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CHAPTER 32

Cognitive-Behavioral Therapies for ADHD

Laura E. Knouse

Cognitive and behavioral therapies (CBTs) are based on a scientific understanding of the complex interplay of thoughts, feelings, and behavior in the etiology and maintenance of a wide range of psychological disorders. Behavior therapies based on principles of classical and operant conditioning have merged with cognitive approaches emphasizing the influence of beliefs, appraisals, and their modification in the mediation of new learning (Craske, 2010). Although empirically supported cognitive-behavioral approaches have been developed for a wide array of disorders—including behavioral interventions to help manage attention-deficit/hyperactivity disorder (ADHD) in childhood—CBT for ADHD in adulthood is a much more recent development. This is scarcely surprising given the delayed recognition of the disorder's persistence into and impact on adulthood. Fortunately, the last 15 years have seen a steady and growing stream of interest in and—most importantly—empirical studies of CBT for adult ADHD. Manualized approaches are now available for both group and individual application, and larger randomized trials with active treatment control conditions support the efficacy of CBT (Safren et al., 2010; Solanto et al., 2010).

Despite its short history, the psychosocial treatment landscape for adult ADHD is growing increasingly crowded. Several research groups have published outcome data from trials of various approaches: group psychoeducation (Wiggins, Singh, Getz, & Hutchins, 1999), dialectical behavior therapy skills training (Fleming, 2013; Hesslinger et al., 2002; Hirvikoski et al., 2011; Philipsen et al., 2007), group cognitive remediation (Stevenson, Whitmont, Bornholt, Livesey, & Stevenson, 2002), CBT for medication-treated adults with residual symptoms (Safren, Otto, et al., 2005; Safren et al., 2010), problem-focused therapy (Weiss & Hechtman, 2006; Weiss et al., 2012), CBT with stimulant medication (Ramsay & Rostain, 2011; Rostain & Ramsay, 2006); cognitive-behaviorally oriented group rehabilitation (Salakari et al., 2009; Virta et al., 2008, 2010), mindfulness meditation training (Mitchell et al., in press; Zylowska et al., 2008), cognitive-behavioral group therapy (Solanto, Marks, Mitchell, Wasserstein, & Kofman, 2008; Solanto et al., 2010), a CBT workshop series (Bramham, Young, Spain, McCartan, & Xenitidis, 2009), and Reasoning and Rehabilitation 2 for ADHD (Emilsson et al., 2011). Many (but not all) of these treatment programs are described as using cognitive-behavioral strategies or adhering to CBT principles, although there appears to be considerable variability in program content and in the extent to which programs focus on providing psychoeduca-

tion versus teaching clients to implement specific skills (Knouse & Safren, 2010, 2013a). Because of the variety of approaches currently available, one aim of this chapter is to provide information on the principles and hypothesized mechanisms of change in CBT, so that readers have a clear understanding of the application of these principles to the treatment of ADHD in adults.

This chapter provides an introduction to the science and practice of CBT for adult ADHD and next-step resources for those wishing to learn more. As such, the chapter does not review every psychosocial approach for adult ADHD listed earlier; instead, it focuses on CBT treatment principles and the most rigorously tested approaches. The information presented draws heavily on the growing research literature on CBT in general and specifically for adult ADHD. In the latter part of the chapter, I also provide some general recommendations to clinicians implementing skills-based treatment with this population, drawing on the clinical literature and my experience as a clinician conducting CBT with clients in the context of research trials and general outpatient work. Because of its relatively short history, CBT for adult ADHD is an exciting and dynamic area of research and practice despite the many questions that remain to be answered.

In sum, this chapter will:

- Describe essential elements of cognitive-behavioral therapy and their application to adult ADHD.
- Provide a theoretical and empirical rationale for using CBT with this population.
- Familiarize readers with two major empirically supported approaches.
- Provide key recommendations for conducting skills-based ADHD treatment for adults.
- Describe next-step directions for the field.
- Suggest resources for readers wishing to learn more in an annotated references section.

