) model developed by Alexander and colleagues (2013). FFT represents a unique integration and extension of family systems and behavioral, cognitive, and affective perspectives (Alexander, Pugh, Parsons, & Sexton, 2000). Like many family system interventions, FFT focuses on engaging the adolescent and the family in treatment and providing individualized motivations for change. FFT also aims to modify structural and systemic family processes that maintain adolescent problem behaviors and/or prevent parents from implementing effective behavioral programs (e.g., persistent conflict and enmeshment, inappropriate power hierarchies between parents and adolescents). However, FFT also relies upon a solid foundation of behavioral principles in effecting behavioral change. For example, FFT targets enhancements in communication and mutual problem-solving skills between parents and adolescents as well as improvements in parental contingency management. FFT proceeds through three general phases of treatment, beginning with engagement and motivation (i.e., altering family dynamics and individual cognitive-emotional factors that prevent engagement in behavioral change) and proceeding through behavioral change (i.e., training and supporting new parent–adolescent interactional styles and increasing positive parenting skills) and, finally, generalization (i.e., supporting the transfer of new skills to other settings, such as school or the legal system).

There is substantial evidence supporting the efficacy and effectiveness of FFT in reducing antisocial behavior in adolescents with serious conduct problems (Alexander et al., 2000; Hartnett, Carr, Hamilton, & O'Reilly, 2017), as well as producing cost-savings in resulting crime reduction (Aos et al., 2011; Sexton & Alexander, 2002). The results of 13 clinical trials, published by Alexander and colleagues (2000), show 26–73% reductions in recidivism with FFT, as compared to no treatment or juvenile court probation services, in youth with moderate to severe offending. In addition, a recent meta-analysis by Hartnett and colleagues (2017) further demonstrated the improved efficacy by FFT in reducing antisocial behavior when compared to no-treatment control (CTL) and well-defined alternative treatment (ALT) groups (d's: CTL = 0.48, 0.90; ALT = 0.35, 0.75, respectively). Further, positive treatment effects have been maintained up to 5 years post-treatment, which may lead to reductions in substance abuse or misuse (Hartnett et al., 2017), and may generalize to the siblings of the individual youth receiving treatment (see Sexton & Alexander, 2002). Further, there is evidence that FFT reduces conduct problems and delinquency in adolescents elevated on CU traits (White, Frick, Lawing, & Bauer, 2013).

Multisystemic Therapy. Another comprehensive and individualized treatment model for adolescents with CD is Multisystemic Therapy (MST; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009). MST was specifically developed as a treatment to address the multiple risk factors to severe antisocial and delinquent behavior in adolescents, including those involved in gangs and the juvenile justice system. As its names imply, MST tries to intervene in multiple systems, familial and extra-familial (e.g., maladaptive parenting, deviant peer or gang affiliation, poor school achievement), that can influence the adolescent's behavior. MST is explicitly based on a developmental-ecological model of aggressive and antisocial behavior. That is, the emphasis is placed on making changes in the adolescent's social ecology that will not only reduce problem behavior but will support these changes after treatment. Treatment can range substantially across individuals, depending on an initial needs assessment. For example, in a controlled treatment outcome study of MST with 88 adolescents who had committed multiple crimes, the length of treatment ranged from 5 to 54 hours (mean of 23 hours), 88% received family therapy, 60% participated in some form of school intervention, 57% received some form of peer intervention, 28% received individual therapy, and 26% of the adolescents' parents received marital therapy (Borduin et al., 1995).

In MST, an individual case is essentially managed by a full-time therapist who is relatively free to pick and choose among existing evidence-based strategies for various risk factors based on the initial assessment of the adolescent and their family. The therapist maintains a fairly low caseload (i.e., 3–5 cases) along with frequent and as-needed intensive supervision. This permits the therapist to spend as much time as necessary on individual cases and to provide ongoing expert consultation with respect to treatment selection and adherence to MST. A unique feature of MST is that the primary treating therapist is expected to be available 24/7, during the active phase of intervention for crisis consultation.

There is substantial evidence supporting the effectiveness of MST for improving aggression and delinquency (Curtis, Ronan, & Borduin, 2004), as well as co-occurring problems such as substance use (van der Stouwe et al., 2014), and producing crime- and cost-reduction benefits (Dopp, Borduin, Wagner, & Sawyer, 2014; Sexton & Alexander, 2002). In one of the longest follow-up studies of an MST trial, 176 adolescents, who had an average of 3.9 felony arrests prior to treatment, were randomized to receive MST or individual therapy (Sawyer & Borduin, 2011). The participants were followed from 18 to 23 years following treatment, and the felony recidivism rate was significantly lower for MST participants (34.8%) than for those receiving individual therapy (54.8%). The frequency of misdemeanor offending was 5 times lower for those who received MST. Dopp and colleagues (2014) further reported that these reductions in criminality translated into benefits to the taxpayer (e.g., reduction in criminal justice expenses, reduced harm to crime victims) of over $35,582 per juvenile offender.

Strengths and Weaknesses of Current Evidence Base

The clear strength of the current evidence base is the availability of a number of parenting interventions for young children that intervene early in the development of conduct problems and that have been extensively researched. A number of PMT programs are readily available and have strong evidence supporting their effectiveness, both immediately and over extended periods of time (Kaminski & Claussen, 2017), with a moderate effect size (d = .56) reported for PMT in reducing or preventing antisocial behaviors and juvenile offending relative to control or other treatment groups (Beelmann & Raabe, 2009). Importantly, these programs appear to be effective in both individual and group formats and are acceptable and effective in culturally diverse families (Brotman et al., 2005; Reid, Webster-Stratton, & Beauchaine, 2001).

However, there are some limitations even in this strong evidence base for PMT programs. First, a meta-analysis of over 262 studies of PMT indicated that, on average, 25% of parents of children with behavior problems drop out prior to starting treatment, and 26% drop out during treatment (Chacko et al., 2016). Of greater concern, families with higher levels of adversity (e.g., poverty, parental mental health problems) are at greatest risk for not attending or completing treatment (Chacko et al., 2016). Second, and relatedly, most PMT programs have not been successful in engaging fathers to participate (Panter-Brick et al., 2014), despite evidence that participation by two parents increases the effectiveness of PMT (Lundahl, Tollefson, Risser, & Lovejoy, 2008). Third, PMT does not have as strong of effects on a child's school behavior as it does on a child's home behavior, often necessitating additional intervention at school (Taylor, Schmidt, Pepler, & Hodgins, 1998). Fourth, while PMT programs often reduce parental stress surrounding parenting, their effects on reducing other problems in the family, such as parental depression and marital conflict, is less clear (Leijten et al., 2018). Fifth, PMT's effects are sometimes reduced in the context of significant family stressors, such as single-parent status and economic disadvantage (Lundahl, Risser, & Lovejoy, 2006).

Beyond PMT, the literature supports the use of MST and FFT as interventions that are comprehensive (i.e., targeting multiple risk factors) and individualized to the specific child depending on their specific strengths and weaknesses. The effectiveness of these intervention types has been well documented, and both MST and FFT have provided models for how such individualized interventions can be rigorously implemented and evaluated (McCart & Sheidow, 2016). Nevertheless, the effectiveness of these approaches may be limited among youth who are gang-affiliated. For example, Boxer and colleagues (2011, 2015) reported that associations with deviant peers and gang involvement significantly reduce the effectiveness of MST on short-term treatment outcomes. However, Boxer et al. (2017) also reported that these moderating effects were reduced over time (i.e., at 12-months follow-up). Thus, MST can be effective in gang-involved youth; however, further research is needed to examine the particular components or approaches necessary for effecting positive change in these high-risk youth. Moreover, further research is needed, in general, to address the particular social-ecological components and treatment needs of justice- and gang-involved youth, many of whom are likely to meet criteria for a CD diagnosis (e.g., Kubik et al., 2017).

A second limitation of these approaches is that both MST and FFT require substantial training and expenses to implement, which may not be available for many clinicians working with youth with serious conduct problems (McWilliam, Brown, Sanders, & Jones, 2016). Thus, a critical issue is whether the principles associated with FFT and MST, namely the use of a comprehensive and individualized treatment approach, can be applied to clinical practice in ways that can be more widely implemented. In the case study below, we provide a case example of such an approach.

Applications to Clinical Practice: Case Example Using a Multimodal Approach

Our case example is based on clinical material presented in detail by Boxer and Butkus (2005). This case involved the successful treatment of an early adolescent (age 11) African-American male diagnosed with CD, childhood-onset type, at initial evaluation. The client, Robert (pseudonym), was referred to an outpatient mental health clinic by his legal guardian and maternal grandmother in the early spring of his 6th grade year. Psychological treatment was provided to Robert through services funded by the county community mental health program via Medicaid.

Prior to initial evaluation, Robert had received four separate school suspensions due to behavioral misconduct and had once been caught stealing from his grandmother. The theft prompted his grandmother to seek mental health treatment. However, for months prior to the theft, Robert had begun to lie to his grandmother frequently and display a callous, "hard" attitude toward others. Robert acknowledged the validity of his grandmother's concerns during his individual interview and reported a more elaborate history of engagement in aggressive and antisocial behavior, including unprovoked aggression (e.g., "jumping" his peers and intentionally inflicting physical harm) and shoplifting, both of which were committed with his now incarcerated brother. The persistence and intensity of Robert's conduct problems, along with his expressed fondness for and identification with his delinquent older brother, were of serious concern. In addition to the primary diagnosis of CD, Robert carried a preexisting diagnosis of ADHD, for which he was receiving pharmacotherapy through his pediatrician.

Robert had a fairly extensive social history of family conflict, traumatic loss, and early deprivation. He was removed from his mother's custody at 18 months due to neglectful conditions accrued by his mother's substance abuse and had endured the murders of his father and uncle. At age 5, Robert began to exhibit very high levels of verbal and physical aggression in his kindergarten classroom, in addition to hyperactivity. Consequently, during this same year, Robert was seen for 20 sessions of psychotherapy and psychiatric consultation in an outpatient mental health clinic. He was discharged with diagnoses of ADHD and posttraumatic stress disorder, as well as suspected reading disorder, and was prescribed a regimen of methylphenidate. By the time Robert returned to the same outpatient clinic at age 11, he was beginning to fit the profile for a more severe trajectory of conduct problems and antisocial behavior.

This case was conceptualized from the perspective of the cognitive-ecological model (Guerra, Boxer, & Kim, 2005), a special case of the broader developmental-ecological model that places particular emphasis on the role of social cognition in maintaining aggressive behavior while also retaining a focus on the contexts in which those cognitions develop and are reinforced, as suggested by both FFT and MST. Robert presented with an array of biopsychosocial risk factors and acting-out behaviors consistent with this view, including what appeared to be a strong identification with his aggressive, delinquent brother as an index of his cognitive orientation to the world. Two key factors were the foci of the treatment plan. First, following best-practice strategies, we aimed to incorporate involvement from each of Robert's caregivers. Second, following the tenets of cognitive-ecological theory, we chose to target Robert's beliefs and attitudes about aggressive and antisocial behavior, which seemed to be framed by his identification with his older brother. We assembled a treatment approach that consisted of PMT, limited contingency management with Robert's teacher (i.e., a daily checklist completed and signed by teacher and brought home by Robert to testify to his classroom behavior), and skills training intervention that focused on specific social-cognitive factors (i.e., targeting arousal control, problem-solving, attitude changes). PMT was conducted with Robert's grandmother and mother, who had visitation rights on weekends, and included psychoeducation on the development of aggression, the various concepts and skills being taught to Robert, and the use of praise and positive reinforcement in supporting desired behavior. The therapist, in this case, served as coordinator of all three treatment strategies linked formally in the treatment plan agreed upon by Robert and his grandmother at the outset of treatment. Ongoing pharmacologic treatment was handled by Robert's pediatrician.

Twelve sessions of treatment, which included brief (5–10 min) meetings with Robert's grandmother followed by 40 min meetings with Robert, were conducted between the initial evaluation and a three-month treatment review. Outcome assessment data, collected at the initial evaluation and one month following the treatment review meeting, indicated clinically significant improvements in Robert's grandmother's ratings of Robert's externalizing behavior and clinician ratings of functional status. Moreover, Robert's case illustrates the implementation of evidence-based strategies in the context of a real-world treatment setting. Although no one empirically validated treatment package was utilized per se, all of the therapeutic techniques were derived from the best-practice interventions as described above.

Future Directions for Applied Research and Clinical Practice

Based on the findings noted above that one of primary limitations in the effectiveness of PMT is the high rate of parental drop out before either starting the program (25%) or during treatment (26%; Chacko et al., 2016), a critical direction for future research is on developing better ways to engage and motivate parents in treatment. FFT has been a leader in this regard by having an emphasis on engaging parents as a clear and explicit part of its treatment (Alexander et al., 2013). Piotrowska and colleagues (2017) developed a model for parental engagement specifically for PMT that is called the CAPE model (Connect, Attend, Participate, and Enact). "Connect" refers to methods of connecting with parents and helping them in the decision to enroll in treatment. "Attend" refers to continuous methods for promoting parents to attend intervention sessions. "Participate" refers to methods for getting parents to go beyond simply attending sessions and to engage in actions needed to bring about change in their child. Finally, "Enact" refers to strategies to promote parents' use of skills learned during therapy in the home.

Lechowicz and colleagues (2018) have extended this model to focus specifically on enhancing father engagement in PMT programs (e.g., engaging the father in the parenting team, ensuring father-inclusive content in the intervention).

Another focus of innovation in treating children with serious conduct problems and CD is providing intervention to the child outside of traditional mental health clinics, such as the child's school. School-delivered interventions can promote cross-setting consistency in the management of a student's conduct problems, which strengthens the effects of the intervention (Gross et al., 2003). Furthermore, providing interventions in the school can reduce the stigma associated with labeling children's behavior problems as a "mental illness" (Atkins et al., 2017). In support of the benefit of school-based mental health, an intervention for children with behavior problems in four school systems across the United States found that across Grades 1 through 3, 79% of parents attended at least 50% of sessions in a given year when the intervention was provided at school (Pasalich et al., 2016).

A final area for advancing treatment of children with CD is to test enhanced approaches to treatment that specifically target characteristics of children and adolescents with elevated CU traits. Reviews of treatment research show that CU traits have been associated with negative indicators of treatment success in over 80% of the outcomes studies reviewed (e.g., Frick et al., 2014). However, it is important to note that these studies did not indicate that youth with elevated CU traits did not respond to intervention. Instead, it appears that youth with elevated CU traits often start treatment with the highest level of problem behavior and, despite showing a reduction in conduct problems, still end treatment with the highest levels of problem behavior (White et al., 2013).

Such findings have led to attempts to enhance the treatment effectiveness specifically for youth with elevated CU traits. One focus has been to build on research showing that some youth with elevated CU traits may have histories of abuse and trauma-exposure that could play a role in the development of their callous interpersonal style (Docherty et al., 2016, 2018). As a result, these youth may require an approach to treatment that addresses the effects of this trauma (Datyner, Kimonis, & Hunt, 2016). Other work has focused on enhancing existing treatment to focus specifically on the dispositional (e.g., lack of responsivity to punishment) and contextual (e.g., conduct problems negatively related to parental warmth) factors that have proven important in youth with elevated CU traits (Waller et al., 2015). For example, Kimonis and colleagues (2018) enhanced standard PCIT by adding systematic and explicit parent-coaching to increase parental warmth and emotional responsiveness, systematically supplementing punishment-based disciplinary strategies (i.e., time-out) with reward-based techniques (i.e., dynamic and individualized token economies), delivering an adjunctive module to coach children on how to recognize and attend to emotions in others. In an open trial of families of children with elevated CU traits, Kimonis et al. (2018) reported that parent satisfaction and treatment retention were quite high. Further, the intervention produced post-treatment decreases in children's conduct problems and CU traits and increases in empathy, with medium to large effect sizes (*d*s = .7–2.0) that were maintained at a 3-month follow-up. By 3-months post-treatment, 75% of treatment completers no longer showed clinically significant conduct problems, compared to 25% of dropouts. These findings, although preliminary, clearly suggest that children with conduct problems and elevated CU traits, while presenting a treatment challenge, are not untreatable.

Summary

Conduct Disorder (CD) is a prevalent and serious mental health condition that is associated with significant risk for both current and future impairment. Furthermore, CD involves behavior (e.g., aggression, property destruction) that can lead to lifelong impairments, result in significant harm to others, and produce significant costs to society. As a result, a significant amount of research has been devoted to investigating the phenomenology and causes of CD. In this chapter, we highlight three findings that seem especially critical for guiding clinical intervention. First, children with CD can vary widely in the types of behaviors shown and how much harm the behavior causes the child and others around them. Second, there are a variety of risk factors, both within the child and the child's social context, that increase vulnerability for developing CD. Third, there are several common ways that these risk factors can impact crucial developmental processes (e.g., identity formation, emotional regulation, conscience development) that can make the child more likely to show significant conduct problems.

These findings have led to several approaches to treatment that have shown substantial evidence for their success. Parent management training (PMT) appears to be an effective way to reduce behavior problems early in childhood, before more serious conduct problems emerge. Further, there are a number of skills training programs, such as anger control training, that target specific deficits that can lead to children developing CD. Finally, there are a number of comprehensive (i.e., multi-component or multimodal) and individualized (i.e., tailored to the individual youth's unique needs) models of intervention that have proven effective for reducing serious conduct problems in adolescents. Even if these treatments are not used in specific packages, the principles of their comprehensive and flexible approaches to intervention can still guide effective clinical practice. However, more work is needed to enhance parental engagement in intervention, to test innovative ways of providing these services to families in the community, and to test ways for reducing conduct problems in children with elevated CU traits, a group that heretofore has not responded as well to traditional interventions.

Key Points

- CD is typically caused by multiple processes in the child and his or her social context that can negatively influence important developmental processes (e.g., identify formation, emotional regulation, conscience development) thereby placing him or her at risk for behavior problems.
- PMT is the most widely studied treatment of serious conduct problems in young children and has the strongest evidence-base supporting its effectiveness.
- Comprehensive and individualized approaches to intervention are typically needed to successfully treat CD in adolescents.
- Future directions for intervention research for CD include developing methods for engaging families in treatment, developing models of service delivery in the community, and improving the treatment of children and adolescents with elevated CU traits.

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Components of Evidence-Based Interventions for Bullying and Peer Victimization

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Abstract

Peer victimization, or the experience of being the recipient of aggressive behavior intended to oppress, humiliate, or dominate others, is a concern due to the negative outcomes that often result for those involved. These interactions involve not only the victim and the aggressor, but also bystanders who witness these acts. The chapter authors briefly overview existing school-wide interventions followed by a review of targeted interventions for aggressors. Finally, they examine the limited research on targeted interventions for peer-victimized youth. The majority of intervention work has focused on universal, school-based programs, which have demonstrated modest success. The literature provides some support for the use of school-wide universal interventions. However, there are many factors that influence the utility of these programs. The authors call for research to understand the most effective components and moderators of intervention success. Targeted interventions for aggressive behavior, including cognitive behavioral approaches and parent management training, are effective in reducing peer aggression. The effects of such programs specifically on bullying behavior, however, still warrants further evaluation. Research on effective targeted interventions for peer-victimized youth remains limited and warrants further research. Cognitive behavioral approaches appear to be promising, but larger scale randomized controlled trials that follow youth over time are needed.

John L. Cooley was supported in part by a training fellowship from the National Institute of Mental Health (T32 MH015442).

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_15

Peer victimization, or the experience of being the recipient of aggressive behavior intended to oppress, humiliate, or dominate others (Center for Disease Control, 2012; Vernberg & Biggs, 2010), is a concern among youth across cultures due to the negative outcomes that often result for those involved (Evans, Smokowski, Rose, Mercado, & Marshall, 2018; Vernberg & Biggs, 2010). These dynamic interactions involve not only the victim and the aggressor, but also the bystanders who witness these acts (Evans et al., 2018; Vernberg & Biggs, 2010).

One common type of aggressive behavior is bullying. Bullying has certain characteristics that differentiate it from general aggression as well as from conflicts between friends. Definitions of bullying typically include 3 components: (1) negative actions intended to harm (i.e., aggression), (2) repeated acts over time, and (3) an existing power differential between the bully and victim (e.g., Menesini & Salmivalli, 2017; Ostrov, Blakely-McClure, Perry, & Kamper-DeMarco, 2018). Thus, whereas all acts of bullying constitute aggression, not all acts of aggression are bullying. Peer victimization is considered to be a broader term that captures the experience of being targeted by aggressive behavior, including bullying and its other forms.

There are many different forms of aggressive behavior that youth employ to victimize their peers, with the two most common forms being relational and physical in nature. Relational aggression includes acts that damage, or threaten to damage, social relationships (e.g., Menesini & Salmivalli, 2017; Ostrov et al., 2018), such as social exclusion, spreading rumors and/or lies, and friendship withdrawal. In contrast, physical aggression involves the use or threat of force to harm or injure others (e.g., Menesini & Salmivalli, 2017; Ostrov et al., 2018). Acts of physical aggression include physical intimidation, hitting, kicking, punching, and pushing. More recently, there has been increasing attention on cyber aggression, which includes the use of technology to intentionally intimidate and harm others (e.g., Menesini & Salmivalli, 2017; Ostrov et al., 2018). Cyber aggression can occur through text messaging, social media sites (e.g., Facebook, Instagram, or Snapchat), online gaming, instant messaging, and chat rooms.

A considerable body of research has shown that peer victimization is detrimental to all individuals involved (Menesini & Salmivalli, 2017; Vernberg & Biggs, 2010), and the negative outcomes associated with peer victimization are found across cultures (Card & Hodges, 2008; Due, Holstein, Lynch, Finn, Gabhain, Scheidt, et al., 2005). Specifically, being the target of peer victimization is associated with internalizing symptoms, suicidal ideation, academic difficulties, substance use, and externalizing behavior problems (Card & Hodges, 2008; Reijntjes, Kamphuis, Prinzie, Boelen, van der Schoot, & Telch, 2011; Reijntjes, Kamphuis, Prinzie, & Telch, 2010; Menesini & Salmivalli, 2017), and these effects may persist into adulthood (McDougall & Vaillancourt, 2015). Similarly, engaging in peer aggression and bullying behavior is associated with delinquency, substance use, depression, school difficulties, and somatic complaints (Vernberg & Biggs, 2010; Vernberg, Nelson, Fonagy, & Twemlow, 2011). Finally, witnessing peer victimization as a bystander has been linked to depression, anxiety, suicidality, somatic complaints, substance use, and school safety concerns (Evans et al., 2018; Rivers & Noret, 2013; Rivers, Poteat, Noret, & Ashurst, 2009). Thus, effective prevention and intervention for peer victimization are imperative for all parties involved.

Experiencing peer victimization is quite common, with between 60–73% of children reporting experiencing at least one incident of victimization at some point during the elementary school years (Cooley, Fite, & Pederson, 2018; Kochenderfer-Ladd & Wardrop, 2001). In general, rates of victimization tend to decline as children progress across the formal school-age years (Ladd, Ettekal, & Kochenderfer-Ladd, 2017); however, up to 20% of high school students report having experienced peer victimization within the past year (Centers for Disease Control, 2016). Moreover, many youth experience long-term and chronic victimization. Although estimates vary across studies (e.g., Menesini & Salmivalli, 2017), Ladd and colleagues (2017) recently found that approximately 24% of youth were chronically victimized from kindergarten through 12th grade. As such, peer victimization can persist for up to one in four youth, with chronic victimization associated most strongly with negative outcomes (Evans et al., 2018).

Engaging in aggressive behavior is also somewhat common, with rates changing throughout development. Physically aggressive acts toward peers are evident as early as 18 months of age, with rates peaking around age two and then declining throughout childhood (Fite & Pederson, 2018). However, physical aggression tends to peak again in late adolescence and into emerging adulthood (Tremblay, 2000). In contrast, relational aggression is evident as early as three years of age. Relational aggression toward peers tends to increase throughout childhood, peaking in early adolescence, and then decrease throughout adolescence (Fite & Pederson, 2018). Specific to bullying behavior, between 4–9% of youth appear to frequently engage in acts of bullying behavior throughout childhood and adolescence (Juvonen & Graham, 2014; Menesini & Salmivalli, 2017). Further, it is important to remember that virtually all children will be a witness or bystander to aggressive behavior during their school-age years.

Findings regarding gender differences in peer victimization have been mixed, with some studies suggesting boys are more likely to be victimized, other studies finding girls are more likely to be victimized, and still other studies finding minimal differences (e.g., Ladd, Ettekal, & Kochender-Ladd, 2017; Menesini & Salmivalli, 2017). One meta-analysis found that boys were more likely to be both a victim and a bully, but the effect sizes were small (Cook, Williams, Guerra, Kim & Sadek, 2010). With regard to the broader construct of aggression, there is ample research indicating that boys are more likely to engage in physical aggression (Fite & Pederson, 2018). Additionally, while both boys and girls exhibit similar rates of relational aggression, this serves as the modal form of aggression for girls (Fite & Pederson, 2018; Menesini & Salmivalli, 2017). In their longitudinal study, Ladd and colleagues (2017) found that although rates of victimization were slightly higher for boys than girls, their trajectories from kindergarten through high school were similar. Taken together, it appears that there are some–albeit small–gender differences in the rates of peer victimization and aggression.

It is important to note that peer victimization is most likely to occur in locations in which adult monitoring is limited, rules are more lax, and the student-to-adult ratio is high (Fite, Williford, Cooley, DePaolis, Rubens, & Vernberg, 2013; Williford, Fite, DePaolis, & Cooley, 2018). Peer victimization occurs frequently within the school setting, with the playground and bus identified as two of the most common locations (Bradshaw, Sawyer, & O'Brennan, 2007; Fite et al., 2013; Kochenderfer-Ladd & Wardrop, 2001; Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001; Williford et al., 2018). However, victimization can occur anywhere, with the home, the neighborhood, and a friend's house being common locations reported by peer-victimized elementary school-age youth (Fite et al., 2013; Williford et al., 2018). Accordingly, interventions need to address concerns both inside and outside the school setting.

Theoretical Conceptualization of Treatment and Current Intervention Approaches

Ecological systems theory provides a conceptual framework for understanding peer victimization (e.g., Hong & Espelage, 2012). This model suggests that victims, as well as aggressors, are part of a larger system in which individual- and contextual-level factors interact to influence youth and their behavior. As such, multiple risk factors at various levels within one's environment are posited to contribute to peer victimization. Indeed, there are a multitude of factors and correlates at various levels of the ecological system associated with being a victim and/or aggressor; these include individual- (e.g., age, symptomatology, sexual orientation), familial- (e.g., SES, poor parenting), social- (e.g., peer rejection, low peer acceptance), and school-level (e.g., poor adult monitoring, negative school climate) characteristics (Barboza, Schiamberg, Oehmke, Korzeniewski, Post, & Heraux, 2009; Card & Hodges, 2008; Hong & Espelage, 2012). As such, interventions need to address a variety of factors that heighten youth's risk across each of these contextual levels.

To date, the vast majority of bully–victim interventions have been universal, school-wide approaches. However, there is a growing number of studies evaluating targeted interventions for aggressors and their victims. First, we provide a brief overview of existing school-wide interventions, followed by a brief review of targeted interventions for aggressors. Finally, we provide a review of the limited research on targeted interventions for peer-victimized youth.

Universal/School-Wide Interventions

Commonly, interventions designed to prevent aggressive behavior and peer victimization are implemented in schools given the universal access to children that schools provide. School-Wide Positive Behavior and Intervention Support (SWPBIS) is a widely used framework to promote the academic, social, and behavioral health of children and is considered an effective approach for promoting positive school climates (Bradshaw, Koth, Thornton, & Leaf, 2009; Bradshaw, Mitchell, & Leaf, 2010; Malloy, Moore, Trail, Van Epps, & Hopfer, 2013; Sugai & Horner, 2006). SWPBIS utilizes a multi-tiered system of intervention: (1) Universal level: classroom-wide interventions for the purpose of preventing future problems by setting appropriate behavioral expectations; (2) Secondary level: interventions targeted to children who have been identified as at risk for developing problems; and (3) Tertiary level: interventions targeted to children with identified problems that require individualized treatment.

Universal interventions target all students in a classroom or school regardless of their level of risk. In other words, students who display aggression or are targeted by their peers (i.e., victims) are included in these interventions alongside students who are uninvolved. The purpose of these interventions is to promote the acquisition of skills in an effort to promote students' academic, social, emotional, and behavioral development. Accordingly, these interventions often target a range of risk factors that can encourage aggression (e.g., poor emotion regulation skills, peer rejection, or academic failure) and protective factors (e.g., positive peer relationships, student–teacher connections, conflict management) that inhibit aggression and peer victimization (Botvin, Griffin, & Nichols, 2006; Hahn, Fuqua-Whitley, Wethington, Lowy, Crosby, Fullilove, et al., 2007; Wilson & Lipsey, 2007).

Interventions that promote social and emotional learning (SEL) have shown promise in reducing peer aggression and promoting prosocial behavior and thus are considered an important element for improving students' behavioral, social–emotional, and academic well-being. In fact, meta-analytic evidence on SEL programs indicates significant impacts on social–emotional skill acquisition ($d = 0.57$, 95% CI [0.48, 0.67]), increases in prosocial behavior ($d = 0.24$, 95% CI [0.16, 0.32]), reductions in conduct problems ($d = 0.22$, 95% CI [0.16, 0.29]), and improvements in academic performance ($d = 0.27$, 95% CI [0.15, 0.39]; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). For example, *Second Step* is a commonly used universal SEL program in the United States. *Second Step*, when implemented fully and faithfully, is considered to be an evidence-based social–emotional learning program that has demonstrated positive academic and behavioral outcomes (e.g., increased emotion management and problem-solving skills, decreased traumatic stress, enhanced teacher–student relationships), and improved school climate (Cooke, Ford, Levine, Bourke, Newell, & Lapidus, 2007; Durlak et al., 2011; Edwards, Hunt, Meyers, Grogg, & Jarrett, 2005; Frey, Hirschstein, & Guzzo, 2000; Grossman, Neckerman, Koepsell, Liu, Asher, Beland, et al., 1997). By targeting a range of risk and protective factors, *Second Step* has achieved broad impacts on children's development via reducing risk factors associated with negative outcomes (Espelage, Low, Polanin, & Brown, 2015).

Moreover, several universal evidence-based interventions have been developed specifically to prevent aggression and peer victimization. For example, *KiVa* has gained international attention as an effective universal program to prevent bullying and peer victimization (Salmivalli & Poskiparta, 2012). *KiVa* seeks to alter the social context in which bullying occurs by encouraging bystanders to support students victimized by their peers and by reducing the social rewards for children who bully others. The program also provides training to teachers and parents on how to best intervene thereby encouraging more effective adult intervention. Results from a recent meta-analysis of randomized controlled trials evaluating the efficacy of anti-bullying programs–including *KiVa*–found moderate to small effect sizes for reductions in rates of aggression (d = –0.12, 95% CI [–0.17, –0.06]) and victimization (d = –0.09, 95% CI [–0.17, 0.00) and improvements in attitudes toward school violence (d = 0.06, 95% CI [0.03, 0.10][1]; Jiménez-Barbero, Ruiz-Hernández, Llor-Zargoza, Pérez-García, & Llor-Esteban, 2016).

However, some children and adolescents display more serious social, emotional, and behavioral problems, which require more intensive interventions at the secondary or tertiary levels. Although some secondary and tertiary level interventions exist in school settings, these more intensive interventions can also be delivered in community settings.

In order to provide relevant and coordinated services to individuals, it is important for community mental health providers to know what social–emotional or anti-bullying curricula are being utilized by the schools, as well as to become familiar with the school's anti-bullying policies and procedures (see https://www.stopbullying.gov/laws/index.html). Clinicians can then determine whether and how they can integrate a school's programs into their therapeutic approach. For example, educating youth and their parents on the reporting procedures of the school can help ensure that proper steps are being implemented and followed. Additionally, simply opening the lines of communication between school personnel, clinicians, and families can aid in providing continuity in messaging and in problem-solving concerns across contexts. This knowledge may directly inform the implementation of targeted interventions.

Targeted Interventions for Aggressors

Interventions for those who victimize their peers are focused on preventing subsequent acts of aggression and often target anger, aggression, and conduct problems (Flanagan & Battaglia, 2010). There are a number of prevention and intervention programs that have varying levels of empirical support for reducing aggression and other problem behaviors (Kaminski & Claussen, 2017; McCart & Sheidow, 2016), many of which are reviewed in Chap. 13 and 14 of this book. Accordingly, we provide a brief overview of targeted interventions for aggressors and refer the reader to these prior chapters for further information on evidence-based therapies for oppositional behavior, conduct problems, aggression, and antisocial behavior. However, we also provide the caveat that many of these interventions need additional evaluation to document their effectiveness in reducing bullying and peer victimization specifically.

In general, behavioral (including parent management training) and cognitive behavioral approaches have been found to be effective in reducing aggressive behavior among youth (Flanagan & Battaglia, 2010; Kaminski & Claussen, 2017; McCart, & Sheidow, 2016). For example, Coping Power is an efficacious and effective targeted intervention for aggressive elementary school-age youth (Lochman & Wells, 2002; 2003). Consistent with an ecological systems framework, *Coping Power* is a cognitive behavioral intervention that targets both individual- and environmental-level factors in order to prevent the progression of child aggression to more severe problem behaviors

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[1] Note that the sign of the effect size is reported as the reduction or improvement in each outcome variable.

(Lochman & Wells, 2002; Lochman, Wells, & Lenhart, 2008). The program addresses problem-solving skills, emotion regulation, and problematic peer relations, and has been shown to change cognitive distortions (i.e., hostile attribution biases; Lochman & Wells, 2002). *Coping Power* has demonstrated small to large effects in reducing aggression, delinquent behavior, and substance use (Lochman & Wells, 2002, 2003; Zonnevylle-Bender, Matthys, Van De Wiel, & Lochman, 2007).

Targeted Interventions for Peer-Victimized Youth

Within the peer victimization literature, the paucity of research evaluating interventions for victims of aggression is quite evident (e.g., Vernberg & Biggs, 2010). There are likely many reasons for this, including the fact that it is truly the bullies/aggressors that need to change their behavior. Moreover, it is important to never blame the victim. The aforementioned intervention approaches are critically important for reducing the overall prevalence of aggression, bullying, and peer victimization. Yet, the unfortunate reality is that they are unlikely to completely eliminate these social problems. As previously noted, up to one-in-four youth will experience chronic and severe patterns of peer victimization from childhood through adolescence. The importance of addressing their mental health needs is underscored by the myriad of negative outcomes associated with these experiences, which in some cases may include suicidal ideation and attempts (Gini & Espelage, 2014). As such, work with peer-victimized youth may be best conceptualized as teaching effective coping skills and increasing protective factors.

There have been a handful of studies evaluating interventions for youth experiencing high levels of peer victimization, and, unfortunately, some have been found to be unsuccessful. For example, Fox and Boulton (2003) implemented a social skills training program with peer-victimized children in elementary school. They found that participants in the intervention condition did not experience significant changes in peer victimization as compared to the children in the wait-list control condition. Similarly, a subsequent evaluation of a social skills intervention for elementary school-age children experiencing bullying, peer dislike, and/or social anxiety revealed that youth in the intervention condition did not exhibit significant reductions in peer victimization as compared to youth in the control condition (DeRosier, 2004).

There have been investigations of school-based mentoring as an intervention for peer-victimized children in elementary school. Specifically, victims were paired with undergraduate students who met with them for 30 min twice per week in their school cafeteria during lunch. Although victimization was not addressed directly by the mentors, this approach has been shown to yield significant reductions in peer victimization among a small sample of intervention group participants as compared to participants in a nonrandomized control group (Elledge, Cavell, Ogle, & Newgent, 2010). Two subsequent studies showed similar results among victims as well as victims who were also exhibiting high levels of aggression, with larger effects observed after 3 semesters of mentoring (new mentors were assigned each semester; Gregus, Craig, Hernandez Rodriguez, Pastrana, & Cavell, 2015). An analysis of change processes associated with this intervention revealed that children who participated in the program experienced significant improvements in their lunchtime relationships, which predicted post-mentoring peer victimization and social preference (Craig et al., 2016).

Chu, Hoffman, Johns, Reyes-Portillo, and Hansford (2015) pilot-tested a group behavioral activation therapy with a small sample of youth (12–13 years of age) who were experiencing internalizing symptoms (i.e., depression and anxiety) as a result of peer victimization. The program focused on identifying the triggers of emotions and recognizing avoidant responses. Then, through graded exposures, youth were taught to replace avoidant responses with more adaptive coping strategies. Participants reported improvements in bullying impairment as well as symptoms of depression and anxiety. The intervention showed promise, but further evaluation (including statistical evidence) with larger numbers of participants is needed to fully evaluate its efficacy.

Recently, Interpersonal Psychotherapy Adolescent Skills Training was modified as a school-based preventive intervention for adolescents with elevated levels of social anxiety and/or depression and peer victimization (La Greca, Ehrenreich-May, Mufson, & Chan, 2016). Specific to peer victimization, the protocol was modified in several ways: (a) to provide psychoeducation about this problem, (b) to emphasize the importance of disclosing incidents of victimization to adults or friends, (c) to develop problem-solving methods for dealing with problematic peer interactions, and (d) to familiarize youth with school procedures for bullying. Results from an open trial of high school students revealed that there were significant reductions in social anxiety, depression, peer victimization (i.e., relational, reputational, and cyber) as well as increases in social support at post-intervention (La Greca et al., 2016).

Cognitive behavioral interventions appear to be another particularly promising approach for addressing the mental health needs of peer-victimized youth. Given that peer victimization and internalizing symptoms are reciprocally related over time (e.g., Card, Isaacs, & Hodges, 2007; Schacter, White, Chang, & Juvonen, 2014), interventions that have been found to be effective in treating internalizing symptoms may help to disrupt this cycle, thereby reducing subsequent experiences of peer victimization.

Importantly, those victimized by peers tend to make attributions about why they were victimized, which often include blaming themselves and perceiving the causes of these negative experiences to be internal, stable, and uncontrollable (Schacter et al., 2014). As a result, these youth may believe that nothing can be done to prevent further victimization. Self-blaming cognitions can also exacerbate the association between peer victimization and depressive symptoms (Perren, Ettekal, & Ladd, 2013). That is, the negative attributions peer-victimized youth make about themselves increases the likelihood that they will be victimized again and lead to increases internalizing symptoms. Interventions for peer victimization may therefore need to focus on changing cognitive distortions about peer victimization (Perren et al., 2013).

Cognitive behavioral approaches focus on changing negative (e.g., self-blaming) attributions through cognitive structuring as well as behavioral activation, emotion regulation, problem-solving, and implementing effective coping strategies (Chu & Harrison, 2007; Hollon, Stewart, & Strunk, 2006; Mattick, Peters, & Clarke, 1989). Thus, in addition to addressing internalizing symptoms, such interventions are well-positioned to address peer victimization.

Indeed, there is a growing body of research supporting the use of cognitive behavioral interventions. Berry and Hunt (2009) implemented a group-based cognitive behavioral intervention with anxious middle and high school boys who also reported being bullied. Participants in the intervention condition exhibited significant reductions in bullying experiences and internalizing symptoms as compared to the participants in the wait-list control condition. Similarly, Fung (2018) utilized a group-based cognitive behavior intervention with middle school students who were experiencing internalizing symptoms (depression and/or anxiety) and peer victimization. The intervention was associated with decreases in all forms of victimization (i.e., physical, verbal, relational) as well as internalizing symptoms at 1-year follow-up.

Extending the work of Fung (2018), we (Fite, Cooley, Poquiz, & Williford, 2019) recently examined the use of *Taking ACTION*—a group-based cognitive behavioral intervention for depressive symptoms—with peer-victimized elementary school-age youth. The youth who participated in the intervention group were compared with youth in a naturalistic control condition. Findings indicated that whereas the control group exhibited nonsignificant increases in relational victimization, depressive symptoms, and passive coping, the intervention group demonstrated significant decreases in all three of these outcome variables from the pre- to post-intervention assessments.

The intervention did not, however, lead to significant changes in physical victimization, although this may be attributed to the low base rate observed within this sample. Overall results of the study indicate that this cognitive behavioral group intervention may be a useful intervention for peer-victimized elementary school-age youth; however, larger scale randomized controlled trials are needed to further evaluate its efficacy.

It is important to note that there is a small subgroup of youth who exhibit high levels of both aggression and peer victimization, known as aggressive-victims or bully-victims (Menesini & Salmivalli, 2017). Aggressive-victims are distinct from non-aggressive-victims (and non-aggressive youth) in that they report greater acceptance of deviance and aggression, engage in higher levels and more diverse types of aggression, and exhibit lower levels of prosocial behavior (e.g., Camodeca, Goosens, Terwogt, & Schuengel, 2002; Marini, Dane, Bosacki, & Ylc, 2006; McDougall & Vaillancourt, 2015; Veenstra, Lindenberg, Oldehinkel, De Winter, Verhulst, & Ormel, 2005). As such, the best approach to intervening with aggressive-victims may be to focus primarily on aggression, although this premise awaits investigation. Only one study to our knowledge has evaluated a group-based cognitive behavioral intervention for aggressive-victims in middle school (Fung, 2012). Results indicated that the intervention participants demonstrated significant reductions in peer victimization (i.e., physical, verbal, relational) and internalizing symptoms at 1-year follow-up.

Further, despite the improvements in aggressive-victims' subsequent levels of peer victimization, the aforementioned school-based mentoring intervention did not yield significant reductions in their levels of aggression (Gregus et al., 2015). Interestingly, the initial evaluation of the aforementioned social skills intervention implemented by DeRosier (2004) found that treatment participants who were identified as aggressive at baseline demonstrated significant decreases in aggression over time, whereas aggressive participants in the control group exhibited worsening behavior. The intervention also led to significant improvements in peer liking, self-esteem, self-efficacy, and social anxiety at post-treatment, and these effects persisted at 1-year follow-up (with corresponding term improvements in depression; DeRosier & Marcus, 2005). As previously noted, however, the intervention did not lead to changes in participants' experiences of peer victimization (DeRosier, 2004; DeRosier & Marcus, 2005). These findings suggest that social skills training may be another option for intervening with aggressive-victims.

Case Example

Taking into account the fact that mental health problems have consistently been found to be both a cause and a consequence of peer victimization, experiences of victimization should be routinely assessed in clinical settings. The following case example[2] is intended to demonstrate how issues of peer victimization can be addressed during treatment for a variety of presenting problems using a cognitive behavioral approach.

EJ was a 13-year-old White male who was originally referred to a psychology clinic for concerns regarding his adjustment to his mother's chronic medical condition (CMC). Results from a clinical interview in addition to self- and parent-report measures indicated that EJ was experiencing clinically significant trauma-related anxiety, and it was recommended that he begin Trauma-Focused Cognitive Behavioral Therapy in order to reduce his intrusion, avoidance, and arousal/reactivity symptoms as well as his negative alterations in cognitions and mood.

During the intake appointment, EJ and his mother also reported a history of bullying that had occurred during the previous school year on a daily basis. That is, EJ had been physically attacked

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[2] Note that details from this case have been de-identified and changed to protect the identity of the patient and his family.

(e.g., pushed, grabbed), had his property (e.g., cell phone and backpack) destroyed, and been exposed to teasing and name-calling by two of his peers. His mother noted that she was afraid to send him to school and tried to have him transferred, but this was not possible because alternative transportation was not available. As a result, she instructed EJ to defend himself, and he ultimately got into a physical altercation with the two students who were bullying him. Both EJ and his mother reported that these incidents had stopped after this incident.

Unfortunately, this is a common scenario among youth experiencing peer victimization. Well-intentioned parents are understandably concerned for their children's safety and well-being and often instruct them to "fight back" against their aggressors. Yet, there is ample evidence to suggest that the association between peer victimization and aggression is reciprocal in nature (e.g., Cooley et al., 2018); children and adolescents who respond to provocation with retaliatory behavior are likely to inadvertently reinforce their aggressors and increase their risk of a more stable and severe patterns of victimization (e.g., Mahady Wilton, Craig, & Pepler, 2000).

Indeed, several weeks into treatment and the new school year, EJ endorsed getting into two physical and verbal altercations in the classroom and on the bus. Although EJ expressed that he had been provoked during each of these incidents, he had responded in ways that had escalated the conflict and gotten him into trouble at school. Accordingly, during that session, the therapist provided EJ and his mother with psychoeducation about bullying. The therapist then introduced EJ to a problem-solving approach that involved defining the problem, thinking of solutions, evaluating each solution, picking one or more solutions, and determining whether or not the chosen plan was effective. The therapist worked with EJ to apply this approach to situations involving his mother's CMC as well as to his recent incident of bullying, which arose after another student took his water bottle. Ultimately, the selected solutions to the latter situation were to (in order): (a) ask the peer to give the water bottle back, (b) remain calm and do not respond to the peer further, (c) talk to a teacher or administrator, and (d) talk to his mother after school. The therapist and EJ discussed the ineffectiveness of responding to such interactions aggressively and reviewed how he could apply this approach if similar situations should arise again in the future. Next, the therapist reviewed the previously introduced relaxation strategies EJ could use to remain calm in the moment during hostile peer interactions and identified a list of additional coping strategies he could use to feel better after such incidents (as well as when he was worried about his mother's health). Finally, in an effort to increase communication between EJ and his mother, she joined the session and he detailed the problem-solving plan. The therapist also emphasized to both EJ and his mother the importance of reporting any future experiences of bullying to school personnel so that there would be a written record of these incidents and the school would be able to respond to them in accordance with its anti-bullying policy.