ESSENTIAL FEATURES OF CBT

Before describing specific CBT treatment programs for adult ADHD, I first discuss key cognitive-behavioral principles and give examples of how they may be applied to adult ADHD treatment. For readers new to CBT, this is important background information. For readers already familiar with CBT for other disorders, this section links prior knowledge with applications in adult ADHD. In addition, for all readers, this section provides a basis on which to evaluate treatment approaches and treatments as they are actually delivered. Because of the research supporting many CBTs for major disorders, and perhaps because of the appeal of short-term, evidence-based practice to managed care payors, CBT appears to be more popular than ever. But what elements are necessary to qualify a treatment as CBT? This question is not a trivial one. When clinicians in the community report that they are using CBT, the specific techniques they employ may not include key "active ingredients" of empirically supported treatments (Freiheit, Vye, Swan, & Cady, 2004; Stobie, Taylor, Quigley, Ewing, & Salkovskis, 2007). Thus, understanding key principles is foundational to learning CBT techniques and evaluating the research literature on this topic.

As a point of reference, let us consider key elements in the description of CBT provided by the Association for Behavioral and Cognitive Therapies (2013), the major professional organization for CBT clinicians and researchers. Four major characteristics contained in that description are (1) CBT is based on scientific evidence; (2) CBT is short term; (3) CBT takes into account interactions among thoughts, emotions, and behaviors; and (4) CBT teaches clients specific skills.

Based on Scientific Evidence

A crucial feature of CBT is that it is based on scientific evidence. This means that the techniques a therapist uses are based on a scientific understanding of how human thoughts, emotions, and behavior interact with one another and the environment to produce and maintain clinical problems (e.g., basic principles of operant conditioning; effects of emotion on attention and memory). A CBT clinician also takes an empirical approach with each individual client, collecting data throughout treatment and modifying working hypotheses and treatment strategies as needed based on those data (Craske, 2010).

Valuing scientific evidence also means that CBT scientists and practitioners are willing to subject their treatments to rigorous empirical tests. Because clinicians are not exempt from cognitive biases that affect humans in general, they may attend to and remember only the shining clinical success stories and selectively attribute client lack of progress to factors other than the treatment itself. As a result, in the absence of objective data, therapists can easily continue to use less-than-optimal strategies. This is why many CBT prac-

titioners value research evidence so highly. Using a treatment that has been shown to work for a significant proportion of clients provides a scientific foundation upon which to base one's practice and also provides a systematic way of improving the treatment over time. Ideally, systematic research isolates the most important "active ingredients" of a treatment (e.g., inhibitory learning during exposure for anxiety disorders; Craske et al., 2008), so that clinicians can better understand when and how to adapt CBT for an individual client while maintaining the core processes associated with treatment-related change.

Given the CBT focus on scientific evidence for efficacy, I later describe two approaches that have been tested using the most rigorous methods thus far—randomized controlled trials and active treatment control conditions. This does not mean that other approaches will not be found to be as effective, or more effective, in the future. It means that these two approaches currently represent the best that we have from the perspective of scientific evidence.

Short-Term

One appealing feature of CBT for some clients, therapists, and managed care organizations is that it is designed to be relatively short-term. CBT, however, is not short-term only for the sake of convenience. Instead, its time-limited nature is an outgrowth of other features more relevant to efficacy—specifically, CBT is goal-directed, structured, and client-empowering. First, CBT is ideally goal-directed (not open-ended), with therapist and client agreeing on what will be the target outcomes of the treatment. Research from many areas of psychology supports the importance of goal setting in enhancing regulation of behavior (Carver & Scheier, 2011; Locke & Latham, 1990). It stands to reason that a goal-directed treatment will be more efficient. In addition, clear treatment goals and ongoing assessment of progress toward those goals allows the therapist to be flexible in altering strategies if progress is not being made.

Second, CBT is structured in a way that directs client and therapist efforts toward the goal. The understanding that treatment will be short term provides an incentive for therapist and client to work efficiently. As such, CBT sessions are usually guided by an agenda, so that time and effort can be focused on the most important treatment targets. Finally, CBT is short term because the overarching goal is to train clients to use skills in the absence of direct support from the therapist (i.e., to "be their own therapist"). Thus, CBT is not short term simply for the sake of making it appealing to stakeholders—rather, it is goal-directed, structured, and ideally designed to render the therapist obsolete as clients gain skills.

Emphasizes Interaction among Thoughts, Emotions, and Behaviors

CBT recognizes the complex interplay of a client's thoughts, emotions, and behavior in the treatment of any clinical problem. Consideration of thought–emotion–behavior interactions is an integral part of the assessment process because it gives the therapist a full picture of how the clinical problem plays out and where interventions should be used. Although CBT approaches are based on general models of how these elements reinforce one another, the therapist must apply the model to each client's specific problem.