At the subsequent session, EJ reported having experienced another conflict with a peer on the bus, which he had responded to by utilizing the identified problem-solving plan. Specifically, EJ had asked the peer who was taunting him to stop and then tried to remain calm and not respond when the bullying continued. As his anger rose, however, EJ decided to remove himself from the situation rather than fight the peer. This led to a discussion between the therapist and EJ about the importance of ensuring that a chosen solution is safe, as he had gotten off the bus at an earlier stop in a neighborhood that he was not familiar with. Later in that session, the therapist introduced the cognitive triangle and explained how thoughts, feelings, and behaviors are interrelated. Several hypothetical, ambiguous situations involving interactions with peers were reviewed in order to illustrate the distinctions between accurate/inaccurate and helpful/unhelpful thoughts. The usefulness of changing one's patterns of thinking by focusing on more accurate and/or helpful thoughts was reviewed in the context of several examples from the patient's personal experiences, including his mother's health complications and the incident on the bus.

At his mother's request, the therapist attended EJ's individualized education plan (IEP) meeting during the third month of treatment. With the therapist's support, EJ and his mother detailed the bullying that he had experienced in recent months to the school personnel in attendance. The school counselor was surprised, indicating that she was not aware of the extent to which that this was happening. However, she also noted that whenever a child responds to bullying with aggression, the school is forced to discipline both students. The counselor reinforced the need for EJ to report bullying, and together, they identified additional individuals whom he would feel comfortable talking with. Further, the principal reported that an investigation would be opened to address EJ's experiences of bullying in class and on the bus.

Following the IEP meeting, EJ's experiences of bullying largely subsided. Yet, during the spring semester, he was suspended again for physically fighting with a peer. Thus, during the next session, the therapist began by revisiting the previously generated problem-solving strategies to address bullying. Socratic questioning was used to explore EJ's perception of the effectiveness of his tendency to respond aggressively to bullies at school and the consequences of these actions. In addition to his school suspension, his mother had responded by grounding EJ indefinitely from playing videogames, which was one of his preferred activities. Capitalizing on his motivation to earn back this privilege, the therapist worked with EJ and his mother to develop a behavioral contract pertaining to his social interactions with peers at school; this was ultimately effective in deterring EJ from retaliating again toward his bullies. Both EJ and his mother reported that bullying was no longer an issue at the end of treatment.

Directions for Future Clinical Research

There are many avenues for future research to improve our current prevention and intervention approaches for peer victimization. First, intervention work has been primarily focused on universal, school-wide approaches (Vernberg & Biggs, 2010), with a clear need for future research to provide more information on the efficacy of targeted interventions, particularly for victimized youth. The literature does not currently provide a quantitative estimate (i.e., effect size) of the degree to which targeted intervention approaches are effective at reducing peer victimization and its associated negative outcomes among children and adolescents. Additionally, there is a need for research on interventions for aggressive-victims, who tend to have increased risk for mental health problems and exhibit stable patterns of victimization over time (e.g., McDougall & Vaillancourt, 2015). Note that the targeted interventions that have been evaluated to date warrant larger scale trials with true random assignment. Further, there is a great need for long-term follow-up to examine whether gains are maintained.

To date, the overwhelming majority of peer victimization interventions have been delivered in school settings, which introduce complications for school personnel, including competing demands for the limited time and competency concerns for those delivering the interventions. As such, there is a need to examine the efficacy and effectiveness of individual- and group-based programs in other treatment settings, including after school care programs, community mental health centers, and other outpatient clinics. An additional area that would advance our understanding of effective peer victimization interventions would be to empirically evaluate the use of combined tier approaches (Bradshaw, 2013; Domitrovich, Bradshaw, Greenberg, Embry, Poduska, & Ialongo, 2010).

Strong communication between schools, community partners, families, and mental health providers is needed for effective intervention. Unfortunately, this is often not the case. Research on how communication can be improved with all parties involved, which includes clear procedures for how to do so, would be helpful. To our knowledge, none of the extant targeted interventions for peer-victimized youth include involving caregivers. Our prediction is that this addition would further enhance the efficacy of such approaches, as good caregiver–child communication and higher levels of caregiver involvement and support are negatively related to experiences of victimization (Lereya, Samara, & Wolke, 2013).

Further, there is a need to improve our current assessment and identification procedures of peer victimization. Teachers, administrators, and caregivers are often not aware of those who are being victimized, and many times youth do not want to identify the aggressor (Vernberg & Biggs, 2010). Perhaps more clear reporting procedures that are readily shared with students may be helpful in this regard. Screening procedures for adjustment difficulties related to peer victimization involvement may also be helpful to identify those who need additional follow-up.

Finally, it is important to evaluate and understand factors that contribute to treatment effectiveness (e.g., developmental timing, form of victimization). For example, Baldry and Farrington (2004) found that their school-based intervention for 10–16 year-old youth produced decreases in victimization for older, but not younger students. In fact, the intervention was found to be potentially harmful for younger students. The authors speculated that these age-related differences could be due to a number of factors, including greater cognitive skills among older students. Additionally, the intervention may have just made younger students more aware of victimization, resulting in increased reporting. Future studies focusing on potential moderators of treatment outcomes are necessary to fully understand how to intervene.

Summary

The literature to date provides some support for the use of school-wide, universal interventions. However, there are many factors that influence the utility of these programs. More research is needed to understand the most effective components and moderators of intervention success. Targeted Interventions for aggressive behavior, including cognitive behavioral approaches and parent management training, are effective in reducing peer aggression. The effects of such programs specifically on bullying behavior, however, still warrant further evaluation. Research on effective targeted interventions for peer-victimized youth remains limited and certainly warrants further attention. Cognitive behavioral approaches appear to be promising, but larger scale randomized controlled trials that follow youth over time are needed. Additionally, there is a need for studies to evaluate effectiveness of combined universal and targeted interventions to provide a tiered approach for addressing issues of peer victimization.

Key Points

- Virtually all youth will be involved in peer victimization, either as the aggressor, victim, and/or bystander.
- There are negative outcomes associated with all those involved in peer victimization, but those who are chronically involved are at risk for the most severe outcomes.
- Though most common at school, peer victimization can occur anywhere. Partnerships are needed between the home, school, and community to intervene effectively.
- The majority of intervention work has focused on universal, school-based programs, which have demonstrated modest success. More work is needed to develop effective targeted prevention and intervention programs.

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Recommended Resources

Websites

CDC's site: https://www.cdc.gov/violenceprevention/youthviolence/bullyingresearch/.
Government site: www.stopbullying.gov.

Books

Bradshaw, C. P. (2017). Handbook on bullying prevention: A life course perspective. Washington, D.C.: NASW Press.

Coyne, S. M., & Ostrov, J. M. (2018). The development of relational aggression. New York, NY: Oxford University Press.

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Physical Health-Related Disorders

Evidence-Based Interventions for Sleep Problems and Disorders

Sarah Morsbach Honaker
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Abstract

Insomnia is a sleep disorder characterized by difficulty falling asleep, staying asleep, or both. Insomnia presents variably in children and adolescents, both in terms of symptoms and contributory factors. This chapter describes the prevalence, incidence, and identification through assessment, clinical interviews, sleep logs, ratings scales, and objective measures. Identifying applicable contributory factors for a specific child is a critical conceptual approach in treatment planning. Effective interventions for insomnia operate on principles of behaviorism, cognitive theory, and sleep physiology. Treatment may involve establishing contingencies around parental attention such that a child receives positive reinforcement for a desired behavior (e.g., cooperating with a bedtime routine; staying in bed quietly) and minimal attention for behaviors that may inhibit sleep (e.g., getting out of bed after bedtime). Strategies to promote behavioral change, such as self-monitoring, behavioral contingencies, and identifying replacement behaviors, can be applied to promote more adaptive sleep habits. Treatment efficacy studies have focused on interventions for bedtime problems and night wakings in young children, supporting extinction-based treatment approaches. The authors describe a menu of behavioral sleep treatment components. Treatment approaches for pediatric insomnia are often brief and effective, with resolution of symptoms in just a few sessions.

Insomnia is a sleep disorder characterized by difficulty falling asleep, staying asleep, or both. In the Diagnostic and Statistical Manual—Fifth Edition (DSM-V; American Psychiatric Association, 2013), a diagnosis of insomnia requires the presence of one or more of the following three symptoms: (1) difficulty initiating sleep; (2) difficulty maintaining sleep; or (3) experiencing non-restorative sleep. While not part of the diagnostic criteria per se, many clinicians and researchers use 30 minutes as a cut-off for defining difficulty initiating and maintaining sleep; that is, taking longer than 30 minutes to fall asleep and/or wakefulness lasting more than 30 minutes in the middle of the sleep period. Non-restorative sleep is a subjective complaint that is based on patient perception. In the

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DSM-V, insomnia is differentiated into chronic (duration of three months or longer) or acute (duration of less than three months). As with other disorders, diagnostic criteria include impairment in functioning and require that the disorder does not solely occur in the course of another condition.

The International Classification of Sleep Disorders, Third Edition (ICSD-3; American Academy of Sleep Medicine, 2014) similarly describes difficulty with sleep onset and maintenance as symptoms of insomnia, but does not include non-restorative sleep in the criteria. Three additional symptoms include (1) waking up earlier than desired; (2) resistance going to bed on an appropriate schedule; and (3) difficulty sleeping without parent or caregiver intervention. With this last symptom, an infant as young as 6 months presenting with a problematic sleep association can meet criteria for insomnia. For the purposes of this chapter, however, we will focus on insomnia in children between the ages of 3 and 18 years, as infants and toddlers are treated less frequently by general behavioral health providers.

Normal Sleep and Sleep Physiology

An understanding of normative sleep patterns and sleep physiology is important for the diagnosis, conceptualization, and treatment of insomnia. Recommended ranges for sleep duration (including naps) are 10–13 hours for preschoolers (3–5 years), 9–12 hours for school-aged children (6–12 years), and 8–10 hours for adolescents (13–18 years; Paruthi et al., 2016). Sleep is comprised of two types of sleep stages: (1) Rapid Eye Movement (REM) sleep; and (2) non-REM sleep. Non-REM sleep is further divided into three stages that range from light sleep (Stage 1) to deep sleep (Stage 3). Over the course of approximately 60–90 minutes, individuals typically progress through Stages 1–3, followed by REM sleep and then an awakening before starting another sleep cycle. While most individuals return to sleep quickly after these “normal” awakenings, children with sleep maintenance difficulties may struggle to return to sleep quickly (Mindell & Owens, 2015).

There are two major processes that drive sleep and wakefulness, homeostatic sleep pressure (Process S) and the circadian rhythm (Process C). Homeostatic sleep pressure, sometimes called sleep drive, refers to an individual’s propensity to fall asleep (Borbély, 1982). When an individual has slept enough the night before, the sleep drive is low in the morning and increases throughout the day.

The circadian rhythm is also known as the internal clock that regulates sleepiness and wakefulness on a daily rhythm. Most individuals have an intrinsic circadian rhythm that is longer than 24 hours (Czeisler & Gooley, 2007). Properly timed zeitgebers, or circadian cues, are critical for maintaining a 24-hour rhythm, including meals and scheduled activity. However, the strongest cue for the circadian rhythm is the light/dark cycle, as darkness signals the brain to produce melatonin, an endogenous hormone that facilitates sleep. Thus, ill-timed bright light exposure (e.g., excessive technology use prior to sleep onset) can interfere with the sleep/wake cycle (Duffy, Kronauer, & Czeisler, 1996). Together the circadian and homeostatic systems interact to promote wakefulness during the day and sleep throughout the night (Borbély, 1982). In addition to individual differences in circadian rhythms, there are developmental changes to Process C. Most notably, during puberty the timing of melatonin onset is delayed 1–2 hours for most adolescents, making it difficult to fall asleep early (Carskadon, 2011).

Prevalence, Disparities, and Consequences

Insomnia prevalence rates vary by age, with the highest rates in young children. An estimated 20–30% of young children have bedtime problems or night wakings (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). Studies have estimated lower rates in school-aged children (19%; Calhoun, Fernandez-Mendoza, Vgontzas, Liao, & Bixler, 2014) and in adolescents (10%; Johnson, Roth, Schultz, & Breslau, 2006). Children with psychiatric comorbidities and/or chronic medical conditions are at an increased risk for insomnia; one study found that most children presenting for psychiatric treatment reported insomnia symptoms (Ivanenko, Crabtree, Obrien, & Gozal, 2006) and sleep problems are common in youths with many types of chronic medical conditions (Honaker, Meltzer, & Mindell, 2017). Insomnia is particularly prevalent in children with Autism Spectrum Disorder, with rates ranging from 40% to as high as 80% (Cortesi, Giannotti, Ivanenko, & Johnson, 2010). Racial/ethnic and socioeconomic disparities in pediatric insomnia are poorly understood; only a few studies have examined these disparities, with mixed findings (e.g., Milan, Snow, & Belay, 2007; Mindell, Sadeh, Kohyama, & How, 2010).

Assessment

Clinical Interview

A variety of subjective and objective measures can be used to assess symptoms of insomnia. A clinical interview is often sufficient to determine whether or not a child meets diagnostic criteria. In addition to a more global developmental, medical, and behavioral history, sleep-specific components to assess include: (1) symptom frequency, onset, and severity; (2) contributory factors; (3) typical sleep patterns; (4) sleep environment; (5) daytime alertness; and (6) family history of sleep disorders.

It is also important to rule out medical sleep disorders, such as Restless Legs Syndrome (RLS) and Obstructive Sleep Apnea (OSA) as part of a sleep-specific assessment. RLS is characterized by leg discomfort or the urge to move one's legs that is worse at night (American Academy of Sleep Medicine, 2014). Children with RLS often exhibit restless movement prior to sleep onset that results in difficulty settling to sleep or a prolonged sleep onset latency, and often also have restless movement during sleep. OSA, a sleep-related breathing disorder, is characterized by full or partial obstruction of the airway during sleep. Children with OSA often snore or have noisy breathing during sleep, and may present with daytime symptoms similar to those seen in children with insufficient sleep (Mindell & Owens, 2015). Children with symptoms of OSA or RLS should be referred to a medical provider for further evaluation.

Finally, while most adolescents experience a developmentally driven circadian delay (Carskadon, 2011), some will develop Delayed Sleep-Wake Phase Disorder (DSWPD; Meltzer and Crabtree 2015). In this circadian rhythm disorder, individuals often present with difficulty initiating sleep at an "appropriate" bedtime due to a delay in their circadian rhythm and/or daytime sleepiness. However, unlike in insomnia, an adolescent with DSWPD will no longer have difficulty initiating sleep or daytime sleepiness when allowed to sleep on a preferred delayed schedule (e.g., 3:00 am to noon), such as on weekends or over the summer.

Sleep Logs

Sleep logs, in which a child or caregiver prospectively tracks the child's daily sleep patterns over an extended period, provide valuable data for both diagnosis and treatment progress, with mean values calculated for a variety of sleep indices (Sadeh, 2008). Indices particularly relevant for an insomnia diagnosis include sleep onset latency (i.e., amount of time between bedtime and sleep onset), wake after sleep onset (i.e., amount of time awake for all night wakings combined), total sleep duration, and sleep efficiency (i.e., total time asleep divided by total time in bed). Sleep logs can also provide clinically helpful data on night-to-night variability and variability between weekday and weekend sleep, especially in terms of bedtimes and wake times.

Rating Scales

Though a clinical interview is often sufficient, especially in combination with sleep log data, rating scales assessing insomnia symptoms may be useful to provide a quick screen for insomnia and/or to monitor the impact of treatment (Meltzer, 2020). Validated measures that assess insomnia in children include: (1) the Children's Sleep Habits Questionnaire (Owens, Spirito, & McGuinn, 2000), a parent-reported measure for children 4–12 years, with several subscales pertaining to insomnia symptoms; (2) the Pediatric Insomnia Severity Index (Byars, Simon, Peugh, & Beebe, 2017), a six-item measure used to screen for insomnia symptoms or to monitor treatment outcomes over time; (3) the Children's Report of Sleep Patterns (CRSP; Meltzer et al., 2013, 2014), a self-report measure for school-aged children and adolescents that assesses sleep patterns, sleep hygiene, and sleep disturbance, including a six-item insomnia scale; and (4) the Dysfunctional Beliefs and Attitudes about Sleep measure, which is useful to identify children who endorse stressful cognitions around sleep (DBAS; Morin, Vallieres, & Ivers, 2007).

Objective Measures

Commonly used objective measures of sleep include polysomnography (i.e., overnight sleep study) and actigraphy (i.e., a wrist-watch sized device that estimates sleep-wake patterns through movement for 1–2 weeks). It is important to note that polysomnography is not indicated for diagnosis of insomnia (Aurora et al., 2012), and has little clinical utility for assessment of insomnia symptoms or monitoring of treatment outcomes. Actigraphy, on the other hand, can be a helpful tool to assess sleep patterns more broadly in the home setting, yet in older children and adolescents, motionless wakefulness (lying still for prolonged periods while awake) may overestimate sleep duration (Meltzer, 2018). While multiple commercial devices (e.g., Fitbit) also claim to estimate sleep via accelerometry, to date there is limited scientific support for their validity (De Zambotti et al., 2016).

Treatment Conceptualization

Effective interventions for insomnia operate on principles of behaviorism, cognitive theory, and sleep physiology. Operant conditioning can play a powerful role in the development, maintenance, and treatment of insomnia. Treatment may involve establishing contingencies around parental attention such that a child receives positive reinforcement for a desired behavior (e.g., cooperating with a bedtime routine; staying in bed quietly) and minimal attention for behaviors that may inhibit sleep (e.g., getting out of bed after bedtime). In addition to parental attention, some treatment approaches involve tangible rewards. Further, strategies to promote behavioral change more broadly, such as self-monitoring, behavioral contingencies, and identifying replacement behaviors, can be applied to promote more adaptive sleep habits.

Conditioned arousal, as seen in psychophysiological insomnia, likely operates through classical conditioning. For those who have a history of difficulty falling or staying asleep, the bed can become associated with an arousal rather than a relaxation response. Treatment approaches such as relaxation training and stimulus control therapy are hypothesized to improve insomnia by reducing conditioned arousal.

Cognitive theory is based on the premise that our feelings are determined to a large extent by our thoughts and interpretations. When children or adolescents have had a difficult time sleeping, they may develop maladaptive cognitions around sleep that increase arousal, negative emotions, and anxiety. Cognitive restructuring techniques can be used to reduce the strength of maladaptive cognitions and thus reduce anxiety or racing thoughts around sleep.

Finally, a number of treatment approaches are informed by sleep physiology, targeting both the homeostatic and circadian sleep systems. Strategic sleep scheduling can be employed to maximize sleep pressure (e.g., sleep restriction therapy), increasing the likelihood that an individual will fall asleep quickly and maintain sleep. Similarly, setting a bedtime that complements an individual's natural circadian rhythm (e.g., faded bedtime) and then moving it earlier can prevent prolonged sleep onset latency.

Treatment Approaches

Cognitive-Behavioral Therapy for Insomnia

Cognitive-Behavioral Therapy for Insomnia (CBT-I) is a common multi-component treatment for pediatric insomnia in school-aged children and adolescents. CBT-I is highly efficacious in adults, with more than one hundred studies supporting its efficacy across delivery formats, settings, and diverse samples with a variety of comorbid medical and psychiatric disorders (Morgenthaler et al., 2006). In fact, CBT-I has been recommended as the primary treatment for adults insomnia, having shown better long-term outcomes compared to pharmacotherapy (Qaseem et al., 2016).

CBT-I typically includes some combination of five treatment components: sleep hygiene; sleep restriction therapy, stimulus control therapy, relaxation training, and cognitive therapy. In adults, stimulus control, relaxation, and cognitive therapy have the strongest evidence supporting their efficacy, with moderate support for sleep restriction therapy (Morgenthaler et al., 2006). Sleep hygiene recommendations, while likely helpful in preventing insomnia, are not sufficient as an independent treatment for insomnia (Morgenthaler et al., 2006). Thus, while it is important to address problematic sleep hygiene, as a stand-alone treatment it is an insufficient approach. In pediatric populations, the evidence-base for individual components of CBT-I is lacking, as most studies have examined multiple CBT-I components in combination (Mindell et al., 2006; Meltzer & Mindell, 2014).

Sleep hygiene. Sleep hygiene, or healthy sleep habits, are important to promote sleep and decrease behaviors that could be contributing to insomnia symptoms. Typical recommendations for adults and children include minimizing or avoiding caffeine intake in the afternoon and evening, keeping consistent bedtimes and waketimes (<1 hour day-to-day variability), avoiding electronic screens for one hour before bed, having a sleep environment that is cool, dark, and technology free, limiting vigorous exercise close to bedtime, and implementing a consistent and relaxing bedtime routine. Allen and colleagues (2016) conducted a review of the evidence supporting these recommendations for preschool and school-aged children, and found strong support for only a few, specifically maintaining a consistent sleep schedule, establishing bedtime routines, and limiting electronic access during and after bedtime (Allen, Howlett, Coulombe, & Corkum, 2016).

Sleep restriction therapy. In Sleep Restriction Therapy (SRT), an individual's sleep opportunity or time in bed is restricted to approximate their average sleep duration, with the goal of minimizing time awake in bed (Miller et al., 2014; Morgenthaler et al., 2006). For example, a school-aged child may have an average sleep duration of 9 hours (assessed ideally via 1–2 weeks of sleep diary) but spend 11 hours in bed due to difficulty falling asleep and time awake during the night. In SRT this child would be given a 9.5 hour sleep window (average sleep duration plus 30 minutes), reducing time in bed by 1.5 hours by going to bed later, waking earlier, or some combination of the two. After a specific amount of time tracking sleep, the sleep efficiency (sleep duration divided by time in bed) would be recalculated, and if 85 % or higher the sleep window would be titrated accordingly. The proposed mechanisms for SRT are increased sleep pressure upon getting into bed (due to a later bedtime and/or earlier wake time) and reduction of conditioned arousal (due to reduced time awake in bed). A variant of SRT is bedtime fading, a strategy used with younger children with a prolonged sleep onset latency. In bedtime fading, the wake time is maintained and the bedtime is temporarily moved later to more closely approximate the child's typical sleep onset time, then faded earlier by approximately 15 minutes every 5–7 nights (Piazza & Fisher, 1991).

Stimulus control therapy. Stimulus Control Therapy (SCT) for insomnia is used to strengthen the association between bed and sleep (Bootzin & Perlis, 2011). Thus, the recommendations for SCT are to: (1) use the bed only for sleep, avoiding time awake in bed during the day; (2) sleep only in bed (not on the couch, in a different room, etc.); and (3) leave bed and engage in a non-stimulating activity if having difficulty falling asleep, returning to bed only when feeling sleepy (Bootzin, Epstein, & Wood, 1991). As adolescents tend to spend a significant amount of time on their beds doing schoolwork or using technology, it is important to identify an alternative area where they can spend time. The recommendation to leave bed if unable to sleep can be used with more mature children and adolescents who have the judgment and self-control to identify when to leave and return to bed. Identifying a specific activity (e.g., reading a book, journaling, drawing) prior to implementation is also recommended. As previously described, spending less time in bed will improve sleep efficiency and strengthen the connection between bed and sleep, resulting in reduced conditioned arousal.

Relaxation training. Relaxation training as a component of CBT-I is very similar to relaxation training implemented to treat other disorders or to manage daily stressors. Approaches may involve any combination of deep breathing, visual imagery, progressive muscle relaxation, mindfulness, autogenic training, and biofeedback. Skills should be initially practiced during the day, when stress is presumably lower, prior to implementation at bedtime and after night wakings. Relaxation is presumed to treat insomnia symptoms by reducing conditioned arousal and promoting a more relaxed cognitive and somatic state that is conducive to sleep (Means, Lichstein, Epperson, & Johnson, 2000). Mindfulness has been shown to be an effective treatment component for insomnia in adults (Ong et al., 2014) and in adolescents (Bei et al., 2013; Blake et al., 2016).

Cognitive therapy. Finally, cognitive therapy is often included in CBT-I protocols. For some children, sleep-related cognitions can increase stress and arousal at bedtime and after night wakings (Hiller, Lovato, Gradisar, Oliver, & Slater, 2014). These cognitions often focus on the "need" for a certain number of hours of sleep and associated consequences if that need is not met. Other cognitions may involve a perception that insomnia is intrinsic and outside of the individual's control. A questionnaire about sleep cognitions (e.g., DBAS; Morin et al., 2007) may be helpful in evaluating the need for cognitive therapy in a given individual. Treatment involves cognitive restructuring to reduce the strength of problematic cognitions. For example, patients may learn that daytime fatigue is not driven solely by sleep duration the previous night, but can be influenced or mitigated by behaviors such as light exposure, stimulation, or exercise. Relatedly, an individual may be asked to recall several days following insufficient sleep in which their functioning was adequate, though perhaps not ideal. Cognitive "experiments" can be conducted to reinforce these more adaptive beliefs (Harvey, Tang, & Browning, 2005).

Interventions for Bedtime Problems and Night Wakings

While CBT-I is highly efficacious, it does not directly address bedtime problems and night wakings, common symptoms of insomnia in younger children. Given variability in presenting symptoms and contributory factors, tailoring a treatment approach to a specific child is typically required. Clinicians

Table 1 Contributory factors and treatment options for pediatric insomnia

Contributory factor	Description	Potential treatments options
Worries/racing thoughts	May include specific worries, generalized anxiety, racing thoughts, or sleep-specific worries (i.e., "I'll never fall asleep)	Relaxation
Conditioned arousal	Weakened association between bed and sleep. May present as feeling tired in the evening and but feeling more wakeful upon getting into bed	Relaxation Stimulus Control Therapy Sleep Restriction Therapy Cognitive Therapy
Fears	Nighttime fears can lead to arousal in bed and/or behaviors such as getting out of bed	Exposure strategies Cognitive Therapy
Bedtime resistance/limit-setting difficulties	In addition to bedtime protests, stalling and curtain calls, a related concern is getting out of bed during the night and engaging in other activities	Behavioral contingencies Bedtime pass program Parental limit-setting Consistent bedtime routines
Low sleep drive	Sleep pressure accumulates more slowly in some children, decreasing the likelihood that they will fall asleep easily at bedtime	Sleep scheduling
Separation anxiety/sleep association	Children may feel afraid or anxious sleeping without an adult nearby, which can result in a sleep association	Gradual weaning protocol Excuse me drill
Problematic sleep habits	Habits that may inhibit healthy sleep. Examples include electronic screens before and after bedtime; inconsistent sleep schedules, and evening caffeine intake	Motivational interviewing Self-monitoring Behavioral Contingencies Replacement behaviors

may find it helpful to identify contributory factors in collaboration with the family when conceptualizing the child's insomnia (Table 1). A treatment plan can then be designed that addresses the contributory factors and specific insomnia symptoms, with consideration for the family's goals, , and preferences. The pace of treatment can also be individualized, as families vary in their capacity and motivation to implement changes.

One helpful approach may be to consider what a specific child needs to be successful in falling asleep quickly at bedtime, without significant stress or resistance. Children who present with bedtime problems frequently have inconsistent bedtime routines and sleep schedules, making it more difficult to transition to bed and easily fall asleep (Mindell, Meltzer, Carskadon, & Chervin, 2009). Thus starting with a consistent bedtime and bedtime routine first is an important initial treatment goal.

Bedtime routine. A bedtime routine, or a set of activities leading up to bedtime, is recommended starting in infancy and extending throughout the lifespan. Bedtime routines are thought to promote better sleep by serving as a circadian cue and, assuming the activities are non-stimulating, promoting a relaxed state. In children, a strategic bedtime routine can also promote positive parent-child interactions and reduce conflict around bedtime. Bedtime routines have proven efficacy as an independent intervention for children three and younger (Mindell et al., 2009). For school-aged children and adolescents, implementing a consistent bedtime routine has not been evaluated independently, though is often included in multi-component interventions. Specific recommendations typically include selecting a series of calming activities that occur in the same order each night. It is also often helpful to start the routine with a preferred activity, strategically order activities to move toward the bedroom, and end with a preferred activity in the child's bed, which can help with the transition into bed. Including language-based activities in the routine (e.g., reading) has been longitudinally associated with better sleep and cognitive outcomes in preschoolers (Hale et al., 2011). For young children as well as those with special needs, it may be helpful to use a visual bedtime schedule with picture illustrating each step of the routine (for more information see Autism Treatment Network, 2014).

Bedtime pass program. The *Bedtime Pass Program* is an intervention for "curtain calls," or repeated bids for parental attention after bedtime (Moore et al., 2007). When a child engages in curtain calls, often a problematic contingency develops in which a child receives attention (positive or negative) for calling out or getting out of bed after bedtime. Engaging in curtain calls tends to be activating and inhibit sleep, particularly if curtain calls lead to negative parent–child interactions. The program was designed to promote a quick sleep onset by reducing the number of curtain calls. In this program, a child is given a certain number of passes (usually between 1 and 3 cards or tokens) to exchange for permissible departures from bed or parent–child interaction after bedtime. If a child leaves bed or calls for a parent using a pass, the interaction is brief but positive and the pass is removed. If all the passes are used, requests are no longer granted and parents are asked to respond in a firm but neutral manner. Passes that the child does not use can be traded for a reward the following morning. Mechanisms include reducing activation, reinforcing adaptive bedtime behavior, and providing a structure around parent–child interaction after bedtime. The *Bedtime Pass Program* may also provide children with a sense of efficacy and control, as they have the option of either using or keeping their passes. This intervention has been shown to significantly reduce the amount of crying, the frequency of leaving the bedroom, and the time required to settle to sleep at bedtime (Freeman, 2006; Moore et al., 2007).

Excuse Me Drill. In this strategy, evaluated in children between the ages of 2 and 6 years, parents gradually increase the amount of time the child spends alone in their bedroom by periodically "excusing themselves" from the child's room while settling to sleep (Kuhn, 2011). For example, a parent might excuse herself to check on a sibling or get a drink of water, then return and praise the child for remaining quietly in bed. The duration of excused absences should increase over time, with the long-term goal of the child falling asleep before the parent returns. Even if the child does not fall asleep during a parental absence, this exercise offers a child exposure to being alone in their bed in a non-threatening manner. Kuhn and colleagues piloted this approach in a small sample and reported positive outcomes in reduced bedtime resistance and improved sleep onset latency (Kuhn, 2011).

Graduated exposure games to reduce children's fear of the dark. Several studies have supported the efficacy of graduated exposure games to reduce fear of the dark (Lewis et al., 2015; Mikulas & Coffman, 1989; Santacruz, Méndez, & Sánchez-Meca, 2006), a common contributor to pediatric insomnia in preschoolers and school-aged children. Developed for children between the ages of 4 and 10 years, this intervention uses exposure therapy to reduce fear through games played by children and their parents at home. A progression of games involves increasing exposure to dark environments. As an example, an early game is the *Blindfold game*, in which a child tries to locate large pieces of furniture while wearing a blindfold. In the more advanced *Find-the-noisy-box*-game, a child lays quietly in bed while a parent shakes a box in a dark house. The child must follow the noise and find the noisy box.

Gradual wean of parental presence. This strategy has empirical support in infants and toddlers (Mindell et al., 2006); however, we are not aware of any studies evaluating its impact in preschoolers and school-aged children. Gradually weaning parental presence, a strategy in which parents reduce the amount of contact and proximity to the child at bedtime over time, is used to promote independent sleep. The process of weaning involves creating a hierarchy of contact and proximity between the parent and the child, and progressing through the hierarchy, typically at a rate of one step per several days. For example, a parent may start sitting on a chair next to the child's bed and holding their hand, then progress to sitting on the chair but without touch, followed by moving the chair a few feet away from the bed. Eventually, the parent progresses to being outside of the room and checking on the child first frequently and then less often.

Positive reinforcement/rewards. Reward systems are included in many multi-component treatment approaches that target school-aged children. These systems can be used to encourage any number of adaptive sleep behaviors, such as cooperating with the bedtime routine, staying in bed after bedtime and throughout the night, or cooperating with another bedtime program (e.g., gradual wean; bedtime pass). One challenge when using rewards for sleep behaviors, however, is that there is often a significant delay between the target behavior (e.g., bedtime) and the reward (e.g., morning), making the contingency less powerful. To counteract this, a token economy can often be quite effective, with the child earning a token or marble in the jar for a desired behavior (e.g., staying in bed) and losing a token for an undesired behavior (e.g., getting out of bed or calling out to parent). A child's developmental capacity to delay gratification is a consideration when using reward systems. Another challenge is that reward programs in isolation may not address contributory factors to the insomnia such as fears or anxiety. Nonetheless, some children will have the necessary motivation and self-regulation skills to employ more adaptive sleep behaviors. A fun variation on reward systems involves the "Sleep Fairy," who can leave a reward for a child who adheres to a required sleep behavior (Burke, Kuhn, & Peterson, 2004).

Parental limit-setting. Finally, general limit-setting strategies, included in most parent management training curricula (e.g., Reid, Webster-Stratton, & Baydar, 2004; Sanders, 1999) can be employed to encourage adaptive bedtime behaviors in children. These include appropriate use of commands, differential attention, forced choices, and consistent responses to behaviors. An important approach is to set up contingencies in which children receive attention for positive behaviors, such as lying quietly in bed, and limited attention for negative behaviors. One such contingency that can be used at bedtime is proactive parental checks. In this approach, parents are asked to check proactively on a child who is lying quietly in bed, to provide reinforcement for this desired behavior, and to enforce the child remaining in bed. Checks should be brief and non-stimulating, and may consist simply of a gesture such as a "thumbs up." A limit-setting strategy for night wakings involves developing a system (i.e., door alarm, baby monitor) whereby a parent is alerted immediately when a child leaves their room or comes to the parental bed at night. Parents need to quickly and consistently return the child to her own bed to prevent positive reinforcement for getting out of bed (i.e., play time), as well as limiting activating and wake-promoting behaviors such as screen time.

Treatment Efficacy

Most studies on treatment efficacy for insomnia have focused on interventions for bedtime problems and night wakings in young children, supporting the efficacy of extinction-based treatment approaches (Meltzer & Mindell, 2014; Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). A systematic review of behavioral sleep interventions in young children reported moderate effect sizes, ranging from 0.26 (Standard Mean Difference [SMD] or Cohen's *d*) for night waking frequency to 0.40 for night waking duration, with moderate evidence quality using the GRADE criteria (Meltzer & Mindell, 2014). While effect sizes were larger for children and adolescents (ranging from 0.33 to 2.24), the number and rigor of available studies suggested very low evidence quality. However, over the past five years, there has been an increase in publications supporting the efficacy of behavioral sleep approaches for insomnia in school-aged children and adolescents. Further, many studies have examined behavioral sleep intervention in special pediatric populations, including cancer survivors (Zhou et al., 2016), adolescents with pain (Palermo et al, 2016), adolescents with depression (Clarke et al., 2015), and children with autism spectrum disorder (Cortesi, Giannotti, Sebastiani, Panunzi, & Valente, 2012; Loring, Johnston, Gray, Goldman, & Malow, 2016; Malow et al., 2014; Papadopoulos et al., 2019), Angelman Syndrome (Allen, Kuhn, DeHaai, & Wallace, 2013), and ADHD (Corkum et al., 2016; Keshavarzi et al., 2014; Papadopoulos et al., 2019).

Case Example

The following hypothetical case example describes conceptualization and treatment plans for a typically presenting case.

Description. Andrew is a nine-year-old male with difficulty sleeping independently and nighttime fears. When his mother puts him to bed in his room, he comes out frequently saying he is scared. If still awake one hour after his bedtime, which occurs most days despite the fact that he appears very tired at bedtime, his mother will sit on a chair next to his bed until he falls asleep. When he wakes during the night, he will come to his mother's bed and attempt to return to sleep there. If she notices him at that time she will generally return him to his bed, however, there are occasional nights when she is too tired to return him to bed or does not notice he has come into her bed. If allowed to share a bed with an adult, as on family vacations, he falls asleep quickly and maintains sleep throughout the night. Andrew does not struggle with independence around the house during the day but does not like being in a room alone once it is dark outside. Andrew wants to attend an overnight sports camp as he loves playing baseball and is increasingly invited to spend the night with a friend. However, he does not feel able to attend camp or overnights due to his fear of the dark and difficulty sleeping independently.

Conceptualization. Andrew appears to meet criteria for pediatric insomnia as his sleep onset latency is prolonged (more than one hour) in the absence of parental presence, though he falls asleep easily with a parent (sleep-onset association). His fear of the dark seems highly contributory and is present at other times. When Andrew wakes during the night after what are most likely normal awakenings between sleep cycles, he becomes aware that he is alone in the dark. As a result, he seeks his mother's presence to return to sleep. While she often will return him to his own bed, on occasion he is allowed to remain in her bed, a powerful intermittent reinforcer. While bedsharing would not be contraindicated, his parents would prefer that he sleep independently in his own room. Further, Andrew's fears and sleep association prevent him from engaging in desired age-appropriate social activities. Thus, the treatment goals are to promote independent sleep (without a prolonged sleep onset latency) and to reduce nighttime fears.

Treatment. The behavioral health provider describes treatment options and sequences with Andrew and his mother. Given that the sleep difficulty has been long-standing and there are still several months until summer camp registration, a two-part approach is selected.

1. ***Gradual Exposure Games to Reduce Fear of the Dark***. To reduce nighttime fears that interfere with independent sleep onset, Andrew and his mother are provided with a handout listing a hierarchy of games. Andrew elects to start with a game that he feels will be mildly challenging but manageable. Andrew and his mother agree on a frequency (daily) and time of day (after dinner) for practicing the games, and are given a form to track daily practice and to rate the difficulty of each practice session. At a subsequent visit one month later, Andrew's fears of the dark are noticeably reduced, and he is able to play all but the most challenging games without difficulty. As a result, a strategy to wean parental presence is implemented.

2. ***Gradual Wean of Parental Presence***. A gradual protocol is introduced to gradually expose Andrew to falling asleep without an adult present. Andrew and his mother report that he would be able to comfortably fall asleep if he could see his mother. Thus, the initial step will be for his mother to sit on a chair in the doorway of his bedroom. So that Andrew does not worry his mother will leave while he is still awake, they establish a plan whereby his mother will come to his bed and pat him to ensure that he is actually asleep before leaving. After three consecutive successful nights in which Andrew falls asleep within thirty minutes of his bedtime, they will progress to the next step on the list, specifically sitting in the hallway in his view, sitting in the hallway outside of his view, and proactive checks that will gradually reduce in frequency.

Future Directions

While a recent increase of studies on pediatric insomnia treatment is encouraging, the state of the science lags noticeably behind that of adult insomnia. Development and dissemination of evidence-based treatments for pediatric insomnia should remain a research priority, and additional research is needed across all pediatric age groups. Despite a paucity of studies, many of the treatments described above are appropriate for preschool and younger school-aged children (Meltzer and McLaughlin Crabtree, 2015), such as the bedtime pass program, sleep fairy program, gradual wean protocol, excuse me drill, exposure games for fears and others.

Developing and evaluating multi-component treatments for pediatric insomnia is particularly challenging given that insomnia presentation and contributory factors can be highly variable between individuals. This speaks to the need for treatment programs that are flexible and adaptive, offering needed treatment components and omitting unneeded treatment components. For example, an adolescent who does not endorse maladaptive cognitions around sleep would not require cognitive therapy as part of their treatment. This tailoring process is regularly applied clinically, as described in the case examples above, and could be applied in a research protocol using factorial designs such as Sequential Multiple Assignment Randomized Trials (SMART; Collins, Nahum-Shani, & Almirall, 2014). Electronic delivery platforms for pediatric insomnia treatment (e.g., Corkum et al., 2018) can also facilitate adaptive treatment designs in which participants are automatically assigned to relevant treatment components following assessment.

Little attention has been paid to racial/ethnic and cultural differences in pediatric insomnia. Indeed, a review of diversity of participants in behavioral sleep intervention studies for infants and toddlers found very low representation of children from ethnic or racial minority groups, and/or with fewer economic resources (Schwichtenberg, Abel, Keys, & Honaker, 2019); a similar review of treatment studies for older children have not been conducted. It will be important to evaluate whether treatments are differentially acceptable or efficacious for diverse groups and across developmental levels, and to adapt insomnia treatment for specific populations where needed.

Finally, as the evidence-base for pediatric insomnia continues to grow, there will be an emerging need to develop and evaluate dissemination strategies. Approaches such as automated screening and computer decision support in primary care and other medical settings, eHealth delivery, and community-based preventive strategies have been successfully applied to other disorders, and could be evaluated in pediatric insomnia.

Summary

Insomnia presents variably in children and adolescents, both in terms of symptoms and contributory factors. As symptoms are patient-reported (or parent-reported in the case of young children), a clinical interview is often sufficient to conceptualize and diagnose insomnia. Other helpful assessment tools include the sleep diary, a variety of rating scales, and actigraphy. Identifying applicable contributory factors for a specific child is a critical conceptual approach in treatment planning.

A menu of behavioral sleep treatment components are available, however, selecting a combination of components for a specific child can be challenging. Multiple factors should be considered, including, but not limited to, the presenting insomnia symptom(s), the developmental maturity of the child, causes or contributors to the insomnia symptoms, and family goals. Treatment approaches for pediatric insomnia are often brief and effective, with resolution of symptoms in just a few sessions (Byars & Simon, 2014). However, the treatment of evidence-base is still emerging. There is a need for additional research on pediatric insomnia treatments more broadly, including diverse populations. Given growing recognition of the importance of sleep, as well as an increase of pediatric insomnia treatment studies in the past several years, we are optimistic for the future of pediatric insomnia treatment research.

Key Points

- A variety of factors can contribute to the development and maintenance of pediatric insomnia in a given child or adolescent, and treatment components should be selected to address these factors.
- Most treatment approaches for pediatric insomnia are based on knowledge of sleep physiology, behavior theory, and cognitive theory.
- Behavioral sleep interventions in young children yield moderate effect sizes for night waking frequency and night waking duration.
- Effect sizes for behavioral interventions are larger for children and adolescents, but are based on fewer studies.
- There are a limited number of published studies that have demonstrated the benefits of treatments for insomnia in older children, adolescents, and special populations; thus the development and evaluation of treatments for pediatric insomnia should remain a research priority.

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Acute and Chronic Pain Management in Children

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Abstract

Pediatric acute and chronic pain are significant issues with short- and long-term consequences across a range of domains (e.g., family, social, academic, physical) with a complex interplay of physiological, psychological, and social factors. The authors describe how treatment for pain is especially critical given mounting evidence that even brief routine acute pain can have a range of immediate and lasting repercussions. Given poor or mixed results from pharmaceutical approaches and mounting concerns of opioid addiction, the chapter surveys the field of behavioral pain management approaches. Evidence-based psychological interventions are reviewed aimed at minimizing or eliminating children's acute pain, and improving children's functioning in the context of chronic pain. Preparation, distraction, relaxation, hypnosis, and physical approaches are typical treatments for managing children's acute pain. The most common therapeutic approaches in the pediatric chronic pain literature are individual components or packages grounded in cognitive behavioral or acceptance and commitment therapy frameworks. An evidence-based practice perspective highlights the importance of clinician expertise in applying the available empirical findings to the unique context of the patient (e.g., coping, developmental level), setting, and situation.

Pain is a frequent and consistent aspect of childhood and might be experienced on the playground through injuries; at home through accidents; and in medical facilities as part of routine, emergent, or illness-related care. Pain is defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage" with a complex interplay of physiological, psychological, and social factors (International Associate for the Study of Pain [IASP] Subcommittee on Taxonomy, 1979, p. 250). Treatment for pain is especially critical given mounting evidence that acute pain can have a range of short- and long-term repercussions (e.g., Kennedy, Luhmann, & Zempsky, 2008); and chronic pain can affect nearly every domain of functioning (e.g., Palermo, 2000). These data have fueled arguments that pain assessment should be the "fifth vital sign" (American Pain Society Quality

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_17

of Care Committee, 1995) and that pain relief is a “human right” (Brennan, Carr, & Cousins, 2007). Given poor or mixed results from pharmaceutical approaches (e.g., Zhu, Benzon, & Anderson, 2017) and mounting concerns of opioid addiction (e.g., Baker, 2017), behavioral pain management approaches are particularly important. The purpose of this chapter is to survey the field of behavioral treatment of acute and chronic pain in youth. We will also present clinical cases to illustrate treatment in practice.

Pediatric Acute Pain Overview

The American Academy of Pain Medicine defined acute pain as “the physiologic response to and experience of noxious stimuli that can become pathological, is normally sudden in onset, time limited, and motivates behaviors to avoid potential or actual tissue injury” (Tighe et al., 2015, p. 1809). There are efforts underway to specify the taxonomy of acute pain (e.g., Kent et al., 2017). Regardless of the understanding of acute pain, it is well known that youth experience frequent acute pain as part of their routine healthcare (e.g., heel stick, intramuscular injections) and everyday life (e.g., playground injuries). Youth with emergent events (e.g., broken limbs, lacerations) or medical conditions (e.g., sickle cell, cancer) will undergo additional acute pain events.

Acute pain events can have immediate negative consequences (e.g., fear, anxiety, disruptive behavior) as well as enduring effects (e.g., sensitivity to future painful procedures, avoidance of healthcare, missed vaccinations, phobias; Kennedy et al., 2008). Fortunately, there is a growing arsenal of evidence-based behavioral pain management techniques for children.

Pediatric Acute Pain Treatments

Non-pharmacological acute pain management typically includes various techniques (e.g., reinforcement of cooperative behavior, cognitive strategies, preparation, desensitization). Consistent with other reviews (Birnie et al., 2014; Jaaniste, Hayes, & von Bayer, 2007), our organization of these treatments will include preparation, distraction, relaxation, and hypnosis. Given that the literature often treats neonates and infants as a unique group, we will separately present content on this population separately.

Procedural Preparation

Children who are prepared prior to medical procedures generally exhibit lower pain and distress (for a review, see Jaaniste et al., 2007). Age-appropriate preparatory information should provide children with clear and concrete procedural information (i.e., what the provider will do), sensory expectations specific to the procedure (i.e., what the child will experience), and training in coping skills to be used throughout the procedure (Cohen et al., 2017). Although the mechanisms of preparation are not fully understood, it is hypothesized that preparatory information promotes children’s accurate sensory and procedural expectations and facilitates appropriate parental involvement that increases the likelihood that children will engage in appropriate coping strategies. Preparatory information has been provided in various formats, including virtual reality or multimodal distraction (Miller, Rodger, Kipping, & Kimble, 2011), video modeling (Kain et al., 2007), computer programs (Rassin, Gutman, & Silner, 2004), puppets (Moore, Bennett, Dietrich, & Wells, 2015), and books or written summaries (Felder-Puig et al., 2003). Optimal timing of preparation, amount of information, and method of information provision depends on the type of procedure (e.g., surgery, immunization) and individual differences (e.g., temperament, cognitive developmental considerations; Jaaniste et al., 2007). For example, same-day preparation may be sufficient for minor procedures (e.g., immunization) but insufficient for more extensive procedures (e.g., surgery) (Cohen et al., 2017).

A Cochrane review by Birnie et al. (2018) concluded that preparation alone was not efficacious in reducing child self-reported pain or distress during venipuncture and immunization as indicated by the Standardized Mean Difference (SMD) of −0.18 (95% CI −0.60–0.23). As a general guideline, SMDs of 0.2 suggest a small effect, 0.5 a medium effect, and 0.8 a large effect (Cohen, 2013). Other systematic reviews suggest providing preparatory information to parents and children may be most beneficial when paired with distraction (e.g., Birnie et al., 2018).

Distraction

In light of youths' available attentional resources to attend to stimuli, diverting attention away from painful and toward more pleasant stimuli has been shown to minimize children's pain (for reviews, see Birnie et al., 2014; Cohen et al., 2014; Oliveira & Linhares, 2015). Cognitive and behavioral mechanisms as well as reduced physiological arousal are believed to be the effective elements of distraction (Cohen et al., 2014). It is recommended that children engage in distraction multi-modally (e.g., vision, hearing, tactile) with interactive, age-appropriate stimuli (DeMore & Cohen, 2005). Adult (e.g., parent, nurse) involvement is usually encouraged, especially for younger children, as evidence suggests that children are more likely to engage in coping if coached by an adult (Cohen, Bernard, Greco, & McClellan, 2002).

A range of distraction stimuli have been examined, including distraction with objects (e.g., cards, kaleidoscope; Inal & Kelleci, 2012), verbal distraction (e.g., McCarthy et al., 2010), audiovisual distraction (e.g., Wang, Sun, & Chen, 2008), music (e.g., Kristjánsdóttir & Kristjánsdóttir, 2011), and multimodal distraction (e.g., Miller et al., 2011). Virtual reality is a more recent advent, and it has been described as both an engaging and highly immersive distraction (Gold & Mahrer, 2017). In general, it is advised that distraction be initiated prior to the acute pain event, throughout the painful procedure, and for several minutes following the procedure (Cohen et al., 2014).

Reviews generally support the pain-relieving efficacy of distraction with a Cochrane review reporting effect sizes in the medium range (SMD 0.56, 95% CI 0.33–0.78); however, there are nuances to consider (Birnie et al., 2014; Birnie et al., 2018; Capurso & Ragni, 2016; Chambers, Taddio, Uman, & McMurtry, 2009). For example, differences in the distraction stimuli (Bellieni et al., 2006) as well as the parental coaching (e.g., McCarthy et al., 2010) impact outcome. Considering logistical restraints of most clinic settings, distraction has been recommended as the simplest, most efficient, and most cost-effective strategy for acute pain relief in children (Cohen et al., 2014; Oliveira & Linhares, 2015).

Relaxation

Relaxation includes a variety of techniques intended to reduce physiological arousal and calm the nervous system to reduce pain. Deep breathing (Chambers et al., 2009; Cohen et al., 2002) or blowing air (Sparks, 2001), progressive muscle relaxation (Tsao & Zeltzer, 2005), and guided imagery (Tsao & Zeltzer, 2005) have all been associated with significantly lower pain compared to control conditions. Recent pilot and feasibility studies have highlighted the potential of biofeedback technology to promote relaxation during immunizations (Burton, Morrow, Beswick, & Khut, 2018; Sonne et al., 2017). A Cochrane review indicates that deep-breathing relaxation is effective on self-report outcomes in youth undergoing painful acute procedures (SMD 1.04, 95% CI 0.22–1.86) (Birnie et al., 2018).

Hypnosis

Hypnosis involves an altered state of consciousness characterized by heightened attention, relaxation, and suggestibility. In this state, responsiveness to suggestions is enhanced, which has been used to alter pain perceptions, sensations, and behaviors during medical procedures (Kuttner, 2012). Huet et al. (2011) found that compared to controls, children who received hypnosis reported lower pain during dental anesthesia. Similarly, pediatric oncology patients who received hypnosis prior to lumbar puncture reported lower pain compared to controls (Liossi & Hatira, 2003). Although the therapeutic effect of hypnosis is not fully understood, neuroimaging shows hypnosis impacts areas of the brain associated with processing pain (for a review, see Jensen et al., 2015). Systematic reviews and meta-analyses of hypnosis during needle-related procedures in children showed a beneficial effect of hypnosis on self-reported pain (SMD 1.4, 95% CI 0.48–2.32 to 0.48) and behavioral measures of distress (SMD 1.15, 95% CI 0.53–1.76) (Birnie et al., 2014), suggesting hypnosis is an efficacious treatment for pain and distress. However, given the training required, this approach to pain management is more resource-intensive than other approaches (Birnie et al., 2018).

Physical Approaches

According to the Gate Control Theory of pain, physical sensations must pass through a nerve “gate” to reach the brain to be perceived as painful (Melzack & Wall, 1965). However, competing physical sensations may inhibit transmission of sensations. Therefore, tactile stimulation and skin-cooling techniques may interfere with pain transmission to the brain, as they rely on similar physiological pathways. Sparks (2001) reported that in comparison to a control condition, rubbing the skin around the injection site prior to and during immunization was associated with lower pain in children ages 4 to 6 years. Results of randomized trials are mixed as to whether vapocoolant spray reduces acute pediatric pain (e.g., Cohen et al., 2009). The Buzzy device combines a skin-cooling technique with tactile stimulation, and data are generally supportive (e.g., Canbulat, Ayhan, & Inal, 2015). In systematic reviews, Taddio et al. (2009, 2015) found that stroking, rubbing, applying pressure, and vibration with cold near the injection site might be beneficial in pediatric needle pain relief.

Acute Pain Treatments for Infants

Distraction. Few studies have examined distraction for infants, and those that have been conducted are mixed. Whereas Cohen and colleagues (2002, 2006) found that nurse-led movie resulted in lower pain prior to and following immunizations of infants, Cramer-Berness and Friedman (2005) found parent-led toy distraction was not superior to standard care.

Physical approaches. During painful procedures, physical approaches such as breastfeeding (Dilli, Küçük, & Dallar, 2009), non-nutritive sucking of a pacifier (Peng et al., 2018), and physical contact (e.g., skin-to-skin contact, facilitated tucking; Yin et al., 2015) used alone or in combination are associated with pain relief in infants. Breastfeeding is encouraged during painful procedures due to the combined effects of the sweet taste, skin-to-skin contact, and act of sucking (Taddio et al., 2010). The evidence is consistent and strong in supporting these physical interventions for infants' acute pain relief (e.g., Hatfield, Murphy, Karp, & Polomano, 2019; Riddell et al., 2015; Yamada et al., 2008).

Sucrose. Randomized controlled trials indicate that sucrose and other sweet solutions result in lower pain behavior by infants during acute procedures (e.g., Fernandez et al., 2003; Thyr, Sundolm, Teeland, & Rahm, 2007). Some have proposed that sweet solutions lead to pain relief via the release of endogenous opioids (Gradin & Schollin, 2005); however, this mechanism has been challenged and sucrose might simply be a form of distraction (Taddio, Shah, Shah, & Katz, 2003). A Cochrane review supports the pain relief efficacy of sucrose for heel lance, venipuncture, and injections in infants (Weight mean difference [WMD] −1.70, 95% CI = 2.13 to −1.26; Stevens, Yamada, Ohlsson, Haliburton, & Shorkey, 2016). In addition, a meta-analysis indicates that glucose reduces preterm neonates' pain during heel sticks (Mean difference [MD] −3.6, 95% CI −4.6 to −2.6; Bueno et al., 2013).

Application of Literature to Pediatric Acute Pain Case Example

Kayla was a 7-year-old female diagnosed with Ewing's sarcoma. Her course of chemotherapy required weekly port-a-cath access. Kayla demonstrated increased distress during port access, such as protesting (e.g., stating "No, not yet. It's going to hurt. I'm not ready."), screaming, crying, hitting, kicking, and attempting to avoid the procedure (e.g., covering port with her hand). A pediatric psychologist was consulted to address Kayla's distress. Informed by the effect sizes of multiple nonpharmacological interventions for acute pain (Birnie et al., 2018), a combination of procedural preparation, distraction, relaxation, and physical approaches was selected. During the initial session, the pediatric psychologist provided psychoeducation at a developmentally appropriate level and introduced the cognitive-behavioral model, highlighted the physiological signs of pain and distress, and emphasized the underlying rationale for behavioral interventions and behavioral principles that reinforce a cycle of escape and avoidance. Next, the psychologist provided preparation with the use of toy medical equipment and a doll to demonstrate phases of the port access procedure and coping strategies. The psychologist then taught Kayla relaxation skills, specifically, diaphragmatic breathing, progressive muscle relaxation, and guided imagery; and Kayla was encouraged to select which one she liked best. She selected imagery of floating on a raft in a swimming pool, and she was encouraged to practice this visualization at home. During the second session, the psychologist refined the behavioral plan to reinforce specific desired behaviors focusing first on refusal behavior (e.g., physical aggression, keeping hands away from port) to facilitate safe and successful procedures; once addressed, additional desired behaviors (e.g., holding chest still, using coping strategies) were targeted. A token economy system was developed to reinforce multiple behaviors taking care to avoid unintentionally reinforcing undesirable behavior. Kayla exchanged tokens for a range of small desired incentives, and larger rewards were saved for engaging in behaviors that were especially challenging. Lastly, combining psychological strategies with physical approaches, such as topical anesthetic cream and vapocoolant spray as well as mother rubbing her back, offered Kayla additional comfort.

Overview of Chronic Pain

IASP defines chronic pain as pain that lasts longer than 3 months (Merskey & Bogduk, 1994; Treede et al., 2015). However, this duration criterion may vary depending on context (e.g., age of child, physiological differences, pain condition; Walco, Krane, Schmader, & Weiner, 2016). To complicate the matter, it is not uncommon to draw a distinction between persistent and recurrent or intermittent chronic pain (Friedrichsdorf et al., 2016). Depending on the definition and condition (e.g., headache, back pain), it is estimated that 8–83 % of children experience chronic pain (King et al., 2011; Liossi & Howard, 2016). Data consistently indicate that pediatric chronic pain impacts family, academic, physical, social, and emotional functioning (e.g., Palermo, 2000), underscoring the importance of chronic pain management efforts.

Pediatric Chronic Pain Treatment

Due to the distressing, debilitating, and pervasive nature of pediatric chronic pain, a range of behavioral approaches has been considered. In line with the state of the literature, we have organized our content by specific skills and strategies that are commonly used as well as two prevalent psychotherapeutic frameworks—Cognitive Behavioral Therapy (CBT) and Acceptance and Commitment Therapy (ACT).

Skills and Strategies

Non-pharmacological interventions are often recommended as the "front-line" approach of chronic pain treatment prior to implementation of pharmacological interventions (Tick et al., 2018). Non-pharmacological strategies are commonly embedded within broader multidisciplinary treatment plans or psychological therapies; however, in time-limited and resource-limited settings, implementation of individual strategies or teaching specific skills can often be helpful. Various pain management strategies have been implemented with youth with chronic pain including psychoeducation, mindfulness, meditation, relaxation, hypnosis, acupuncture, coping skills training, physical sensation awareness, graded exposure, cognitive reframing, biofeedback, and yoga (Coakley & Wihak, 2017; Tick et al., 2018).

Mindfulness. Mindfulness is conceptualized as the intentional and non-judgmental awareness of one's experience, such as physical sensations and related cognitive and emotional content (Veehof, Trompetter, Bolhmeijer, & Schreurs, 2016). Various mindfulness-based interventions have been evaluated and results have been mixed with findings on outcomes from none (Chadi et al., 2016), small (Waelde et al., 2017), to moderate or large (Ruskin, Gagnon, Kohut, Stinson, & Walker, 2017).

Relaxation. Relaxation training is commonly implemented with youth and strives to promote a general sense of physical and psychological well-being. Relaxation training is often delivered through deep breathing, progressive muscle relaxation, or guided imagery techniques. The decreased physiological arousal and adaptive, positive psychological factors may reduce pain intensity and interrupt the cycle of pain maintenance (Coakley & Wihak, 2017). Youssef et al. (2004) assessed the change in pain episodes and pain intensity for adolescents who received guided imagery and progressive muscle relaxation treatment. Findings suggested significant improvements in abdominal pain as well as decreases in the frequency and intensity of pain.

Biofeedback. Typically combined with relaxation training, biofeedback technology provides audio and/or visual "feedback" on the physiological state, and thereby increases awareness and potential control over physiological responses to support relaxation (Coakley & Wihak, 2017). Allen and Shriver (1998) found biofeedback-assisted relaxation training led to decreases in pain frequency. In a sample of children with chronic headaches, Shiri et al. (2013) found that a biofeedback system implemented with virtual reality provided significant improvements in pain-related disability.

Therapeutic Packages

Therapeutic packages combine multiple intervention strategies and are grounded in a theoretical orientation. The most common therapeutic approaches in the pediatric chronic pain literature are CBT and ACT.

CBT. CBT focuses on the interrelationship among a client's thoughts, feelings, and behaviors in relation to a distressing experience. Specifically, CBT purports that pain might influence thoughts, emotions, and behaviors in maladaptive ways. For example, when in pain, a person might have thoughts such as, "This will only get worse. I am unable to do anything when I have pain." In pain conditions, CBT strives to modify environmental factors that reinforce and maintain maladaptive thoughts and behaviors (Palermo, 2012). The clinician guides the client to (a) challenge and change thoughts and behaviors and (b) enhance goal-directed behavior. For example, youth might be instructed to replace maladaptive thoughts with more adaptive thoughts to reduce the perpetuation of the painful experience (Noel, Petter, Parker, & Chambers, 2012). Components of CBT include psychoeducation about the impact of psychological factors on the experience of pain, self-monitoring (identifying antecedents and consequences to pain as well as monitoring progress in pain reduction), coping skills training (e.g., diaphragmatic breathing, progressive muscle relaxation, guided imagery, distraction, positive reinforcement), parent training, and home-based practice (Noel, Petter, Parker, & Chambers, 2012).

Various investigations have examined the efficacy of CBT-based interventions in pediatric chronic pain populations. In a randomized controlled trial comparing social-learning based CBT to education support in youth with Crohn's disease or ulcerative colitis, Levy et al. (2016) found fewer school absences, better adaptive coping, and higher quality of life in the youth receiving CBT. Kashikar-Zuck et al. (2012) found that youth with fibromyalgia assigned to CBT had improved functioning than youth assigned to educational control. Grob and Warschburger (2013) found that a CBT-based package led to reductions in pain and improvements in health-related quality of life in youth with chronic abdominal pain. In an examination of an internet-based CBT intervention, Palermo et al. (2009) found that youth reported improvements in pain intensity and reductions in activity limitations.

In terms of efficacy, Fisher et al.'s (2018) Cochrane review suggest CBT or behavioral therapy interventions effectively reduce pain in pediatric chronic headache, abdominal pain, and mixed pain populations (SMD −0.43, 95% CI −0.67 to −0.19). However, the authors note that many of the trials lack control conditions, adequate sample sizes, equal participation of males and females, and follow-up data. Additionally, initial Cochrane review findings suggest that internet-based CBT offers benefit in reducing pain intensity for youth with chronic pain after treatment; however, additional and larger trials are needed to increase generalizability (Fisher, Law, Palermo, & Eccleston, 2015).

ACT. Although there is debate whether ACT is considered a form of CBT or a unique theoretical approach (e.g., Hayes, Levin, Plumb-Vilardaga, Villatte, & Pistorello, 2011), we will describe ACT consistent with the articles summarized. As a general framework, ACT aims to encourage values-consistent behavior along with a change in how an individual relates to distressing thoughts and feelings (Hayes, Strosahl, & Wilson, 2012). In terms of pain, an ACT perspective would suggest that chronic pain is an unavoidable state and that energy and effort should be directed away from attempts to control pain and toward living a valued life. Specifically, young patients might be asked to clarify their values (e.g., being a good friend, succeeding in school), set behavioral goals to live in line with these values (e.g., spend time with friends, attend classes), and engage in strategies (e.g., mindfulness, defusion) to accept difficult and unchangeable thoughts (e.g., it will be embarrassing if I have to leave the sleepover), feelings (e.g., anxiety), and sensations (e.g., pain) that might arise when attempting to pursue value-consistent behavioral goals (Pielech, Vowles, & Wicksell, 2017).

In an early study of ACT for chronic pain, Wicksell, Melin, Lekander, and Olsson (2009) found children in the ACT intervention reported significant improvements in perceived functional ability, decreased pain intensity and pain interference. Kemani, Kanstrup, Jordan, Caes, and Gauntlett-Gilbert (2018) conducted a non-randomized clinical trial of a 3-week ACT-based intervention and found adolescents reported significant improvements in pain intensity, pain acceptance, depression, anxiety, and functioning. In a pilot study of a 14-session ACT treatment for adolescents with chronic pain, Kanstrup et al. (2016) found improvements in pain interference, pain reactivity, depression, and psychological flexibility.

Although there is a rich and growing literature of ACT for adult chronic pain; to date, there are no systematic reviews or meta-analyses examining ACT for pediatric chronic pain. Scrutiny of the current literature alludes to clinically meaningful implications of ACT; however, as was noted within the CBT literature, the quality of the ACT intervention evidence base is similarly limited. Specifically, the studies to date have small samples, lack of control groups, high attrition, and infrequent follow-up.

Application of Literature to Pediatric Chronic Pain Case Example

Malik is a 13-year-old male diagnosed with migraines by a pediatric neurologist and referred for behavioral pain management for distress related to chronic pain. Over the past 8 months, Malik reported that the frequency of migraines increased until he was having pain almost daily. Pain was described as stabbing and worse at bedtime. Exacerbating factors included muscle tension, physical activity, stress, bright lights, loud noises, and worries. Alleviating factors include medication (ibuprofen, sumatriptan) with minimal effect, staying in the dark, and distraction; however, sleep was his primary coping strategy. Malik was in 7th grade and missed about 2 months of school due to a combination of staying home or hospitalizations for pain. He also expressed frustration with completing daily activities (e.g., chores).

Based on the effect sizes yielded by a recent systematic review (Fisher et al., 2018), Cognitive Behavioral Therapy was selected for this case. The pediatric psychologist engaged Malik and his mother in a collaborative discussion to identify and clarify treatment goals and set a treatment course (7–8 sessions). Malik revealed that helping his mother around the house and improving his academic performance were primary values-based activities. Malik was provided with psychoeducation about the interplay among thoughts, feelings, behaviors to highlight why and how cognitive and behavioral interventions for pain are effective, to validate that his pain is real, and that physiological changes in the nervous system can contribute to pain persistence.

Malik started a pain diary to self-monitor his pain intensity, activities, mood, and sleep to identify patterns that triggered his migraines. The psychologist reviewed parent training guidelines with Malik's mother, such as principles of reinforcement, development of behavior plans, reducing focus on pain and pain behaviors, and supporting engagement in normal activities despite pain; this offered his mother the opportunity to learn how to support Malik's improved functioning and independent coping. Relaxation techniques, such as diaphragmatic breathing, guided imagery, progressive muscle relaxation, and hypnosis, were taught to improve parasympathetic responses to pain. Malik agreed to practice these skills before bedtime to develop and maintain the effectiveness of these skills and facilitate time sleep onset. Malik especially enjoyed learning relaxation skills with the assistance of biofeedback technology to learn how his body's physiological responses changed when he was relaxed compared to when he was stressed or having pain.

Additional coping skills, such as behavioral activation and activity pacing were used to develop a gradual school re-entry plan and increase Malik's engagement in household chores while learning how to prevent under-exertion or overexertion, both of which can lead to increased pain. Malik was introduced to the connection between thoughts, feelings, physiological reactions, and behaviors to help identify his salient cognitive errors related to pain and functioning, such as "Nothing helps. This is never getting better." Malik generated a list of positive self-statements and started thought tracking to challenge his unhelpful thoughts and engage in more adaptive, flexible thinking (e.g., I'm going to be okay. I have some strategies that can help). Lastly, the psychologist provided psychoeducation about the importance of healthy habits to support self-management and collaboratively developed behavioral strategies to support Malik's adequate hydration and sleep quality and quantity.

Summary and Concluding Comments

In summary, pediatric acute and chronic pain are common conditions, which are associated with short- and long-term consequences across a range of functioning. As detailed in this chapter, there are a number of evidence-based approaches available to treat acute and chronic pain in children. In general, many acute pain events might be addressed via preparation including coping training, engaging distraction, coaching in relaxation techniques, hypnosis, and rubbing or cooling the target site. Distraction, breastfeeding, physical contact, and an orally administered sweet solution are supported approaches for treating infants' pain. When working with youth with chronic pain, supported techniques include teaching mindfulness, relaxation, or biofeedback. More comprehensive treatment within a CBT or ACT framework often places a primary focus on improving life functioning.

We do not advocate a one-size-fits-all approach to pediatric pain management. Consistent with an evidence-based practice perspective, clinicians need to tailor the best evidence-based pain relief approaches to their own areas of competence as well as the individual patient characteristics, preferences, and circumstances. For example, findings from systematic reviews indicate pediatric pain management treatment should be modified based on age, sex, temperament, coping, prior experience, cognitive functioning, and cultural values (e.g., Cohen et al., 2014; Walco, 2008). In addition, acute and chronic pain can also occur within the context of disease, such as autoimmune disorders, cancer, and sickle cell disease, in which existing literature on disease-specific considerations can be used to tailor psychological treatments. Further, clinicians will need to take into account patients' motivation to change, family history of pain, previous treatment experience, pain-related fear, anxiety, or depression when treating acute or chronic pain in youth. Detailing the array of contextual considerations in pain treatment is beyond the scope of this chapter; however, we encourage evidence-based practitioners to stay abreast of the literature, assess their competencies, obtain training, seek out supervision, and collaborate with the patient when engaging in pediatric pain management. These elements are key to relieving pain in pediatric patients.

Key Points

- Pediatric acute and chronic pain are significant issues with a range of short- and long-term consequences across a range of domain (e.g., family, social, academic, physical).
- There are a number of evidence-based psychological interventions to (a) minimize or eliminate acute pain, and (b) improve functioning in the context of chronic pain.
- Optimal interventions for acute pain in children include (a) preparation, (b) distraction, (c) relaxation, and (d) rubbing or cooling the site.

- Pediatric chronic pain treatment might include mindfulness, relaxation, or biofeedback individually or part of a package within a CBT or ACT framework.
- An evidence-based practice framework highlights the importance of clinician expertise in applying the available empirical findings to the unique context of the patient (e.g., coping, developmental level), setting, and situation.

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Evidence-Based Therapies for Enuresis and Encopresis

Patrick C. Friman

Abstract

Among the most common, persistent, and stressful presenting complaints in primary medical care for children are two disorders involving developmentally inappropriate elimination of waste–enuresis (urine) and encopresis (feces). The author emphasizes that, although evaluation and treatment of these conditions absolutely requires the direct involvement of a physician, ideal management involves a partnership between the physician, therapist, and family. This united, empirically supported, biobehavioral approach can alleviate incontinence and eliminate or at least minimize the possibility of the damaging overinterpretation and dangerous forms of treatment that blemished the approach to enuresis and encopresis from antiquity throughout large portions of the twentieth century. Enuresis and encopresis are among the most treatable of all child behavior problems. The most effective treatments for enuresis and encopresis are multicomponent and effortful and therefore motivation to participate in treatment, by parents and children, is a significant concern. The chapter outlines the essential components of successful treatments following the evidence-base in the professional literature.

Among the most common, persistent, and stressful presenting complaints in primary medical care for children are two disorders involving developmentally inappropriate elimination of waste–enuresis (urine) and encopresis (feces). Prevalence estimates supply ample evidence of their commonality and persistence. Current estimates range as high as 4% of five and six-year-old children for encopresis and 15% of six-year-old children for enuresis. These estimates decline to 1.5% of 11 and 12-year-old children for encopresis (Van de Wal, Bemmomga, & Hirasing, 2005) and 2–3% of 10-year-old children for enuresis (Yeung, Streedhar, Sihoe, Sit, & Lau, 2006). That both conditions create stress is supported by the long-standing fact that incontinence is a leading cause of child abuse (e.g., Finn, 2005). Surveys of child reported stressors supply additional supportive evidence: only divorce and

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_18

parental fights exceed incontinence (Van Tijen, Messer, & Namdar, 1998). Nocturnal Enuresis (NE) and encopresis usually occur independently but can co-occur. This chapter will briefly describe both disorders in terms of their diagnosis, etiology, and evaluation, and then more fully describe evidence-based treatments used for them.

Enuresis

Diagnosis

Enuresis is the technical term used for the regular passage of urine into locations other than those specifically designed for that purpose. The diagnostic criteria in the fifth edition of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-5; American Psychiatric Association, 2013) includes repeated voiding of urine into clothing or bed at least twice a week for at least 3 months. Diagnostic criteria are met with lower frequency if the voiding is a cause of significant distress or impairment to social, academic, or occupational functioning. The condition cannot be directly due to the physiological effects of a substance (e.g., diuretics) or a general medical condition. The DSM further classifies NE into primary (in which the person has never achieved urinary continence) and secondary (in which incontinence develops after a period of continence) cases. Additionally, the DSM subdivides NE into three sub-types–nocturnal, diurnal, and combined nocturnal and diurnal. This chapter will focus solely on nocturnal enuresis (NE) because it is, by a very wide margin, the most frequently presenting type.

Etiology

Multiple variables are to be at least partial causes for NE and these are only briefly described here. Fuller discussions are widely available (e.g., Friman, 2018; Houts, 1991). Beyond the numerous and well-known potential medical causes (e.g., urinary tract infection, diabetes), perhaps the most salient etiological variable is family history. The probability of NE increases as function of closeness and number of blood relations with a positive history (von Gontard, Heron, & Joinson, 2011). Delayed physiological maturation, especially in the areas of bone growth, secondary sexual characteristics, and stature, is correlated with NE (Fergusson, Horwood, & Sannon, 1986). A strong association between functional bladder capacity and NE has been established (Troup & Hodgson, 1971). Design flaws mar the abundant research on sleep dynamics and NE, however, at least one study supports what parents have long suspected, specifically, that deep sleep and slowness to arouse may increase the likelihood of NE (Gellis, 1994). Although there is a long history of attributing NE to psychological (e.g., psychopathology) and/or characterological (e.g., laziness) variables there appears to be no relationship in most cases (e.g., Friman, Handwerk, Swearer, McGinnis, & Warzak, 1998). That said, some recent research reports an intriguing correlation between all forms of incontinence and ADHD (von Gontard & Equit, 2015). Whether a causal pathway exists has yet to be determined. The correlation is highest with soiling and diurnal enuresis, which at least suggests behavioral rather than genetic or neurological variables may play an etiological role. At present, the majority opinion is that elevated psychological problems, when present in incontinent children, are more likely caused by, rather than the cause of, the incontinence.

Evaluation

The treatment of NE should not proceed until a medical examination has been conducted because medical causes either need to be ruled out medically or diagnosed and treated (Friman, 2018). The evaluation should include a history with questions derived from diagnostic criteria (e.g., primary vs. secondary) and the etiological factors mentioned above. Some screening for mental health problems should be included (e.g., behavior checklists, related inquiry) and, if clinically significant problems are detected, they should be targeted in the ultimate treatment plan.

In addition to addressing medical and psychological complications, the evaluation should address three other very important topics. First, all sources of punishment for urinary accidents should be identified and eliminated. Second, the motivational level and availability of social resources for the parents should be assessed because these will influence the number of components included in treatment. For example, if the parent is minimally motivated and/or has few social resources (e.g., single working parent), the number will be lower. Third, the motivational level and likely cooperation of the child should be assessed. Optimal treatment plans involve multiple components and require compliance from the child for completion of most steps. An unmotivated or noncompliant child would be difficult to treat with any method known to cure NE. Fortunately, NE itself usually contributes to the child's motivation. As the quantity of pleasant experiences missed (e.g., sleepovers, camp) and unpleasant experiences encountered (e.g., wetness, social detection, embarrassment) accumulate, motivation naturally increases.

Treatment

The need for treatment of NE predates modern civilization and the variety of techniques used in antiquity appear to have been limited only by the imagination of the ancient therapists and their tolerance for inflicting unpleasantness on young children in order to possibly secure therapeutic gain (Glicklich, 1951). More recently, with the rise of Freudian psychodynamics came psychopathological characterizations of common childhood problems, including NE. Although more protected from harsh physical treatment than their ancestral peers, early twentieth-century children with enuresis were often subject to stigma, isolation, and other negative social consequences. However, with the advent of behavioral theory, and the conditioning type treatments derived from it, psychopathological interpretations were rendered obsolete and aversive physical treatments unnecessary (e.g., Friman, 2018).

Since the mid 1970s, psychological research on medically uncomplicated NE in children has been dominated by urine alarm treatments and other behavioral procedures based mostly on operant conditioning (Houts, 2000; Mellon & McGrath, 2000; Shepard, Poler, & Grabman, 2017). Controlled evaluations of the urine alarm indicate that this relatively simple device is 65–75% effective, with a duration of treatment around 5–12 weeks, and a 6-month relapse rate of 15–30% (e.g., Mellon & McGrath, 2000; Shepard et al., 2017). Using the Chambless criteria (cf., Chambless & Ollendick, 2001) alarm-based treatments have consistently been identified as *efficacious* or *probably efficacious* (e.g., Mellon & McGrath, 2000; Shepard et al., 2017). Indeed, in a recent Cochrane Review, Caldwell, Nankivell, and Sureshkumar (2013) reported that alarm training was more effective than simple behavioral training (e.g., positive reinforcement for dry nights; SMD = 2.25 [95% CI = 0.30–4.20]). Thus, the urine alarm is an effective core treatment that can be augmented by a range of other strategies. The sections below describe alarm-based treatments in terms of method, process, and outcome, and then describe the augmentive components with the most empirical support because they have been shown to be effective when used either in isolation or as part of a treatment package.

The urine alarm uses a moisture-sensitive switching system which, when closed by contact with urine seeped into pajamas or bedding, completes a small voltage electrical circuit and activates a stimulus that is theoretically strong enough to cause waking. In its earliest form the alarm was part of a child's bedding but currently it is usually attached to pajamas (e.g., Wetstop™). The alarm itself is either placed into a pocket sewn into the child's pajamas or pinned to them. Two-wire leads extending from the alarm are attached (e.g., by a small alligator clamp) on or near the pajama bottoms. When the child wets during the night, absorption of urine by the pajamas completes an electrical circuit between the two leads and activates the alarm. A variety of stimuli is available for use with the pajama devices and include buzzing, ringing, vibrating, and lighting. In practice, the alarm often alerts parents first, who then waken the child and guide them through the training steps (Friman, 2018).

Underlying Process

The mechanism of action in alarm treatment was initially described as classical conditioning, with the alarm as the unconditioned stimulus, bladder distention as the conditioned stimulus, and waking as the conditioned response (Mowrer & Mowrer, 1938). More recent literature emphasizes a negative reinforcement or avoidance paradigm (Friman, 2018) in which the child increases sensory awareness to urinary need and exercises anatomical responses (e.g., contraction of the pelvic floor muscles) that effectively avoid setting off the alarm. Cures are obtained slowly, however, and during the first few weeks of alarm use the child often awakens only after voiding completely. The aversive properties of the alarm, however, inexorably strengthen those responses necessary to avoid it.

Evidence of Effectiveness

Reports of controlled comparative trials show that alarm-based treatments are superior to drug treatment and other non-drug methods such as retention control training (e.g., Caldwell et al., 2013). In fact, numerous reviews of the literature show that its success rate is higher and its relapse rate lower than any other method—ranging as high as 80% for success and as low as 17% for relapse (Friman, 2018; Houts, Berman, & Abramson, 1994; Mellon & McGrath, 2000; Shepard et al., 2017). One problem with interpreting the review literature on alarm treatment is that adjunctive components are often added to improve effectiveness, resulting in treatment "packages" to be described below. Additionally, there is very little research on child-focused methods as opposed to those that require parental intervention.

Treatment Packages

The oldest, best-known and empirically supported treatment package is Dry Bed Training (DBT; Azrin, Sneed, & Foxx, 1974). Initially evaluated for use with a group of adults with profound mental retardation, it has been systematically replicated numerous times across child populations. In addition to the bed alarm, its initial composition included overlearning, intensive cleanliness (responsibility) training, intensive positive practice (of alternatives to wetting), hourly awakenings, close monitoring, and rewards for success. In subsequent iterations, the stringency of the waking schedule was reduced, and retention control training was added (e.g., Bollard & Nettlebeck, 1982). Other similar programs were also developed, the best-known and empirically supported of which is Full Spectrum Home Training (FSHT; Houts, Liebert, & Padawer, 1983). It includes the alarm, cleanliness training, retention control training, and overlearning. There are multiple variations now available (e.g., Friman, 2018). Component analyses have been conducted on both major programs, and the findings show that the alarm is the critical element and that the probability of success increases as the number of additional components are added (Bollard & Nettlebeck, 1982; Houts, Peterson, & Whelan, 1986).

Empirically Supported Components of Conventional Programs

Retention Control Training (RCT). The emergence of RCT followed the observation that many children with enuresis had reduced functional bladder capacity (Muellner, 1960). RCT is thought to expand functional bladder capacity by requiring children to drink extra fluids (e.g., 16 oz of water or juice) and delay urination as long as possible, thus increase the volume of their diurnal urinations, and expand the interval between urges to urinate at night (Muellner, 1960, 1961; Starfield & Mellits, 1968). Parents are instructed to establish a regular time for RCT each day and conclude the training at least a few hours before bedtime. Progress can be assessed by monitoring the amount of time the child is able to delay urination and/or the volume of urine they are able to produce in a single urination. Either or both can be incorporated into a game context wherein children earn rewards for progress. Early reports of RCT successful range as high as 50% (Starfield & Mellits, 1968) but a recent review of all empirically supported treatments characterized it as only marginally effective (Shepard et al., 2017).

Kegel/stream interruption exercises. Kegel exercises involve purposeful manipulation of the muscles necessary to terminate urination or contraction of the muscles of the pelvic floor (Kegel, 1951; Muellner, 1960). Originally developed for stress incontinence in women, a version of these exercises, stream interruption, has been used in NE treatment packages for years (Friman, 2018). For children, stream interruption requires initiating and terminating urine flow at least once a day during a urinary episode. The use of stream interruption exercises in the treatment of NE is logical from a physiological perspective, because terminating an actual or impending urinary episode involves the same muscle systems. Schneider, King, and Surwit (1994) demonstrated that the regular practice of Kegel exercises eliminated accidents in the majority of children with diurnal enuresis, and reduced the incidence of nocturnal episodes in about half of children treated.

Waking schedule. This treatment component involves waking children with enuresis and guiding them to the bathroom for urination. Results obtained are attributed to a change in arousal, increased access to the reinforcing properties of dry nights, and urinary urge in lighter stages of sleep (Bollard & Nettlebeck, 1982). Creer and Davis (1975) reported that about half of children using a waking schedule reduced their accidents to less than twice a week, suggesting a waking schedule may improve (but is unlikely to cure) NE. The early use of waking schedules typically required full awakening, often with sessions that occurred in the middle of the night (e.g., Azrin et al., 1974; Creer & Davis, 1975). Subsequent research showed partial awakening (e.g., Rolider & Van Houten, 1986) or conducting waking sessions just before the parent's normal bedtime (Bollard & Nettlebeck, 1982) was just as effective. In fact, a component analysis of DBT showed that a combination of the reduced effort-waking schedule and the urine alarm produced results that were close to those produced by the full program (Bollard & Nettlebeck, 1982).

Overlearning. An adjunct related to RCT involves overlearning. Like the RCT procedure, this method requires that children drink extra fluids just prior to bedtime. Overlearning is an adjunctive strategy only and is used primarily to enhance the maintenance of treatment effects established by alarm-based means. Thus, it should not be initiated until a dryness criterion has been reached (e.g., seven dry nights).

Cleanliness training. Some form of consequential effort directed toward returning soiled beds, bed clothing, and pajamas to a pre-soiled state is a standard part of DBT (Azrin et al., 1974) and FSHT (Houts et al., 1983, 1986). It has not been evaluated independently of other components and, thus, the extent of its contribution to outcome is unknown.

Reward systems. Contingent rewards are a component of DBT (Azrin et al., 1974), and are routinely recommended in papers describing effective treatment (e.g., Friman, 2018). Caldwell et al. (2013) reported that the use of positive reinforcement for dry nights (alone) has been associated with reduced numbers of wet nights in comparison to control conditions. However, the independent role of positive reinforcement is difficult to appreciate given the small number of such trials. A plausible possibility is that positive reinforcement sustains the child's motivation to participate in treatment, especially when the system reinforces success in small steps.

Additional Components with Less Empirical Support and/or Conventional Usage

A number of additional components have been described and/or evaluated in the literature with varying degrees of empirical support. *Self-monitoring*, as a component of treatment, provides data that can be used to evaluate progress and when used for that purpose. However, in addition to supplying data, the literature suggests that it may have reactive properties and thus, may be considered an independent treatment component.

Finally, *Cognitive Therapy* competed favorably with behavioral treatment in a comparative trial more than a quarter of a century ago (Ronen, Wozner, & Rahav, 1992). Although two other papers describing successful cognitive therapy have been published by the same group (Ronen, Rahav, & Wozner, 1995; Ronen & Wozner, 1995), they essentially report the same data. From an evidence-based perspective, these findings should be viewed with caution for several reasons, including lack of independent replication, lack of a well-articulated mechanism of effect, problematic study design, and results that are inconsistent with the larger literature (see Houts, 2000 for a thorough critique).

Medication

Although the primary purpose of this section is to survey evidence-based psychological approaches to NE, historically physicians prescribed drug therapy for NE more frequently than any other treatment. But because of evidence indicating side effects resulting from the use of the two most commonly prescribed medications, imipramine and desmopressin (DDAVP; see Caldwell et al., 2013), their description here is substantially abbreviated from the previous version of this chapter. The mechanism of action for imipramine is unknown, although it does reduce premature contractions of the bladder following partial filling, thus increasing its functional capacity (e.g., Stephenson, 1979). DDAVP concentrates, and therefore reduces the volume of urine. Both medications produce an approximately 25% cessation rate for enuresis, most of which reverts to baseline levels when the regimen is terminated. More importantly, as indicated, both medications have been associated with adverse side effects. For imipramine, just the common side effects give one pause as they range across systems from extrapyramidal symptoms in the central nervous system to urticaria and pruritus of the skin (Skidmore-Roth, 2010). For DDAVP, the most serious side effects are hyponatremia, seizures, and death and the occurrence of these has led the Food and Drug Administration of the United States to rule against the use of the most widely used DDAVP formula (nasal spray) for treatment of enuresis (Hatti, 2007).

Functional Encopresis (FE)

Diagnosis

FE is a common, under-treated and often is over-interpreted form of fecal incontinence. The definition of FE has remained relatively consistent across versions of the DSM, and the current version (DSM-5, American Psychiatric Association, 2013) lists four criteria: (1) repeated passage of feces into inappropriate places whether involuntary or intentional; (2) at least one such event a month for at least 3 months; (3) chronological age is at least 4 years (or equivalent developmental level); and (4) the behavior is not due exclusively to the direct physiological effects of a substance or a general medical condition except through a mechanism involving constipation. DSM-5 also describes two types: primary in which the child has never had fecal continence, and secondary, in which incontinence returns after at least 6 months of continence. Because research on treatment typically does not distinguish between the two, they are collapsed here. DSM-5 also distinguishes between FE with and without constipation and both will be discussed here.

Etiology

Successful treatment for FE targets the processes that cause the condition and 90–95% of cases occur as a function of, or in conjunction with, reduced colonic motility, constipation, and fecal retention, and the various behavioral/dietary factors contributing to these conditions. These factors include (1) insufficient roughage or bulk in the diet; (2) irregular diet; (3) insufficient oral intake of fluids; (4) medications that may have a side-effect of constipation; (5) unstructured, inconsistent, and/or punitive approaches to toilet training; and (6) toileting avoidance by the child. Any of these factors, singly or in combination, increases the risk of reduced colonic motility, actual constipation, and corresponding uncomfortable or painful bowel movements. Uncomfortable or painful bowel movements, in turn, negatively reinforce fecal retention, and retention leads to a regressive reciprocal cycle often resulting in regular fecal accidents. When the constipation is severe or the cycle is chronic, fecal impaction, a large blockage caused by the collection of hard dry stool, may develop. Not infrequently, liquid fecal matter will seep around the fecal mass producing “paradoxical diarrhea.” Although the child is constipated, he or she appears to have diarrhea. Some parents will attempt to treat this type of “diarrhea” with the over the counter antidiarrheal agents that only worsen the problem.

Evaluation

As with NE, treatment for FE should not proceed until the child has received a medical evaluation for two fundamental reasons. First, FE can be the result of organic diseases (e.g., Hirschsprung’s disease, hypothyroidism). Although rare, these conditions need to be ruled out or identified and treated before a behavioral approach to treatment is pursued. The second reason involves the medical risk posed by fecal matter inexorably accumulating in an organ with a limited amount of space. A frequent presenting problem in medical clinics is a child with encopresis who has been in extended therapy with a non-medical professional and whose initial evaluation did not include referral for a medical evaluation and whose treatment did not address the etiology of FE. As a result, the children’s colonic systems can become painfully and dangerously distended, sometimes to the point of being life threatening (e.g., McGuire, Rothenberg, & Tyler, 1983). The medical evaluation will typically involve a thorough medical, dietary, and bowel history. In addition, abdominal palpitation and rectal examination are used to check for large amounts of fecal matter, very dry fecal matter in the rectal vault, and poor sphincter tone. Approximately 70% of constipation can be determined on physical exam, and detection can be increased to above 90% with an x-ray of the kidneys, ureter, and bladder (Barr, Levine, Wilkinson, & Mulvihill, 1979).

Following the medical evaluation, a full fecal elimination history should be obtained, including toilet training, dietary habits, parent and child responses to accidents and successful bowel movements, parent–child interactional style, level of instructional control, and emotional and psychological functioning. Regarding the latter, although the primary causes of FE are biological and not psychological (see also Friman, Mathews, Finney, Christophersen, & Leibowitz, 1988), in some cases it is secondary to extraordinary emotional disturbance and thus resistant to behavioral/medical treatment focused only on toileting (e.g., Landman & Rappaport, 1985). In such cases, the emotional condition may be a treatment priority, especially when there is no evidence of constipation or fecal retention.

Treatment—Retentive FE

There are multiple parallels between evidence-supported treatment for NE and FE. For example, as with NE, the best-supported treatments for FE include multiple components and they are typically delivered in a "package" type format. Additionally, there are core components, and these can be augmented by additional approaches to treatment. Distinct from NE, the core components of treatment for FE are primarily medical and they include full bowel evacuation, facilitating medication, dietary recommendations, and scheduled toilet sitting. Early research on the medical approach to treatment produced successful outcomes (e.g., Davidson, Kugler, & Bauer, 1963), but more recent research has achieved somewhat lower levels of success. As a result, the primarily medical approach for FE does not meet the Chambless criteria for any category of efficacy (e.g., McGrath, Mellon, & Murphy, 2000). However, there is substantial evidence showing that augmenting medical treatment with other behavioral components improves success rates sufficiently well for various combinations to earn efficacious or probably efficacious ratings (Friman, 2018; McGrath et al., 2000). The greater success of augmented approaches notwithstanding, the medical approach to FE remains the dominant method of treatment prescribed in the medical community (the primary source of treatment for the vast majority of cases). It has its own rather extensive supportive literature, is closely linked to causal mechanisms, and represents a significant departure from the failed psychodynamic approach to FE (e.g., Friman, 2018). For these reasons, the primary components of the medical approach are described below and are followed by a description of biofeedback and select behavioral approaches to treatment of FE.

Medical Treatment

Bowel evacuation. The primary goal of FE treatment is the establishment of regular bowel movements in the toilet, and the first step is to cleanse the bowel completely of resident fecal matter (Friman, 2018). A variety of methods are used, the most common of which involve enemas and/or laxatives. Although any properly trained professional can assist with the recommendations of these (e.g., with suggestions about timing, interactional style, behavioral management, etc.) the evacuation procedure must be prescribed and overseen by the child's physician. Typically, evacuation procedures are conducted in the child's home, but severe resistance can necessitate medical assistance in which case they must be completed in a medical setting. The ultimate goal, however, is complete parent management of evacuation procedures because they are to be used whenever the child's eliminational pattern suggests excessive fecal retention.