In CBT, it is also imperative that the client have a clear understanding of the way the model applies to his or her problem, in order to understand the rationale for specific treatment strategies and recognize when and where to use these strategies in everyday life. Thus, effective psychoeducation is necessary (but not sufficient) for effective cognitive-behavioral treatment. When providing psychoeducation about the CBT model, it is important to use examples collected from the client's actual experience as opposed to simply engaging in a theoretical discussion of how thoughts, feelings, and behaviors might interact. CBT often involves training clients in the metaskill of stepping back and "seeing" these interactions as they occur, so that they can use skills when and where they are needed. Thus, a crucial element is that CBT addresses the role of thoughts, emotions, and behavior in the conceptualization and treatment of clinical problems and includes skills that address these relationships.

Teaches Specific Skills

The key mechanism of change in CBT is that clients learn specific cognitive and behavioral skills that they use to change the way they interact with the environment. In CBT, clients must use skills in their daily lives, not merely discuss them in session. This explains the CBT therapist's emphasis on practice of skills outside of session (i.e., homework assignments). What matters most is whether the client learns to use skills in daily

life. It is not enough for clients to learn *about* skills—they must be able to *demonstrate* skills and apply them flexibly in new situations. Just talking about thoughts and behaviors with a client, or even talking about specific skills, is not necessarily doing CBT. For example, I could have a perfectly lovely conversation with a client about what his or her ideal calendar and task list system would look like. However, as a cognitive-behavioral therapist, I must also focus on how, when, and where the client will implement this system during the next week, assess and target barriers to use of skills, and use other techniques to maximize the likelihood that this skill happens in the "real world." Thus, CBT therapists focus their efforts on helping clients *learn and use* specific skills in their daily life to address their problems.

This point cannot be overemphasized with respect to CBT for adult ADHD. ADHD has been described not as a disorder of "knowing what to do" but as a disorder of "doing what you know"; it is a disorder of performance more than one of knowledge (Barkley, 1997; see Chapter 16). Put a bit differently, ADHD is less a disorder of *attention* and more a disorder of *intention*. Thus, for a skills-based treatment to be successful, it cannot simply educate the client or try to convince him or her that skills might be, in theory, a good idea. Clients with ADHD may wholeheartedly agree that a skill is valuable, completely understand how it would help them, and fully comprehend intellectually the steps to implement the skill, yet still be unable to use it successfully in daily life. Thus, CBT therapists for adult ADHD must constantly incorporate strategies designed to help clients implement skills (Ramsay, 2010). As mentioned earlier, homework assignments in CBT are a good example of a key feature that focuses on implementation. Therapist and client set a specific goal for the week in terms of the client trying out a new skill, including where, when, and how the skill will be implemented and what barriers he or she can anticipate. Of course, following up on the homework each week and troubleshooting are critical to maximizing results.

Consistent with the importance of skill use as a mechanism of action in CBT, in past reviews, Steven Safren and I have hypothesized that the active ingredient in CBT for adult ADHD is the extent to which clients *implement* new skills to compensate for their ADHD-related deficits (Knouse & Safren, 2010, 2013a). Psychosocial approaches for adult ADHD, including those described as CBT, seem to vary quite a bit in terms of the extent to which they focus on implementation of specific skills versus psychoeducation on a broader range of topics. For example, some treatments include one or two sessions devoted to topics not directly related to compensatory skills, including substance abuse, depression, anger management, communication, and relationships. While it may be important for clients to better understand the ways that their ADHD impacts these areas and to reduce the self-blame associated with those problems, it seems unlikely that clients will learn and implement specific skills in these areas based on a few topical discussions—especially given that these problems are complex and likely tied up in the functional impairment that clients are experiencing as a result of ADHD symptoms. Again, this is not to say that psychoeducation is not important or potentially therapeutic, but psychoeducation without skills use and behavior change does not reflect the principles of CBT.

Importantly, empirical evidence thus far appears to support the importance of a focus on skills in the treatment of adult ADHD. CBT approaches for adult ADHD with the strongest empirical support focus on teaching clients to use specific compensatory skills consistently to ameliorate symptom-related deficits (Knouse & Safren, 2013a), and treatments with these characteristics also appear to demonstrate the largest effect sizes (Knouse & Safren, 2010). Relatedly, a few studies show a positive relationship between skills practice outside of session and symptom improvement. Both homework completion and a stronger relationship between weekly homework completion and symptom reduction have been shown to predict better treatment outcome (Solanto et al., 2010; Yovel & Safren, 2007). Skills include both behavioral strategies to improve self-regulation and cognitive reappraisal to increase the likelihood of effective coping in the presence of negative emotions.