Facilitating medication. Successful treatment for FE will usually require inclusion of medications that soften fecal matter, ease its migration through the colon, and/or aid its expulsion from the rectum. The discovery of the therapeutic benefits of facilitating medication represents the advent of the medical approach to FE and the departure from the historically psychodynamic approach (Davidson et al., 1963). The decision to use medication as well as the type of medication is the consulting physician's to make but, as with bowel evacuation, any trained professional can inform the decision and educate the parent about its use. Generally, it is best to avoid interfering with the sensitive biochemistry of the alimentary system (the colonic portion of it in particular) and, thus, inert or only mildly non-inert substances are preferred. Formerly, the most frequently used substance was mineral oil, used either alone or in combination with other ingredients such as magnesium. Children will often resist ingesting substances with odd tastes and textures. Therefore, to gain their cooperation it is often necessary to mix the substances with a preferred liquid (e.g., orange juice) and follow ingestion with praise and appreciation. A recent development, however, makes this task even easier while also improving outcomes for children with FE. Polyethylene glycol (trade name, Miralax) is an odorless, tasteless powdered laxative that can be mixed with food or liquid with limited possibility of child detection and it has produced excellent results in treatment of childhood constipation and FE and is increasingly becoming the preferred medical treatment option (e.g., Tucker, 2003).

Dietary changes. As indicated above, diet often plays a causal role in FE, and dietary changes are often part of treatment. Increased dietary fiber increases colonic motility and the moisture in colonic contents and facilitates easier and more regular bowel movements. Although some evaluative trials have not included fiber-based recommendations in the treatment protocol, there is no medical reason for this exclusion (Houts & Peterson, 1986; see also McGrath et al., 2000). Dietary changes can also be enhanced with over the counter preparations with dense fiber content (e.g., *Metamucil*, *Perdiem*).

Scheduling toilet sits. Regularity is the goal of treatment and, therefore, regular toilet sits are an important part of it. The time should not be during school hours because unpleasant social responses to bowel movements in the school setting can cause regressive responses to treatment. Choosing among the times that remain (morning, afternoon, or evening) is guided by the child's typical habits and child–parent time constraints. Establishing a time shortly after food intake can increase the chances of success through the influence of the gastro-colonic reflex. In the early stages of treatment, or in difficult cases, two scheduled attempts a day (e.g., after breakfast and dinner) are often necessary. The time the child is required to sit on the toilet should be limited to 10 or fewer minutes in order to avoid unnecessarily increasing the aversive properties of the toileting experience. The child's feet should be supported by a flat surface (e.g., floor or a small stool) to increase comfort, maintain circulation in the extremities, and facilitate the abdominal push necessary to expel fecal matter. The time should also be unhurried and free from distraction or observation by anyone other than the managing parent. Allowing children to listen to music, read, or talk with the parent may improve child attitude toward toileting requirements. Generally, toileting should be a relaxed, pleasant, and ultimately private affair.

Supplements to Medical Treatment: Biofeedback and Behavioral Treatments

Biofeedback. A logical choice is biofeedback, a treatment method that uses sensors attached to strategic parts of the body to amplify physiological responses (e.g., heart rate, skin temperature, muscle tension), allowing the person to perceive them more vividly than would otherwise be possible (Friman, 2009). Initial interest was based on research showing that some children have difficulty detecting a full bowel and/or that respond to a full bowel with contraction rather than relaxation (e.g., Loening-Baucke, 1990; Meunier, Mollard, & De Beaujeu, 1979). Correspondingly there was some initial success in its use for treatment (Loening-Baucke, 1990) but some subsequent large studies failed to show its value even as a component of a larger treatment for both the medical and the medical plus behavioral approaches to FE (e.g., Cox, Sutphen, Ling, Quillian, & Borowitz, 1996; Nolan, Debelle, Oberklaid, & Coffey, 1991).

Behavioral treatment. A broad range of components loosely grouped under the term "behavioral treatments" have been combined with medical treatments as well as integrated medical and biofeedback treatments. The primary component includes two types of consequential events. The first involves requiring that children participate in their own cleaning, including wiping and caring for soiled clothing. Although this component has not been independently evaluated, it is a routine component in most treatment programs, and there is no apparent logical basis to exclude it. The second consequential event involves rewards for efforts or success. These have been included in multiple evaluations involving successful treatment of single subjects (e.g., Houts & Peterson, 1986) and groups of subjects (see McGrath et al., 2000). Additional behavioral components include stimulus control procedures, enhanced scheduling, enhanced health education, relaxation techniques, and various types of monitoring. Behavioral components have been included in almost all empirically supported approaches to treatment of FE.

Evidence of Effectiveness

Several descriptive and controlled experimental studies have supplemented variations on the medical treatments described above with behavioral approaches, which has led to comprehensive biobehavioral treatment packages FE (e.g., Friman 2018; McGrath et al., 2000). The research suggests that effective treatment for FE, as with effective treatment for NE, depends upon core treatment components (i.e., medical treatment). However, the probability of success mounts with the inclusion of other components, especially those composing the behavioral approach to treatment.

The literature on this "comprehensive approach" includes multiple single-subject evaluations (e.g., Houts & Petersen, 1986) and open group trials (e.g., Lowery, Srour, Whitehead, & Schuster, 1985). For example, Lowery et al. reported that 60% of children with FE were completely continent after five months, and those that did not achieve full continence averaged a 90% decrease in accidents. Subsequently, Cox, Sutphen, Borowitz, Kovatchev, and Ling (1998) reported that Enhanced Toilet Training (a comprehensive approach using reinforcement and scheduling to promote response to defecation urges and instruction, modeling to promote appropriate straining, and laxatives and enemas) significantly benefited more children than medical care alone (i.e., enemas and laxatives) and biofeedback plus toilet training at three months post-treatment. Further, these improvements were achieved with fewer treatment sessions and lower costs. Other studies of similar comprehensive treatment approaches have yielded similar favorable outcomes (e.g., Stark, Owens-Stively, Spirito, Lewis, & Guevermont, 1990; Stark et al., 1997).

Online delivery. As reviewed by Poznanski, Silva, Conroy, Georgiadis, and Comer (this volume), the evidence-base for online delivery of health and mental health treatments is expanding rapidly. The literature on the efficacy of online delivery of behavioral treatment for FE is no exception. Most (possibly all) of the work in this area has been conducted by one research group, which began by providing a tutorial on chronic constipation and FE on a website (Borowitz & Ritterband, 2001). This website evolved into an online behavioral adjunct for medical treatment called "*U-Can-Poop-Too.*" An initial evaluation of the online intervention indicated superior outcomes for the online plus standard medical treatment group (relative to the standard medical treatment group; Ritterband et al., 2003). The research group refined their initial product so that it could be used independently by parents and children in a “real world” setting (Ritterband et al., 2006; Magee, Ritterband, Thorndike, Cox, & Borowitz, 2009). An evaluation of the evolving product produced results that were slightly lower than results from the 2003 study (success rate of 50%) but still encouraging (Ritterband et al., 2008). The most recent installment in this line of research yielded a 64% success rate with a much larger sample and one-year follow up (Ritterband et al., 2013)

FE (without constipation). Treatment of nonretentive FE has been the focus of far less research than treatment of the retentive type and, therefore, it would be premature to argue that any known approach is empirically supported. From the small available literature, it appears that treatment of these children should be preceded by a comprehensive psychological evaluation. Virtually all investigators who have described this subsample of children report emotional and behavioral problems and treatment resistance (e.g., Landman & Rappaport, 1985), and it is possible that some of these children’s soiling is related to modifiable aspects of their social ecology. Some investigators have employed versions of the approach outlined above and included supportive verbal therapy (Landman & Rappaport, 1985), or they have specifically taught parents how to manage their children’s misbehavior (Stark et al., 1990). Thus, it appears that effective treatment of this subsample would involve only some components of the comprehensive approach to treatment (e.g., facilitating medication may not be needed) combined with some form of treatment for psychological and behavioral problems.

Conclusion

NE and FE have been misunderstood, misinterpreted, and mistreated for centuries. During the last half of the twentieth century, however, and particularly toward its end, a fuller, biobehavioral understanding of their causal conditions and an empirically supported approach to their treatment emerged. The biobehavioral understanding and approach to NE and FE are dramatically different from the psychogenic understanding and approach of history. The biobehavioral approach addresses the physiology of elimination primarily and addresses the psychology of the child as a set of variables that are not causal but can be critical to active participation in treatment. Although evaluation and treatment of NE and FE absolutely require the direct involvement of a physician, ideal management involves a partnership between the physician, therapist, and family. This united, empirically supported, biobehavioral approach can alleviate incontinence and eliminate or at least minimize the possibility of the damaging overinterpretation and dangerous forms of treatment that blemished the approach to NE and FE from antiquity throughout large portions of the twentieth century.

Key Points

- Prior to any form of psychological treatment, a physician should evaluate the incontinent child.
- Any form of punishment is contraindicated for enuretic and encopretic children.
- Enuresis and encopresis are among the most treatable of all child behavior problems.
- The most effective treatments for enuresis and encopresis are multicomponent and effortful and therefore motivation to participate in treatment, by parents and children, is a significant concern.

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Evidence-Based Interventions for Eating Disorders in Children and Adolescents

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Abstract

This chapter specifically focuses on what are considered the principal eating disorders: anorexia nervosa, bulimia nervosa, binge-eating disorder, and closely related variants. For adolescents with anorexia nervosa, family-based therapy is the treatment of choice based on the scientific evidence. Cognitive-behavioral therapy is recommended in instances where family-based therapy is ineffective or unsuccessful. Early studies show promise for treatment of anorexia nervosa and bulimia nervosa. Many treatment approaches for children and adolescents with eating disorders are focused on outpatient approaches; however, a minority of patients may benefit when inpatient interventions are required. Interpersonal therapy may be a promising treatment for adolescents with binge-eating disorder but needs further study. The authors suggest more randomized controlled trials and meta-analyses need to be conducted on eating disorders with children and adolescent populations in order to determine the best course of treatment for each disorder, as well as the factors that influence and impact treatment outcomes.

Evidence-Based Interventions for Eating Disorders in Children and Adolescents

The current *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM–5; American Psychiatric Association [APA], 2013) includes a chapter entitled *Feeding and eating disorders* which contains what are traditionally considered to be the principal eating disorders (anorexia nervosa [AN], bulimia nervosa [BN], and binge-eating disorder [BED]) as well as the feeding disorders (pica and rumination disorder) and a newly added disorder in the *DSM-5* called avoidant/restrictive food intake disorder (ARFID). There are also two residual categories called "other specified feeding or eating

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_19

disorder” and “unspecified feeding or eating disorder.” ARFID is an eating or feeding disorder in which an individual avoids eating but not for any reason related to body image disturbance. Rather, the avoidance may have to do with the sensory qualities of the food or concern about possible aversive consequences of eating (APA, 2013; Bryant-Waugh, 2017).

For this chapter, we will specifically focus on what are considered the principal eating disorders: AN, BN, BED, and closely related variants. We will not cover the primary feeding disorders, but see Freidl and Attia (2016) for a review of treatments for pica and rumination disorder. We will also not cover ARFID, but see Bryant-Waugh (2017) for a review. Obesity is also a common eating-related problem among children and adolescents, and although it may be common among individuals with BED, it is not considered an eating disorder. However, pediatric obesity is covered by Steele and Christofferson (Chap. 21). Also, given that we will focus on treatment rather than assessment, readers may want to consult Sacco and Kelley (2018) for an overview of assessment of eating disorders among children and adolescents.

Anorexia Nervosa

AN involves a restriction of dietary intake leading to significantly low body weight, an intense fear of gaining weight, and some form of body image disturbance. According to the *DSM-5*, “Significantly low weight is defined as a weight that is less than minimally normal or, for children and adolescents, less than that minimally expected” (APA, 2013, p. 338). However, there is not a specific cutoff for weight or body mass index (BMI), and it is noted in the *DSM-5* (p. 340) that AN might be diagnosed in an individual with a BMI as high as 18.5 if other data supported the judgement. There are, however, BMI-related cutoffs regarding what is considered mild (>17), moderate (16–17), severe (15–16), or extreme (<15) in terms of low body weight. In postmenarcheal females, there may also be amenorrhea. However, in the *DSM-5*, it is no longer considered to be a diagnostic criterion. Within the current *DSM* scheme, there are restricting and binge eating/purging subtypes of AN. There is also commonly additional psychopathology including mood disorders, anxiety disorders, and substance use (Buhren et al., 2014).

For adolescents, the prevalence rate of AN is not completely clear. However, according to the results of the National Comorbidity Survey Replication Adolescent Supplement (NCSRAS; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011), lifetime prevalence for adolescents was 0.3% for both girls and boys. Subclinical manifestations that would still meet the criteria for an eating disorder are more common. The lack of sex/gender differences for AN in the NCSRAS is quite striking given that it is assumed (and noted in the *DSM-5*) to be much more common among girls. However, it appears that such differences are more evident in clinical settings than in epidemiological studies (Hoek, 2017). There are no clear data on the prevalence of AN among younger children, although cases have been reported in the literature. Of the psychiatric disorders, AN appears to have the highest mortality rate (due to both physical complications and suicide; Campbell & Peebles, 2014) and may pose particular risks for the developing child or adolescent, such as impaired linear growth and osteoporosis. Although some effects may be reversible if caught in time, others may be permanent (Golden, 2017).

Recognizing and diagnosing the disorder in children and adolescents presents many challenges. First, there may not be a noticeable weight loss but, rather, a failure to achieve normal weight or gain weight at a normal rate. Related to this challenge, normal weight is also sometimes difficult to determine and quantify among children and adolescents. BMIs are generally interpreted differently with children; a BMI-for-age percentile may be more useful (see Steele & Christofferson, this volume). A related concern is that severe anorexia may inhibit normal skeletal development; thus, height may be affected. Another general challenge is that some children may not yet have the cognitive capacity to understand and express an abstract concept such as body image disturbance and may express only more concrete fears or exhibit a refusal to eat. With AN, the primary targets for treatment are the low weight (and associated health concerns), fear of gaining weight, and the body image concerns. The associated psychological problems noted above (e.g., depression, self-injury, or substance use) may also be the focus of treatment, as is family conflict. At times, there may be specific areas of family conflict which appear related to the eating disorder.

Bulimia Nervosa

BN is characterized by recurrent episodes of binge eating (eating a large amount of food in a short period of time and feeling out of control) followed by some sort of compensatory behavior such as self-induced vomiting, use of laxatives, or excessive exercise (APA, 2013). As with AN, individuals can also be specified as mild, moderate, severe, or extreme, but based on the frequency of compensatory behaviors rather than BMI. Also consistent with AN, there may also be additional psychopathology, which may also be associated with mortality rates (Himmerich et al., 2019) and medical complications (Golden, 2017).

According to the results of the NCSRAS (Swanson et al., 2011), lifetime prevalence for adolescents was 1.3% for girls and 0.5% for boys. As with AN, subclinical manifestations may be more common than full-blown disorders. Recognizing and detecting the disorder may often be difficult due to fact that individuals are often of normal weight, and because of the secrecy associated with the behaviors of binge eating and purging. For BN, the primary targets for treatment are the out of control binge eating and purging, the excessive dietary restraint, and the weight and appearance-related fears and cognitions. As with AN, when there is additional psychopathology or family dysfunction, these may also need to be targets for treatment.

Binge-Eating Disorder

BED is characterized by recurrent episodes of binge eating but in the absence of regular use of compensatory behaviors. Such individuals are typically overweight. According to the results of the NCSRAS (Swanson et al., 2011), lifetime prevalence for adolescents was 2.3% for girls and 0.8% boys. The exact prevalence among younger children is unknown, although young children do frequently report binge eating (Hilbert & Czaja, 2009; Tanofsky-Kraff, 2008). With BED, the main target for treatment is the binge eating; however, the obesity or the increase in body weight may also be a focus. Body image concerns may be present, but to a lesser degree than with AN and BN. In contrast with those two disorders, the excessive dietary restraint is not as often present with BED, or it may be present for a subset of individuals, with the other subset reporting emotional eating in the absence of dieting.

Other Specified or Unspecified Feeding or Eating Disorders

In the *DSM-5*, these are two separate diagnostic categories (“other specified feeding or eating disorder” [OSFED] and “unspecified feeding or eating disorder” [UFED]). The former category is used when a specific disorder is named (e.g., purging disorder or atypical anorexia), and with the latter no specific disorder is named (possibly because of inadequate information). These two categories are a combination of what was previously called eating disorder not otherwise specified (EDNOS) in earlier versions of the *DSM*. They are particularly worth mentioning because, in earlier research (i.e., based on earlier versions of the *DSM*) EDNOS had been found to be the most prevalent ED in clinical practice (e.g., Fairburn & Bohn, 2005), and it was not purely due to the fact that BED was officially classed as an EDNOS at the time. This reality often made use of the empirical treatment literature more of a challenge because most studies had been based on treatment of specific disorders (AN, BN, and/or BED), whereas most clients seeking treatment were technically none of the above. The changes to the diagnostic criteria in the *DSM-5* were partially designed to reduce the number of individuals diagnosed as "not otherwise specified," and some initial research suggests that that this goal has been at least partially met (Choate & Gintner, 2016; Trace et al., 2011).

Review of Treatment Research

In the previous edition of this text (Gleaves & Latner, 2008), we noted that the majority of the treatment research was with adults rather than children or adolescents. We also discussed the advantages and disadvantages of extrapolating from the adult literature to children and adolescents. A positive development since that time has been the increase in the amount of research with non-adults (most often adolescents). Thus, there is at least less of a need to extrapolate. In what follows, when possible, we aim to emphasize discussion of such research, with primarily summaries of what can be concluded from the research with adults.

Inpatient Treatment

Although most treatment for an eating disorder in children and adolescents occurs on an outpatient basis, a minority of children and adolescents need inpatient care on either psychiatric or pediatric units. The admission criteria, goals, treatment strategies, and length of stay in such treatments, however, vary widely across settings and countries. Anzai, Linsey-Dudley, and Bidwell (2002) suggested a set of admission criteria when hospitalization is justified: (1) low temperature, blood pressure, pulse, or potassium, or dehydration; (2) BMI of < 17 or $< 75\%$ of the expected weight for the child or adolescent's age, or accelerated weight loss/food refusal; (3) denial of the problem, refusal to eat more than the bare minimum, or the inability to gain weight or stop purging; (4) absent, poor, or insufficient family support to make progress; (5) inability to decrease or stop purging to the point of jeopardizing a child/adolescent's health; and (6) suicidality or a comorbid disorder(s) severe enough to warrant hospitalization. With specific reference to BN, Diedrich, Schlegl, Greetfeld, Fumi, and Voderholzer (2016) outlined that children or adolescents should be hospitalized for the treatment if they (1) are severely disturbed regarding their eating behaviors, (2) are unresponsive to other outpatient treatments, (3) suffer from severe comorbid disorders, or (4) live in severe, treatment-impeding environments.

For AN, the primary goals of inpatient treatment include medical and nutritional stabilization, weight gain, and increased motivation for recovery (Sylvester & Forman, 2008). For BN, the primary goal of treatment is to normalize eating patterns without instances of purging, binge eating, or restricting (Diedrich et al., 2016). The UK-based National Institute for Clinical Excellence (NICE, 2017) released a set of evidence-based guidelines that focused on assessment, treatment, and inpatient care for individuals diagnosed with an eating disorder, which are based on an exhaustive review of the available literature and rigorous consultation with mental health professionals, academics, and other experts. NICE also recently published an eating disorder quality standard (NICE, 2018), which identified six quality statements backed up by rationale, quality measures, and evidence for assessing and treating eating disorders. The NICE guidelines and quality statements are designed to be used in conjunction with each other.

The most comparable guidelines in the U.S. are those issued by the APA (2006), which contain recommendations based on levels of clinical confidence (I, substantial confidence, II, moderate confidence, or III, may be recommended on an individual basis). Although the APA has not updated these guidelines since 2006, Yager et al. (2012) published a guideline watch which reviewed evidence and developments surrounding eating disorder treatment since the 2006 APA guidelines were published. The researchers determined that the 2006 guidelines "…remain substantially correct and current in its recommendations" (p. 1).

Regarding specific recent studies, Madden et al. (2015) conducted a randomized controlled trial (RCT) with medically unstable adolescents with AN. The participants were assigned to either a short inpatient admission for medical stabilization, or to a longer inpatient admission with a purpose of weight restoration. Both groups also received 20 sessions of outpatient manualized family-based treatment postdischarge. Other than differences in expected body weight at the end of hospitalization, there were no other statistically significant differences between the two groups. Contrary to other similar controlled studies on inpatient treatment (e.g., Herpertz-Dahlmann et al., 2014), there were no participants lost at follow-up in either one of the treatment groups.

Schlegl et al. (2016) evaluated both the clinical significance and predictors of treatment outcomes with adolescents diagnosed as having AN who were treated in an inpatient program. All outcomes measures, including BMI and measures of ED-specific and general psychopathology, statistically significantly improved from baseline to posttreatment. Lower body dissatisfaction at admission, lower depressive symptoms, and treatment duration were statistically significant predictors of a clinically significant change in ED symptomatology. Furthermore, treatment duration, age at admission, and no previous history of hospitalization were statistically significant predictors of BMI change.

Partial Hospitalization

Partial hospital programs, also known as day hospital programs, are a common venue for providing treatment that is more intensive than outpatient care, but less intensive (and therefore less costly) than inpatient care (Striegel Weissman & Rosselli, 2017). In addition to cost-effectiveness, day treatment programs are advantageous because patients have the ability to go home at the end of each day and apply skills learned in the program to their own lives straight away. There is also less disruption to the family and school life of patients who participate in day hospital programs (Lazaro et al., 2011).

The treatment goals and strategies of partial hospital programs are generally the same as those of inpatient programs; the primary difference is the amount of time spent on the unit. To date, there are few controlled investigations regarding partial hospitalization programs for children or adolescents with an eating disorder. In an RCT, Herpertz-Dahlmann et al. (2014) compared inpatient treatment versus partial hospitalization for adolescents with AN. The authors found no statistically significant differences between the two groups at discharge and at a 12-month follow-up in terms of BMI and most of the ED-specific and global measures of psychopathology. There were, however, statistically significant differences in mental state and psychosexual adjustment, with the partial hospitalization group displaying higher, and therefore, more improved scores. Additionally, the costs and the loss of participants to follow-up were statistically significantly lower in the partial hospitalization group.

Other, uncontrolled studies, have also reported positive outcomes for partial hospitalization for eating disorders. Zanna et al. (2017) examined treatment outcomes in adolescents with AN or

EDNOS after a day hospital program, and 3-, 6-, and 12-month follow-ups. Post-treatment results included statistically significant increases in BMI and decreases in eating disorder pathology and anxiety. Despite a moderate dropout percentage during follow-up, patients reported a continued increase in psychological functioning at all follow-up periods. Ornstein, Essayli, Nicely, Masciulli, and Lane-Loney (2017) retrospectively reviewed the charts of eating disorder patients aged 7–17 years old who participated in partial hospitalization programs. The patients were initially diagnosed with either AN, BN, OSFED/UFED, or ARFID; the primary purpose of the study was to compare the latter group with the others. All diagnostic groups improved over the course of treatment. Those with AN or BN had significantly larger reductions in ED symptomatology, relative to the ARFID group. See also Friedman et al. (2016) for a review of outcomes of inpatient and partial hospital programs for eating disorders.

Outpatient Treatment

Family-based treatment. The NICE (2017) guidelines recommended that most patients with an eating disorder should be treated on an outpatient basis. The NICE (2017) and APA (2006) guidelines recommended family-based treatment (FBT) as the most effective treatment for children and adolescents with an eating disorder, and the APA gave this recommendation their highest grade (I). There have now been at least eight RCTs of FBT with adolescents, in three different countries (Australia, Canada, and the USA); six studies were of AN and two of BN.

FBT, as developed by clinical researchers at the Maudsley Hospital in the UK, is based on a model of mobilizing family resources to help the family re-feed the patient. Re-feeding refers to the attempted restoration of physical health by increased dietary intake in the form of oral feeding (i.e., eating food), liquid oral supplements, nasogastric feeding, or some combination of these approaches. The treatment approach is based on an agnostic view of the etiology of the disorder meaning that therapists do not focus on why the disorder developed. The therapist particularly emphasizes that the family should not be blamed for the disorder, but must take responsibility together for helping to overcome it.

The first phase of treatment focuses on re-feeding the patient, and the therapist reinforces strong alliances between the parents in their re-feeding effort, and between the patient and any siblings available to provide support. The second phase focuses on family issues that may be interfering with re-feeding. The third phase, initiated when healthy weight and eating patterns are achieved, focuses on establishing a relationship between the adolescent and the family that is not centered on the eating disorder (Lock & Le Grange, 2013).

In terms of some of the specific research on the approach, Lock et al. (2010) conducted an RCT on FBT for adolescents, comparing FBT versus adolescent focused individual therapy (AFT). There were no statistically significant differences in remission rates between FBT and AFT at end-of-treatment; however, at both the 6- and 12-month follow-ups, remission rates were statistically significantly greater for patients who received FBT. Le Grange et al. (2016) conducted a RCT of FBT for adolescent patients with AN. The researchers compared FBT with parent-focused treatment (PFT). In PFT, only the parents would meet with the clinician, while a nurse monitored the adolescent concurrently. In terms of outcome, 43.1% and 21.8% of patients, for PFT and FBT respectively, were considered to be in remission at end-of-treatment, and this was the only statistically significant difference between the groups at any time point. Differences in remission, BMI, and global ED-symptomatology between the groups were not statistically significant at both the 6- and 12-month follow-ups.

There have also been RCTs comparing different forms of family therapy. Godart et al. (2012) compared treatment as usual (TAU) to TAU with an addition of family therapy (TAU-FT) every 3–4 weeks over an 18-month duration. After the 18 months, both groups showed statistically significant improvements in all outcome measures. However, patients who received TAU-FT were three times more likely to have achieved a healthy weight, resumed menstruation, and presented with amenorrhea statistically significantly less often. Furthermore, Eisler et al. (2016) compared family therapy against multi-family therapy (MFT) on adolescent patients with AN or EDNOS. MFT is similar to family therapy, but is delivered in a more intensive group format, usually consisting of five to seven families. At end-of-treatment, 75% of adolescents who received MFT achieved clinically significant improvements, compared to 60% of adolescents who received family therapy; this difference was statistically significant.

Although there are a number of RCTs examining family therapy for adolescent AN, there are only a few RCTs examining family therapy for BN. Le Grange, Crosby, Rathouz, and Leventhal (2007) evaluated the efficacy of family therapy for BN (FT-BN) and supportive psychotherapy (SPT) for adolescents with BN. Remission rates for FT-BN were statistically significantly higher at end-of-treatment and 6-month follow-up compared to SPT. Additionally, adolescents who received FT-BN scored statistically significantly lower on all eating disorder pathology scales than adolescents who received SPT for all time points. Le Grange, Lock, Agras, Bryson, and Jo (2015) compared FT-BN versus cognitive-behavior therapy for adolescents (CBT-A) in a multicenter RCT. There were only statistically significant group differences between the two treatment groups at end-of-treatment and the 6-month follow-up regarding an abstinence of binge eating and purging. No further statistically significant differences were found at the 12- and 18-month follow-ups, or between any other outcome measures.

There has been both a Cochrane Review (Fisher, Skocic, Rutherford, & Hetrick, 2018) and a systematic review with meta-analysis (Couturier, Kimber, & Szatmari, 2013) that focused on FBT for eating disorders. Although Fisher et al. (2018) included adult and adolescent patients in their review, Couturier et al. (2013) focused only on adolescent patients. Fisher et al. (2018) concluded that there is only limited evidence to support the efficacy of FBT in the short term (for both adult and adolescent patients). The effect size was only trivial (d = 0.03) for adolescent eating disorder psychopathology post-intervention (when comparing FBT and TAU). When FBT was compared against other psychological interventions, eating disorder psychopathology post-intervention had a small to medium effect size (d = 0.44). Couturier et al. (2013) reported that the superior differences between FBT and other therapies were only apparent at a 6-to-12-month follow-up; patients treated with FBT were over two times more likely to be in remission at follow-up (OR = 2.14).

Cognitive-behavioral therapy. Cognitive-behavioral therapy (CBT) for children or adolescents with EDs is based on generally the same principles as the adult versions of CBT for EDs (e.g., Fairburn, 2008). The core psychopathology of the disorders is considered to be overvaluation of shape and weight, which is a cognitive phenomenon. Eating disordered individuals also maintain rigid unrealistic attitudes regarding eating, body shape, and weight. The treatment involves identifying such dysfunctional thoughts and challenging them through cognitive restructuring and behavioral experiments. It also aims to establish regular eating patterns through self-monitoring and dietary planning (see Fairburn, [2008] for a comprehensive treatment manual on CBT for eating disorders). An enhanced version of CBT (CBT-E) was developed by Fairburn, Shafran, and Cooper (2003) as a transdiagnostic, personalized treatment for all eating disorders. CBT-E focuses on modifying the underlying maintaining mechanisms for all eating disorder psychopathology. Because family therapy is not always effective when treating AN or BN in adolescents, researchers have begun to investigate the effectiveness of CBT-E with eating disordered adolescents.

Dalle Grave, Calugi, Doll, and Fairburn (2013) conducted an uncontrolled study of CBT-E of adolescent girls with AN. The researchers reported that 63% of patients completed treatment, and one-third of the treatment completers reached 95% of their expected weight. Almost all the treatment completers had reduced eating disorder symptomatology at the end of treatment, and this was further maintained at a 60-week follow-up. Dalle Grave, Calugi, Sartirana, and Fairburn (2015) evaluated the effects of CBT-E in a cohort study of adolescents with an eating disorder who were not underweight. Seventy-five percent of patients completed treatment, and over half of the treatment completers had a global EDE-Q score below 1 SD above the community mean. Of these, 76.5% had ceased all forms of binge eating, self-induced vomiting, and laxative misuse.

In a RCT, Stefini et al. (2017) compared CBT and psychodynamic therapy in with female adolescents diagnosed with BN. The psychodynamic therapy used was a manualized form, designed specifically for use with adolescents and young adults diagnosed with BN. This manualized treatment organizes treatment into three phases: during the initial phase the therapist helps the patients to understand the bulimic symptoms in terms of displacement from the psychological self to the body self. During this phase, participants identify conflicts and deficits they wish to overcome to reduce the bulimic behavior. The second phase involves the patient and the therapist target the aims defined from the initial phase. Topics covered are usually transference, defense, and conflict in context of bulimic symptoms. The third and final phase consolidates the crucial elements of therapy. At the end of treatment there were no statistically significant differences between the two groups in terms of remission rates, and this result was further maintained at the 12-month follow-up. There were between-groups differences with some variables favoring CBT (binge eating and purging) and another favoring psychodynamic therapy. Overall, the two treatments had similar efficacy.

To our knowledge, Debar et al. (2013) conducted the only study of CBT for BED in adolescents, as a pilot trial on adolescent girls, where CBT was compared with a wait-list control condition. The researchers appropriately modified CBT to ensure that the treatment addressed the specific developmental needs of adolescents. After a 6-month follow-up, the participants who received CBT, compared to the wait-list control patients, had statistically significantly higher rates of abstinence from binge eating episodes. Participants treated with CBT also displayed statistically significantly improved eating, shape, and weight concerns over time, compared to patients in the wait-list condition.

In one other relevant study, Dalle Grave et al. (2015) reported on the treatment outcomes of CBT-E with adolescents who were not underweight, and the sample did include adolescents diagnosed with BED. The researchers, however, did not include a control group in their study, nor report the treatment outcomes by diagnosis alone. Approximately 21% of the participants were diagnosed with BED, and it is therefore difficult to establish if the positive outcomes in the study were applicable to the specific diagnosis of BED.

Interpersonal therapy. IPT aims to resolve interpersonal difficulties that contribute to the onset or maintenance of the eating disorder (Weissman, Markowitz, & Klerman, 2017). Treatment focuses on problems in four areas: grief, interpersonal disputes, role transitions, and interpersonal deficits (Wilfley & Eichen, 2017). Although IPT was originally developed as a treatment for depression, and was initially used in ED research primarily as alternative treatment when studying CBT, there is now an ED-specific model of IPT (Rieger et al., 2010). For example, according to the interpersonal model of binge eating, interpersonal problems are often triggers of binge eating. Problematic social interactions trigger negative feelings, and the individual may turn to out-of-control eating to cope with the negative emotions negative affect (Rieger et al., 2010; Tanofsky-Kraff, Shomaker, Young, & Wilfley, 2016). However, the out-of-control eating subsequently worsens negative mood, which may worsen interpersonal difficulties (Rieger et al. 2010). The goals of IPT are to increase awareness and expression of negative emotions and help patients to develop strategies for managing negative emotions and improve interpersonal skills (Tanofsky-Kraff et al., 2016).

Given that interpersonal factors may be risk factors for EDs among adolescents, it seems logical to study the application of IPT with adolescents (Wilfley & Eichen, 2017). However, the majority of the research on IPT for EDs has been with adults. With AN, we are aware of an RCT (with adults) comparing IPT, CBT and SPT; the participants were followed over six years (Carter et al., 2010). There were no significant differences between the three treatments found at follow-up, although those receiving IPT seemed to have better outcome at follow-up (64% with good outcome) relative to their status immediately following the intervention (only 15% with good outcome). With BN, IPT is similar in efficacy to CBT in the long term (Agras, Walsh, Fairburn, Wilson & Kraemer, 2000), but its delayed benefits make it the less preferred treatment of the two. There is also evidence for the efficacy of IPT for BED in adults where it appears to be equivalent to CBT both following treatment and at follow-up (Wilson et al., 2010).

Regarding research with adolescents, the majority has been conducted by Tanofsky-Kraff and colleagues (Tanofsky-Kraff et al., 2007, 2014, 2016). They have studied adolescents who do not necessarily meet the diagnostic criteria for BED, but who engage in out-of-control eating and are significantly overweight and at risk for further weight gain and the development of EDs. Tanofsky-Kraff et al. (2007) conducted a pilot study comparing IPT versus standard health education for 12 weeks with girls aged 12–17. Those that received IPT reported fewer loss-of-control episodes at the end of treatment, and after 1-year follow-up their BMIs had increased less than would be expected based on their age. More recently, the same research team completed a larger trial (Tanofsky-Kraff et al., 2014). After treatment, there were no statistically significant treatment differences (relative to the health education group) in terms of BMI, out-of-control eating, or depression or anxiety. However, after 1 year, girls that received IPT reported less binge eating than did those who received health education.

Application of Literature to Clinical Cases—A Case Illustration

Olivia was a 12-year-old sixth grader at the time she was referred to an eating disorder treatment service by her family physician because of concerns that she was not eating enough (having passed out in school twice) and was “possibly vomiting.” Data from a variety of assessment procedures including physical exam, nutritional assessment, interviews with both Olivia and her parents, self-report questionnaires and direct behavioral assessment were collected during the intake procedure.

In terms of her history (some gathered from her and some from her mother), Olivia had been slightly overweight as a child through elementary school. Although not initially a concern for Olivia, she began to become preoccupied after she unsuccessfully tried out for the middle school cheerleading team. During the process, she was teased by some peers about looking “fat” in the uniform, and she reached the conclusion that she had failed to make the team for that reason. She began dieting excessively (fasting as her primary method) over the next several months. She lost 15 lb initially and then maintained the new weight over the next several months even though she also grew two inches in height over the course of the year. Her behaviors were socially reinforced by (among other things) her successfully making the cheerleading squad for the following year, and her perception that she had become more popular at school.

After several months of dietary restriction, she had her first binge eating episode. She felt extremely guilty but recommitted herself to her diet. After a subsequent period of fasting, she had her first fainting episode. Furthermore, the binge eating began to increase in frequency and, following a large binge on Halloween candy, she first tried self-induced vomiting. She was not concerned about the vomiting except that she viewed it as "gross." She viewed it as an effective means of allowing herself to eat without gaining weight. At the time of intake, she reported bingeing and vomiting one to two times per day for the past 3 months, although there were doubts about the accuracy of her self-report.

Based on all the intake data, Olivia met the *DSM-5* criteria for bulimia nervosa. Outpatient treatment was recommended (both individual and group treatment) but with the condition that progress needed to occur or else inpatient treatment might be required. Treatment was based on CBT for BN supplemented with work with her family. CBT was chosen because of the rather marked cognitive component to her presentation and because her weight was not significantly below normal (which would have necessitated re-feeding and more likely FBT). As is common with adolescents, treatment initially had to focus on Olivia's low motivation for change. Although she was unhappy with her developing bingeing problem, was very reluctant to reduce her dieting, and viewed the vomiting as a logical consequence of the bingeing. She argued that her weight loss was the best thing that had ever happened to her, that her eating was no different from her friends and that no one would like her if she gained back any weight. She actually wanted to lose more weight and asked if she could lose 10 more pounds and *then* start the eating disorder treatment. However, when an older cheerleader at her school was hospitalized for AN, Olivia became more aware of the seriousness of her problem and she was able to verbalize that she did not want to end up like the other girl.

Through initial meal planning with a dietician and cooperation with the family (e.g., helping them learn to support Olivia without modeling or reinforcing pathological behavior), Olivia was able to normalize her eating (i.e., eating three meals a day of sufficient variety) and test her beliefs that she would gain excessive amounts of weight if she ate normally. She was gradually exposed to foods on her "forbidden" list without being allowed to either binge or purge. Olivia's therapist also helped Olivia better identify her emotions and situations that seemed to trigger feeling "fat." For her, although some of these were related to eating (e.g., having eaten a previously forbidden food), others had to do with interpersonal difficulties at school or conflict at home. Cognitive interventions in the form of learning to challenge her own cognitions targeted Olivia's problematic attitudes regarding appearance and thinness and provided her with better skills for coping with stress at school and home. Behavioral tests were devised to test new hypotheses about her shape and weight. To challenge Olivia's belief that she had made the cheerleading squad only because she had lost weight, her therapist asked Olivia to determine how many of the squad were fifth graders and how many in the sixth. Olivia reported that only one came from the fifth grade suggesting that it was most likely age and practice rather than appearance that determined who had made the team.

Within four months, Olivia's eating had normalized and without instances of bingeing or purging. She did gain some weight but remained in the normal range. She continued to be self-conscious about her appearance, but her therapist encouraged Olivia to make life decisions that challenged rather than maintained her schema. Among other decisions, she decided to try out for the basketball team instead of the cheerleading squad in junior-high.

The case is typical of child or adolescent eating disorders in several ways. First, changes in weight status are complicated by maturation, which may mask weight loss. Second, low motivation is common in the early phases of treatment. That is, adolescents may not view their behaviors as problematic or recognize the seriousness (this also applies to some adults and is even one of the possible diagnostic criteria for AN). However, (third) if caught early, the problem may be relatively responsive to treatment.

Directions for Future Clinical Research

Although the field has made significant advances in recent years, more research is clearly needed in several areas. A group of treatments (primarily FBT, CBT, and to a lesser degree IPT) have now been studied with adolescents, but we need more research directly comparing the various available treatments. Additionally, the field could potentially benefit from efforts to integrate effective components of the various treatments. When RCTs are conducted, researchers take care to adhere to strict manualized versions of treatment to enhance treatment fidelity. For example, in some comparative research of CBT and IPT, the latter did not include role playing because it is viewed as a CBT technique. However, in practice, it may improve IPT to include it. Similarly, CBT may be enhanced by interpersonal interventions. We noted in our case example that interpersonal problems were often triggers for negative emotions and binge eating. In general the CBT and IPT models of EDs are not necessarily incompatible, and the treatments may be enhanced by efforts to combine what is most effective from each. The same may be said regarding FBT.

Overall, the field would benefit greatly from the production of meta-analyses that examine the various treatments with children and adolescents. Currently, there are limited meta-analyses on the treatment outcomes, effectiveness, and efficacy of eating disorder treatment for children and adolescents, with the focus so far being only on FBT. Additionally, meta-analyses assist with identifying the “real-world” effects and outcomes of treatment. This point is especially important for clinicians who aim to use the most beneficial and robust treatment for their patients. Additional treatments with very limited research in this problem area, such as cognitive remediation therapy, dialectical behavior therapy or schema therapy, also need further study. Across all patient groups and types of treatments, studies of non-responders is also needed, as is research with younger children.

Lock and Le Grange (2019) recently addressed future research needs specifically in the context of FBT. Areas that they recommended included identifying predictors of early dropout rates, examining the changing formats of FBT, and identifying the moderators and mediators on treatment outcomes. They also pointed out that there is a need to study dissemination of FBT, including the possibilities of telehealth-based approaches or web-based training and supervision of FBT

Clearly more research on treatment of BED among children and adolescents is needed. The line of research by Tanofsky-Kraff and colleagues is promising, but more evidence is needed. Thus, it is clear that treatment research on BED among children and adolescents is an important direction for future clinical research.

Summary

The EDs are complex problems that affect both the physical and emotional health of children and adolescents. They are, at the same time, potentially life-threatening and potentially very treatable. This is not to say that they are not difficult to treat, but an important factor when catching them early enough. Although these disorders commonly originate in childhood or adolescent, the bulk of the treatment literature has historically been with adults. However, in recent years, much more research (including RCTs) has been done with adolescents, which makes it less necessary to rely on extrapolations from the adult literature. However, the majority of the treatment research with children and adolescents has focused on AN.

Overall, the state of the research base varies depending on which disorder and which age group are being considered. For AN, FBT, and variants of it, are the most well-established treatment with adolescents. Recent RCTs and the two recent systematic reviews and meta-analyses

(Couturier et al., 2013; Fisher et al., 2018) support this conclusion, although it is clear that not all patients benefit from family therapy. The NICE (2017) guidelines recommend other treatments (e.g., CBT-E) in instances where family therapy is ineffective.

Regarding BN, based on the adult literature, there is consistent evidence for CBT as the preferred treatment, with IPT as a viable alternative; however, there is less research with children and adolescents, and less than there is for AN. The two RCTs that focused on children and adolescent BN (Le Grange et al., 2015; Schmidt et al., 2007), indicated that both family therapy and CBT could be effective treatments.

Although BED may have the best prognosis in adults, research with children and adolescents is lacking. IPT has been studied with binge eating and may end up being the treatment of choice for BED.

Key Points

- For adolescents with AN, family-based therapy is the treatment of choice.
- Cognitive-behavioral therapy (CBT) is recommended in instances where family-based therapy is ineffective or unsuccessful and early studies show promise for treatment of AN and BN.
- Many treatment approaches for children and adolescents with EDs are focused on outpatient approaches; however, a minority of ED patients benefit when inpatient interventions are required.
- Interpersonal therapy may be a promising treatment for adolescents with BED, but needs further study.
- Moving forward, we suggest more RCTs and meta-analyses are conducted on children/adolescent EDs populations to determine the best course of treatment for each disorder, as well as the factors that influence and impact treatment outcomes.

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Evidence-Based Treatment of Pediatric Overweight and Obesity

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Abstract

Data indicate that approximately 17% of children and adolescents in the United States between the ages of 2 and 19 are obese. The chapter authors outline the assessment processes including measurement of Body Mass Index, assessment of dietary intake, and assessment of physical activity. They review effective interventions for **pediatric overweight and obesity** which are typically **behaviorally based** and focus on increasing physical activity and/or decreasing caloric intake to achieve a negative energy balance. The most favorable outcomes for treatment of pediatric obesity can be expected from **comprehensive behavioral lifestyle interventions** that involve caregivers and other social supports as active participants in the lifestyle changes. Meta-analyses indicate that **effective interventions** for pediatric overweight and obesity typically feature behavioral components and focus on increasing physical activity and/or decreasing caloric intake to achieve a negative energy balance, and to establish new dietary and physical activity habits. Several well-established interventions have demonstrated efficacy for children and adolescents from diverse communities.

Data from the Centers for Disease Control and Prevention (CDC, 2018) indicate that approximately 17% of children and adolescents in the United States (U.S.) between the ages of 2 and 19 are obese (i.e., Body Mass Index [BMI] > 95th percentile; Fryar, Carroll, & Ogden, 2018). In addition, approximately 16% of children and adolescents meet criteria for overweight (BMI $\geq$ 85th percentile; Fryar et al., 2018), making unhealthy weight status one of the most prevalent health conditions in the U.S. These numbers generally track with worldwide prevalence statistics; the World Health Organization (WHO, 2018) estimated that over 340 million youth worldwide were overweight or obese in 2016. Also consistent with worldwide trends, the CDC reported that the prevalence of pediatric obesity in the U.S. has continued to rise since data were first collected more than four decades ago (Fryar et al., 2018; Kelly, Barlow, Rao, Inge, Hayman, Steinberger, et al., 2013).

The rate of increase in pediatric overweight and obesity over the past four decades is likely due to complex interactions between biological, social, economic, and psychological variables (Hebebrand

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_20

& Hinney, 2009; Llewellyn, Trzaskowski, van Jaarsveld, Plomin, & Wardle, 2014). Changes in the availability and intake of high-caloric density foods (e.g., sugar-sweetened soft drinks, fast food), increases in average meal portion sizes, and decreases in energy expenditure interact with genetically influenced variables (e.g., satiety, hedonic hunger) and individual health behaviors to explain the observed increases in overweight and obesity (Hebebrand & Hinney, 2009; Sahoo, Sahoo, Choudhury, Sofi, Kumar, & Bhadoria, 2015). Indeed, Gorin and Crane (2008) proposed an ecological model of pediatric obesity, in which physical activity and dietary behaviors are influenced by intraindividual (e.g., biological, cognitive) variables as well as by sociocultural, environmental, and organizational conditions that both directly and indirectly influence health behaviors. For example, the decision for a child to walk or bike to school (i.e., rather than use motorized transportation) is influenced by individual psychological variables (e.g., self-efficacy, intentions), but also by economics, transportation infrastructure, the built environment, safety considerations, available social supports, and societal/cultural norms. Similar ecological realities would be expected to influence dietary patterns and nutrient intake (e.g., affordability and availability of nutrient-rich food options).

Consistent with an ecological model of obesity risk, the literature documents weight-related health disparities across sociodemographic variables. Skinner, Ravanbakht, Skelton, Perrin, and Armstrong (2018) reported higher rates of obesity and overweight among African American and Hispanic youth in the U.S. relative to white youth and Asian American youth. Using this same dataset, Ogden, Carroll, Fakhouri, Hales, Fryar, Li, et al. (2018) reported significant differences in prevalence rates of obesity across socioeconomic status and education level of the head of household: Children living in households in which the head of house was a college graduate had lower rates of obesity than children in households with lower educational attainment. Youth living in the highest income households had lower rates of obesity relative to those in the lowest income group. However, this effect was inconsistent across racial/ethnic groups; the prevalence of obesity did not differ by income among African American youth, perhaps suggesting that other risk factors may be at work. Similar patterns have been observed in other developed nations (e.g., Wake, Hardy, Canterford, Sawyer, & Carlin, 2007).

Correlates of Pediatric Obesity

Children and adolescents with overweight and obesity are at increased risk for a range of physical and mental health consequences. In terms of physical health problems, children with elevated BMIs are at increased risk for asthma, Type-II diabetes, sleep apnea, arthritis, gallstones, some types of cancer, hypertension and high cholesterol, and decreased immune system functioning (Kelly et al., 2013; Sanders, Han, Baker, & Cobley, 2015). In addition, youth who are obese are at approximately five times greater risk for adult obesity than children who are not obese. Simmonds, Llewellyn, Owen, and Woolacott (2016) reported that approximately 55% of children with obesity remain obese in adolescence, and that approximately 80% of adolescents with obesity remain obese in adulthood, which is associated with elevated mortality and decreased life expectancy (Fontaine, Redden, Wang, Westfall, & Allison, 2003; Prospective Studies Collaboration, 2009).

Beyond these physical health consequences, the literature demonstrates positive associations between BMI status and a range of mental health outcomes including negative perceived self-worth and competencies, low self-esteem, symptoms of depression and anxiety, lower peer-rated popularity, increased risk for peer victimization, symptoms of bulimia and dietary restraint, and lower health-related quality of life (HRQoL; Friedlander, Larkin, Rosen, Palermo, & Redline, 2003; Rankin, Matthews, Cobley, Han, Sanders, Wiltshire, et al., 2016; Sanders et al., 2015; Schwimmer, Burwinkle, & Varni, 2003). Many of these mental health issues can be a result of the social stigmatization surrounding obesity, and can impact decision-making and interactions with peers, perhaps compromising future mental health and increasing risk for continued unhealthy BMI status (e.g., Brewis, 2014). Indeed, elevated BMI in childhood and adolescence has been associated with increased risk for psychological sequelae in adulthood, particularly symptoms of depression and risk for suicidal ideation (e.g., Rankin et al., 2016).

Diagnostic Considerations

As will be discussed in more detail below, effective interventions for pediatric overweight and obesity are typically behaviorally based and focus on increasing physical activity and/or decreasing caloric intake to achieve a negative energy balance (Altman & Wilfley, 2015). A state of negative energy balance exists when caloric intake is less than caloric expenditure (i.e., through activities of daily living + intentional physical activity), and results in the body's use of stored energy (i.e., fat) as fuel for further activity. Because of this, treatment generally begins with assessment of weight status (i.e., BMI), physical activity, and dietary intake so that treatment can target specific health behaviors that may be contributing to an unhealthy weight status.

Assessment of Body Mass Index. The U.S. Preventive Services Task Force (USPSTF, 2010) and the American Academic of Pediatrics (Baker, Olsen, & Sorensen, 2007) recommended that pediatricians screen all children aged 6 years and above for obesity using BMI and either offer appropriate intervention or refer for treatment. BMI does not directly measure adipose (i.e., fat) tissue. Rather, it is a measure of body density and is expressed in terms of *weight per unit of height*, or $BMI = \frac{weight}{height^2} = \frac{kg}{m^2}$. Other assessment strategies (e.g., dual-energy X-ray absorptiometry, bioelectrical impedance, densitometry) provide more direct estimates of adiposity (Jensen, Camarho, & Bergamaschi, 2016). However, these methods are complicated and/or expensive, and thus have limited applicability for screening children in most clinic or community settings. In contrast, BMI is easy to estimate using measured height and weight, and the BMI calculator available on the CDC's website (www.cdc.gov/healthyweight/bmi/calculator.html).

A robust literature demonstrates that BMI in childhood is associated with a range of concurrent and long-term health and mental consequences (e.g., Baker et al., 2007; Rankin et al., 2016; Sanders et al., 2015). Additionally, BMI has been shown to provide a particularly accurate estimate of adiposity among relatively heavy children, a finding that further supports the use of BMI when assessing health risk of overweight and obese children and adolescents (Freedman, Wang, Maynard, Thornton, Mei, Pierson et al., 2005). Taken together, the evidence for the use of BMI as a measure of weight status and subsequent health risk in children is strong (USPSTF, 2010).

Unlike adults, children and adolescents are expected to add significant height and muscle mass to their body over time. Thus, the expected (i.e., healthy) range of BMI changes over the course of development. For example, the BMI of a "healthy weight" 5-year-old girl is expected to be significantly different from the BMI of a "healthy weight" 12-year-old girl. Because of this, the CDC recommends using *BMI Percentile* when assessing weight status. BMI percentile allows for comparison of each child to other children of the same age and sex. This age-normed index more accurately reflects the natural changes in body composition as children grow and can be used to classify children and youth into weight status categories (Kuczmarski, Ogden, Guo, Grummer-Strawn, Flegal, Mei, et al., 2002). In addition to *BMI* and *BMI Percentile*, the calculator noted above provides text and graphics (e.g., Clinical Growth Charts) and general recommendations that can be incorporated into a clinical treatment plan.

Assessment of Dietary Intake. Given that a primary goal of therapy for overweight and obesity is the achievement of negative energy balance, it is essential both to understand the child's initial dietary intake and to assess changes in energy intake over time. A number of dietary assessment methods have been validated for research and clinical work (e.g., Burrows, Martin, & Colins, 2010), including recall interviews, food frequency questionnaires, estimated or weighted food records, and food/diet histories. Burrows et al. suggested that the *Multi-Pass Recall* method (i.e., recall of all food eaten over three days including one weekend day) may provide the best estimates of energy intake for children, and that the weighed food record method (i.e., recording the volume of all foods eaten over a period of time) may provide the best estimates for preschool-aged children. However, these methods may present challenges in clinical practice settings. As an alternative, brief screeners (e.g., *Staring the Conversation*; Paxton, Stryker, Toobert, Ammerman, & Glasgow, 2011) may provide general information that can be useful for repeated measurement of dietary patterns (e.g., *number of days that snack chips were eaten*; *number of servings of fruits/vegetables eaten per day*). More fine-grained information about dietary intake can be assessed with food diaries (e.g., *Aim for a Healthy Weight;* www.nhlbi.nih.gov/health/educational/lose_wt/index.htm). Commercially available apps (https://www.livestrong.com/myplate/) may provide additional means of assessing dietary intake that can be incorporated into treatment planning or ongoing intervention, although the validity and reliability of these apps is often unknown.

Assessment of Physical Activity. Assessment of initial physical activity and changes in physical activity patterns over time are necessary to help clients achieve weight-related health goals. Validated methods of physical activity assessment include interviews, questionnaires, direct observation methods, and actigraphy (Sallis & Saelens, 2000). For example, the *Physical Activity Checklist Interview* (Sallis, Strikmiller, Harsha, Feldman, Ehlinger, Stone, et al., 1996) is an 18-minute interview-based assessment of physical activity that provides estimates of intensity and duration of moderate and vigorous activity, sedentary behavior, leisure activities, and household work (e.g., activities of daily living). Some self-administered (or parent proxy) questionnaires and surveys have demonstrated validity and reliability as well, including the *Previous Day Physical Activity Recall* (Tucker, Welk, Nusser, Beyler, & Dzewaltowski, 2011), the *HABITS* Questionnaire (Wright, Groisman-Perelstein, Wylie-Rosett, Vernon, Diamantis, & Isasi, 2011), the *Youth Activity Profile* (Saint-Maurice & Welk, 2015), and the *Preschool-age Children's Physical Activity Questionnaire* (Dwyer, Hardy, Peat, & Baur, 2011). Sallis and Saelens noted that physical activity interviews generally have stronger psychometric properties than self-administered questionnaires and surveys. Simple activity logs both for physical activity and sedentary behavior also can provide valuable clinical information as well.[1]

Beyond self- or parent-proxy report methods, accelerometry-based motion sensors (e.g., actigraphy and pedometers) are widely available, and can be used to help track physical activity (Reilly, Penpraze, Hislop, Davies, Grant, & Paton, 2008; Trost, 2007). Advantages of accelerometry-based assessment include increased objectivity and relative ease of use. Further, output from some actigraphy systems (e.g., the GTX3 Actilife System™) allows the clinician and client to examine periods of activity or sedentary behavior over a period of days or weeks to facilitate treatment goals. For example, reviewing output might alert the clinician to days or times during which the client is prone to inactivity, or, alternatively, days or times that the client is particularly amenable to physical activity. However, some actigraphy system are expensive and would not be practical for some clinical

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[1] https://www.nhlbi.nih.gov/health/educational/lose_wt/eat/diaryint.htm; https://www.healthykids.nsw.gov.au/downloads/file/kidsteens/HealthyKidsActivityDiary.pdf.

settings. Direct-to-consumer accelerometers (e.g., Fitbit™, VivoFit™, LiveStrong™) may provide less expensive options, but the validity of these systems is frequently not as well-assessed as research- or clinical-grade products.

Review of the Meta-Analytic Literature

Before turning to evidence-based principles governing effective weight management interventions, a review of the meta-analytic literature regarding interventions for pediatric obesity is in order. Results of several recent meta-analyses suggest that behaviorally based interventions or comprehensive behavioral lifestyle interventions can produce significant effect sizes for reductions in BMI relative to no-treatment control conditions and/or alternative conditions. For example, Wilfley, Tibbs, Van Buren, Reach, Walker, and Epstein (2007) reported that lifestyle interventions for obesity (i.e., interventions involving any combination of diet, physical activity, and/or behavioral treatment recommendations) were more effective than no treatment ($d = 0.75$; 95% CI = 0.52–0.98) and active treatment (information and education-only) control conditions ($d = 0.48$; 95% CI = 0.13–0.82). More specifically, Janicke, Steele, Gayes, Lim, Clifford, Schneider, et al. (2014) examined weight-related outcomes of comprehensive behavioral lifestyle interventions and reported small to medium overall effect sizes immediately following treatment, ($g = 0.47$; 95% CI = 0.36–0.58) and at posttreatment follow-up assessments ranging from 10 to 24 months ($g = 0.39$, 95% CI = 0.248–0.524). Larger effect sizes were associated with longer treatment (duration in weeks), more treatment sessions, a greater total amount of treatment time (i.e., total hours of treatment), and older child age. Similarly, Kitzmann, Dalton, Stanley, Beech, Reeves, Buscemi et al. (2010) reported small to medium overall effect sizes for behavioral lifestyle interventions (i.e., interventions involving some combination of diet, exercise, and other weight-related behavior change, $d = 0.41$ [95% CI = 0.26–0.55]), with significantly better treatment outcomes associated with programs employing higher degrees of parental involvement.

To examine the relative contribution of various treatment components, Gilles, Cassano, Shepherd, Higgins, Hecker, and Nagel (2008) conducted a meta-analysis of studies examining treatments with established efficacy (e.g., *Traffic Light Program (TLP)*, Epstein, Wing, Woodall, Penner, Kress, & Koeske, 1985) and those with various additions to these standard treatments. Interventions that included supplemental behavioral supports (e.g., decreasing sedentary behavior, stimulus control, self-monitoring) and those that included greater parental involvement yielded greater effect sizes than standard lifestyle interventions. Interestingly, interventions that added cognitive components did not yield higher effect sizes than the standard lifestyle interventions.

Gilles et al. (2008) also noted that in one study, pharmacotherapy was added to a behavioral intervention, yielding a relatively larger effect size ($d = 0.65$). These results are consistent with an earlier Cochrane review (Oude Luttikhuis, Baur, Jansen, Shrewsburym, O’Malley, Stolk, et al., 2009), which found that behavioral lifestyle interventions produced significant and clinically meaningful reductions in zBMI among children and adolescents, and that behavioral therapy plus pharmacological therapy (e.g., metformin), produced the largest reductions in BMI for children and adolescents with obesity. However, the authors noted that pharmacological therapy also yielded greater risk of adverse events relative to behavioral (only) therapies.

Overall, the available meta-analytic data suggests that comprehensive behavioral lifestyle interventions are associated with significant BMI reductions in children and adolescents. Such interventions appear to be more effective than diet or exercise alone, and more effective than other modes of therapy (e.g., cognitive therapy; Gilles et al., 2008). In terms of magnitude of effects, results suggest small to medium effect sizes for weight-related outcomes (e.g., BMI, BMI percentile, or Percent

Overweight), with higher effect sizes evident for those interventions of longer duration, those that actively involve parents, and those that target older children. In terms of psychosocial outcomes, Steele, Gayes, Smith, Maphis, and Conway-Williams (2016) reported a small to medium effect of behavioral interventions for obesity on HRQoL. Specifically, they noted that a change of about one standardized BMI unit (about 5 lb for a 10-year-old boy) was associated with a clinically significant improvement in HRQoL.

Principles of Evidence-Based Weight Management Interventions

As suggested by these meta-analytic results, effective interventions for pediatric overweight and obesity typically feature behavioral components and focus on increasing physical activity and/or decreasing caloric intake to achieve a negative energy balance. Two related aspects of this conceptualization deserve comment. First, a focus on controllable and proximal goals (i.e., modifying activity level and food intake) rather than a focus on a distal outcome (i.e., weight loss, per se) is consistent with Carver and Scheier's (1982) articulation of Control Theory, which provides a useful framework for making incremental changes to health behaviors. Second, evidence-based therapies for pediatric overweight and obesity seek to establish healthy dietary habits and activity levels that can be sustained over time (Altman & Wilfley, 2015). Although the *short-term goal* is to change dietary behavior and/or physical activity until a desired change in BMI is seen, the *long-term goal* is to establish new dietary behaviors and adequate physical activity levels as components of a healthier way of life that will result in improved HRQoL and a sustained BMI in the healthy range (<85th percentile). It is important that clients understand this distinction between evidence-based therapies for weight loss and many "fad" diets that they may have encountered.

Within this general framework, specific components of treatment vary by intervention, but often include goal-setting and self-monitoring, modeling, problem-solving, shaping, and parental behavior management strategies (e.g., differential attention, contingency management, and stimulus control; Faith, Van Horn, Appel, Burke, Carson, Franch, et al., 2012; Kitzmann et al., 2010; See Table 1). In terms of energy expenditure, such behavioral strategies can be employed to increase physical activity and/or decrease sedentary behavior (e.g., screen time). For instance, goal setting and self-monitoring may be utilized to set physical activity goals that meet the 60 minute of activity a day recommended for all children (U.S. Department of Health and Human Services, 2018). Contingency management systems can be utilized to reward successive approximation of these activity goals (i.e., shaping). Indeed, Brown, Atkin, Panter, Wong, Chinapaw, and van Sluijs (2016) reported that goal-setting and reinforcement strategies appeared particularly effective for increasing physical activity.

Likewise, providers can use behavioral and social learning strategies to help families adjust the quality and quantity of dietary intake (i.e., decrease the consumption of foods with high-caloric density; increase fruit and vegetable intake; eliminate sweetened beverages, increase water intake). For example, both the *Traffic Light Program* (*TLP*: Epstein et al., 1985; Epstein & Squires, 1988) and *Cues, Activity, Intake, and Reward* (*CAIR*: Israel, Stolmaker, Sharp, Silverman, & Simon, 1984) make a significant use of behavioral parenting strategies to establish and maintain improved dietary intake.[2] More recently developed intervention programs (e.g., *Healthy Habits*: Saelens, Sallis, Wilfley, Patrick, Cella, & Buchta, 2002; *Learning about Activity and Understanding Nutrition for Child Health* [*LAUNCH*]: Stark, Spear, Boles, Kuhl, Ratcliff, Scharf, et al., 2011) have applied and adapted

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[2] Although both TLP and CAIR focus on increasing healthy dietary behaviors and reducing the intake of high-caloric density foods, some evidence suggests that programs focused on *increasing* healthy eating behaviors may be more effective than those focused on *decreasing* high-caloric density foods (Epstein, Paluch, Beecher, & Roemmich, 2008).

Table 1 Summary of efficacious behaviorally based interventions for pediatric overweight and obesity

Program	Age group	Target family member	Strategies employed in active treatment	Authors (Citation)
Learning about Activity and Understanding Nutrition for Child Health (LAUNCH)	2–5 years	Separate Parent and Child Groups; both targeted for behavioral change	*Parent groups*: Education, skills development (food preparation), self-monitoring, contingency management, modeling; *Child groups:* Education, Skills development (new foods, physical activity). In-home observation of skill acquisition	Stark et al. (2011)
Traffic Light Program (TLP)	6–12 years	Separate Parent and Child Groups; both targeted for behavioral change	Education; Self-Monitoring; Contingency Management; Stimulus Control; Modeling	Epstein et al. (1985); Epstein et al. (2008)
Cues, Activity, Intake, and Reward (CAIR); *Enhanced CAIR*	8–12 years 8–13 years	Separate Parent and Child Groups; Parents' behavioral change was optional	Education; Stimulus Control; Contingency Management; Modeling; Telephone support between group sessions. *Enhanced child involvement: S*elf-goal setting, Behavioral planning, Self-monitoring, Self-evaluation, Self-reward, Problem-solving skills	Israel, Stolmaker, Sharp, Silverman, & Simon (Israel et al. 1984); Israel et al., (1994)
Parents as Exclusive Agents of Change (PEAR)	6–11 years	Only parents participated in group sessions: All family members were targeted for behavioral change	Education; Self-monitoring; Contingency Management; Problem-Solving Skills; Stimulus Control; Cognitive Restructuring	Golan et al. (1998)
Go Girls!	12–16 years	Adolescents attended every (group) session; Parents were invited to approximately half of the sessions. Only adolescents targeted for behavioral change	Team building (e.g., ropes courses); Education; Goal-setting; Skills development (e.g., food preparation, exercise); Self-monitoring; Motivational interviewing (by phone)	Resnicow, Taylor, Baskin, & McCarty, (2005)
Healthy Habits	12–16 years	Adolescents and parents attended clinic (MD) sessions; Telephone and electronically tailored material was delivered to adolescents; Only adolescent was targeted for behavioral change	Education; Self-monitoring; goal setting; problem-solving, stimulus control; Self-reward; Behavioral planning; Telephone contact and support	Saelens et al. (2002)

similar behavioral principles for adolescents (*Healthy Habits*) and preschool-aged children (*LAUNCH*), with promising results. Saelens et al. encouraged adolescents to use behavioral principles for self-monitoring, goal-setting, and self-reward with therapist and parent support; Stark et al. encouraged parents of preschoolers with obesity to use contingency management (e.g., reinforcement for trying new foods; ignoring tantrums when food limits are set) and modeling to facilitate dietary changes.

Further, several programs recommend the use of stimulus control as a means of achieving healthier dietary intake. For example, decreasing electronic screen time and not eating while watching television can serve a stimulus control function by decreasing exposure to food cues (i.e., food-related advertisements) that may induce unhealthy snacking behavior (e.g., *CAIR*; Israel et al., 1984; Israel, Guile, Baker, & Silverman, 1994). Similarly, some interventions (e.g., *TLP*: Epstein et al., 1985; *LAUNCH*: Stark et al., 2011; *Healthy Habits*: Saelens et al., 2002) recommend the removal of high-caloric density foods from the home as a stimulus control measure. Conversely, having fresh fruits or vegetables available, in view, and prepared to eat (e.g., portioned or peeled) is an example of positive stimulus control (i.e., encouraging the consumption of healthy snacks; e.g., Israel et al., 1984; Stark et al., 2011). Finally, Stark et al. (2011) recommended teaching parents/caregivers portion control as a means of helping preschoolers achieve healthier dietary intake. Although high (and low) parental control over food intake has been associated with higher zBMI, Steele, Jensen, Gayes, and Leibold (2014) reported that moderate parental control in the service of achieving healthy dietary intake can be associated with beneficial outcomes in youth enrolled in behavioral treatment programs.

Beyond direct parental influence on food availability and energy expenditure, parents and other social systems may also be instrumental in terms of modeling and in the provision of social support for behavioral change. Consistent with a social-cognitive learning orientation, parental modeling of healthy eating, physical activity, and positive body esteem is expected to elicit and support similar changes in children. As noted above, meta-analytic results (Altman & Wilfley, 2015; Kitzmann et al., 2010) suggest that interventions that encourage whole family participation are well established for children (e.g., *TLP*: Epstein et al., 1985; *CAIR*: Israel et al., 1984). However, some interventions that have demonstrated efficacy (e.g., *Parents as Exclusive Agents of Change [PEAR]:* Golan et al., 1998) have not included children in the intervention directly, focusing primarily or exclusively on parental modeling and contingency management to effect healthier dietary and activity choices among children. Indeed, Golan et al. found that a child-focused intervention resulted in less child weight loss than the *PEAR* (parent-only) intervention. In contrast, Israel, Guile, Baker, and Silverman (1994) found that an enhanced *CAIR* protocol that emphasized *child* self-management skills (e.g., goal-setting, self-monitoring, self-reward) in addition to parental behavior modification yielded improvements in perceived self-control and marginally better outcomes over the follow-up period.

More generally, Wilson, Sweeney, Kitzman-Ulrich, Gause, and George (2017) noted that instrumental and emotional support (i.e., nurturance) from families and other social systems may facilitate successful prevention programs and interventions for children and adolescents. Two recently developed programs offer promising directions for community-based interventions: *Go Girls!* (Resnicow, Taylor, Baskin, & McCarty, 2005) is a community (church)-based, culturally tailored, nutrition and physical activity program for African American adolescent females that addresses specific cultural attitudes and beliefs regarding body type and overweight, unique dietary patterns in this community, and specific barriers to physical activity. Similarly, *Girlfriends for KEEPS* (Story, Sherwood, Himes, Davis, Jacobs, Cartwright, et al., 2003) is a school-based obesity prevention program for African American girls (8–12) and their parents that was developed as part of the Girls health Enrichment Multi-site Studies (GEMS) initiative (Obarzanek & Pratt, 2003). *Girlfriends for KEEPS* utilizes an after-school "club" format to deliver education, peer/family support, and behavioral intervention components to improve physical activity and dietary intake. In addition to providing social support and culturally tailored messaging, both programs facilitate skills transfer by providing opportunities for experiential learning (exercise, food preparation).

Finally, and consistent with the recommendations of (Barlow & Expert Committee, 2007), additional supports and interventions may be necessary for youth with more severe obesity, those with medical complications, and/or those for whom less intensive treatments have failed. For such youth, the outpatient clinician may need to refer the family for more intensive services. For example, behavioral therapy with adjunctive pharmacological therapy has been shown to be effective for adolescents (e.g., Oude-Luttikhuis et al., 2009; McGovern, Johnson, Paulo, Hettinger, Singhal, Kamath, et al., 2008). Further, evidence suggests that bariatric surgery may be a viable choice for adolescents for whom other interventions have failed (e.g., Black, White, Viner, & Simmons, 2013). Pratt, Lenders, Dionne, Hoppin, Hsu, Inge, et al. (2009) have provided an overview of issues for the consulting psychologist to consider when contemplating a referral for weight loss surgery in adolescents.

Applying the Literature to Clinical Cases

The meta-analytic results reviewed above suggest that behavioral and comprehensive behavioral lifestyle interventions for weight management among children and adolescents can be effective. However, the small to moderate effect sizes noted in these meta-analyses also suggest that great care must be taken to select interventions that can work for specific families, and to understand contextual and motivational variables that may relate to clinical outcome. As indicated by Gorin and Crane's (2008) ecological model of obesity, several factors beyond the direct control of the individual (or family) may influence health behaviors (see Jensen, Alyward, & Steele, 2012). For example, economic constraints may influence the degree to which families can purchase fresh fruits and vegetables; neighborhood safety concerns may influence the degree to which children can engage in outdoor physical activity. A thorough understanding of the client's socio-ecological context will allow the clinician to tailor specific intervention components to overcome (or mitigate) systemic barriers to changes in health behaviors.

Such tailoring, is of course, predicated on an accurate and ongoing assessment of adherence to treatment components. Attrition from weight management studies is well documented in the literature (Jensen et al., 2012), as are general adherence issues for pediatric health behaviors (Rapoff, 2009). The degree to which the clinician can identify and offer remedies to specific challenges to adherence (e.g., dietary intake, physical activity, behavioral components) will, in part, determine how successful families can be. For example, the clinical use of actigraphy as an ongoing assessment of physical activity can help the clinician identify specific moments through the week in which the child/parent is more likely to be physically active. Such monitoring may also afford opportunities for contingency management (i.e., rewards) and feedback, further enhancing behavioral interventions. Problem-solving skills training (D'Zurilla, Nezu, & Nezu, 2010) has shown some ability to improve adherence to other pediatric medical conditions (e.g., Greenley, Gumidyala, Nguyen, Plevinsky, Poulopoulos, Thomason, et al., 2015; Seid, D'Amico, Varni, Munafo, Britto, Kercsmar, et al., 2011), and may be a useful adjunct to behavioral therapy in the context of overcoming barriers to adherence in pediatric weight management therapy (e.g., Israel et al., 1994; Resnicow et al., 2005).

Further, an assessment of child or family motivation for change may indicate the need for Motivational Interviewing (MI) techniques (Miller & Rose, 2009). MI has been related to better physical and psychological outcomes in children and adults with a range of health and mental health conditions (Gayes & Steele, 2014; Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010). Although meta-analytic results suggest that the effect size for motivational interviewing on obesity-related outcomes may be small (Gayes & Steele, 2014; Vallabhan, Jimenez, Nash, Gonzales-Pacheco, Coakley, Noe, et al., 2018), Resnicow et al. (2015) reported significant long-term reductions in BMI percentile among recipients of MI sessions in the context of a primary care-based obesity intervention. MI as a means of assessing and perhaps augmenting motivation for behavior change and adherence in the context of comprehensive behavioral lifestyle interventions may enhance treatment outcomes.

Finally, clinicians must consider the cultural context of the child/family, and how culture may relate to treatment recommendations and outcome. Seo and Sa (2010) reported small to medium effect sizes ($d = 0.33$ to 0.71) for multicomponent obesity interventions targeting or including non-white children and adolescents in the U.S.; higher effect sizes were obtained for lifestyle interventions and for interventions that included active parental/caregiver involvement. Seo and Sa also noted higher effect sizes for those interventions that were culturally tailored/adapted. Consistent with published recommendations in the general clinical literature (see Chu, Leino, Pflum, & Sue, 2016), cultural adaptations for obesity treatments might include, for example, a flexible approach to treatment delivery and structure to meet the needs of the community, changes to language and word usage to reflect cultural values and preferences (e.g., Resnicow et al., 1999, 2005), affirmation of culturally important activities and behaviors (e.g., traditional foods, celebrations), and exploration of cultural values related to health and well-being (see Peña, Dixon, & Taveras, 2012). Further, Peña et al. urged clinicians to recognize the roles of the extended family in the home and to incorporate family members in treatment as warranted. For families from cultural groups for whom there are no known culturally adapted and evidence-based treatments available, Huey and Polo (2017) recommend the use of non-adapted evidence-based interventions while maintaining attention to and making modifications consistent with the above considerations.

Directions for Future Clinical Research

The literature suggests that behaviorally based comprehensive lifestyle interventions are generally more effective than other psychological or educational interventions for pediatric overweight and obesity for most children and youth (e.g., Janicke et al., 2014; Seo & Sa, 2010). Nevertheless, the effect sizes for these interventions remain in the small to medium range across most meta-analytic studies (i.e., $d \leq 0.5$). An effect size of this magnitude indicates that, although the majority of people (63%) that received a behavioral treatment in RCTs fared better than they would have had they received a control condition, about one out of every three participants receiving active (i.e., non-placebo) therapy (36%) demonstrated as poor of an outcome as someone in the control condition (see Magnusson, 2014). Further, even among the most successful interventions, posttreatment rebound continues to be a significant problem (Altman & Wilfley, 2015), and the number of children and adolescents with obesity and overweight continues to increase (Fryar et al., 2018). A priority for future clinical research is to increase the efficacy, reach, and sustainability of interventions, and to develop sustainable and scalable prevention programs.

With regard to efficacy of interventions for pediatric obesity, the literature clearly establishes what *can* work for families. In most cases, decreases in energy intake, increases in energy output (i.e., physical activity), and instrumental support from family and/or the community will result in improved health for overweight children. As observed by theoretical physicist Stephen Hawking, "*It's not rocket science*" (Bowerman, 2016). Nevertheless, treatment outcome in both clinical trials and in clinical practice is often limited by poor adherence or treatment dropout. The literature has identified a range of individual and systemic barriers to treatment adherence (e.g., Jelalian et al., 2008; Jensen, Aylward, & Steele, 2012; Zeller, Kirk, Claytor, Khoury, Grieme, Santangelo, & Daniels, 2004). Additional work to understand and ameliorate the causes of treatment nonadherence may improve outcomes. Finally, additional effective and sustainable interventions for children and adolescents from underrepresented cultural and ethnic groups are needed (Seo & Sa, 2010).

With regard to improving the reach of interventions, a significant area in need of further work is the dissemination of evidence-based treatments (and principles) to families and practitioners. Despite recommendations for annual BMI assessments (and appropriate treatment/referral; Barlow & Expert

Committee, 2007), the literature indicates that primary care physicians may not regularly assess or document BMI, and frequently fail to make appropriate referrals for overweight children and adolescents (e.g., Higgins, McCarville, Kurowski, McEwen, & Tang, 2014; Wethington, Sherry, & Polhamus, 2011). Given that caregivers often do not recognize that their children are in need of services (Rietmeijer-Mentink, Paulis, van Middelkoop, Bindels, & van der Wouden, 2013), it is incumbent on professionals to address this health concern with caregivers respectfully and sensitively to facilitate eventual treatment. The literature indicates that improving professionals' adherence to guidelines for obesity screening and treatment referral remains an important area for further work.

Finally, more research is necessary to examine the degree to which e-Health and m-Health interventions can improve the reach of interventions for overweight and obesity in children and families. As noted by Cushing, Fedele, and Riley (2019), emerging eHealth/mHealth interventions for some conditions appear well suited to help overcome adherence/attendance issues, incorporate data into clinical decision-making, and to prompt health behaviors in situ using real-time data. Nevertheless, Hammersley, Jones, and Okley (2016) have indicated that significant work remains in terms of translating effective face-to-face interventions for pediatric obesity into the digital format; although some promising results have been demonstrated among adults (Hutchesson et al., 2015).

Summary

Rates of pediatric obesity have increased substantially over the past 40 years, and children and adolescents from underrepresented cultural and ethnic groups are particularly at risk. Youth with BMI percentiles above the 85th percentile for sex and age are at risk for a range of negative psychosocial outcomes and for continued obesity into adulthood. Given the association between weight status and risk for psychosocial problems (e.g., depressive symptoms, self-esteem, peer problems), clinicians that work with children and adolescents are encouraged to consider the impact of weight-related health in their case conceptualizations of overweight or obese clients, and to provide treatment or refer for treatment consistent with recommendations by Barlow and the Expert Committee (2007). The literature suggests that comprehensive behavioral lifestyle interventions for obesity have the most evidentiary support for most children and adolescents, with medium range estimated effect sizes ($d = 0.40–0.60$). Such interventions use behavioral principles to promote physical activity and modify dietary intake to achieve a negative energy balance until desired changes in BMI are seen, and to establish new dietary and physical activity habits to sustain HRQoL and a healthy BMI percentile.

Key Points

- The most favorable outcomes for treatment of pediatric obesity can be expected from comprehensive behavioral lifestyle interventions that involve caregivers and other social supports as active participants in the lifestyle changes.
- Providers are encouraged to consider specific family and youth characteristics (e.g., age, parent/child motivation to change) as well as other available supports when determining specific treatment components and modalities.
- Several well-established interventions have demonstrated efficacy for children and adolescents from diverse communities; clinicians who understand the principles of behavior change should be able to tailor existing interventions to fit the specific needs of their clients.
- Motivational interviewing and/or problem-solving skills training may be an effective adjunct to help families maintain adherence to the behavioral treatment protocol.

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Evidence-Based Treatments for Adolescent Substance Use Disorders

Deborah Deas and Takesha Cooper

Abstract

Adolescent substance use continues to be a national problem in the United States. This chapter reviews treatment modalities tailored for adolescents with substance use disorders that have been studied in a controlled fashion comparing one or more modalities. Treatment modalities for substance use disorders consist of psychosocial therapies and pharmacotherapy. The psychosocial therapies may be applied to various forms of drug use. This chapter reviews therapies which target specific substance use disorders, and the few pharmacotherapy treatments that have been studied in a controlled fashion to treat substance use disorders in adolescents including psychosocial treatments of behavioral therapy; motivational enhancement therapy, combination therapies, family-based interventions, brief strategic family therapy, functional family therapy, multisystemic therapy, and multidimensional family therapy. The majority of the controlled studies represent psychotherapy treatments of various modalities, and family-based therapies have been most studied. As noted in this chapter, psychotherapies show great promise across various types of substances of abuse. Although the current literature suggests that pharmacotherapy for substance use disorders in adolescents may be promising, there is a paucity of studies. The psychosocial evidence-based treatments described in this chapter have been shown to be feasible, suitable, and efficacious in treating adolescents with substance use disorders.

Adolescent substance use continues to be a national problem in the United States. Despite a decline in some illicit substances, far too many adolescents continue to use drugs and/or alcohol during these important developmental years. Data from *The Monitoring the Future* survey (Johnston et al., 2018) indicate that adolescent annual marijuana prevalence rates rose from 1.3% points to 23.9% in 2017, and the annual prevalence of any illicit substance including inhalants was 28.3%. The 2017 Youth Risk Behavior Surveillance indicated that 14% of high school students (nearly one in seven) reported nonprescription use of opioids and a binge drinking prevalence rate of approximately 21% for 12th-grade boys and girls (down from 40% male and 34.5% female in 2003). Despite a decline in 2016, the

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_21

prevalence of vaping remains substantially higher than the use of any other tobacco product, including cigarettes with 2 out of 5 twelfth graders reporting past-year vaping (Johnston et al., 2018). E-cigarettes are the most commonly used vaping device, and it is not surprising that e-cigarettes have the lowest levels of perceived risk of harm of any substance (Johnston et al., 2018).

Whereas the above survey results provide data on adolescent trends in substance use, they are not sufficient to make a diagnosis of a substance use disorder. Current reports reveal that 7.3% of 12–17-year olds have an alcohol or illicit substance use disorder diagnosis (Mericle et al., 2015). Adolescent substance use has far-reaching implications including an increased risk of developing a substance use disorder later in life. Furthermore, adolescent substance use is associated with suicide (Brent, 1995), and deficits in neurodevelopment including long-term effects on learning as well as memory and executive functions (Whyte et al., 2018). Some adolescents use multiple substances which may further increase untoward effects. For instance, during 2011, 23% of high school seniors reported past 12-month simultaneous alcohol and marijuana use (Terry-McElrath et al., 2013). Epidemiological studies reveal that simultaneous use of multiple substances is associated with significant impairment of cognitive and psychomotor functioning, and driving performance with sharply increased crash risk. (Ramaekers et al., 2004).

The marked untoward effects of substance use on adolescents, especially during the developmental period of brain maturation, warrant focused attention on treatment of substance use disorders during the adolescence period. Despite the prevalence of substance use among adolescents, evidence-based treatments for adolescents with substance use disorders still lag behind that of adults. In the past, attempts were made to directly transfer treatments used in adults to adolescents with little modification; however, clinicians and researchers treating adolescents with substance use disorders now recognize more clearly that “adolescents are not adults” (Deas et al., 2000, p. 232) and have developed treatments specifically intended for adolescents. This chapter reviews treatment modalities tailored for adolescents with substance use disorders that have been studied in a controlled fashion comparing one or more modalities. Treatment modalities for substance use disorders consist of psychosocial therapies and pharmacotherapy. The psychosocial therapies may be applied to various forms of drug use therefore the therapies may be modified to target different substance use disorders. This chapter will review therapies which target specific substance use disorders, and the few pharmacotherapy treatments that have been studied in a controlled fashion to treat substance use disorders in adolescents.

Psychosocial Treatments

Psychosocial treatments are the mainstay of interventions for adolescent substance use disorders since the bulk of pharmacotherapy interventions for these youth have been conducted in open-label fashion. Further, to date, there are no approved Federal Drug Administration (FDA) medications for use in adolescents which specifically targets substance use disorders. The psychosocial treatments that have demonstrated efficacy in treating adolescents with substance use disorders include behavioral therapy, cognitive behavioral therapy, motivational enhancement therapy, family-based interventions, 12-step programs, school-based and technological interventions. The vast majority of psychosocial treatments which target substance use disorders in adolescents utilize some components of behavioral therapy, cognitive behavioral therapy and motivation enhancement therapy either as solo or combination therapy. The section below describes the key elements of the therapies that will be discussed in this chapter.

Behavioral therapy targets substance use in the context of the individual's environment. Approaches in behavioral therapy are based on classical and operant conditioning. At the crux of this intervention is the identification of behaviors and triggers that promote substance use. Once these behaviors have been identified, it is important for the client/patient to recognize how these behaviors function to perpetuate the alcohol and/or substance use. The patients/clients are taught skills which target the triggers for substance use and how to use positive alternatives to using substances with the goal of abstinence and prevention of relapse. Essential elements in behavioral therapy are functional analysis, skills training, and relapse prevention (Marlatt & Donovan, 2005). The functional analysis explores the triggers for substance use and the stimuli that promote maintenance of use. Once problematic areas are identified, individual-specific skills are taught to prevent relapse. Other areas of focus include stress management, drug refusal skills, assertiveness training, social skills, and self-regulation.

Cognitive-behavioral therapy (CBT) integrates the impact of cognitive and behavioral elements in addressing substance use. CBT is based on social learning theory and emphasizes functional analyses by addressing drug use in the context of its antecedents and consequences. CBT teaches the adolescent skills in self-awareness such as triggers and onset of cravings, dysfunctional beliefs about drugs and oneself, problem-solving and practiced behavioral approaches to lessen risk and increase the frequency of enjoyable abstinent activities.

Contingency management is based on the framework of operant conditioning where rewarding and punishing consequences are used to eliminate behaviors or frequency of engaging in a behavior. Contingency management (CM) is a treatment that provides rewards contingent on substance abstinence or for other confirmable behaviors such as treatment attendance. The strategy employed in CM is to rearrange the substance user's environment so that (1) drug use/abstinence are readily detected and (2) drug abstinence results in positive reinforcement and drug use results in immediate loss of reinforcement (Petry, 2000). Research often combines CM with other treatment modalities (CBT, MET) in adult populations; however, there is limited research on the adolescent population.

Motivational enhancement therapies target addiction by addressing ambivalence toward treatment engagement and ceasing substance use as well as by enhancing motivation to change. Principles include empathy and reflective listening, developing discrepancy between behaviors and goals, avoiding arguments, adjusting to rather than opposing resistance, and supporting self-efficacy (Miller & Rollnick, 2002).

Behavioral Therapy

More than two decades ago, Azrin and colleagues conducted two studies in a randomized fashion using behavioral therapy. In the first study, Azrin and colleagues (1994), treatment-seeking adolescents with substance use disorders were randomized to either behavioral therapy or supportive counseling. Written assignments and review of in-session assignments, rehearsals, therapist modeling, and self-recording comprised the intervention in the behavioral therapy group. The supportive counseling group focused on expressions of feelings, self-generated insight into reasons for substance use, and nondirective discussion of drug-related experiences. Overall, the behavioral therapy group experienced less frequent substance use, fewer positive drug screens, improved school attendance and performance, and better conduct ratings than the supportive counseling group. The second study conducted by Azrin and associates (Azrin et al., 1996) was a 9-month follow-up study of subjects aged 13–43 who received behavioral therapy versus supportive therapy. The behavioral therapy group had greater positive outcomes at the end of treatment as well as the follow-up period. Specifically, the behavioral therapy group showed greater days worked, less alcohol use, and greater days in school than the supportive therapy group. The extant literature did not reveal any controlled behavioral therapy trials for treating adolescents with substance use disorders since the aforementioned studies. However, throughout this chapter, components of behavioral therapies have been integrated in other modalities to treat adolescents with substance use disorders.

Ögel and Coskun (2011) performed a 1-year observational study aiming to examine the efficacy of a brief cognitive behavioral therapy (CBT) for adolescent patients with polysubstance dependence with preference to volatile substances and to identify factors affecting remission. Volatile substances such as ethers, inhalants, and solvents can be psychoactive and highly deleterious to the developing brain (Garland et al., 2011). Male adolescent participants were randomly assigned to a control group that received a 1 hour psychoeducational on the dangers of volatile substance use or to an experimental 3-week course of CBT that included psychoeducation on the dangers of volatile substance use as well as skills-based components on coping with cravings/resisting drug offers and dealing with emergency conditions. The primary outcome measure was volatile substances use 1 year after treatment. The experimental group showed a reduction in volatile substance use post 1-year treatment with 38.2% of the experimental group and 58.1% of the control group exhibiting continued volatile substance misuse during the last 3 months.

Burrow-Sánchez and colleagues (2015) tested a group CBT intervention integrating cultural accommodations for Hispanic youth in the juvenile justice system in contrast to a standard group CBT intervention. There was no significant decrease between groups, with both groups showing decreased frequency of alcohol and other drug use at 3-month follow-up. The authors noted that the treatments were most effective when implemented in a culturally congruent manner, for instance, Hispanic youth with a stronger degree of ethnic identity, and families with higher self-ratings of familism, responded better to the culturally accommodated CBT-G intervention (Burrow-Sánchez et al., 2015).

Motivational Enhancement Therapy

Using a treatment that targets motivation to change would presumably be beneficial for adolescents, given that they rarely seek substance use treatment on their own (O'Leary Tevyaw & Monti, 2004). The brevity of this treatment modality (typically four sessions) has the benefit of being cost-effective, as well as increasing the likelihood of patient adherence. Walker and associates (2011) randomized adolescents into one of three treatment conditions: Motivational Enhancement Therapy (MET), and two control groups: education on cannabis and feedback (EFC) immediately or education on cannabis and feedback after a delay of 3 months (DFC). At 3 and 12 months, MET and EFC showed significantly fewer days of cannabis use and negative consequences compared to DFC; however, there was no significant difference between the MET and EFC.

A meta-analytic review (Jensen et al., 2011) which evaluated the effectiveness of motivational interviewing (MI) interventions for substance use behavioral changes in adolescents in 21 independent studies revealed a small, yet significant posttreatment effect size ($d = 0.173$). The small, yet significant effect sizes were produced across multiple substance outcomes, and it was noteworthy that the majority of the interventions was a single treatment session. Another meta-analytic review (Tripodi et al., 2010) assessed the effectiveness of substance abuse interventions in reducing alcohol use in adolescents, revealed that interventions significantly reduced adolescent alcohol use (Hedges $g = -0.61$) and there were larger effects (Hedges $g = -0.75$) for individual treatments as compared to family-based treatments (Hedges $g = -0.46$).

Combination Therapies

Some of the psychosocial treatments are used in combination, integrating behavioral therapy and/or cognitive behavioral therapy to enhance the outcomes. A randomized trial (Godley et al., 2014) assessed the degree to which three experimental approaches (CM, assertive continuing care (ACC) consisting of behavioral therapy with case management, or a combination (CM + ACC) were more successful at engagement in services and maintenance of abstinence relative to usual community care, in youth 12 months postdischarge from residential treatment. Results demonstrated both the CM and ACC conditions resulted in significantly more days of abstinence from alcohol and illicit drug use than usual community care over a 12-month period, and participants in CM and ACC were more likely to be in remission at the 12-month follow-up. The combination CM + ACC was not statistically different from usual community care on any outcomes, possibly due to the overwhelming demands of combining these two approaches (Godley et al., 2014). Stanger and colleagues (2017) developed an adolescent intervention model utilizing clinic and home-based CM strategies. Parents were instructed on how to develop a substance monitoring contract and taught to use rewards and consequences contingent on substance testing results. The study randomized substance using/abusing youth aged 12–17 into an experimental group receiving combination Motivational Enhancement Therapy (MET) and Cognitive Behavioral Therapy (CBT) plus the clinic and home-based CM (MET/CBT plus clinic and home-based CM), or into the controlled group, MET/CBT plus attendance incentive group. For both alcohol and cannabis, the likelihood of reporting complete abstinence did not differ between conditions. However, among those who did not completely abstain, at 36 weeks the mean percentages of days used alcohol were significantly lower for the experimental versus control (8.3 vs. 12.0%) and for cannabis use, experimental versus control (26.6 vs. 36.5%). Continued research on behavioral change of CM in the adolescent substance using population is warranted.

Family-Based Interventions

Family-based interventions for adolescent substance use disorders have received considerable research attention. These approaches stem from the family systems theory, which posits that individual functioning occurs in the context of family functioning. Family functioning, in turn, exists within the context of social and community surroundings. As such, it is theorized that individual change requires contextual change, such as patterns of familial behavior and interaction. This theoretical position has been supported by a growing evidence base in treating substance use disorders in adolescents. A number of specific family-based approaches have been studied in recent decades. The most evidence-supported approaches include brief strategic family therapy (BSFT), functional family therapy (FFT), multisystemic therapy (MST), and multidimensional family therapy (MDFT). Each approach targets nonadaptive family dynamics that contribute to adolescent substance use by systematically focusing on improving communication between parents and adolescents, conflict reduction and helping teens increase their involvement with the extrafamilial environment (Baldwin et al., 2012).