Assessing Treatment According to CBT Principles

Based on this discussion of CBT treatment principles, below is a list of questions that clinicians may use to assess treatment approaches and to engage in self-assessment regarding their own practices. Even experienced CBT therapists have sessions that go off track or have particular clients with whom it is especially difficult to stay focused on skills implementation. Asking the following questions may help both new and experienced clinicians to focus their work toward the goals of CBT:

- Has the treatment I am using been tested empirically? How rigorous were the tests? How large were the effects?
- Does my treatment train clients in specific skills to address their ADHD-related deficits, as well as provide the means by which to implement those skills in daily life?
- Is my treatment focused on helping the client reach specific goals that are meaningful to him or her?
- Am I collecting data throughout therapy to evaluate progress?
- Is the structure of the treatment—including format, session structure, and homework assignments—consistent with the goal of helping the client learn skills?
- Does treatment incorporate the interplay of thoughts, feelings, and behaviors in the client's difficulties?
- At the end of treatment, what will the client be *doing differently*?
- How likely is it that my treatment methods will lead to that behavior change?
- Am I teaching my clients how to "be their own therapist?"

WHY CBT?

Addressing Common Concerns

This section focuses on building the case for CBT as applied to the problems of adults with ADHD. It begins by addressing three common objections that might be raised in response to the idea of using this approach to address the core symptoms of the disorder.

1. *ADHD is a neurobiological disorder, so a nonmedication treatment won't work.* First, it is important to establish that just because a condition is "biological" or largely dependent on heredity and underlying neurobiology does not preclude environmental or behavioral intervention. A good counterexample makes this point obvious. Children with phenylketonuria (PKU) have a genetic disorder in which their bodies do not produce a functioning version of the enzyme that breaks down the substance phenylalanine. If they ingest this substance, it accumulates in their bodies and causes untoward neurological outcomes, including mental retardation. The key intervention for PKU is purely environmental and behavioral in nature: Eliminate foods containing phenylalanine from the child's diet (hence, the warnings printed on cans of diet soda.) Similarly, because the functional impairment associated with ADHD arises from the *interaction* of the client's neurobiology with his or her environment, modifications to the environment and the client's behavior may be helpful in ameliorating negative consequences experienced by the adult with ADHD, as they have been for children with the disorder (Fabiano et al., 2009).

2. *Medications for ADHD are already effective for adults.* Although medications are a crucial treatment for many adults with ADHD, they may not always be enough. Some adults are unwilling or unable to take medications. Some clients are medication nonresponders, and many others may experience significant residual symptoms even with efficacious medication treatment. In many studies, a 30% reduction in ADHD symptoms categorizes a patient as a "responder" (Steele, Jensen, & Quinn, 2006), so adults with high levels of baseline symptoms before treatment may continue to be quite impaired even with medication. Furthermore, even if a client does experience significant symptom reduction from medications in adulthood, growing up with ADHD may have impeded the development of self-management skills necessary to meet his or her current goals (Safren, Sprich, Chulvick, & Otto, 2004).

3. *Didn't people try CBT on kids with ADHD in the 1980s and it didn't work very well?* Yes, but response to CBT may be age-related, with adults having sufficient neuropsychological development, especially of their executive functions, to benefit from CBT. More importantly, CBT for adult ADHD is meant to train clients in compensatory skills that help to ameliorate—not cure—ADHD-related deficits. This is an extremely important distinction to make given that these earlier attempts at "cognitive training" for children with ADHD turned out to be largely unsuccessful (Abikoff, 1991). Those approaches (e.g., self-instructional training) were predicated on the idea that children with ADHD could be trained to use self-instructional statements that would allow them to engage in reflective problem solving, and that this nonspecific skill would modify cognitive processes, generalize to new settings, and reduce impulsive responding. In contrast, current CBT approaches for adults with ADHD do not purport to change the underlying processes that produce symptoms; instead, they help clients learn specific strategies

to work around their inattentive symptoms. In other words, the effects of the treatment are not assumed to extend beyond the boundaries of clients' use of specific compensatory skills. Notably, this is consistent with CBT for other conditions. The skills clients learn do not directly "get rid of" anxiety or depression; rather, they disrupt the cognitive and behavioral chains of events that maintain those conditions and lead to functional impairment. Furthermore, the most efficacious CBTs for adult ADHD include procedures specifically designed to enhance skill use in the face of ADHD-related deficits such as repetition to automaticity and placing behavioral cues for skills at critical points in the environment and in time.