Brief Strategic Family Therapy

Brief strategic family therapy (BSFT) was developed in 1975 at the Centre for Family Studies at the University of Miami by José Szapocznik and his team, and aims to resolve adolescent drug misuse by improving family interactions that are directly related to substance use. This program was developed for use with minority children, in particular Hispanic families and has been adapted for use with African American families (Szapocznik et al., 2015). The National Institute for Drug Abuse (NIDA) provides a link to a BSFT manual that can be found at the end of this chapter.

In a structured, problem-focused approach, BSFT focuses on adjusting repetitive maladaptive patterns of family interactions (Robbins, Bachrach, & Szapocznik, 2002). Specifically, the BSFT therapist examines existing networks of interactions within the family and community. While establishing a working alliance, the therapist supports areas of strength and redirects potential problem interactions. The length of treatment varies based on the complexity of cases but typically lasts 12–16 sessions over 3–4 months. In a sample of Hispanic behavior problem and drug-using youths, BSFT was compared with group treatment control. Youth randomized to BSFT showed greater improvement in self-reports of marijuana use, family functioning, and conduct problems (Santisteban et al. 2003). Equally important, rates for treatment engagement and retention are superior for BSFT when compared to community-based treatments (Coatsworth et al., 2001). Robbins and colleagues (2011) compared brief strategic family therapy (BSFT) to treatment as usual (TAU) as provided in community-based adolescent outpatient drug abuse programs. The BSFT intervention was significantly more effective than TAU in engaging and retaining adolescents into treatment and improving parent-reported family functioning.

Functional Family Therapy

The functional family therapy (FFT) model suggests alcohol and drug abuse are problem behaviors that develop and are sustained within the framework of dysfunctional family relationships. A theory of FFT is that substance use serves a specific function within the family, often allowing family members to meet their relational needs for connectedness or detachment. One of the goals of FFT is to assist families understand the meaning behind the substance use and how dysfunctional dynamics create or maintain problem behavior. Goals include: reducing adolescent substance use, improving family relationships, and increasing adolescents' productive use of time. The specific methods used to achieve treatment goals are accomplished in five distinct phases: engagement, motivation, relational assessment, behavior change, and generalization (Waldron et al., 2013).

Families of adolescents receiving outpatient drug abuse treatment were randomly assigned to FFT or a parent group which focused on teaching communication and assertiveness skills (Friedman, 1989). Treatment lasted for approximately six months and resulted in equal reductions in substance use and improvements in family functioning in both groups. However, treatment engagement was superior for the functional family therapy group (93% vs. 67%). Waldron and associates (2001) randomized adolescents with a primary substance use disorder to FFT, individual CBT, a combination of FFT and CBT (joint), or a psychoeducational group. Results demonstrated efficacy in all modalities; however, there was a significant decrease in days used in the FFT and joint groups at 4 months. At 7 months, group treatment showed the greatest change in percentage of days used (66.21–41.88%) followed by joint (56.73–36.44%); FFT (54.88–40.10%) and CBT (52.19–51.13%).

Multisystemic Therapy

Multisystemic therapy (MST) is an intensive treatment designed for families of adolescents with severe social, emotional, and behavioral problems. This modality seeks to reduce problem behaviors by delivering, in concert with families, substantive adjustments to the ecological context of the behaviors. Therapists, working with a small caseload, are available to clients at all hours and typically provide treatment in the home, school, and other community settings (the adolescent's ecology) rather than in the office.

Past studies explored MST as a treatment for substance use disorders in delinquents (Henggeler et al., 1999, 2002). In a group of juvenile offenders randomized to MST or the usual community services, the MST group showed significantly less alcohol, marijuana, and other drug use at the conclusion of treatment and 50% less out-of-home placement at 6 months posttreatment. At 4-year follow-up, subjects were assessed, revealing significant long-term MST effects for aggressive criminal activity (0.15 vs. 0.57 convictions per year) and marijuana abstinence (55% vs. 28% of young adults). A multi-level meta-analysis of 22 studies, consisting of 4066 juveniles demonstrated small but significant treatment effects found on delinquency, substance use, family factors, out-of-home placement, and peer factors (Van der Stouwe et al., 2014).

Multidimensional Family Therapy

Multidimensional family therapy (MDFT) is an evidence-based short-term, manualized treatment targeting adolescent and family functioning across a variety of risk factors including substance use, delinquency, antisocial, and aggressive behaviors. In a study by Liddle and colleagues (2008), marijuana-abusing or -dependent youth were randomized to either MDFT or CBT. Both interventions demonstrated significant decreases in cannabis consumption and slightly significant reductions in alcohol use. MDFT was found to significantly reduce substance use problem severity, other drug use, and minimal use (zero or one occasion of use) of all substances, with treatment effects continued to 12-month poststudy completion. Another study of youths with cannabis use or dependence compared MDFT to CBT (Hendricks et al., 2011). MDFT was not found to be superior to CBT on any of the outcome measures. Both groups showed reductions in cannabis use and delinquency. MDFT did, however, demonstrate superiority in treatment intensity and retention. In a study comparing MDFT to peer group intervention, Liddle and associates (2009) randomized adolescents to 4 weeks of manualized guided treatment. MDFT was superior over the 12-month follow-up in reducing substance use frequency, substance use problems, delinquency, and internalized distress and risk reduction in peer, family, and school domains.

There is a paucity of studies which compares BSFT, FFT, MST, and MDFT side by side, consequently there is no clear evidence that one form of family therapy is superior over another. More research is needed to identify the common aspects associated with these four treatment modalities as well as the primary mechanisms responsible for individual- and family-level changes (Baldwin et al., 2012).

Other Psychosocial Treatment Modalities

Technology-Based Interventions

There is an unmet need for innovative approaches to managing substance use in adolescents. The proliferation of adolescents' regular use of electronic devices (laptops, tablet computers, cellular phones) on a daily basis calls for innovative approaches through technological interventions. A mobile-based approach to addressing substance misuse and/or recovery is a promising method to effectively reach youth (Lenhart, Madden, & Hitlin, 2005; Rainee, 2008). To our knowledge, there are no randomized trials on technology-based interventions addressing active substance dependence in youth. Studies which explore the feasibility of using technology to screen for drug use and for addressing substance youth in recovery are reviewed below.

Newton and colleagues (2017) piloted a randomized controlled trial of the acceptability and feasibility of a computer-based tool to identify and reduce harmful drinking among adolescents presenting with alcohol related complaints to pediatric emergency departments. The computer-based assessment was found to be acceptable and feasible in terms of time to use and ease of use but only 44% of the adolescents found the intervention credible. The authors suggested larger-scale trials be performed to improve recruitment and retention rates.

Gonzales and colleagues (2014) piloted a 12-week study of substance use recovery outcomes among a cohort of youth participating in a mobile-based texting aftercare pilot program. After transitioning out of community-based substance treatment programs, youths were randomly assigned to a texting mobile program or to usual community care. The texting mobile program consisted of daily self-monitoring texts, a daily wellness recovery tip, and substance abuse education and social support resource information on weekends. The intervention experienced significantly less relapse compared to the aftercare as usual control ($OR = 0.52$, $p = 0.002$) over time. The intervention group also reported significantly less substance use problem severity ($B = -0.46$, $p = 0.03$) and were more likely to participate in extracurricular recovery behaviors ($B = 1.63$, $p = 0.03$) compared to the control group. While there is limited evidence, technology-based interventions play a vigorous role in the current management of active substance dependence in adolescents, this modality may play a role in screening and psychoeducation of substance use disorders and in maintenance gains during aftercare.

School-Based Interventions

Schools present an auspicious setting for addressing substance use disorders in youth because they provide access to large numbers of students for extended time periods, and are settings geared at enhancing student well-being (Wyn et al., 2000). In the United States, substance use education is ongoing in public schools beginning as early as elementary school in some districts, usually in the form of didactic sessions provided by school staff or visiting community members. Some of the evidence-based treatments mentioned above have been studied in the school setting rather than in the home, group, or clinic setting. Stewart and colleagues (2016) implemented a school-based MI intervention for adolescent substance use incorporating students aged 13–18 referred for substance use (within the last 3 months) and school discipline problems. The students were randomized into two groups: MI intervention immediately or waitlist control (WLC) group for 8 weeks followed by MI intervention. The MI group experienced significantly fewer participants reporting daily marijuana use posttreatment. Results of alcohol use indicated both the WLC and MI groups showed a decreased alcohol intake with no differences between groups. The authors noted these findings support the effectiveness of school-based MI interventions for adolescent marijuana use and provide evidence that MI is a critical and effective component within such interventions (Stewart et al., 2016).

The following large cluster randomized controlled study showed a decrease in heavy episode drinking (HED) in a sample of high school students. The intervention combined a skills-based classroom curriculum and parental intervention program vs alcohol education as normal (EAN). At 33 months, only 17% of students reported HED compared with 26% EAN. The authors concluded this skill-based combined classroom/parental intervention could be an effective program to reduce heavy episode drinking (McKay et al., 2018). Future research is needed to better understand how school-based interventions can play a role in addressing adolescent substance use, especially in the area of prevention.

Pharmacotherapy

In addition to the psychotherapies discussed previously, pharmacotherapy may be considered as an adjunct to therapy, particularly for severe drug and/or alcohol abuse. Currently, most controlled research studies (comparing one pharmacotherapy agent to another or to placebo) for substance use disorders is performed in adult subjects. The literature for treating substance using adolescents with pharmacotherapy is scarce given ethical and practical reasons; however, there are some controlled trials showing efficacy. At this time, there are no FDA-approved medications for treating substance use disorders in adolescents. However, based on the extant literature, which includes some meta-analyses, recommendations for the treatment of targeted disorders will be discussed below.

Substance-Focused Treatments

Alcohol

Alcohol is the most common substance of abuse among adolescents. Although studies on pharmacotherapy have expanded treatment options for adults with drinking problems, the development of medication for adolescents has been limited. Naltrexone is an opiate receptor antagonist that is effective for reducing cravings and the rewarding effects of alcohol dependence in adults. In many clinical trials, naltrexone lowered the risk of relapse and reduced the frequency of drinking and heavy drinking days, with a modest effect size ($g = 0.20$) (Maisel et al., 2013). Miranda and colleagues (2013) conducted a randomized double-blind controlled trial of adolescent problem drinkers aged 15–19 years comparing naltrexone (50 mg/daily) and placebo. Results showed that naltrexone was generally well tolerated and reduced the likelihood of drinking, heavy drinking, blunted craving, and altered subjective responses to alcohol consumption.

Marijuana

Marijuana is the most commonly used illicit substance among adolescents; however, limited numbers of studies focus specifically on marijuana abusing youth. To our knowledge, there is only one double-blind randomized controlled trial studying N-acetylcysteine (NAC) in cannabis dependent youth. NAC is an antioxidant *N*-acetyl prodrug of the naturally occurring amino acid cysteine, and is widely available over-the-counter. NAC is thought to regulate glutamate leading to craving reduction in the nucleus accumbens. In an 8-week double-blind randomized placebo-controlled trial (Gray et al., 2012), randomized treatment-seeking cannabis-dependent adolescents youth aged 15–21 years receive NAC (1200 mg) or placebo twice daily as well as a contingency management intervention and brief (<10 min) weekly cessation counseling. Participants who received NAC had more than twice the odds, compared with those receiving placebo, of having negative urine cannabinoid test results during treatment (odds ratio = 2.4, 95% CI = 1.1–5.2). The authors note the findings support NAC as a pharmacotherapy to complement behavioral and psychosocial treatment for cannabis dependence in youth.

Given the promise of NAC in this relatively small adolescent population, a multisite double-blind placebo-controlled study was undertaken to see if the results would be replicated in a larger sample size of adults aged 18–50. Those treated with *N*-acetylcysteine (NAC) submitted no more cannabis-free urine samples (22.3%) than those given a placebo (22.4%). Researchers are exploring reasons to explain these findings which are in contrast to those found in the adolescent studies and posit that the adults used marijuana for more years than the adolescents thus suggesting a higher dose for NAC might have been needed. Other possible explanations include differential psychosocial motivators between adolescents and adults and the role of contingency management in the adolescent study.

Miranda and colleagues (2017) conducted a double-blind, placebo-controlled pilot study testing topiramate + MET compared to placebo + MET in cannabis users aged 15–24 years. Only 48% of youths randomized to topiramate completed the 6-week trial compared with 77% of youth in the placebo condition. Adverse side effects of the topiramate were listed as common reasons for discontinuation. Results demonstrated that topiramate + MET showed efficacy for reducing how much cannabis adolescents smoked but did not affect abstinence rates. A small number of studies have assessed the pharmacologic treatment of cannabis use disorder in individuals with comorbid psychiatric disorders. A trial in adolescents and young adults with comorbid major depression and cannabis use disorder did not find a significant effect of the antidepressant fluoxetine on cannabis-related outcomes (Cornelius et al., 2010). A Cochrane review meta-analysis of 21 randomized controlled trials, mostly with adult participants demonstrated SSRI antidepressants showed no difference in abstinence at end of treatment compared to placebo (RR 1.73, 95% CI 0.61–4.89). Effect sizes for other medication classes also showed no difference compared to placebo: anxiolytic buspirone (RR 1.98, 95% CI 0.62–6.33) and anticonvulsants/mood stabilizers (RR 1.14, 95% CI 0.64–2.04) (Nielsen et al., 2019). Symptoms of cannabis withdrawal have been observed in adolescent treatment-seekers and may complicate treatment, particularly among the heaviest using adolescents (Vandrey et al., 2005). Cannabis withdrawal and craving may be potential targets for pharmacotherapy. Investigation in this area has occurred among adult subjects, but no randomized trials have been undertaken in adolescents.

Cocaine

Although cocaine abuse has been included among entrance criteria and outcome measures of existing randomized trials, no study to our knowledge has specifically targeted adolescent cocaine abuse. Data from the Monitoring the Future survey showed over the last 17 years, cocaine use has declined in all grades, excluding a rise in 12th-grade use in 2017 (ns); annual 12th-grade use was 2.7% in 2016, with use by 8th and 10th graders still lower, at 0.8% and 1.4%, respectively (Johnston et al., 2018).

Nicotine Dependence

Tobacco use continues to be the leading cause of preventable death in the United States (U.S. Department of Health and Human Services, 2014). Among adolescents aged 12–17 in 2014, 1.7 million used tobacco products in the past month, including 1.2 million current cigarette smokers (Center for Behavioral Health Statistics and Quality, 2015). Vaping is the inhalation of vapors (sometimes using nicotine or other substances) using battery-powered electronic cigarettes (e-cigarettes) and is a relatively new trend that has developed from nearly zero prevalence in 2011 to one of the more common methods of adolescent substance use (Johnston et al., 2018). E-cigarette use, from 2017 to 2018, increased 78% among high school students (11.7–20.8%) and 48% among middle school students (3.3–4.9%) from 2017 to 2018 (Cullen et al., 2018). At present, the U.S. Food and Drug Administration (FDA) has approved three medications for nicotine replacement therapies (NRT: e.g., transdermal patch, gum, nasal spray, and inhaler) bupropion-sustained release (SR) and varenicline for smoking cessation in adult smokers. There are very few controlled studies of pharmacologic treatments for smoking cessation in adolescents. Adolescents between the ages of 14 and

17 who smoked at least six cigarettes per day were randomly assigned to use either 300 mg, 150 mg of bupropion or placebo to quit smoking. Quit rates were significantly higher as a function of high adherence (77.4% relative to low adherence 27%) in the 300 mg bupropion-sustained release group. Adherence impacted abstinence similarly in the 150 mg bupropion-sustained release group, with 65% as a function of high adherence compared to 34.2% with low adherence. Overall, effectiveness of bupropion for adolescent smoking cessation is contingent on achieving high adherence rates. (Leischow et al., 2016). In another study examining nicotine replacement, adolescents were randomized to weekly counseling plus nicotine nasal spray for 8 weeks or to weekly counseling alone. There was no difference in cessation rates, and 57% of adolescents stopped using the nasal spray due to nasal irritation and burning, while 34.8% and 13%, respectively had problems with taste and smell (Rubinstein et al., 2008).

Based on the effect sizes (relative risk [RR], 1.38; 95% confidence interval [CI], 0.92–2.07) yielded by a recent meta-analysis of 6 RCTs (Kim et al., 2011) pharmacologic therapy for smoking cessation among adolescent smokers did not have a significant effect on abstinence rates at short- or mid-term follow-up. The authors concluded the low effect sizes seen may have been due to the small number of participants in the published trials.

Opiate Use Disorder

In the United States, 467,000 adolescents between the ages of 12 and 17 are nonmedical users of opioid pain relievers (Center for Behavioral Health Statistics and Quality, 2015). Many adolescents perceive less risk in using prescription opioids (The Partnership for Drug-Free Kids, 2013) compared with other illicit drug use, and early onset of nonmedical use of prescription opioids is a significant predictor of an opioid use disorder (McCabe et al., 2007). The prevalence and serious consequence of opioid use disorder underscores the need for effective treatment. Medication-assisted treatment (MAT) is a combination of medication and psychosocial and behavioral therapies often considered the treatment of choice for opioid use disorder. In adults, three medications are FDA approved for the treatment of opioid use disorders: methadone, naltrexone, and buprenorphine. Buprenorphine, a partial mu-opioid receptor antagonist is the only FDA medication approved for adolescents, with specifications for use in youth 16 years and older (Providers Clinical Support System (PCSS), 2013). The combination of buprenorphine with naloxone (an opiate antagonist) makes it difficult to abuse intravenously. Naloxone is absorbed poorly by sublingual oral route (buprenorphine is taken sublingually), and if someone tries to inject the medication, naloxone blocks the opiate receptors and hence the reinforcing property of buprenorphine (Collins & Kleber, 2004).

In a controlled trial, Marsch and colleagues (2016) randomly assigned youth and young adults (ages 16–24) to a double-blind intervention, which consisted of a 28-day buprenorphine and buprenorphine/naloxone taper or a 56-day buprenorphine and buprenorphine/naloxone taper. Behavior therapy and contingency management were offered to all patients. Youth receiving the 56-day taper demonstrated more opioid-negative scheduled urine tests compared to those receiving the 28-day taper (35% vs. 17% P = 0.039). Treatment retention was significantly longer for those receiving the 56-day buprenorphine taper compared to those receiving a 28-day taper (Marsch et al., 2016).

A 2014 Cochrane review (Minozzi et al., 2014) of 150 adolescents comparing maintenance treatment with buprenorphine/naloxone with detoxification with buprenorphine. The maintenance treatment seemed to be more effective in retaining adolescents in treatment (drop-out risk ratio (RR) 0.37; 95% (CI) 0.26–0.54) but not in reducing the use of drugs of abuse. At follow up one year later, adolescents in the maintenance group self-reported less opioid use and more were enrolled in other addiction programs. The authors noted the quality of the evidence was low, limited by the very low number of trials retrieved in the review and that there is an urgent need for more studies in treatment of adolescent opiate abuse.

Other Substances (Stimulants, Sedative/Hypnotics, Club Drugs)

There is practically little to no evidence for pharmacotherapy of stimulant, sedative/hypnotic, and club drug use disorders in adolescents. Hence, psychosocial treatment is the first-line treatment for these disorders.

Treatment Resources

The Substance Abuse and Mental Health Services Administration (SAMHSA) has a website focusing on the treatment of substance use disorders. A manual introducing substance use disorder treatment and family therapy, featuring models for integrating the two approaches to therapy can be found at https://store.samhsa.gov/product/TIP-39-Substance-Abuse-Treatment-and-Family-Therapy/SMA15-4219.

A manual that provides guidelines on screening and assessing teens for substance use conditions can be found at: https://store.samhsa.gov/system/files/sma12-4079.pdf. This manual covers confidentiality laws, and contains tools for screening and assessment, including in juvenile justice settings.

Drugabuse.gov also publishes manuals and informational pamphlets on the treatment of substance use in adolescents. *Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide* details principles of substance use disorders in adolescents, addresses FAQs, summarizes treatment settings and evidence-based treatment approaches, and provides treatment referral resources. https://www.drugabuse.gov/publications/principles-adolescent-substance-use-disorder-treatment-research-based-guide/principles-adolescent-substance-use-disorder-treatment.

Finally, The National Institute for Drug Abuse (NIDA) provides a link to BSFT manual that can be found at http://www.bsft.org/documents/BSFTNIDATherapyManual.pdf.

Summary

While there has been a reduction in the prevalence rates of substance use among adolescents, problematic use persists. Adolescents with dysfunctional substance use should be treated with empirically based interventions. Unfortunately, treatment advances for adolescents with substance use disorders have trailed advances seen in adult populations. Increasingly, researchers are making efforts to develop treatments specifically designed and tested for adolescent substance use disorders. The majority of the controlled studies represent psychotherapy treatments of various modalities, and family-based therapies have been most studied. As noted in this chapter, psychotherapies show great promise across various types of substances of abuse. Although the current literature suggests that pharmacotherapy for substance use disorders in adolescents may be promising, there is a paucity of studies. The psychosocial evidence-based treatments described in this chapter have been shown to be feasible, suitable, and efficacious in treating adolescents with substance use disorders. Clinicians and researchers are encouraged to utilize these available treatments, especially the Web-based guides available for public use.

Key Points

- Individual and group psychosocial treatments that have demonstrated efficacy in treating adolescents with substance use disorders include behavioral therapy (BT), cognitive behavioral therapy (CBT), and motivational enhancement therapy (MET).
- Multi-systemic therapy (MST), a range of family-based interventions, and some school-based interventions have demonstrated efficacy for some substance use disorder.
- Culturally tailored CBT approaches appear to be effective, particularly among youth with stronger ethnic identity, and among families with higher self-ratings of familism.
- To date, there are no approved Federal Drug Administration (FDA) medications that specifically target substance use disorders in adolescents. However, several randomized clinical trials have identified pharmacological agents that yielded beneficial substance-specific effects.

Acknowledgments The authors thank Ms. Angela Walline for her support in preparation of this manuscript.

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Implementation Issues

Dissemination of Evidence-Based Treatments for Children and Families in Practice Settings

Julia Revillion Cox and Michael A. Southam-Gerow

Abstract

Children's mental health stakeholders have identified dissemination and implementation of psychological treatments as a key goal for the field. This chapter provides an overview of dissemination and implementation science related to child and adolescent mental health treatment and services research broadly. Systematic reviews have identified hundreds of published randomized controlled studies of treatments for child and adolescent behavioral health problems, yielding many treatment programs that demonstrate significant clinical gains relative to control conditions. Despite the array of options, many youths experiencing clinically significant behavioral health problems do not receive adequate treatment. The authors review the conceptual underpinnings of this research, provide a brief overview of relevant factors, summarize several influential models, and comment on the research and practical applications of dissemination and implementation. The authors note that there has been a proliferation of empirical and theoretical work as well as organizational developments related to dissemination and implementation of psychological treatments. These developments are encouraging in order to build a science that improves the lives of the many youth and families struggling with behavioral health concerns.

The field of psychological science has made significant progress developing and testing psychological treatments to address mental health disorders in children and adolescents. The treatment outcome evidence base is increasingly deep and there are many empirically supported programs from which to choose. Systematic reviews have identified hundreds of published randomized controlled studies of treatments for child and adolescent behavioral health problems (Chorpita et al., 2011; Weisz et al., 2017), yielding many treatment programs that demonstrate significant clinical gains relative to control conditions (see Southam-Gerow & Prinstein, 2014).

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_22

Despite the array of options, many youths experiencing clinically significant behavioral health problems do not receive adequate treatment (e.g., Merikangas et al., 2011; Tang et al., 2008), an artifact of the much-discussed science–practice gap (e.g., U.S. Department of Health and Human Services, 2002). Indeed, the clinical gains of evidence-based treatments (EBTs) relative to usual care have not been as clear in community-based effectiveness trials (e.g., Southam-Gerow et al., 2010; Weisz, Jensen-Doss, & Hawley, 2006). Children's mental health stakeholders have identified dissemination and implementation (D&I) of psychological treatments as a key goal for the field (e.g., Aarons, Hurlburt, & Hurwitz, 2011; Proctor et al., 2009; Schoenwald & Hoagwood, 2001; Southam-Gerow, Rodríguez, Chorpita, & Daleiden, 2012). This chapter provides an overview of D&I science related to child and adolescent mental health treatment and services research broadly. Specifically, we review the conceptual underpinnings of D&I research, provide a brief overview of relevant D&I factors, summarize several influential D&I models, and comment on the research and practical applications of D&I.

Review of Dissemination and Implementation Concepts

Drawing from formative D&I work (e.g., Chambers, Ringeisen, & Hickman, 2005; Damschroder et al., 2009; Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005; Proctor et al., 2009; Rabin & Brownson, 2012), we define three terms that are related but distinct: diffusion, dissemination, and implementation. *Diffusion* refers to the spread of an innovation, be it planned or spontaneous (Rogers, 2003); for example, the diffusion of specific treatment techniques can be natural and unplanned (e.g., word of mouth) or intentional (e.g., marketing and selling a treatment manual). *Dissemination* refers to the "targeted distribution of a well-designed set of information" (Chambers et al., 2005, p. 323); for example, the process of dissemination may involve the packaging and marketing of information about a treatment program to maximize its receipt by a specific audience (e.g., subgroup of mental health professionals). Finally, *implementation* refers to the strategies and processes required to make an innovation work within a specific context (e.g., Fixsen et al., 2005); for example, the implementation of a treatment program within a specific mental health system may require changes in policy and procedures (e.g., training, supervision, and outcome monitoring resources) to ensure that the novel program is (a) being used correctly and (b) its use results in the expected outcome (e.g., improved clinical outcomes). If dissemination involves distributing information about an innovation to an audience, implementation is how that program becomes a reality. Implementation involves the myriad processes and procedures designed to support the adoption, correct use, and sustainment of the program in a specific context.

The Ascent of Dissemination and Implementation Science

Publishing treatment studies in academic journals has not led to extensive changes in the behavioral health care system (Hoagwood, 2013; Southam-Gerow et al., 2012). That does not mean that the system is not open to changes in services. In fact, there is considerable demand for such innovation within mental health service systems, as demonstrated by the wealth of clearinghouses for effective treatments across state and local systems (e.g., the Commonwealth of Virginia publishes a biennial report detailing EBTs across a variety of child problems; Virginia Commission on Youth, 2019). Further, some states and localities have begun to incentivize delivery of EBTs through EBT-specific funding programs (e.g., Covell et al., 2014; Lau & Brookman-Frazee, 2016). The mental health service system aims to improve consumer wellbeing; EBTs are a way to make progress toward that goal (Regan, Chorpita, & Daleiden, 2013). If it were simply a matter of installing new software to the system, perhaps there would be more widespread adoption of evidence-based programs. Of course, it is not that simple. Hence, the rise of D&I science as a way to identify how best to bring the best innovations in behavioral health care to the contexts where they are needed. One of the first challenges tackled by D&I science was to enumerate the reasons why the initial approaches of dissemination were not adequate to the task of transforming behavioral health care.

Consistent with decades of medical research, most psychosocial treatment programs are designed to treat one disorder (e.g., oppositional-defiant disorder) or a problem type (e.g., anxiety, disruptive behaviors). As described earlier, psychological science has made substantial progress in the development of mental health treatment for children and adolescents using this model. However, as the field moves from highly controlled efficacy trials toward community-based trials with greater generalizability, significant limitations to this discrete approach have become clear. Multiple factors beyond the youth's psychopathology appear to influence how effective a treatment will be in practice (e.g., Damschroder & Hagedorn, 2011; Fixsen et al., 2005; Proctor et al., 2009; Schoenwald & Hoagwood, 2001; Southam-Gerow et al., 2012). Southam-Gerow and colleagues (2012) highlight four factors in particular that may affect the potency of psychological treatments (see also Karver & Peterson, this volume): (1) child and family factors, (2) therapist factors, (3) organizational factors, and (4) system factors. We discuss each of these briefly and examine how they might serve as a barrier to common dissemination strategies.

Child and Family Factors

There are a number of child- and family-specific factors that can influence the success of psychological treatments. Many of these variables have been largely overlooked as intervention targets and/or underrepresented within efficacy study samples. First, children who access services provided by community mental health clinics often present with clinical comorbidities, impaired social and academic functioning, and other stressors (Ehrenreich-May, Southam-Gerow, Hourigan, Wright, Pincus, & Weisz, 2011; Southam-Gerow, Chorpita, Miller, & Gleacher, 2008; Weersing & Weisz, 2002). Many such comorbidities and stressors are not explicitly addressed by EBTs that typically focus on a single presenting problem (Hammen, Rudolph, Weisz, Rao, & Burge, 1999).

Second, the families that present to community mental health clinics differ from those referred to university-based research clinics in meaningful ways; parents are more likely to have less education (Southam-Gerow et al., 2008) and lower incomes (Ehrenreich-May et al., 2011). Single-parent families are also more frequent among this population (Southam-Gerow, Weisz, & Kendall, 2003), and ethnic minority families are overrepresented, even when controlling for geographic differences (Ehrenreich-May et al., 2011). One study of youth receiving school-based mental health services echoed these findings, documenting higher rates of trauma exposure and past suicide attempts compared to efficacy studies (Shirk, Kaplinski, & Gudmundsen, 2009). Taken together, these studies illustrate how community populations present with more clinical complications that may impede successful child outcomes and have highlighted the need for D&I science. As well, community populations are generally more diverse than research populations across multiple potentially relevant variables (e.g., race, ethnicity, family income), raising questions about the generalizability of the evidence base.

Therapist Factors

One of the main foci of most treatment research has been to ensure that participants receive treatment that is maximally pure (e.g., therapists deliver *only* the prescribed intervention) and extensive (e.g., therapists deliver the prescribed intervention frequently and thoroughly). As a result, study therapists—often doctoral-level students or professionals—typically receive extensive training, supervision, and consultation. In contrast, the community mental health workforce is comprised of a majority of masters-level therapists with diverse training backgrounds, large caseloads, and challenging productivity requirements (e.g., Beidas et al., 2016; Garland, Kruse, & Aarons, 2003; Weisz, Chu, & Polo, 2004). These therapist-level differences and potentially others (e.g., therapist attitudes) may influence the success of a treatment program when it is transported into a community setting. For example, community providers have reported variable motivation to learn and use EBTs; several studies have documented clinicians' belief that manualized treatments are inflexible, limiting individualization and thereby effectiveness (Addis & Krasnow, 2000; Becker, Zayfert, & Anderson, 2004; Walrath, Sheehan, Holden, Hernandez, & Blau, 2006). Although openness to, knowledge about, and perceived appeal of EBTs may facilitate acceptance and use of EBTs (Aarons, McDonald, Sheehan, & Walrath-Greene, 2007; Reding, Chorpita, Lau, & Innes-Gomberg, 2014), surveys of community-based clinicians' attitudes toward evidence-based practice have not revealed consistent predictors of such attitudes by theoretical orientation, training, or years of experience (Nakamura, Higa-McMillan, Okamura, & Shimabukuro, 2011).

Another important factor to consider is the limited effectiveness of specialized training in EBTs. Self-directed learning and didactic workshops, conducted in-person and online, are the most popular methods of such professional development and training; it is easy to see how brief and/or self-paced curriculum appeals to already busy community mental health professionals. However, although several studies have documented that such training methods can result in significant gains in clinician knowledge and self-reported efficacy, there is very little evidence that therapists' *behavior* actually changes posttraining (see Beidas & Kendall, 2010 and Herschell, Kolko, Baumann, & Davis, 2010, for reviews). Instead, it is the use of behavioral strategies, including practice, feedback, ongoing consultation, and coaching—often requiring significant time commitment—that has been shown to increase EBT adoption and affect client outcomes (Becker & Stirman, 2011; Herschell et al., 2010; Lyon, Stirman, Kerns, & Bruns, 2011; McLeod et al., 2018).

Organizational Factors

Therapists working in communities are often part of a mental health agency or organization; such professional entities each have their own characteristics and culture that can affect the implementation of EBTs. As the work of Glisson and colleagues (2012) has shown, *organizational climate*—which includes norms, expectations, and policies—affects clinician behavior (e.g., ability to attend EBT training) and attitudes (e.g., job satisfaction, morale) that are integral to D&I. Although sending a cadre of clinicians to specialized EBT training would be a sizeable expense for most mental health agencies, any specialized skills gained may be lost over time through staff turnover and lack of adequate organizational support. Organizational leaders are encouraged to consider how organizational climate and processes help or hinder service delivery (e.g., onerous paperwork expectations, opportunities for collaboration and feedback among staff in different roles) and provide front-line clinicians with the technology and support needed (see the Availability, Responsiveness, and Continuity [ARC] organizational intervention; Glisson et al., 2012; Glisson, Williams, Hemmelgarn, Proctor, & Green, 2016). Whereas individual therapists may deliver EBTs, organizations provide crucial infrastructure to support sustainable change through ongoing training, monitoring EBT use (e.g., integrity of treatment), and supervision and coaching (Fixsen et al., 2005).

System Factors

Just as therapists work within organizations, community mental health agencies are subject to system-level influences, or what Aarons and colleagues (2011) refer to as the *outer context*. This includes local, state, and federal laws and policies (e.g., professional licensure requirements); the availability and priorities of funding sources (e.g., community resources, insurance); mental health infrastructure (e.g., referral mechanisms); relationships between organizations; and the needs of local mental health consumers (Fixsen et al., 2005; Schoenwald & Hoagwood, 2001). Notably, funding for children's mental health services has lagged adult services for decades (Hoagwood et al., 2018) and mental health systems are subject to institutional racism (e.g., McKenzie & Bhui, 2007). Distal factors can profoundly affect implementation efforts (e.g., Aarons & Sommerfeld, 2012; Metz & Bartley, 2012). As one example, evidence supports the use of parent management training as a frontline treatment for disruptive behavior in young children (Kaminski & Claussen, 2017). However, some systems have required that the child—as the identified patient—must be in the therapy room to permit billing, thereby limiting the utility of treatments that use caregiver-only session.

D&I science represents a set of frameworks and methods designed to address the myriad complex factors that influence whether and how EBTs—or any new type of treatment or innovation—are delivered in community settings. The field made strides in the latter part of the twentieth century developing promising treatment approaches in research settings. As the field moves toward finding ways to maximize the public health impact of this work, D&I science has become a key focus of attention. Because D&I science must grapple with the complex and multilayered realities of clinical services, leaders in the field have outlined conceptual models and frameworks to guide research efforts. We consider several influential models in the next section.

Models of D&I

As we have discussed, there are many challenges facing the dissemination and implementation of psychological interventions in community settings. As a result, directives to adopt EBTs and other "push" forces on the research side of the science–practice gap are insufficient on their own to facilitate adoption of EBTs (e.g., Proctor et al., 2009; Southam-Gerow et al., 2012). On the other side, the "pull" forces that reflect community demand, such as patients requesting specific EBT program or practitioners/community agencies seeking training and reimbursement for EBT services, have not yet been as frequent and/or as fierce to result in a critical mass toward widespread dissemination and implementation of EBTs.

D&I is still a relatively young science. Although the development and use of D&I models and theories—along with the identification and measurement of key variables within those models—makes findings more interpretable and meaningful (Tabak, Khoong, Chambers, & Brownson, 2012), no models or theories have demonstrated clear empirical support relative to others (e.g., Proctor et al., 2009). As a result, we have many models with only some guidance about which ones to use for what work. D&I science has only just started to compare and classify the many models. Nilsen (2015) proposed organizing D&I theories, models, and frameworks into five categories that achieve three primary aims. First are **process models** that aim to *describe and/or guide the process by which* *research is translated to practice*. Process models typically specify a number of steps, stages, or phases that facilitate implementation; some process models include directive guidance, whereas others may simply describe the steps. Nilsen (2015) differentiated three distinct theoretical approaches that are designed to achieve the second goal of *understanding and/or explaining what factors influence implementation outcomes*. These theoretical approaches are: (1) **determinant frameworks**, which identify factors that facilitate, impede, and/or influence implementation outcomes; (2) **classic theories**, which are those theories that originated in fields outside of implementation science (e.g., organizational theory, psychology, sociology) but can be meaningfully applied to explain and/or understand aspects of implementation; and (3) **implementation theories**, which are theories that originated within contemporary D&I science and can be used to explain and/or understand aspects of implementation. Finally, **evaluation frameworks** are designed to help the field *evaluate the success of implementation efforts.* With this taxonomy in mind, we move to a description of five D&I models that exemplify the breadth of foci and goals.

Process Model: Meyers, Durlak, and Wandersman's Quality Implementation Framework

Meyers and colleagues (2012) developed their process model the Quality Implementation Framework (QIF), after reviewing and synthesizing 25 implementation frameworks, with the goal of "focusing on specific actions (i.e., the 'how to') that can be employed to foster high-quality implementation" (p. 462). The resulting model describes four phases of implementation. Although the implementation process is dynamic such that some phases may overlap and critical steps require attention throughout the process, the authors highlight the importance of temporal order. For example, Phases 1 and 2 require attention first before active implementation processes (Phase 3) unfolds. The first phase, *Initial Considerations Regarding the Host Setting*, comprises the bulk of the model, highlighting the importance of preparation-focused tasks. In this phase, three main tasks are accomplished: (1) **assessment of** the target setting's needs and resources at multiple levels (e.g., child/family, therapist, organization, system), fit between the target setting and the innovation, and readiness/capacity for implementation; (2) determine what **adaptation(s)** to the innovation are possible and indicated to improve the probability of implementation success in the new context; and (3) **build** organizational capacity (e.g., infrastructure, skills, motivation). Phase 1 is focused on preparation, underscoring a theme of this chapter: in addition to perspiration, implementation is largely about preparation. Phase 2, *Creating a Structure for Implementation*, builds on the work completed in Phase 1 to leverage the human and information resources to create implementation teams and develop a specific implementation plan.

With a specific plan and teams in place, active implementation begins in Phase 3, *Ongoing Structure Once Implementation Begins*. Infrastructure to support sustainable implementation is expanded to include (a) technical assistance, coaching, and supervision processes that can help maintain innovation fidelity and troubleshoot obstacles and (b) a process to collect and feed implementation data (e.g., fidelity of the innovation) back. This phase echoes the training literature reviewed earlier: Ongoing consultation and support after an initial training may increase providers' use of and fidelity with new innovations (e.g., Beidas & Kendall, 2010).

Finally, Phase 4 of Meyers et al.'s (2012) model, *Improving Future Applications*, focuses documentation of lessons learned with the goal of refining the implementation process. This phase also emphasizes the importance of gleaning constructive feedback (e.g., families served, front-line providers, organization leaders) and to share those insights with stakeholders, researchers, and developers of innovations alike.

Determinant Framework: Mental Health Systems Ecological Model

The mental health systems ecological model (MHSE; e.g., Schoenwald & Hoagwood, 2001; Southam-Gerow et al., 2012) identifies broad determinants, referred to as ecological levels. Developed explicitly with children's mental health services in mind, the MHSE outlines the importance of: (1) child/family factors, (2) therapist factors, (3) organization factors, and (4) service system factors, each discussed in more detail earlier in the chapter.

The MHSE model suggests that implementation efforts should consider key variables of one or more of these levels. For example, an implementation team may consider using an organization-level intervention to promote uptake of EBT (e.g., the ARC intervention; Glisson et al., 2010; Glisson et al., 2012); others have been able to leverage system-wide financing changes into EBT implementation efforts (e.g., the Los Angeles County Department of Mental Health, as described in Lau & Brookman-Frazee, 2016). Others have addressed the possibility of therapist opposition to an EBT (e.g., Aarons, Wells, Zagursky, Fettes, & Palinkas, 2009) by establishing partnerships to build collaboration and promote buy-in from the start of an implementation effort (e.g., Fox, Mattek, & Gresl, 2013; Southam-Gerow, Hourigan, & Allin, 2009).

Classic Theory: Rogers' Diffusion of Innovations Model

The broadest model presented here, Rogers' Diffusion of Innovations Theory (2003) was developed to describe how and why ideas, practices, or objects that are novel—or perceived to be novel—spread through a social system. In this model, "diffusion" refers to how an idea moves between individuals or parts within the system via communication (Rogers, 2003). Relative to the other models describe here, this theory is unique in that it emphasizes both intentional, effortful implementation processes *and* less (or un-) intentional processes of dissemination.

There are four main factors. First is the **innovation** itself and its unique characteristics, including (a) perception of the innovation's *relative advantages* over that which it is replacing, (b) the *compatibility* of the innovation with the needs and values of potential adopters, (c) the perceived *complexity* or difficulty of using the innovation, (d) the *trialability* of the innovation, or the extent to which the innovation can be used on a trial basis versus the degree to which users must commit to full adoption, and (e) the *observability* of positive outcomes (Rogers, 2003). Second are the **channels of communication** within the social system, including all ways in which information may spread, from mass media to interpersonal conversations. Different channels spread information at different rates, reach different arrays of potential adopters, and influence adopter behavior differently (Rogers, 2003). Third is **time**, including the rate at which adoption occurs across a system, the lateness or earliness of adoption relative to other individuals in a system, and the lapse between when individuals first learn about an innovation and when they decide to reject or adopt the innovation (Rogers, 2003). Fourth is **the social system**, which refers to all of the potential adopters of a specific innovation (Rogers, 2003). Within the mental health field, this includes therapists and organizations within a community (e.g., city, state); often, contextual differences (e.g., unique needs of local children/families) and policies (e.g., reimbursement rates for EBTs) also affect the spread of a given innovation. Rogers (2003) also highlighted how local norms and key opinion leaders may affect the diffusion of innovation.

In Nilsen's (2015) taxonomy, Rogers' (2003) model represents a classic theory that has important implications for D&I work. For example, the therapist training literature summarized earlier (e.g., Beidas & Kendall, 2010; Herschell et al., 2010) describes a formal and effortful communication channel. Key opinion leaders, or those influential individuals whose behavior serves as a model for others within a social network, have been instrumental in the implementation of school-based teacher-delivered mental health interventions for low-income minority children with disruptive behavior (Atkins et al., 2008). Finally, the characteristics of an intervention (e.g., flexibility of use) appear to influence potential adopters' perception of that EBT along with the outcome achieved by adopters (Weisz et al., 2012; Borntrager, Chorpita, Higa-McMillan, & Weisz, 2009).

Implementation Theory: Aarons et al.'s Exploration, Preparation, Implementation, and Sustainment Framework

Although Aarons and colleagues' (2011) Exploration, Preparation, Implementation, and Sustainment (EPIS) framework was based on careful review of research in a number of fields—including mental health, public health, organizational development, medicine, and business—it was developed for the purpose of guiding D&I science, with a focus on differentiating levels of context. As its name implies, the framework is built around four key phases: (1) exploration, (2) adoption decision/preparation, (3) implementation, and (4) sustainment. In each phase, Aarons and colleagues underscore the importance of specific factors across an ecological model (cf. Southam-Gerow et al., 2012; Proctor et al., 2009; Fixsen et al., 2005): the *outer context* (i.e., sociopolitical and funding realities that exist outside of the organization), the *inner context* (i.e., characteristics of the organization, including individuals within the organization) and the *interconnections* between the inner and outer contexts. The authors identify a number of factors that influence implementation at each of the four phases across the context levels. A more complete rendition of this model can be found in Aarons et al. (2011).

Evaluation Framework: Proctor et al.'s Implementation Research Model

Finally, Proctor and colleagues' (2009) conceptual model of implementation research identifies several *outcomes* upon which the success of implementation efforts can be evaluated. Congruent with many of the models already discussed earlier and drawing on Shortell's (2004) work, the authors posit that implementation targets and outcomes alike reflect multiple levels of a service system. Targets at each level can be addressed by different implementation strategies based on the field's understanding of mechanisms of change: (1) for individuals within a system, changes in knowledge, skill, and expertise are crucial; (2) within groups and teams, increased cooperation, coordination, and sharing knowledge are essential; (3) inside organizations, changes in strategy and structure are key; and (4) within a larger system or environment, changes in reimbursement, legal, and regulatory processes are important (Proctor et al., 2009; Shortell, 2004). Important outcomes of implementation intervention(s) are organized into three domains: (1) **client** outcomes, like caregiver satisfaction and child functioning/symptoms); (2) **service** outcomes, like efficiency, effectiveness, equity, and patient-centeredness; and (3) **implementation** outcomes, like feasibility, EBT fidelity, and sustainability). Although client outcomes are ultimately the most important to EBT implementation within a mental health system, the service and implementation outcomes are important indicators of EBT success within a system and may be mediators or moderators of clinical success (Proctor et al., 2009).

Conclusion and Recommendations

Addressing child and adolescent behavioral health concerns broadly is a crucial public health challenge we face (Hoagwood et al., 2018). Although the field has developed many treatment programs with strong evidence bases, child-/family-, therapist-, organizational-, and system-level factors have impeded widespread dissemination of these treatments. The field of D&I science arose out of the need to address these barriers and improve the process by which psychological interventions reach communities in need. Empirical and theoretical D&I work has yielded many relevant models and frameworks; some prescribe a series of implementation steps (e.g., Fixsen et al., 2005; Meyers et al., 2012), identify important predictors of implementation success (e.g., Fixsen et al., 2005; Schoenwald & Hoagwood, 2001), and/or identify important implementation outcomes, guiding evaluation efforts (e.g., Proctor et al., 2009). D&I science is guided both by models that originated in other disciplines (e.g., Rogers, 2003) and those that grew out of recent D&I science (e.g., Aarons et al., 2011).