The CBT Model of ADHD

Having addressed some common objections, the following sections more fully outline the theoretical basis and empirical evidence for CBT in adult ADHD. The CBT model of adult ADHD is based on the fact that ADHD is a neurobiological disorder with core symptoms that impact executive functioning (Chapters 10 and 16; also see Ramsay, 2010; Safren et al., 2010; Solanto et al., 2010) and sensitivity to reinforcement (Solanto et al., 2010). Over time, the interaction of these core symptoms with the environment results in functional impairment in multiple domains. For example, Safren and colleagues (2004) emphasize the secondary effects of core ADHD symptoms over time, including deficits in self-management skills (behavioral) and patterns of dysfunctional depressogenic or anxiolytic thinking (cognitive) that get in the way of using skills. Chronic perceived failure experiences contribute to patterns of avoidance and demoralization that reinforce functional impairment.

Skills-based CBT is intended to disrupt this cycle. Clients learn basic compensatory strategies to organize their lives, manage their time, and motivate themselves. They also learn to recognize and counteract the thought patterns that lead to avoidance of skill use. Efficacious approaches emphasize that learning skills will be harder for adults with ADHD than for people without the disorder because core symptoms can interfere with skills acquisition. For example, forgetfulness associated with ADHD can often get in the way of key skills, such as using a daily task list. The client may forget to look at the list or forget where he or she put it. Thus, CBT approaches emphasize implementation strategies to cue skill use—for example, tying list use to other events that occur during the day or changing the location and format of the task list to reduce the likelihood of it getting lost. As such, the importance of altering the environment to reduce cognitive workload and support use of skills is also emphasized (Ramsay, 2010). On the cognitive side of the model, CBT approaches also include intervention components that identify and target the client's demotivating assumptions and interpretations. In addition, as clients experience small successes in working around their ADHD symptoms, this motivates further skill use and disproves their negative assumptions about their inability to meet important goals, providing motivation for further adoption of skills.

Empirical Evidence

Empirical evidence has been accumulating at an encouraging rate across the short history of CBT for adult ADHD since the first retrospective chart review study by Wilens and colleagues (1999). One way to describe the magnitude of effects in treatment outcome studies is to calculate, compare, and summarize effect sizes (e.g., Cohen's *d*, the standardized mean difference). Published open trials (i.e., with no control group) of CBT and other psychosocial approaches for adult ADHD show, on average, medium to large effect sizes from pre- to posttreatment (Knouse & Safren, 2010). However, there has been wide variability in the size of outcomes among the various treatment approaches with pre- to posttreatment effect sizes ranging from small to very large.

Although positive results from open trials are important in beginning to establish evidence for efficacy, randomized controlled trials (RCTs) are a more scientifically rigorous method to test whether specific treatment techniques account for observed improvements in symptoms. In its policy statement on evidence-based practice in psychology (APA Presidential Task Force on Evidence-Based Practice, 2006), the American Psychological Association supports systematic review of RCTs as the highest-quality evidence of clinical efficacy. Among RCTs, waiting-list or treatment-as-usual control groups are considered less rigorous than comparisons with active, attention-matched controls groups (Chambless, 1998).

How do CBT approaches fare in RCTs? Compared to waiting-list or treatment-as-usual controls, between-groups effect sizes for ADHD symptoms have ranged from medium to very large (0.76–1.72; Emilsson et al.,

2011; Safren, Otto, et al., 2005; Stevenson et al., 2002). In RCTs that compare CBT to an active, time- and attention-matched control condition, it is expected that effect sizes will be smaller, since nonspecific effects of therapy in the control group are likely to have some impact on symptoms. In three published RCTs comparing CBT for ADHD to either group supportive therapy or applied relaxation training (Hirvikoski et al., 2011; Safren et al., 2010; Solanto et al., 2010), effect sizes of medium magnitude compared to control are reported (0.53–0.57). For the sake of comparison, a meta-analysis of CBT for anxiety disorders summarizing placebo-controlled RCTs yielded an average effect size of 0.73 (Hedge's g; Hofmann & Smits, 2008). Thus, the effects of CBT for adult ADHD observed so far compare favorably with more established CBTs for other disorders.