The proliferation of D&I models is the result of the relative youth of the field. As D&I science continues to mature, it is possible that conceptual models will begin to consolidate, yielding a select few prominent models. Indeed, some consolidation work has already begun: Nilsen (2015), as discussed earlier, proposed a taxonomy of different theories, and there have been efforts to review the conceptual D&I literature (Tabak et al., 2012), and catalogue D&I instruments with the goal of promoting empirical evaluation of implementation efforts (Lewis et al., 2015). The current status of the D&I conceptual literature—relatively new—is consistent with the relative novelty of the field itself.

Despite the relative youth of the field, readers have likely noticed that there are many commonalities across the models reviewed here. These similarities highlight important D&I themes and can be translated into a few specific and actionable recommendations. One key theme is the importance of treatment fit across systems. Treatment researchers often develop treatments with a focus on the child (and family). D&I models make clear that doing so risks the treatment *only* fitting for the child. For example, treatments that require special equipment (e.g., tablets for data tracking), unique spaces (e.g., large rooms for specific activities), or co-therapist arrangements may be challenging to administer in many treatment settings. Similarly, some treatment programs are designed and tested with sessions that far exceed an hour. Although easy to manage in a research setting, many payers will not reimburse for more than one hour of treatment per week. Thus, it behooves an organization to consider the specific mental health needs of the children and families (e.g., local base rates, need for cultural adaptation) it serves along with the skills, needs, and preferences of the therapists (e.g., leveraging existing expertise, identifying clinicians with specific clinical interests) and the larger system (e.g., reimbursement limits, ensuring sustainability). There is also a need for feed-forward and feedback processes to integrate information from multiple stakeholders into implementation efforts. For example, clinicians are likely to benefit from specific observational feedback gathered by consultants and/or supervisors just as organizational leaders are likely to benefit from insights provided by front-line clinicians.

The importance of the culture and climate in an organization is another key theme. Treatment researchers tend not to think about how a particular treatment program might be implemented in different settings. Instead, there is often a “build it and they will come” ethos, perhaps based on confidence in the demand for helpful clinical tools and the effectiveness of passive diffusion and dissemination processes. Unfortunately, as D&I frameworks and years of research make clear, often organizations are resistant to or unready for change. As a result, to implement treatments, we often need to create implementation interventions that emphasizes preparation and readiness at the organization level well before active implementation is attempted. The EPIS framework (Aarons et al., 2011) is particularly useful to consider in this regard, as it focuses on organization factors across the phases of adoption.

A final recommendation is more strategic than tactical. As noted at the outset, the models operate at different levels and serve different conceptual functions (e.g., determinant versus evaluation frameworks; Nilsen, 2015). Though there are many models, if an organization or research team is planful and cognizant of their specific aims and needs, it can quickly narrow its search down to a few. For instance, organizations in search of a rough how-to guide are encouraged to seek out a directive process model like the QIF (Meyers et al., 2012) described earlier. Should a scientist be interested in testing whether a well-developed treatment program was delivered with treatment integrity and whether the program was sustained after the study was ended, an evaluation framework like Proctor et al.'s (2009) model may be the best choice. However, if one is particularly interested in one or more aspect of implementation (e.g., organizational context, implementation climate), an implementation framework with a relevant focus may be of most use, helping to guide preliminary questions. Secondary data analysis of effectiveness and implementation trials may lend themselves to applying determinant frameworks, where understanding which factors influenced the findings becomes a key. Finally, when primarily interested in understanding how and why implementation processes (e.g., diffusion, behavior change) occur—rather than enacting active change—the classic theories, like Rogers' (2003) Theory of Diffusion, may be most fruitful.

Fortunately, the field of D&I science—and the number of useful conceptual guide rails (e.g., Nilsen, 2015)—is growing quickly. This growth is evidenced by the proliferation of empirical and theoretical work, including a dedicated journal, *Implementation Science* (http://www.implementationscience.com), and international organizations (e.g., European Implementation Collaborative; http://www.implementation.eu, Society for Implementation Research Collaboration, https://societyforimplementationresearchcollaboration.org). These developments are encouraging, as more of us are focused on building a science that improves the lives of the many youth and families struggling with behavioral health concerns.

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Client, Therapist, and Treatment Characteristics in Evidence-Based Therapies for Children and Adolescents

Marc S. Karver and Amanda L. Peterson

Abstract

In this chapter, the authors review client, therapist, and treatment variables to try to answer questions and potentially raise new ones about the variability in outcomes of evidence-based treatments for youth and their families. They note the progress made in understanding the interaction of client and therapist characteristics and how these may lead to youth treatment processes. These include client characteristics of developmental characteristics, case difficulty, and family characteristics. Therapist characteristics are outlined along with characteristics of treatment that may affect treatment applications and outcomes. The authors emphasize that more research work is needed to elucidate these important variables affecting therapeutic outcomes. They conclude with a summary of what is known and a discussion of possible future research.

Since the 1990's, there has been a push to develop, test, and disseminate evidence-based therapies (EBTs) for youth mental health disorders (e.g., Lonigan, Elbert, & Johnson, 1998) with many interventions being found efficacious (e.g., Evans, Owens, & Bunford, 2014; Higa-McMillan, Francis, Rith-Najarian, & Chorpita, 2016). However, even when EBTs are utilized, many youths do not improve (Jones et al., in press; Smith & Jensen-Doss, 2017). One issue is dropout with rates from 16 to 72% (de Haan, Boon, de Jong, Hoeve, & Vermeiren, 2013). So, why do so many youth clients/families drop out of treatment and when they do show up, why do so many not achieve optimal outcomes when receiving EBTs? It is becoming increasingly clear that use of an EBT is not sufficient to guarantee a youth client will stay in treatment and improve. It is important to remember that these treatments are delivered by therapists to youth clients and their families with all participants having varying characteristics. In addition, the therapist-client(s) interaction also introduces variability into EBT delivery/receipt.

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_23

While progress has been made in understanding the interaction of client and therapist characteristics and how these may lead to youth treatment processes, more work is needed. In this chapter, we review client, therapist, and treatment variables to try to answer questions and potentially raise new ones about the variability in outcomes of EBTs for youth and their families. We conclude with a summary of what is known and a discussion of possible future research.

Client Characteristics

There are numerous characteristics that clients bring to therapy that can influence therapist behavior, delivery of and response to an EBT, and treatment outcome. These characteristics range from traditional developmental characteristics to characteristics related to why clients come to treatment. Once the clients and their parents are presented with an EBT, client/family characteristics can continue to influence treatment success. Understanding these client characteristics can be potentially useful relative to assisting clinicians in adapting their approaches as they attempt to implement EBTs.

Developmental Characteristics

When it comes to *youth* client characteristics, age/developmental level would appear relevant. Older youth would seem more capable of engaging in EBT tasks, but they may also have established difficulties and be less willing to comply with therapy (Baker & Sanders, 2017). Interestingly, most researchers have used age as a youth development proxy. However, this has not been useful as child age has generally not been found related to treatment completion or outcome (e.g., Lundkvist-Houndoumadi, Hougaard, & Thastum, 2014) and findings are mixed with child age and therapeutic alliance (TA) formation (Karver, De Nadai, Monahan, & Shirk, 2019). In addition, few studies have examined links between developmental factors and youth ability to utilize EBT. Level of cognitive, social, and/or emotional development could play an important role in treatment success.

Interestingly, younger children appear to have greater difficulty recognizing therapy processes and understanding abstract therapy concepts; Youth with more advanced cognitive development are more able to perform cognitively advanced therapy tasks (Brennan, Murphy, & Flessner, 2017). It may be that limited youth cognitive skills may somewhat impair meta-cognitive ability to self-reflect, insight to recognize problems, ability to attend to and elaborate on thoughts, ability to understand the usefulness of treatment, and ability to connect specific therapy tasks to accomplishing therapy goals (Shirk, 1988). Younger children may need some EBTs (e.g., CBT, IPT, ACT) to be more concrete and less abstract which is challenging given that these EBTs rely on youths recognizing, talking about, and altering their thinking (Kendall, 2017). Adolescents are typically more capable of relativistic and flexible thinking and planning that is used in these EBTs (Davis & Vander Stoep, 1997). More behavioral EBTs (e.g., behavioral parent training) likely would not have these limitations as they do not require self-reflection or meta-cognition.

Language development may also be important relative to utilizing an EBT that is not primarily behavioral. For example, adolescents may be more suited than children to actively participating in an EBT (e.g., IPT) given superior ability to express themselves (Davis & Vander Stoep, 1997). Older youths would be more receptive to conversation focused EBTs while younger youths, with weaker conversation skills, may need EBT adaptations, such as delivering skills through play, cartoons, and games, or behaviorally based EBTs to be more receptive to treatment (Friedberg, 1996). Relatedly, therapy homework may only be useful for treatment success when youths have the language abilities to utilize the homework (Wagstaff, 2017).

Additionally, youth social development and competence can impact therapy. Venta et al. (2015) found that the most securely attached adolescents in treatment had the largest symptom decreases which may be because they have the interpersonal strengths to form a TA. This makes sense given early social competence and attachment patterns and security affect the ability to form relationships (Hay, Payne, & Chadwick, 2004). These variables have also been found related to the TA, an important predictor of EBT outcomes (Karver et al., 2019). Further, a client's history and level of social skill could provide a clinician with important information on attention needing to be focused on TA building versus moving into EBT implementation. For example, with a less socially developed youth, relationship development will most likely need to focus on concrete reciprocity (e.g., engaging in activities that the youth likes; focusing conversation on youth topics of interest). However, the clinician needs to be careful that their behavior does not come across as role incongruent or risk harm to relationship formation (Gurland & Grolnick, 2008). Forming a TA with a socially developed adolescent, who is more likely to form relationships with others based on mutuality, intimacy, and loyalty (Hay et al., 2004), would probably involve a focus on discussing/joining with the youth on common interests (academics, sports, volunteer activities) while being careful to not assume knowledge of the youth's experience. From there one would move toward negotiating agreement on shared therapy goals and achieving them while respecting the youth's identity and autonomy.

Finally, like social development, emotional development can impact therapy given that persons with early attachment insecurity often have emotion regulation difficulty (Hay et al., 2004). An emotionally developed youth will likely have better ability and confidence to understand and communicate about emotions (Brennan et al., 2017). They may also have better adaptive emotion regulation skills compared to emotionally immature youth and thus may be less likely to externally attribute problems (Steinberg & Drabick, 2015). The emotionally mature youth would probably be more motivated to work with a clinician to change behavior in therapy.

Case Difficulty

It makes sense that characteristics responsible for a youth being referred to treatment would be related to how well treatment works. While there are EBTs for many disorders, it is believed that the most complicated presentations may be the most challenging. EBTs might have limited generalizability to high difficulty cases in some problem areas especially if EBT trials excluded higher difficulty cases (Chorpita, Bernstein, & Daleiden, 2011). The most difficult youth cases are often characterized as ones in which youths have comorbid problems.

However, the research literature is mixed (positive, negative, and no effect on outcomes) as to how youth clients with a variety of comorbid disorders respond to EBTs (e.g., Aitken, Waxman, MacDonald, & Andrade, 2018; Reale et al., 2017). A correctly targeted primary problem may lead to changes in comorbid problems that might be secondary effects of the primary problem or treatment approaches for a primary problem may address overlapping psychopathogenic mechanisms of multiple problems (Mahdi, Jhawar, Bennett, & Shafran, 2019). However, this would imply that clinicians are able to correctly determine the primary problem, the proper EBT for that problem, and how to apply a specific EBT (see Phares & Hankinson, this volume). While there is evidence that some single EBTs can impact multiple problems, there is a lack of evidence on whether clinicians can examine patterns of comorbidity in youths and correctly determine treatment prioritization. An effective treatment prioritization approach may depend on a clinician doing a careful, evidence-based assessment and developing an accurate case conceptualization [e.g., client logic model/hypotheses with links from client physiology and history to links between current client environment (antecedents, consequences), thoughts, feelings, urges, and behavior]. This conceptualization would then guide the clinician on the first problem to intervene with to break a problematic chain leading to multiple problems. In addition, the clinician could take a "program for success" approach where part of the client model is addressed that appears easier for the client so that a client has a successful treatment experience that motivates them to address other problem areas. Unfortunately, there is a lack of evidence for this approach to prioritize treatment for comorbid youths (Thomassin & Hunsley, 2019).

An alternative in addressing comorbidity is the transdiagnostic approach. This approach, rather than depending on picking the "right" diagnosis and EBT, focuses on the clinician addressing high prevalence symptom profiles and flexibly utilizing modules (EBT components) that target symptom profiles rather than entire EBTs (Chorpita & Daleiden, 2009; Chorpita et al., 2013). The idea is that the modules address transdiagnostic psychopathogenic mechanisms (e.g., disrupted emotion regulation, motivational difficulties) of multiple disorders. This would allow a clinician to address multiple problems simultaneously. Martin, Murray, Darnell, and Dorsey (2018) review suggests that there is increasing support (small, medium, and large effects for decreasing symptoms, changes to theorized mechanisms, improved well-being) for this approach.

In addition, other youth characteristics may impair clinicians. Youth with suicidal ideation, attempts, and/or non-suicidal self-injury have poorer response to EBTs (e.g., Rohde, Turner, Waldron, Brody, & Jorgensen, 2018). It may be harder to convince hopeless youths to engage in treatment but also, many clinicians are not comfortable engaging suicidal youths as they lack the skills, confidence, and specific training to manage suicide risk (Gryglewicz, Chen, Romero, Karver, & Witmeier, 2016). Fortunately, trainings are available to increase ability to work with suicidal youths (e.g., Gryglewicz et al., 2019).

Similarly, therapists may struggle to form a TA and correctly implement EBTs with fidelity with angry or aggressive youth (Perepletchikova, & Kazdin, 2005). Attempts to treat these youths may be met with angry and/or defensive reactions, treatment resistance, and even potentially aggression. In fact, youths with higher levels of baseline anger or aggression have been found to have poorer treatment response (Schuberth, Selles, & Stewart, 2018). Faced with high levels of negativity, the therapist may be less likely to put in the effort to engage the youth and overcome resistance to completion of therapy tasks/homework. Nonetheless, clinicians may need to engage them in a different manner than they would a youth who is more receptive to therapy [e.g., emphasize validation, support, advocacy, and genuineness while carefully using empathy (Karver & Caporino, 2010)].

Family Characteristics

Family characteristics may dramatically help or hinder youth EBTs. For instance, older parental age has been associated with less child disruptive behavior after completion of a parenting program (Baker et al., 2017), which may be due to other factors correlated with older age that may be useful to enhance with younger parents. In fact, younger parents tend to lack basic parenting skills and knowledge regarding child development (Borkowski, Whitman, & Farris, 2007), so they could be educated on skills such as communicating effectively and instilling feelings of autonomy, and security with their children. Also, older parents may have more stable intimate relationships compared to younger parents. Being in a household with parents with high relationship satisfaction has been correlated with lower youth symptoms (Bayer et al., 2011). Clinicians may wish to check in with parents regarding their partner relationship satisfaction and provide referrals for parents who may need additional support within their own social lives.

Additionally, family financial stability can affect youth EBTs (Fernandez & Eyberg, 2009). Financially stable families are more likely able to afford treatment and provide therapy transportation. Indeed, families who report the most barriers to treatment have children with the least improvement (Kazdin & McWhinney, 2018). Clinicians could assess for and help families to plan ahead for potential barriers to care before treatment.

Parental psychopathology may be another factor in youth EBT. While some have found no link between parental mental health and youth outcomes (Gonzalez et al., 2015), others have found parental psychopathology predicts poor outcomes (e.g., Chronis-Toscano, Wang, Woods, Strickland, & Stein, 2017; $r = 0.21–0.52$). Parents with psychopathology may have increased stress and could feel overwhelmed (Chen & Lukens, 2011). It may be helpful for the clinician to ask parents about their own mental health symptoms to aid in the treatment of their child. Clinicians can then provide appropriate referrals and assistance to parents who may also be struggling with mental health difficulties. Additionally, parents with mental health concerns may have problematic parent–child interactions. For example, invalidating interactions between parents and their children have been related to emotional dysregulation and externalizing problem behaviors (Shenk & Fruzzetti, 2014). While it may be difficult to discuss with parents how their behaviors are influencing their children, clinicians could utilize motivational interviewing tactics and validation to explore parents' motivations for helping their child succeed in therapy. Overall, family related factors potentially have the ability to affect treatment and an understanding of these factors could aid in clinician's case conceptualizations and treatment planning.

Therapist Characteristics

While youth and parent qualities may be related to therapeutic outcomes, qualities of the therapist may also affect treatment. This seems particularly likely given that some variance in treatment outcomes is predicted by therapist variables (Baldwin & Imel, 2013). Regrettably, therapist characteristics and their role in youth treatment outcome have been understudied. However, Karver et al. (2005) have posited that factors such as therapist expertise, competence, interpersonal and direct influence skills, along with personality traits may affect youth outcomes.

While therapist experience has been thought related to greater change in youths, meta-analyses suggest that treatment effect magnitudes do not differ based upon experience level of the therapist (Sukhodolsky, Kassinove, & Gorman, 2004). However, some studies have found greater clinical experience associated with reductions in youth symptoms (e.g., Podell et al., 2013). Therapists with more experience have been found to include parents more frequently in youth treatment (Haine-Schlagel, Brookman-Frazee, Fettes, Baker-Ericzén, & Garland, 2012), which may result in greater youth treatment gains.

While it is not clear if general therapist experience may influence treatment outcomes, more specific experience with specific interventions could be beneficial. Indeed, knowledge of CBT has been found related to youth outcomes (Shirk & Karver, 2003). Additionally, therapists with greater specific treatment knowledge may appear more credible and therapist credibility has also been associated with greater therapist influence (Hoyt, 1996; $d = 0.41–1.33$) and better therapeutic outcomes (Baker et al., 1975).

Although specific experience may be important for skillful delivery of therapeutic techniques, this can be enhanced or undermined by clinician interpersonal characteristics. These may include empathy, warmth, genuineness, positive regard, and trust. These skills have been shown to be related to treatment factors such as attendance, engagement, symptom reduction, and the TA (Karver et al., 2006). Greater interpersonal skills may foster comfort and trust in youth, which in turn may influence motivation and engagement with treatment.

Additionally, therapist personality characteristics have been hypothesized to influence youth outcomes. Unfortunately, few studies have looked at the role of therapist personality characteristics in youth therapy. In one youth study, therapists higher in openness to experience displayed lower treatment adherence, which may positively impact therapeutic outcomes through treatment flexibility (Peters-Scheffer, Didden, Korzilius, & Sturmey, 2013). Additionally, specific personality traits of the therapist, such as high neuroticism, dominance, and perfectionism have been shown to have a negative impact on TA formation with youths (Doucette, Boley, Rauktis, & Pleczkowski, 2004). However, while some therapists may have challenging personal characteristics, they could be taught helpful interpersonal skills. In the adult literature (but not the youth literature), therapists' interpersonal skills have been improved with training (e.g., Crews et al., 2005). Considering therapists may need different skills with youths, it seems imperative to examine how these skills can be best taught to improve treatment for youths.

Treatment Characteristics

While therapists and youth/family clients bring various characteristics to therapy, ultimately, EBT success depends on the therapy as delivered/received. EBTs appear to consist of common factors *and* techniques to address problems of specific populations. While some argue that treatment success depends on just common factors or specific techniques, it is likely both are needed. Thus, EBTs may need optimal levels of techniques (e.g., treatment adherence/fidelity/competence) and common factors (e.g., therapist behaviors, TA, client involvement).

Adherence to specific EBT techniques is so that specific psychopathogenic treatment targets should change which should then mediate outcome change. Unfortunately, there are few studies of how EBTs change treatment mechanisms, studies have frequently not been adequately designed to detect mechanism causality, and results have been mixed. Some studies have not supported hypothesized mediators (e.g., Jongerden & Bögels, 2015) while others have provided some support (e.g., Silverman et al., 2019). In some studies, while the proposed change mechanism did not mediate outcome change, a less theoretically preferred mechanism did mediate change (e.g., change in perceived coping skills, not cognitions). So, specific techniques may be important, but may not work as assumed to work.

While connecting therapy techniques to client processes seems important, Collyer, Eisler, and Woolgar (2019) meta-analysis did not provide strong support for a treatment adherence to outcome relationship in EBTs ($r = 0.1$). Other variables, such as therapist competence or quality of therapy, may influence whether following an EBT carefully results in the best outcomes. Unfortunately, there has only been limited study of these indicators of optimally delivered youth EBTs and they have not been found to have much relationship with outcome (Collyer et al., 2019; Jones et al., in press; $r = 0.03, 0.20$). Perhaps the minimal variability in treatment adherence and therapist competence in EBT clinical trials (i.e., lower performing clinicians are often removed) may minimize the ability to establish the importance of these variables. However, Jones et al. (in press) suggest that focusing on therapists relative to maximizing the quality of EBT delivery would not have much effect on improving treatment outcomes and that instead the focus for improving treatment outcomes should be on influencing other variables. For example, improvement in the outcomes of EBT might depend more on clinician responsiveness to influential client characteristics (e.g., treatment resistance, disruptive behavior, comorbid problems, cultural background, environmental stressors, unexpected crises).

Given that treatment adherence/quality may be impacted by client in session behaviors, Connor-Smith and Weisz (2003) suggested that following an EBT too rigidly could lead to treatment failure. If a clinician attempts to teach an EBT technique when the client is not ready, the client may not adequately attend to the treatment material or may even actively resist suggested skills. This issue goes beyond just client response to treatment but also includes clinician attitudes toward rigid treatment adherence. Many clinicians are reluctant to utilize EBTs due to beliefs that they must be implemented with rigid adherence (Marques et al., 2016). This suggests the need for flexibility within fidelity. This is the therapist's adapting an EBT in a responsive manner to meet youth needs while still following the principles/strategies of the EBT. This flexibility could be important in overcoming clinician reluctance to implement EBTS. Unfortunately, there are few treatment flexibility studies in the youth EBT literature. These studies have generally found that treatment flexibility is related to youth involvement in a therapy session but is not directly related to treatment outcome (e.g., Hudson et al., 2014). It may be that treatment flexibility indirectly contributes to positive outcomes in EBTs through increasing youth involvement with the specific aspects of the EBT.

EBTs could be more effective if a youth and/or parent is involved in a treatment session and attempting the skills being taught. Studies have shown that youth and/or parent participation in treatment is moderately related to positive treatment outcome (e.g., Karver et al., 2008; Lee et al., 2019). This involvement is more than just the youth/parent being present. Useful treatment involvement could entail the youth/parent actually talking with the therapist about thoughts, feelings, and/or experiences and/or attempting to practice behavioral skills and/or participate in role plays. In addition, youth resistance to and/or avoidance of participation in therapeutic work has been found related to drop out and/or poor EBT outcomes (Yasinski et al., 2018). Relatedly, several studies of EBTs have provided evidence that youth compliance with EBT homework is related to better in session treatment participation and outcomes (Lindsey et al., 2019). Not surprisingly, not having a client engaged during session and with homework assignments makes it much more difficult for a clinician to adhere to the EBT protocol (Gellatly et al., 2019). Thus, clinicians need to deliver their EBTs within an atmosphere that promotes client participation.

The therapy climate of the clinician–youth interaction is referred to as the TA. This TA is a collaborative connection between a therapist and youth involving an emotional bond, cognitive negotiation on what therapy will address and entail, and actual working together (Karver et al., 2019). The TA may get youth to participate in an EBT and has been found to predict treatment involvement (McLeod et al., 2014). Indeed, the TA with youth clients (and their parents) has been found to be a reliably robust predictor ($r = .19$) of youth treatment outcomes (Karver et al., 2019). The TA appears to predict outcome even when assessed at different points in treatment. Thus, therapists probably need to monitor the TA while using EBTs.

To involve a youth, who likely did not choose to come to therapy and often has goals that differ from parents and therapists (Hawley & Weisz, 2003), in EBT techniques requires the therapist to utilize treatment engagement behaviors. While understudied, the literature has been increasing on TA enhancing behaviors that might be useful in engaging youth clients. Several studies have found therapist behaviors such as gently and respectfully eliciting and exploring youth perspectives while attentively listening and responding with empathic/validating/supportive statements and only gradually asking for in depth information, responding in a friendly and/or fun/humorous manner (when appropriate), providing praise, presenting to the youth as an advocate/ally and exploring youth motivation to change to be related to the TA (e.g., Chen et al., 2017). Several studies provide some evidence that TA building goes beyond just forming an emotional connection with a youth client but also includes therapist behaviors that invite the youth to equally contribute to the direction of therapy: asking for youth suggestions/ideas, collaboratively determining treatment goals/plans (Everall & Paulson, 2002; Martin et al., 2006). Given that youth are likely to have limited understanding of therapy, research suggests that it is important that the therapist adequately socializes the youth to treatment by communicating an explicit, consistent, and credible framework/structure/rationale for how the treatment is supposed to work, orienting the youth to the therapist and client roles in treatment, and establishing hopefulness/expectancy that the treatment will be useful in the client's life (e.g., King et al., 2014). On the other hand, some studies have shown some therapist behaviors, such as inauthenticity, being overly formal, attempting to push a youth to address topics before they are ready, demonstrating incorrect understanding of a youth's perspective, and being critical to be related to an impaired youth-therapist TA (e.g., Karver et al., 2008). Of course, when it comes to youth treatment, it is also vitally important to engage a youth's caregivers.

While understudied, it is suggested that therapist behaviors, such as acknowledging parental strengths, being supportive of parents, and collaborating with parents without being confrontational (e.g., Lamers et al., 2016), are related to the parent-therapist TA, youth treatment attendance (which depends on parents), and treatment outcome. In addition, the acceptability of an EBT to a parent has been found related to treatment gains (Kazdin, 2000). Unfortunately, studies are lacking on teaching clinicians how to engage youth and their parents. Lamers et al. (2016) have developed a training program for building a TA with parents that have preliminary positive results, however, most existing TA training programs are for clinicians working with adult clients or for TA training within family therapy training.

Conclusion

Since the last edition of this Handbook, the field has learned much about factors influencing EBTs. However, when looking at how these EBTs work, the mechanisms they are supposed to influence, and the importance of treatment adherence, a clear picture does not emerge. Other factors may influence how effectively a clinician may utilize EBT techniques. Client/family characteristics have received the most attention. For example, parents with more barriers to treatment have more drop out and poorer treatment outcomes. Age by itself has not been sufficient to guide a clinician on interacting with a youth. Cognitive, language, emotional, and social development are areas that will likely be better guided to youth treatment response. In addition, there needs to be more attention on how to guide clinicians when working with youths with complex case presentations. More studies are needed that examine different approaches for working with these challenging youths especially given the small literature suggesting the possible importance of treatment flexibility. More research is needed to guide clinicians on when and how to be flexible to engage youth clients especially since the research suggests that a healthy TA and higher client involvement are important for treatment outcomes. Finally, most research on EBTs has primarily focused on the youth. It is surprising that the field knows very little about the characteristics or behaviors of the therapist. The literature has not attempted to explore whether certain therapists are naturally better at engaging youths or utilizing EBTs and we do not know enough on which therapist behaviors are the most beneficial for engaging different types of youth. These are important areas of focus over the next 10 years.

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Incorporating Cultural Competence into Clinical Care of Children and Adolescents

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Abstract

Population estimates show that ethnic minority children and adolescents comprise a significant and growing proportion of the United States. In response, sociocultural and contextual frameworks have emerged to help explain between- and within-group variability in ethnic minority youth mental health. The chapter authors identify and evaluate empirical knowledge relevant to ethnic minority youth mental health and synthesized it into an initial set of conceptual "kernels" for working in the context of cultural diversity. These kernels are timely given growing proportions of ethnic minority families in the U.S. and professional awareness of sociocultural and contextual factors implicated in the clinical care of ethnic minority youth and families.

Population estimates show that ethnic minority children and adolescents comprise a significant and growing proportion of the United States (Vespa, Armstrong, & Medina, 2018), with approximately 25.5% identifying as Latinx (Lx), 15.2% as African American (AfA), 5.5% as Asian American (AsA), and 1.6% as American Indian or Native American (AI) (U.S. Census Bureau, 2017). In response, sociocultural and contextual frameworks have emerged to help explain between- and within-group variability in ethnic minority youth mental health (e.g., Alegria, Vallas, & Pumariega, 2010; Umaña-Taylor, 2018). These frameworks highlight the interplay among factors such as socioeconomic status, immigration experiences, enculturation- acculturation stressors, language proficiency, and systems and clinicians' biases (e.g., Causadias & Cicchetti, 2018; García Coll, Akerman, & Cicchetti, 2000). Given the significant proportions of ethnic minority families in the U.S., awareness of sociocultural and contextual frameworks, and building on resiliency theory, we identified and evaluated empirical knowledge relevant to ethnic minority youth mental health and synthesized it into an initial set of conceptual "kernels" for working in the context of cultural diversity.

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Herein, a kernel refers to an aspect of culturally and empirically informed knowledge aimed to inform cultural competence in clinical care.

Based on empirical literature, our kernels reflect critical issues that should be of interest to clinicians. The following definitions are vital to the proper interpretation to our kernels. Enculturation refers to the retention of or socialization to one's own ethnic minority culture whereas acculturation refers to the process by which one adopts attitudes, values, customs, beliefs, and/or behaviors from the host culture. The acculturation–enculturation interplay has been termed biculturalism or bicultural orientation. Often, the tensions between acculturation and enculturation are reflected as bicultural stressors, which include intergenerational conflict, discrimination, peer pressure to conform to one's ethnic group, monolingual stressors, and language hassles—a specific type of cultural stress concerning difficulties experienced due to language use. Also, clinicians should know that there is empirical literature focused on the study of ethnic minority mental health in terms of resilience and cultural strengths, rather than only on risks and vulnerabilities. For instance, there is ample research on ethnic identity (self-identification and attachment, involvement, and sense of belonging in the cultural and social practices of a specific ethnic group) and related processes such as actively questioning and examining what it means to be a member of an ethnic minority group (e.g., Douglass & Umaña-Taylor, 2015; Umaña-Taylor, 2018). There also is ample research on the protective role and transmission of cultural values (e.g., beliefs and assumptions founded on traditions that relate to definitions of the self, others, and the relationship of the self with the environment; e.g., Sanchez, Hamilton, Gilbert, & Vandewater, 2018; Suinn, Ahuna, & Koo, 1992; Szapocznik, Kurtines, & Fernandez, 1980). The empirical literature around these and other factors and processes is vast and well beyond the scope of this chapter such that, ideally, individual handbooks need to be dedicated to science on single ethnic minority groups (see, for example, Breland-Noble, Al-Mateen, & Singh, 2016). For this reason, our approach in this chapter was simply to start introducing the concept of cultural competence kernels, as derived from robust empirical evidence.

Kernels for Clinical Practice in the Context of Cultural Diversity

To derive kernels for working in the context of cultural diversity, only peer-reviewed empirical studies were considered. Studies were included if at least 75% of target youth participants were U.S. ethnic minorities. Studies where the ethnic minority participants were labeled simply "ethnic minority" or "other" were not considered because it is unclear whether findings would generalize to any specific ethnic minority group (e.g., Lx, AI). Each kernel was derived through inductive analytic aspects of grounded theory (Glaser & Strauss, 1967) and Tracy and colleagues "Big Tent" approach (Tracy, 2010; Tracy & Hinrichs, 2017), which centered analysis around our purpose: To guide clinicians incorporate more cultural competence into the clinical care of ethnic minority children and adolescents.

Distilling Kernel 1: Investigating the ubiquitous presence of risk and resilience in the literature on ethnic minority youth mental health, we were guided by Luthar (1993) and Luthar, Cicchetti, and Becker's (2000) conceptual model whereby factors with direct ameliorative impact—operating at both high- and low-risk—were noted as protective in the face of adversity. Protective factors were further specified as having interactive or moderating effects and viewed as the following: *protective-stabilizing* (when the construct confers stability in competence despite increasing risk), *protective-enhancing* (when the construct allows youth to engage with adversity such that competence is augmented with increasing risk), or *protective-reactive* (when the construct confers advantages, but less so when adversity is high rather than low). This approach led us to define a theme in the literature: Minority youth are resilient when faced with adversity. For this and subsequent themes, select examples from the literature are noted.

Although significant proportions of ethnic minority youth experience adversity, there is evidence illustrating resilience. We refer the reader to seven studies. In Sullivan et al. (2007), Lx adolescents and caregivers with integrated acculturation–enculturation orientations showed evidence of greater resilience resources (e.g., caregiver involvement, positive parenting, and family support) as compared to those with high assimilation to the host (U.S.), which was related to high aggression. In another study, White, Roosa, and Zeiders (2012) reported that family cohesion was related to lower internalizing symptoms under high neighborhood risk conditions but not at low levels of neighborhood risk. Turning to AfA youth, Sanchez and colleagues (2018) found that youth ethnic identity exploration had an effect on alcohol and cigarette use, such that at higher levels of Africentric cultural values, high ethnic identity exploration appeared to result in abstinence from substance use over time. For both AfA and White youth, emotional parentification was related to higher depressive symptoms, but for AfA youth, Khafi, Yates, and Luthar (2014) found that emotional parentification was associated with increased parent–child relationship quality (rather than with worsened externalizing symptoms, as was the case with White youth). Zapolski, Fisher, Banks, Hensel and Barnes-Najor (2017) found higher ethnic identity was related to more attitudes about illegal drug use being harmful, which were then correlated with less drug use; this result was true for Lx and AsA, but not AI youth.

For Southeast AsA, Ho (2008) found that adolescents' bicultural orientation was associated with lower externalizing and posttraumatic stress symptoms in the face of community violence. In Grossman and Liang (2008), Chinese American youth's experiences with discrimination were associated with higher depressive symptoms and discrimination was associated with less cooperation, but only at lower levels of peer support. Little to no data relevant to adversity and resilience were found for AI youth (Zapolski et al., 2017); this is not to say that AI youth are not resilient but rather to acknowledge that the literature is lacking in studies relevant to AI youth resilience.

Clinically, findings from the empirical literature call for providers to adopt and maintain the attitude that "*minority youth, albeit not invulnerable to stress, are resilient in the face of adversity*." This attitude translates, for example, into adopting strength models of minority mental health rather than only a model of risk (or worse, weakness). For clinicians, this attitude should translate into using clinical tools (assessments, interventions) that incorporate ethnic minority strengths. For example, a clinician might ascertain ethnic identity levels in Lx youth and bicultural orientation in AsA youth as indicators that could guide the treatment process and improve minority youth coping with adversity in adaptive ways. To this end, clinical providers would be well served by including instruments in their intake assessment batteries such as Ethnic Identity Scale-Brief (Douglass & Umaña-Taylor, 2015), Bicultural Involvement Questionnaire (Szapocznik et al., 1980), and Suinn-Lew Asian Self-Identity Acculturation Scale (Suinn et al., 1992). Moving beyond assessments, clinical providers also can carefully select and incorporate evidence-based intervention strategies that target, for example, bicultural orientation such as in the works of Szapocznik et al. (1986) or ethnic identity as in the works of Umaña-Taylor (2018). To stay informed on these best practices, clinical providers need to engage in ongoing training, for example, via the Office of Minority Health's Think Cultural Health E-learning courses, which are centered on cultural competency (Office of Minority Health, 2019).

Distilling Kernel 2: Again driven by Luthar and colleagues, we considered vulnerability (factors with direct harm impact—operating at both high- and low-risk), including the nuances of factors identified as *vulnerable-stable* (when the factor remains stable despite changing levels of adversity) or *vulnerable-reactive* (when the factor was heightened with increasing levels of adversity). This conceptual approach led us to uncover a second theme in the literature: Minority youth share vulnerabilities but not homogeneously.

Starting with Lx youth, we found one study focusing specifically on Puerto Rican youth, two studies focusing on Mexican origin youth, and five other studies that did not specify country of origin but relied on data from heterogeneous Lx samples. In Ramos-Olazagasti and colleagues (2013), the rate at which Puerto Rican youth showed amelioration of internalizing symptoms differed over time depending on residence (U.S. mainland versus island of Puerto Rico), such that amelioration was slower for those in the mainland and the variability was explained by greater exposure to discrimination and violence in the mainland (i.e., U.S.). For Mexican origin youth, Romero and colleagues (2018) found that bicultural stress was related to hopelessness and depressive symptoms such that diffused ethnic identity was linked to high hopelessness, and those with high hopelessness had the highest rates of bicultural stress. In a second study with Mexican origin youth, discrimination emerged as a vulnerability for internalizing symptoms whereas language hassles emerged as a vulnerability for both internalizing and externalizing symptoms (Nair, White, Zeiders, & Roosa, 2013). In this case, language might be acting as a proxy for experiences of discrimination or burdensomeness (e.g., Pina & Silverman, 2004).

For Lx (broadly defined/heterogenous) youth, we highlight five studies. Gudiño, Nadeem, Kataoka, and Lau (2011) showed that birth status (foreign vs. U.S.) was related to adjustment challenges (lower acculturation, lower English language proficiency, greater acculturation stress, more incidence of exposure to weapon-related violence, and separation from caregivers). Further, Gudiño et al. found that exposure to violence and low English proficiency predicted externalizing behavior problems and posttraumatic stress symptoms, respectively. Among recently arrived Lx immigrant adolescents and their families, Forster and colleagues (2015) found that bicultural stress and feeling unwelcome in the U.S. independently predicted increases in rule-breaking behavior and aggression, even when controlling for caregiver involvement and delinquent peer associations. In another study, Tobler et al. (2013) found that in both Lx and AfA youth, those who experienced any racial/ethnic discrimination were at increased risk for victimization and depression. Additionally, results showed that regardless of intensity of discrimination experiences, AfA and Lx adolescents who experienced discrimination at least occasionally were more likely to suffer from greater oppositionality (physical aggression, delinquency), suicidal ideation, and high-risk sexual behaviors than those who did not experience racial/ethnic discrimination as frequently.

For AfA, AsA, and AI youth, there is significantly less research, yet findings from seven methodologically robust studies support the presence of both shared and unique vulnerabilities. Andrews and colleagues (2015), for example, showed that poly-victimization had a stronger negative impact on depressive and posttraumatic stress symptoms for Lx and AfA youth residing in low-income neighborhoods. Huynh (2012) found that for both Lx and AsA youth, microaggressions (frequency, harmed caused) were associated with depressive and somatic symptoms. Moreover, English, Lambert, and Ialongo (2014) found discrimination was associated with higher depressive symptoms in AfA youth, even 1 year from the event(s). For AsA youth, discrimination was associated with higher depressive symptoms and lower self-esteem (Lo, Hopson, Simpson, & Cheng, 2017). This significant relation also was reported by Wang and Atwal (2015) who showed that perceived discrimination increased over time for AsA youth and was prospectively related to depressive symptoms. Lastly, discrimination was found to aggravate well-established vulnerabilities faced by AI youth due to historical loss, which is implicated in poly-drug use, depression, and posttraumatic stress symptoms in AI youth (Brockie, Dana-Sacco, Wallen, Wilcox, & Campbell, 2015).

Clinically, findings from the empirical literature call for providers to adopt and maintain the attitude that "*minority youth are not a pan-ethnic group*". It is true that minority youth share vulnerabilities and that clinical providers should know that many ethnic minorities are disproportionally disadvantaged by lower social and economic status (e.g., poverty, neighborhood stressors) and from racially-driven adverse childhood experiences (e.g., ethnic discrimination, microaggressions, historical loss, and social incivility). However, the host culture also differentially impacts minority youth and families. Focusing on Lx youth, for example, family separations at the border enacted by the Trump administration have mostly affected youth (ages 5–17 years) from Guatemala (55.8%) and Honduras (33.2%) whereas those who enter the U.S. with an EB-5 visa (wherein a minimum of $500,000 investment in the U.S. is required) generally come from elsewhere in Latin America. EB-5 Lx youth do not share the trauma of border detention and caregiver separation with no indication of reunification (American Civil Liberty Union, 2018; Biller, 2019; Forster et al., 2015; Rojas-Flores, Clements, Koo, & London, 2017; Suarez-Orozco, Todorova, & Louie, 2002) and thus clinicians should not assume Lx homogeneity in immigration journeys. Clinical providers would therefore be well served by engaging in appropriate sociocultural inquiry. Illustratively, clinical interviews could involve probes about pre-immigration experiences (e.g., difficulties, migration-related losses and challenges), ongoing relationship with country of origin, resettlement, and new life (see Cultural Formulation Interview; American Psychiatric Association, 2013).

Distilling Kernel 3: Our approach to kernel three was guided by frameworks for advancing assessment and interventions that work (Silverman & Ollendick, 2005; Southam-Gerow & Prinstein, 2014) as well as Andersen's Behavioral Model of Health Services Use (Andersen, Davidson, & Baumeister, 2013). Utilizing these conceptualizations, we found our third kernel: There is a lack of evidence-based resources for minority youth.

Evidence-based Assessments (*EBAs*). Information derived from assessments developed for (or validated exclusively with) a specific cultural group can yield biased clinical information based on variations in respondents' values, attitudes, languages, and worldviews (Okazaki & Sue, 1995). Some assessments are promising for use with ethnic minority youth, but most studies have not applied robust psychometric methodology to indicate cross-ethnic measurement equivalence (see Millsap, 2010; Pina, Gonzales, Holly, Zerr, & Wynne, 2013). When it comes to measurement equivalence, perhaps of most interest to clinicians is *metric invariance* because it refers to nuances in the presentation of clinical problems (i.e., the meaning an item/symptom across groups, Labouvie & Ruetsch, 1995; Raykov, 2004). Clinicians also should be concerned with *threshold invariance*, which refers to the severity of the symptom needed before a respondent endorses it as "present" (Widaman & Reise, 1997). In our review of the literature, assessment armamentaria with demonstrated measurement support are as follow: [for Lx] Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985; see Pina, Little, Knight, & Silverman, 2009; Varela & Biggs, 2006; Varela, Sanchez-Sosa, Biggs, & Luis, 2008); Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983) and Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997; see Varela et al., 2008); Spence Children's Anxiety Scale (SCAS; Spence, 1997; see Holly, Little, Pina, & Caterino, 2015); [for Lx and AfA] Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; see He, Burstein, Schmitz, & Merikangas, 2013); [for Lx, AfA, AsA] Mood and Feelings Questionnaire (MFQ; Angold, Costello, Messer, & Pickles, 1995; see Banh et al., 2012); and [for AI] Student's Observation of Self—ADHD (Beiser, Dion, & Gotowiec, 2000).

Clinically, we suggest that providers carefully select assessments known to be valid (i.e., show equivalence or measurement invariance), keeping in mind that at the time of this writing, this is the validity "gold-standard" in measurement. If no such assessment exists, responses from data derived via "non-validated" measures might need to be post-ceded by semi-structured clinical questions aimed at gathering specific examples (at the item/symptom-level) of the way the problem is being defined and interpreted by the respondent as well as its associated impairment and distress. Clinicians also should be cautious in relying on what some view as benchmark assessments. For example, several instruments have failed the validity "gold-standard" for ethnic minority youth: Children's Depression Inventory (CDI; Kovacs, 1985) for AfA youth (Steele et al., 2006), the Behavior Problem

Index (BPI; Peterson & Zill, 1986) for Lx and AfA youth (Guttmannova, Szanyi, & Cali, 2008; Spencer, Fitch, Grogan-Kaylor, and McBeath (2005), the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1991) for Lx, Mexican, AfA, and AsA youth but not for Cuban and Puerto Rican youth (Crockett, Randall, Shen, Russell, & Driscoll, 2005; Skriner & Chu, 2014). Russell and colleagues (2008) also found the CES-D to lack measurement equivalence among some AsA, in that it was invariant for Filipino American but not for Chinese American youth. Lastly, there should be caution when relying on the Youth Self-Report (YSR; Achenbach, 1991b) for Lx, AfA, AsA (O'Keefe, Mennen, & Lane, 2006), and Child Behavior Checklist (CBCL; Achenbach, 1991a) for AfA youth (Tyson, Teasley, & Ryan, 2011).

Evidence-based Interventions (*EBIs*). In the 2019 evidence-based status report on psychosocial interventions for ethnic minority youth, Pina, Polo, and Huey (2019) identified 65 RCTs and concluded that only four interventions for ethnic minority youth are well-established: cognitive and behavioral procedures for anxiety in Lx youth, multisystemic therapy (MST) for disruptiveness in AfA youth, and family-based therapy for disruptiveness and substance use in Lx youth. In addition, three interventions were classified as probably efficacious: interpersonal psychotherapy for depression in Lx adolescents, cognitive behavioral treatment for disruptiveness in AfA youth, and resilient peer treatment for AfA youth with trauma stress reactions. In the previous evidence-based status report, these same types of cognitive-behavioral and family-based interventions were evaluated in a meta-analysis. Huey and Polo (2008) reported that, based on effect sizes, ethnic minority youth were better off at posttreatment than the average control participant ($d = 0.44$, CI = 0.32, 0.56).

It is noteworthy that every EBI in the 2019 report was subject to systematic cultural adaptation efforts. Most adaptations were consistent with parameters described by Bernal, Bonilla, and Bellido's (1995) Ecological Validity Model (EVM), with few to no studies referring to Lau (2006) Selective and Directive (SD) adaption approach or the Heuristic or Culturally specific approach (Domenech-Rodriguez & Wieling, 2005). The work of Lau and Domenech Rodriguez holds great value as the U. S. population is becoming more heterogeneous, particularly with population-based increases in multi-ethnic youth. Thus, the take-home message from Huey and Polo (2008) and Pina, Polo, and Huey (2019) is that clinicians should preferentially use evidence-based psychosocial interventions that have been formally evaluated and found to be efficacious with individuals that represent the ethnic minority youth and families they are serving. This recommendation is consistent with practice guidelines for working in the context of cultural diversity and from the official report from the Task Force on Multicultural Guidelines: An Ecological Approach to Context, Identity, and Intersectionality (American Psychological Association, 2017; Pumariega et al., 2013).

Furthermore, addressing disparities in evidence-based care (e.g., assessment and treatment) to better serve ethnic minority youth and families requires substantial progress along several fronts. More specifically, Gonzales (2017) has emphasized the need to expand adaption efforts to the entire care ecosystem due, in part, to the fact that service delivery channels for diverse populations are often fragmented into sub-groups and settings (e.g., agencies focused on serving minority families) versus being situated within delivery infrastructures and systems that can facilitate broad-scale access and public health impact. Gonzales also has pointed to the need to reengineer or modify services to better address the unique and varying needs, preferences, and realities of diverse youth, families, communities, and intended service delivery sectors (e.g., education, healthcare) and contexts (e.g., schools, hospitals). With progress along these additional fronts, demand for evidence-based care to better serve ethnic minority youth and families is likely to become undebatable to researchers and funding agencies who act as gatekeepers of progress (and lack thereof).

Clinically, the call for providers is to respond with the additional clinical efforts noted pending remediation of the fact that "*minority youth are affected by disparities in the availability of evidence-based care*" (e.g., assessments, interventions). Further, it is critical for clinicians to collaborate and shape ethnic minority mental health science, via initiatives such as those led by PCORI (Patient-Centered Outcomes Research Institute; e.g., Coker et al., 2019; Thomas et al., 2017). For clinicians, an impetus should be to help close the gaps in the provision of evidence-based care by situating supports and services in minority contexts and settings (e.g., churches, neighborhoods, using *promotoras*). It is incumbent on clinicians to demand evidence-based solutions for the incongruities between the ecosystem of care and sources and patterns of help-seeking behaviors (e.g., referral sources), consideration of history (e.g., immigrant), type of service settings (hospital, schools), access barriers (e.g., language, cost, stigma), preferred type of service (e.g., school-based prevention, early intervention), and the intercepting cultural factors (e.g., ethnic identity).

Concluding Remarks

Those in the profession need to recognize and advocate for the principle of justice in the *Belmont Report* (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). Such principle demands the equitable distribution of burdens and benefits of research. This means that the benefits of research—including potential knowledge about child development, youth and family risk-resilience, mental health outcomes, and interventions that work—must be fairly distributed to those from underrepresented communities. It also means that when research does not reflect the diversity of the patient population that will ultimately be benefiting, the post-approval use of evidence-based solutions, for example, with youth for whom the studies did not develop a proper evidence-base, is equivalent to relying on pseudoscience. This is a moral and ethical pitfall. This position is consistent with Public Responsibility in Medicine and Research (2019), such that the practice of overlooking or reflexively excluding certain populations from research as a primary risk-mitigation strategy is unacceptable (e.g., excluding youth, caregivers, or families for whom language is Spanish without scientific rationale). This practice unjustly dismisses and discriminates against youth and families, such that it excludes them from the benefits of research. Mindful efforts need to be made to include ethnic minority youth and families in research and in the provision of care, provided certain safeguards are met (e.g., training individuals for working in the context of cultural diversity, or implementing comprehensive risk management plans, for example, to be inclusive of undocumented individuals). At the very least, sponsors of research (e.g., the National Institutes of Health) must create the occasion for integrated ethical and moral action, such that a dominant group is not deciding for an already marginalized and subordinated segment of the U.S. population.

Funding R. Stoll's effort for the writing of this chapter was supported, in part, by a NIDA T32 fellowship 039772. The content is solely the responsibility of the authors and does not represent the official views of the funding agency.

Conflict of Interest The authors declare that they have no conflict of interest.

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Expanding the Reach of Evidence-Based Psychotherapy Through Remote Technologies

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Abstract

The present chapter provides an overview of (and supporting evidence for) leading formats of technology-involved youth mental health intervention, followed by a discussion of key cautions and concerns that warrant careful consideration at this early stage of digital technology-involved care. Although there has been much progress in the development and evaluation of evidence-based treatments for child and adolescent mental health problems, limitations in the accessibility and acceptability of supported care have significantly restricted actual service utilization among affected youth. In recent years, extraordinary advances in telecommunications and the increasing ubiquity of digital technologies in daily life afford new opportunities for meaningfully extending the reach and scope of supported youth mental health care. Remote technologies have potential to liberate mental health treatments from their traditional geographic confines and overcome geographic disparities in the mental health workforce, increase the cost-effectiveness of care, and expand the ecological validity and generalizability of care by affording in situ intervention, and systematically extend treatment engagement and skill rehearsal to children's natural settings. The authors conclude by examining exciting new frontiers on the horizon for the incorporation of digital technologies into children's mental health care.

Although there has been much progress in the development and evaluation of evidence-based treatments (EBTs) for child and adolescent mental health problems, limitations in the accessibility and acceptability of supported care have significantly restricted actual service utilization among affected youth (Merikangas, et al., 2010; Merikangas, et al., 2011). There are grossly inadequate

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Handbook of Evidence-Based Therapies for Children and Adolescents: Bridging science and practice (2nd edition). New York: Springer.

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_25

numbers of mental health providers (Kazdin & Blase, 2011), and the majority practice in major academic hubs or metropolitan regions (Comer & Barlow, 2014). Cost, transportation, and stigma-related obstacles further interfere with service utilization (Salloum, Johnco, Lewin, McBride, & Storch 2016). Among families who are able to access care, long waitlists and high turnover slow the speed and flow of service delivery. Moreover, when families do receive care, obstacles to effective dissemination and implementation often limit the quality (Comer & Barlow, 2014).

In recent years, extraordinary advances in telecommunications and the increasing ubiquity of digital technologies in daily life afford new opportunities for meaningfully extending the reach and scope of supported youth mental health care (Doss, Feinberg, Rothman, Roddy, & Comer, 2017). Rapid developments in Internet connectivity, remote technologies, mobile devices, big data sensing, user-centered design, automated interactivity, and computational processing capacities have collectively set the stage for a possible digital mental health "revolution" (Mohr, Riper, & Schueller, 2018, p. 113). It has been argued that remote technologies have potential to liberate mental health treatments from their traditional geographic confines and overcome geographic disparities in the mental health workforce, increase the cost-effectiveness of care, and expand the ecological validity and generalizability of care by affording in situ intervention, and systematically extend treatment engagement and skill rehearsal to children's natural settings (Chou, Bry, & Comer, 2017; Comer & Barlow, 2014; Kazdin & Blase, 2011). At the same time, the implementation of digital technology-involved interventions is still a new and rapidly shifting area, and much remains to be learned about the proper integration of modern telecommunications technologies into children's mental health care.

Against this backdrop, the present chapter provides an overview of (and supporting evidence for) leading formats of technology-involved youth mental health intervention, followed by a discussion of key cautions and concerns that warrant careful consideration at this early stage of digital technology-involved care. We conclude with an eye toward exciting new frontiers on the horizon for the incorporation of digital technologies into children's mental health care.

State of the Evidence

Given the initial promise of remote technologies to overcome many traditional barriers to accessing and engaging in evidence-based mental health care, a number of studies over the past decade have investigated the use of technology in mental health service provision. The behavioral intervention technology (BIT) formats that have received the most empirical attention include (1) telemental health interventions that afford synchronous interactions between patients and providers and (2) self-administered, automated, or asynchronous BITs (see Doss et al., 2017). Telemental health interventions refer to synchronous mental health services that utilize videoconferencing, telephone, or other remote communication technologies in order to deliver patient-provider mental health services in real time (Myers et al., 2017). In contrast, automated or asynchronous BITs do not leverage real-time patient-provider communications; some are fully self-administered or technology-driven without human coaching or guidance, whereas others afford patient-provider back-and-forth communications that do not necessarily unfold in real-time. These latter BITs can also be used to augment or enhance synchronous treatments (e.g., providers using text messaging or applications to send homework reminders; patients using technologies to send progress updates or symptom reports; see Doss et al., 2017).

Telemental Health Interventions

Telemental health interventions use real-time telecommunication technologies, such as videoconferencing platforms and telephones to deliver “live” mental health services. Videoconferencing provides high-quality two-way interactions that mirror traditional face-to-face care. Given the emphasis in many evidence-based psychotherapies on verbal and visual information, the high-quality audio and visual information afforded by modern videoconferencing has rapidly improved the acceptability and feasibility of telemental health delivery of EBTs (Comer, Elkins, Chan, & Jones, 2014).

In recent years, an increasing number of studies has demonstrated strong evidence for the use of videoconferencing-based telemental health formats to treat child and adolescent mental health problems (e.g., Carpenter, Pincus, Furr, & Comer, 2018; Comer, Furr, Kerns et al., 2017; Comer, Furr, Miguel et al., 2017; Myers, Vander Stoep, Zhou, McCarty, & Katon, 2015; Sibley, Comer, & Gonzalez, 2017; Vander Stoep et al., 2017). Overall, there is considerable support for telemental health interventions via videoconferencing in the effective delivery of mental health care (Mohr, Burns, Schueller, Clarke, and Klinkman, 2013a). Research suggests that telemental health formats of EBTs, which can be delivered with fidelity, are associated with strong satisfaction, and can result in comparable (or sometimes even improved) outcomes relative to traditional face-to-face EBTs, with moderate to large effect sizes.

In one promising example of evidence-based telemental health, Internet-delivered Parent–Child Interaction Therapy (I-PCIT; Comer et al., 2015) utilizes videoconferencing to deliver in-home well-supported parent training to families of young children with disruptive behavior problems. In traditional clinic-based PCIT, the provider observes the family in a therapeutic playroom from behind a one-way mirror and provides live parent-coaching through an earpiece. In contrast, in I-PCIT the family is in their own home throughout treatment and uses a webcam and a secure videoconferencing platform to stream real-time parent–child interactions to a remote I-PCIT provider, who provides real-time coaching to parents on skill provision via Bluetooth earpieces. Not only does this paradigm extend the reach of PCIT, but providing live, in-home coaching can also enhance the ecological validity of care by treating families in the settings in which the learned techniques are ultimately implemented. In fact, in a recent randomized clinical trial (RCT) comparing I-PCIT to traditional clinic-based PCIT, both treatments were associated with high satisfaction and improved child behavior (Comer, Furr, Miguel et al., 2017). However, I-PCIT was associated with fewer parent-reported barriers to care and had a significantly higher rate of “excellent responders” as rated by independent evaluators masked to treatment condition.

Telemental health interventions utilizing videoconferencing have been used to treat a wide range of other child and adolescent mental health concerns, including anxiety disorders (Carpenter et al., 2018), obsessive-compulsive spectrum disorders (Comer, Furr, Kerns et al., 2017; Himle et al., 2012), depression (Duncan, Velasquez, & Nelson, 2014), and attention-deficit/hyperactivity disorder (Sibley et al., 2017). Telemental health paradigms have also been used as a platform for expanding the reach of expert consultation and supervision to enhance care in remote and low resource areas (for a review, see Hoeft, Forney, Patel, & Unutzer, 2018).

Self-Administered, Automated, or Asynchronous BITs

While telemental health services focus on real-time patient-provider communications, increasingly popular BITs use technology to allow self-administered and/or automated care, or to afford asynchronous patient-provider communication. Self-administered or automated BITs represent an important innovation in the dissemination of evidence-based care, as such "person-less" platforms have the potential to overcome person-power issues in the mental health workforce (Kazdin & Blase, 2011) as well as stigma-related concerns. These BITs can be delivered through computer programs, online, and mobile applications, and can be accessed on a range of devices (e.g., laptops, tablets, smartphones, wearables; see Comer et al., 2019). The delivered content can range from general information and psychoeducation about youth mental health problems and strategies for coping, to individualized feedback and supports based on unique client responses and/or sensor data.

Meta-analyses and systematic reviews of research on automated computer-based programs indicate positive treatment effects, with small to moderate effects noted for computerized cognitive behavioral therapy (CBT) for depression ($g = 0.16-0.62$) and moderate to large effects for anxiety ($g = 0.53-1.41$), and larger effects ($g = 0.95$) for adolescents than children ($g = 0.51$; Hollis et al., 2017). Yet, the evidence for self-guided BITs for other mental health concerns (e.g., autism spectrum disorder [ASD] and psychosis) remains questionable (Hollis et al., 2017). Importantly, the research summarized in these meta-analyses and systematic reviews has mostly focused on relatively early computer programs for children's mental health that require somewhat traditional styles of participation (e.g., sit down treatment, hour long "sessions"). In more recent years, BITs have utilized other modern technologies, including mobile platforms, automated interactivity, smart prompts, sensors, and in situ intervention (Comer et al., 2019).

Given increased usage and ubiquity of mobile devices (e.g., smartphones, tablets; Pew Research Center, 2017), regardless of many socioeconomic factors, and the unique technological capabilities they afford, much of the recent development and investigation of automated BITs has focused on mHealth (Mohr et al., 2013a), or the utilization of mobile apps. Mental health apps can provide increased, consistent, and in situ access to mental heath supports at relatively low costs, while bypassing stigma-related concerns about seeking mental health support (Munoz, 2010). With the economic success of the mobile marketplace, there has been a proliferation of mobile apps marketed to treat a range of child and adolescent mental health problems. Importantly, rapid advances in mobile technologies and app development are far outpacing the speed with which the researchers are conducting formal evaluations of mHealth options, and the marketplace has been inundated with apps of questionable evidence (Grist, Porter, & Stallard. 2017). One recent systematic inventory identified 121 unique mobile apps available in the Google Play or Apple store that were marketed for child and adolescent anxiety (Bry, Chou, Miguel, & Comer, 2018). Roughly 80% of these apps included no content related to exposures, and roughly 80% included no content related to thought challenging (Bry et al., 2018). Indeed, there is a critical need to apply more efficient research strategies to allow for swifter and more agile evaluations of commercially available mHealth products that can respond to the rapidly shifting marketplace (e.g., micro-randomized trials for apps; Klansnja et al., 2015).

Patient usage and ongoing engagement with self-administered or automated BITs have proven to be relatively poor in the absence of at least some level of human support (Zarski et al., 2016). Guided BITs (i.e., BITs that incorporate support from a therapist or coach, typically by phone or text) have been shown to increase patient BIT use and enhance treatment outcomes (Schueller, Tomasino, & Mohr, 2016). Still, the level of support in guided BITs varies across programs, ranging from the consistent engagement of a therapist throughout the intervention, to as-needed support, to support that strictly address technology issues. As with automated or self-administered BITs, guided BITs combat many traditional barriers to care, yet, they permit more flexible responsiveness to individual needs, add external accountability for engagement, and introduce an interpersonal quality to care that can be helpful. The addition of therapist support and guidance in BITs has been associated with increased service satisfaction (Aardoom et al., 2016) and treatment adherence (Zarski et al., 2016), including more time spent on the platform or completion of treatment modules (Danaher & Seeley, 2009). Moreover, parent and family-focused guided BITs have been effective in reducing a range of child problems, including anxiety, depression, and behavior problems, and in enhancing positive parenting strategies and the parent–child relationship. Studies of youth-focused guided BITs also suggest such formats may be helpful in the management of disordered eating and ASD-related problems, although more research is needed on these fronts (MacDonell & Prinz, 2017).

Technology-augmented care, also called technology-enhanced care (Anton & Jones, 2017), refers to the incorporation of BITs to complement traditional synchronous therapy, often for the purpose of enhancing client engagement and out-of-session skill utilization. For example, a course of traditional face-to-face therapy might be augmented with the concomitant use of an app that helps the patient track and monitor their out-of-session behavior, thoughts, and mood (Muñoz, 2010). In such formats, the therapist often also has access to remotely monitor these patient trackers through the platform, and can provide asynchronous responses or prompts for the patient on their own time (e.g., Reid et al., 2011). Additionally, technology-augmented care may be an important avenue to increase engagement among patients or families at high-risk of attrition (Gardner et al., 2009). For example, Jones and colleagues (2014) have developed a technology-enhanced behavioral parent training program that works to promote increased engagement in face-to-face treatment among highly stressed, low-income families. Their clinic-based parent training program is augmented with a smartphone platform that houses skill videos, daily surveys, and text message reminders regarding homework and skill utilization. In addition, the platform facilitates midweek video calls and enables the family to upload videos of their home practice for their provider to view. Jones and colleagues (2014) have found that families receiving such technology-enhanced parent training show improved outcomes relative to those receiving just face-to-face parent training. Families receiving their technology-enhanced parent training program were also able to complete the treatment program more quickly (Jones et al., 2014), which is particularly promising from a cost-effectiveness perspective.

Considerations, Concerns, and Cautions

The incorporation of technology into children's routine mental health care has been a relatively recent advance, and as such a number of relevant procedural matters have yet to be resolved (Comer & Barlow, 2014; Doss et al., 2017). In the absence of consensus guidelines for the incorporation of technology into youth's mental health care, we now turn our attention to key considerations, concerns, and cautions as they relate to (a) matters of treatment adherence and process, (b) logistical barriers, (c) cultural competency, and (d) ethics, security, and safety.

Matters of Treatment Adherence and Process

Patient engagement and adherence, or the degree to which patients utilize intervention content, is a paramount issue in all psychological treatments, but is an area of elevated concern when remote technologies separate the patient from the provider, or replace the provider altogether (Zarski et al., 2016). Mohr, Cuijpers, and Lehman (2011) introduced a theoretical model of "supportive accountability" that outlines the benefits of incorporating at least some level of human scaffolding and responsiveness in technology-based treatments. Human involvement in BITs has been shown to improve engagement and adherence (Mohr et al., 2013a; Tate & Zabinski, 2004), yet the type of support (e.g., support over the phone versus online forum) has not been shown to impact outcomes (Titov et al., 2010), and the optimal "dose" of this supportive accountability remains unclear.

Moreover, when surveyed, providers have cited concerns that the technological aspects of care could negatively impact the therapeutic alliance (Becker & Jensen-Doss, 2013; Perle, Langsam, &

Nierenberg, 2011). Many report that they believe technology could interfere with their ability to show empathy, result in inflexible treatment applications, and limit their therapeutic style (Becker & Jensen-Doss, 2013). Contrary to such therapist concerns, however, research suggests that therapeutic alliance during telemental health treatments and guided BITs can be equivalent to (or even superior to) that observed in face-to-face treatments (Andersson et al., 2012; Comer, Furr, Miguel et al., 2017; Cook & Doyle, 2002; Jenkins-Guarnieri, Pruitt, Luxton, & Johnson, 2015). Similarly, evaluations of alliance in technology-augmented treatments have found that technology not only maintains alliance, but has the potential to improve alliance over the course of treatment (Anton & Jones, 2017). Taken together, although some providers express concerns that integrating technology into practice may interfere with rapport and therapeutic alliance, there is little evidence that this is the case.

Logistical Barriers

At present, a number of logistical barriers threaten the broad dissemination and implementation of technology-involved treatments. First, technological advances and innovations in technology-based treatments have largely outpaced the development of corresponding standards and regulations for implementation (Comer & Barlow, 2014; Doss et al., 2017). The American Psychological Association (2013) published "*Guidelines for the Practice of Telepsychology*" relatively recently, but it is already dated, and the majority of states have very limited telehealth or telepsychology statutes or regulations governing practice (American Psychological Association, 2013; Anton & Jones, 2017; Myers et al., 2017). Given the rapid evolution of technology and clinical innovation, there is a critical need for professional organizations to provide monitoring of technology-involved treatments and more frequent incremental guideline updates that are responsive to the shifting marketplace and practice trends.

Second, variable access to technology across patients and across providers present further obstacles to technology-involved mental health care. Although the majority of mental health clinicians report access to a desktop computer and high-speed Internet, far fewer report access to tablets, videoconferencing equipment, and virtual reality equipment (Becker & Jensen-Doss, 2013). Furthermore, many providers remain concerned that they do not have adequate information technology (IT) support for knowledge and skill building (Ramsey, Lord, Torrey, Marsch, & Lardiere, 2016). Disparities in technological access and technological literacy across the general population also limit the spectrum of patients who are able to participate in technology-involved care (Ramsey et al., 2016), and digital divides remain based on income, education, and age in the United States (Poushter, 2016). Accordingly, providers must be thoughtful about incorporating technology into mental health care in a way that does not reinforce current health disparities in the U.S.

Third, payer issues and policies related to technology-involved care remain problematic. Reimbursement of telemental health services and BITs by third-party payers is inconsistent, partially due to inconsistent language surrounding various modalities of telemental health and narrow definitions of what constitutes technology-engaged mental health services (Baker & Bufka, 2011). Encouragingly, public insurers (e.g., Medicaid) reimburse for telemental health services in most U.S. States, although many private insurance companies do not cover these services. Still, the inconsistency in coverage and reimbursement rates across states may hinder providers from integrating technology into their practices. For example, some states and insurance companies require documentation that one lives in a federally designated mental health workforce shortage area to ensure telemental health coverage (Comer & Barlow, 2014), despite the myriad of advantages of telemental health that extend beyond regional disparities in care.

Finally, the ability afforded by technology to provide remote interventions that transcend geographic confines can be at odds with current practice regulations. Providers must be aware of how specific state laws and regulations related to the delivery and receipt of telemental health services might impact their ability to treat a given patient. Currently, most states in the U.S. allow psychologists to provide temporary interjurisdictional service, yet, most state licensure regulations restrict psychologists from providing telemental health services across state lines for more than 30 days (Campbell & Norcross, 2018). Encouragingly, the Association of State and Provincial Psychology Boards (ASPPB) has been developing a plan called the Psychology Interjurisdictional Compact (PSYPACT) which promotes licensure reciprocity across state lines to allow providers to deliver telemental health services in states in which they are not directly licensed (Association of State and Provincial Psychology Boards, 2016). Licensed psychologists in any PSYPACT-participating states are permitted to practice telemental health with patients in any other PSYPACT-participating state.[1]

Cultural Competency

As technology continues to expand the reach of treatment and broaden the range of patients and geographical regions that can be treated, it is likely that providers will increasingly treat patients who are from different regions, cultures, and linguistic backgrounds from their own. To date, very little work evaluating technology-involved treatment has considered cultural factors and the increased importance of culturally sensitive and responsive care (Barnett & Kolmes, 2016; Chou et al., 2017). Trainings in technology-involved treatments need to better emphasize cultural sensitivity to individual differences as technology affords the opportunity to intervene with more diverse patient populations (Barnett & Kolmes, 2016).

Ethics, Security, and Safety

Providers incorporating remote technologies must still follow informed consent procedures, however, additional matters warrant special attention. For example, providers must inform patients exactly how information that may be recorded will be used, stored, and accessed. Jurisdictional variations differentially inform the required consent processes; for example, some states have different informed consent policies for technology-based versus face-to-face patients. At a minimum, providers should include additional information regarding safety planning, specific billing details, and confidentiality limitations, including the storage and destruction of electronic patient data (Campbell & Norcross, 2018). Telemental health care often involves remote delivery of treatment to non-supervised settings (e.g., patient homes), and thus providers must establish explicit contingency plans with their patients at the outset of treatment that specifies how (a) clinical emergencies will be handled, and (b) who specifically the provider will contact if they are unable to establish/re-establish connection with a patient and have concerns about their welfare (Baker & Bufka, 2011; Campbell & Norcross, 2018).

Providers should also consider the extent to which they are equipped to deliver technology-involved treatment prior to agreeing to provide such services. Beyond the clinical competence necessary to provide face-to-face mental health services, technology-involved treatments require provider technological competency in order to be delivered ethically and responsibly. The *APA Guidelines for*

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[1] At the time of submission of this handbook, the COVID-19 pandemic has loosened state regulations and insurance reimbursement policies for telehealth. Much is being learned and expansion of telemental health care services for evidence-based treatments may be expected in the future.

the Practice of Telepsychology urge providers to further their clinical tool-belt by pursuing training and supervision in telecommunication (American Psychological Association, 2013). Further, telemental health and guided BITs providers must take proper precautions when using technology to transmit and store patient data. Data collected from psychological services (e.g., video recordings of treatment sessions) may be at risk of unintentional disclosure, particularly if data are unencrypted or stored on a personal device. Providers should prepare for responsible data storage, including encryption and password-protected and secure storage methods, in order to protect patient data and to ensure it is properly disposed of after the patient is no longer in their care (American Psychological Association, 2013). Moreover, providers administering telemental health will have less agency in protecting a patient's privacy within a session, and therefore care must be taken to ensure that patients understand the risks associated with receiving services at home or in the community, such as another individual in the home inadvertently overhearing session content (American Psychological Association, 2013).

Rapid Technological Advancement and New Horizons

As technological advancements and societal dependence on technology increase, field experts are consistently developing new methods of using technology to reach children and adolescents. For example, advances in artificial intelligence (AI) are quickly changing the sophistication of modern BITs. AI refers to computer systems composed of algorithms that perform tasks normally conducted by humans, such as decision-making, speech recognition, and language translations. (Fitzpatrick, Darcy, & Vierhile, 2017) Advances in AI are providing researchers and providers increasingly innovative ways of collecting and analyzing data, and developing interventions.

Machine learning (ML) uses AI to predict algorithms and calculate the probability of future occurrences. ML has the ability to identify multiple prognostic sets of variables and models to predict later outcomes. (Karstoft, Galatzer-Levy, Statnikov, Li, & Shaley, 2015). ML has been used in the computer science field for many decades, but has only recently been introduced into mental health care. Some of the most exciting applications of ML in mental health care has been its use in the prediction of suicide risk and self-harm. For example, Walsh, Ribeiro, and Franklin, (2017) used ML to identify and improve upon algorithms that could more accurately predict future suicide attempts, forecasting from 720 days to 7 days prior to the attempt.

Just in Time Adaptive Interventions (JiTAIs) use mobile technologies and sensor data to identify in-the-moment opportunities for acute intervention and provide real-time and immediate support in situ (Nahum-Shani et al., 2018; see also Comer et al., 2019). Using sensing technology, JiTAIs detect changes in the patient and/or their environment, and immediately intervene according to an established protocol during states of vulnerability and opportunity. For example, over the weekend a JiTAI might be programmed to continuously monitor an adolescent's physical activity via a smartphone or smart band accelerometer data, and at moments of extended inactivity a smart prompt might be sent to the adolescent to engage in some brief form of physical activity (e.g., "you've been sitting for a while—go do 10 jumping jacks" or "take a quick walk around the block"). In recent years, JiTAIs have been developed to reduce alcohol abuse, anxiety, and obesity, although this research has almost exclusively been conducted in adult samples (Nahum-Shani et al., 2018).

Conclusion

The incorporation of technology into child and adolescent mental health care presents tremendous opportunities for meaningfully extending the reach and scope of evidence-based care, and has already begun to enhance the accessibility and acceptability of supported interventions for youth in need. Some technology-based treatment formats, such as telemental health and technology-augmented care, have already received considerable empirical support in the treatment of common child and adolescent mental health concerns, with moderate to large effects (e.g., Comer, Furr, Kerns et al., 2017; Comer, Furr, Miguel et al., 2017; Jones et al., 2014). Other platforms, such as guided BITs, are receiving increasing support, while poorer engagement associated with fully self-administered or automated BITs continue to be an area of investigation.

The first wave of technology-involved treatment was largely focused on examining whether supported traditional face-to-face intervention methods could be mirrored (or enhanced) in remote contexts using telecommunication technologies. The tacit question underlying this work has been "*Can we replicate the great things we do in the clinic using computers or over the Internet?*" In recent years, the focus has shifted to considering how emerging technologies can actually offer *new* clinical opportunities that were never afforded in traditional face-to-face care. In the context of transformative advances in remote sensing, computing technology, and computational modeling, some of the most exciting innovations in technology-involved treatment are examining intervention methods that not too long ago might have felt like science fiction. This new wave of technology-involved intervention is exciting, but warrants a rigorous empirical scrutiny to substantiate its benefits before it can be considered a credible and effective complement to the portfolio of youth mental health intervention options.

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Evidence-Based Therapies for Children and Adolescents: Where Are We Going?

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Abstract

As attested in the pages of this handbook, the applied field of clinical child and adolescent psychology continues to witness tremendous growth. The empirical support for the range of therapeutic approaches for behavioral, developmental, and emotional problems in children and adolescents has expanded in response to changes in diagnostic systems, methodological approaches, and new evidence regarding treatment efficacy and effectiveness. This chapter concludes the handbook by outlining some potential avenues on how the field can improve its science, and the application of the science to children and families in need. The chapter provides examples of where the health professions are advancing knowledge and applications. The research base needs further development and refined application to accommodate a greater range of diagnoses, treatments, clinician and patient characteristics, clinical practice settings, and service delivery organizations. Advances will assist clinicians, patients, and families in making well-informed decisions and helping reduce the burden of mental health problems. The extension of these evidence-based principles to more diverse populations of children and youth, as well as the more efficient, creative evaluation and application of these principles represent positive developments that the profession and society can expect to develop and evolve to improve the human condition.

As attested in the pages of this handbook, the applied field of clinical child and adolescent psychology continues to witness tremendous growth. Even since the publication of the first edition of *Evidence-based Therapies for Children and Adolescents* (Steele, Elkin, & Roberts, 2008), the empirical support for a range of therapeutic approaches for behavioral, developmental, and emotional problems in children and adolescents has evolved and expanded in response to changes in diagnostic systems, methodological approaches, and new evidence regarding treatment efficacy and effectiveness. And yet, even with the proliferation of more clinical research aimed at preventing or ameliorating mental health problems in children and adolescents, the rates of mental and substance use disorders among

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R. G. Steele and M. C. Roberts (eds.), *Handbook of Evidence-Based Therapies for Children and Adolescents*, Issues in Clinical Child Psychology, https://doi.org/10.1007/978-3-030-44226-2_26

children and adolescents are increasing (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015) and the number of youth in need of mental health services appears greater than ever (e.g., Merikangas et al., 2011; Olfson, Druss, & Marcus, 2015). The juxtaposition of the proliferation of clinical research with the increased need for services necessitates that we revisit the questions with which we concluded the last edition of this handbook: "*What works? For whom? And, under what circumstances?*" (Elkin, Steele, & Roberts, 2008, p. 569; cf. Paul, 1967) and reiterated in the opening chapter of the present handbook.

Earlier conceptualizations of evidence-based therapies utilized criteria based on the number of high-quality randomized clinical trials (RCTs) that have demonstrated superiority of one therapy over a control condition (or non-inferiority to an alternative treatment; e.g., Chambless & Hollon, 1998; Silverman & Hinshaw, 2008; Southam-Gerow & Prinstein, 2014). As the professional and scientific evidence base advances, criteria and standards have also become more sophisticated and nuanced. As a result, the chapter authors for the present volume were requested to focus their work on observed effect sizes obtained from published meta-analyses of interventions for specific disorders or conditions across samples of children and adolescents. The rationale for this focus is articulated in Chap. 1 (Roberts, Steele, and Cushing, this volume), but can be summarized succinctly by noting that an intervention can demonstrate *p-value* superiority in two (or more) well-controlled and valid studies (corresponding to a "*well established*" intervention) but still not evidence the ability to effect clinically significant improvement (see Cook, Cook, & Therrien, 2018; Newnham & Page, 2010). By focusing on effect sizes and principles of change, this volume was intended to be responsive to recent calls in the literature for more patient-centered methods of selecting interventions (e.g., Beidas et al., 2014; Cook et al., 2018; Lindhiem, Bennett, Beidas, Grasso, Sakolsky, & Druzdzel, 2018).

So, what does the current volume say about *what works*? An informal summary of published effect sizes presented in this handbook suggests that, almost without exception, the conditions or disorders covered in this handbook have one or more interventions or therapeutic approaches with at least medium and sometimes large effects in comparison to no-treatment, attention control, or "treatment as usual" (TAU) conditions. This informal observation is generally consistent with a recent formal meta-analysis of treatment efficacy for major diagnostic groups in children across 50 years of study (i.e., Weisz et al., 2019). However, in acknowledging these generally moderate effect sizes, Weisz and colleagues noted that there has been little change in observed effect sizes across time: Psychological interventions, as a rule, do not appear to be getting better as our science proliferates. Further, Jones, Mair, Kuppens, and Weisz (2019) estimated that if psychological interventions for children and adolescents were delivered *perfectly* (i.e., perfect content plus perfect common factors), our average effect size would reach about $d = 0.83$; a statistically large effect that, nevertheless, leaves something to be desired in terms of clinical outcomes (see Fig. 1). As noted by Weisz et al. (2019), "although beneficial therapies have been identified, there is room for improvement" (p. 217).

Thus, we conclude this volume with some potential avenues on how we can improve our science, and/or the application of our science to the children and families that need it. We couch these recommendations in the context of the previously noted need for continued research development of all three legs of EBPP (Fig. 3 in Chap. 1) as well as in the context of pending organizational guidelines (e.g., American Psychological Association [APA], 2019). These pending guidelines offer commentary and suggestions on how a psychologist can "integrate research evidence with clinical expertise while attending to patient characteristics, culture, and preferences in the delivery of psychological services" (lines 54–56).

In terms of improving the research base for EBPP, Weisz et al. (2019) suggested that more focused work on understanding the mechanisms of therapeutic change, or on optimizing treatment structure might yield further improvements in our intervention outcomes. For example, within the anxiety disorders treatment literature, changes to treatment structure (e.g., *brief, intensive, and condensed*

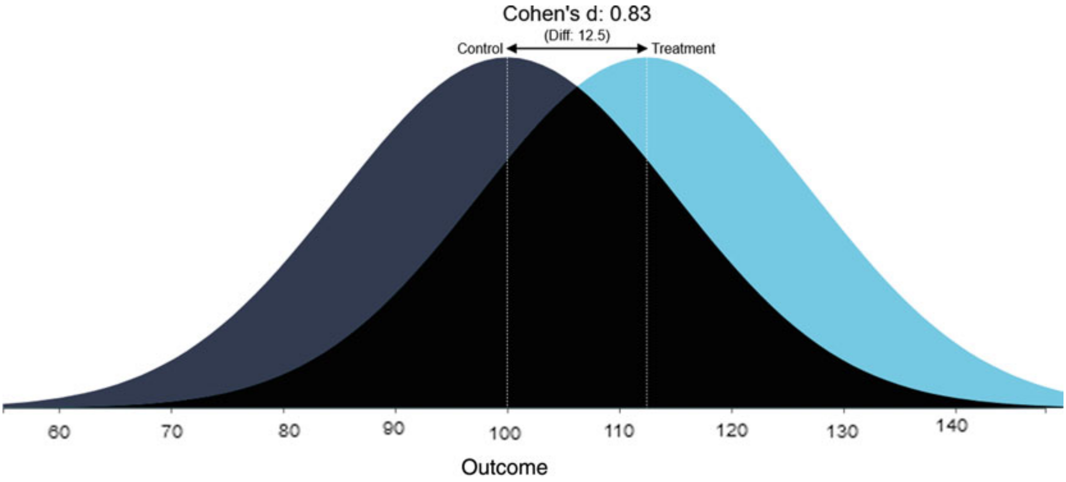

Fig. 1 Distribution of outcomes with an effect size of d = 0.83. Note the overlap (68%) between treatment and control conditions, and the estimated number of treated individuals with poorer outcomes than untreated control participants. Please see Magnusson (2014) for an interactive visualization of effect sizes

treatment; Öst & Ollendick, 2017; *stepped care*, Ollendick, Öst, & Farrell, 2018) have yielded favorable results, perhaps because of reduced dropout/attrition, concentrated exposure (i.e., increased contact with the active ingredient), increased personalization of the therapy experience (to match client expectations/needs), or decreased interference with competing demands. Further, and as noted by several authors in this volume (e.g., Stoll, Mendes, Pina, and Silverman, Chap. 5; Curry and Meyer, Chap. 9), additional clarification of mechanisms of change could help improve clinical outcomes across a range of disorders.

Perhaps relatedly, a number of chapters in this handbook call for further research into transdiagnostic approaches for a range of disorders. The call for such approaches is not new; nearly two decades ago Rosen and Davison (2003) called for the identification of *empirically supported principles of change* (ESPs) rather than the identification of empirically supported treatments or trademarked (or "named") therapies and packages—which are typically tied to one or more specific conditions. More recently, the value of transdiagnostic approaches that address underlying etiological or maintaining mechanisms (e.g., emotion dysregulation) have come into focus (Chu, 2012; Weisz, Bearman, Santucci, & Jensen-Doss, 2017). Although we have organized this volume around specific diagnostic categories, we suspect that clinicians' attention to underlying processes, principles of change, and specific mechanisms of action will facilitate their ability to more effectively respond to clients' presenting needs, particularly those clients with significant comorbidities.

A common concern raised across many chapters in this volume is "*To what extent does the current empirical literature apply to diverse populations?*" Although the number of interventions that have been examined across cultural contexts seems to have increased since the last edition of this handbook (viz., Huey & Polo, 2017; Piña et al., this volume), more work remains. As noted by various authors in this volume (e.g., Deas and Cooper, Chap. 21; McMahon and Pasalich, Chap. 13; Piña et al., Chap. 24), culturally tailored evidence-based interventions have shown superiority over non-tailored interventions for a number of conditions among children and adolescents from underrepresented groups. However, in the absence of culturally tailored interventions with a strong evidence base, the use of non-tailored evidence-based interventions with careful attention to context, setting, delivery, structure, and content while maintaining adherence to the active ingredients of the intervention is recommended (Chu, Leino, Pflum & Sue, 2016; Huey & Polo, 2017). With continued attention and emphasis applied to these issues, we expect to see improvements based on a developing research base regarding cultural and patient variables as moderators to effective treatments, and improved clinician expertise and cultural competence in clinical decision-making.

Given the renewed emphasis on integrated care models in recent years (e.g., Conroy & Logan, 2014; Roberts & Brown, 2004; Stancin, Sturm, & Ramirez, 2014), we should expect that clinical investigators will examine how care teams in different settings implement and adapt evidence-based practice (e.g., in primary care such as pediatric clinics, in tertiary care such as children's hospital units). Such questions will include how can treatments be optimized by incorporating the expertise of multiple disciplines? How do these teams function as an integrative unit? What are the critical elements of team functioning to produce optimal outcomes for patients? Similarly, community-based research has been recast as "'implementation science' to emphasize its focus on moving research findings from the bench to the bedside" (Mervis, 2019, p. 165, quoting Molly Carnes).

Although not a new issue for the mental health community (or for the medical health disciplines), translational research, implementation strategies, and examining how to improve adoption of EBP remain important and necessary for improvements in outcomes. The "penetration" of evidence-based treatments among provider networks, and the relationship with patient outcomes remain significant issues (Malcolm, Taylor, Mitchell, Saile, Heatly, & Alpert-Gillis, 2019; Nelson & Steele, 2008). However, since the last edition of this handbook, eHealth and mHealth modalities of evidence-based intervention have further enhanced the penetration of effective therapies among children and adolescents for a wider range of conditions. Although electronically delivered interventions do not eliminate all structural or perceptual barriers to mental health care (see Poznanski, Silva, Conroy, Georgiadis, and Comer, this volume), a range of behavioral intervention technologies offer the potential of further improvements in the reach and efficacy of treatment.

Similarly not a "new" issue for the mental health professions, the questions of how best to train clinicians and how to maintain competence over a career will be important to empirically investigate, especially in relation to the leg of EBP dealing with clinician's expertise (Beidas & Kendall, 2010; Health Service Psychology Education Collaborative, 2013; Jackson, Wu, Aylward, & Roberts, 2012; Roberts, Borden, Christiansen, & Lopez, 2005; Rodolfa, Bent, Eisman, Nelson, Rehm, & Ritchie, 2005). Recent changes in accreditation standards have reinforced requirements for training programs to include the selection and use of evidence- or science-based interventions in their curricula, as well as mechanisms for the evaluation of such competencies. Unfortunately, however, although considerable effort and resources are given to continuing education and training in the healthcare professions, including psychology, much less empirical research attention has examined the process of professional education and evaluated outcomes resulting in any improved effects for patients. As an initial step to improve the efficacy of professional education, Washburn et al. (2019) recommended transitioning to a competency-based evaluation system for professional education.

The concepts of prevention of psychological disorders, physical illness, and injury are certainly not new in psychology or mental health care (or in health care in general; Roberts & Brown, 2004; Roberts & Peterson, 1984). The APA position statement on evidence-based practice in psychology focused on treatments and psychotherapy; this handbook takes a similar focus. The position statement did minimally acknowledge that prevention was included in its coverage of psychological interventions (American Psychological Association Presidential Task Force on Evidence-Based Practice, 2006, p. 273). The Proposed Guidelines for the Implementation of Evidence-Based Psychological Practice (APA, 2019) mention prevention and health promotion efforts with examples of applications in childhood of reducing risk factors and enhancing protective factors, utilizing screening and early detection, collaborative interventions and in public health initiatives (lines: 642+). Prevention of psychosocial problems and physical disorders and promotion of healthy development and functioning remains a highly underdeveloped area of research, professional training, and applications for psychologists. Despite repeated calls for greater emphasis on prevention and promotion, numerous barriers to such an emphasis obstruct much advancements, such as financing hurdles, the orientation and culture of the profession toward remediation and intervention, and higher standards of proof for effectiveness for implementation. Some progress might be discerned in some areas such as for pediatric overweight and obesity (e.g., Steele and Christoffersen, this volume). Nonetheless, *each* of the problems and disorders covered in this book for evidence-based therapies, perhaps, should have parallel coverage of prevention of those conditions and promotion of healthy development.

A greater emphasis on establishing and disseminating scientifically based information about effective treatment has been observed with the formation of the Patient Center Outcomes Research Institute (PCORI; www.pcori.org) as part of the 2010 Affordable Care Act. PCORI facilitates the production and organization of evidence-based information for healthcare decision-making through research support and informational materials. In many ways, PCORI and related activities and agencies (e.g., the Agency for Healthcare Research and Quality) are the natural development of the evidence-based practice movement in the professions serving the public (starting with original articulation of evidence-based practice by the Institute of Medicine, 2001) coupled with concepts of personalized or individualized medicine. Within PCORI and other scientific-based initiatives, these advances represent the tailoring of treatments to the patient's variables or characteristics in medical and psychological applications. In this way, research on the multiple aspects of medical treatments and psychological interventions continues with an orientation to answering, in essence, the significant question outlined for psychotherapy by Gordon Paul (1967, noted in Chap. 1).

Of course, much valuable research in mental health also occurs outside the PCORI agency as psychological clinical researchers conduct rigorous outcome studies to establish the evidence "bona fides" for psychotherapeutic interventions and treatments. In particular, some innovative research findings increasingly address the question posed by Paul in finding the best treatment related to the patient's characteristics consistent with the EBP framework. The "Probability of Treatment Benefit" (PTB) analysis and resulting informational charts for decision-making as developed by Lindhiem and colleagues (e.g., Lindhiem, Kolko, & Cheng, 2012) represent one significant example of this approach. The PTB approach "…is a decision-support tool that quantifies, in absolute terms, the probability that an individual patient will benefit from a psychological treatment based on the individual's pre-treatment characteristics" (Grasso, Ford, & Lindhiem, 2016, p. 465). As noted by Beidas et al. (2014), "PTB data can help clinicians decide which evidence-based practice they should implement with which client in a more personalized manner" (p. 134).

Other advances in fulfilling the potential benefit of the full three-legged model of evidence-based treatment include the SMART methodology, the acronym for "Sequential, Multiple Assignment, Randomized Trials" (e.g., Lei, Nahum-Shani, Lynch, Oslin, & Murphy, 2012). SMART is a research design that creates and evaluates interventions that are more real-world-like than previously used designs. The SMART model is "adaptive" to the changes in patient's adherence and responsiveness to treatment components and, thus, individualizes to the patient's relevant characteristics and preferences (fulfilling the need for informational support in the leg of the EBP for patient characteristics in clinical decision-making) (e.g., Naar-King et al., 2016; Nahum-Shani et al., 2012). These characteristics might include pretreatment symptomatology such as severity, as well as ongoing modifications indicated by the response as treatment progresses. Nahum-Shani et al. (2012) note that: "In adaptive interventions the type or the dosage of the intervention offered to participants is individualized based on participants' characteristics or clinical presentation and then repeatedly adjusted over time in response to their ongoing performance …This approach is based on the notion that individuals differ in their responses to interventions: In order for an intervention to be most effective, it should be individualized and, over time, repeatedly adapted to individual progress" (p. 457).

These topics are a sampling of examples of where the health professions are making innovation and producing potential advancements in knowledge and applications. The database on which to build these models needs further development and refined application so that they can accommodate a greater range of diagnoses, treatments, clinician and patient characteristics, clinical practice settings, service delivery organizations, and financial arrangements. Only then can a highly sophisticated fulfillment of the promise of evidence-based practice be accomplished. These types of advances in psychotherapy and interventions research and applications with the public will assist clinicians, patients, and families in making well-informed decisions and helping reduce the burden of mental health problems. Paul, in his succinct articulation in 1967, put in motion the evolution of research questions and scientific methodology and clinical applications. Although the question remains quite current, the approaches are quite different now. We can expect further advances in the future to improve professional understanding and knowledge, clinical decision-making, and practice.

Although most of the effective therapies presented in this volume continue to rely on evidence-based principles that have their roots in the mid-to-late twentieth century, the evidence demonstrates that the field has responded to the mental health care needs of children and adolescents with therapies that can reduce symptoms at a population level. But despite these successes, we still have work left to do (cf. Weisz et al., 2019). The extension and application of these evidence-based principles to larger and more diverse populations of children and youth, as well as the more efficient, creative, and/or efficacious evaluation and application of these principles represent positive developments that we can expect to develop and evolve to improve the human condition. Indeed, recent events (e.g., the 2019-2020 COVID-19 pandemic) underscore the need to further examine the effects of negative life events on children and families, and how evidence-based treatments can be effectively delivered. Despite the challenges that the field and society may encounter, we conclude this volume on an optimistic note: The field is well-positioned to continue the process of refining its technologies in the hopes that all children in need might be served. The current volume is a snapshot at the outset of this task, and we imagine the next volume will have much to report on how tailored treatments expand the net of evidenced-based therapies.

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