The American Psychiatric Association (APA) Division 12 Task Force on Empirically Supported Treatments (Chambless, 1998) developed criteria to evaluate quality of evidence for psychosocial treatment approaches. Considering CBT approaches together, the APA Division 12 website (2013) for empirically supported treatments labels CBT for adult ADHD as having "strong research support" and therefore meeting criteria as an empirically supported treatment. If distinguishing among CBT treatment approaches, two currently have higher levels of evidence for their efficacy than others: Safren, Perlman, and colleagues' (2005) CBT for medication-treated adults with ADHD and residual symptoms and Solanto and colleagues' (2010) group CBT for adult ADHD. Because these manualized treatments have shown positive results in RCTs compared to active treatment control conditions, they each appear to meet the criteria for "probably efficacious" treatments[1] (Chambless, 1998; Knouse & Safren, 2013a). A second successful RCT compared to active control of either treatment conducted by an independent research group would be necessary to raise the individual classification to "empirically supported."

Research evaluating CBT for adult ADHD has become increasingly rigorous with time and hopefully this trend will continue. As findings from psychosocial treatment studies are published, it is important to critically evaluate the rigor of the study design in understanding the effects that are reported. As mentioned earlier, average effect sizes mask heterogeneity among the effects of various approaches. When reading treatment outcome research, the presence of certain study characteristics can increase one's confidence that the treatment was responsible for the effects observed in the study. Readers may place their highest levels of confidence in studies with the following characteristics: randomization to groups; comparison to active, attention-matched controls; clear a priori hypotheses about which effects will be observed on what measures; reporting of intent-to-treat analysis (i.e., results from all participants randomized to treatment, not just those who completed the study); use of reliable and valid assessment tools for ADHD symptoms; assessment of symptoms using a method other than self-report (e.g., assessor blinded to treatment status); and reporting of results at follow-up intervals after treatment has concluded (to gauge durability of effects). Of course, this does not mean that results of studies without these characteristics do not "count," just that those with these features may be considered particularly robust.

The next section provides a more detailed description of the structure and content of the two CBT approaches that currently have the most empirical support.

TWO APPROACHES TO CBT

Although a detailed review of all cognitive-behavioral approaches for adult ADHD is well beyond the scope of this chapter, this section provides descriptions of two treatment programs—one individual and one group. As described earlier, each has demonstrated efficacy in a larger RCT when compared to an active treatment control group. Readers who are interested in learning more about or implementing these approaches or any CBT approach should also obtain and study the treatment manuals, as well as seek out additional training and supervision.

Individual CBT for Medication-Treated Adults with Residual Symptoms

Recognizing that many adults who take medications for ADHD continue to experience difficulties, Safren and colleagues (Safren, Otto, et al., 2005; Safren, Perlman, Sprich, & Otto, 2005) developed a cognitive-behavioral approach specifically designed to meet the needs of this population. The treatment comprises three core skills modules: organization and planning skills, distractibility reduction skills, and skills to address dysfunctional thought patterns. Two optional modules include a session designed to rally the support of the client's signifi-

cant other and a session on applying previously learned skills to the problem of procrastination. An earlier version of the treatment also included optional modules on communication skills and anger management; however, Safren, Otto, and colleagues (2005) reported that these modules were only selected by a minority of clients.

Individual sessions follow a typical CBT session structure: setting an agenda, reviewing self-reported ADHD symptoms from the prior week, reviewing the results of previous skills practice (homework), introducing new skills material, troubleshooting possible barriers, and setting the next assignment. Importantly, medication adherence is also tracked weekly, and barriers to medication adherence are addressed using skills learned in the program. An accompanying client workbook contains psychoeducational information, notes, and homework assignments for each session of the treatment (Safren, Sprich, et al., 2005).

The treatment begins with psychoeducation using a CBT model of adult ADHD, setting concrete and reasonable goals for treatment, and addressing motivation for change. Clients are taught that repetition and troubleshooting of skills will be necessary so that they can fully integrate the new behaviors into their lives and see the benefits. The first core skill[2] is introduced at the end of the first session—a calendar and task list system, which serves as a foundation for the skills to follow. The organization and planning skills module proceeds with strategies to prioritize, break down large and daunting tasks, use problem-solving skills, and organize papers and mail. The second core module of distractibility reduction begins by having clients collect data about their attention span and structure tasks accordingly. Reducing distractions in the environment and using visual and auditory reminders are other key skills in this module. The third core module, adaptive thinking, uses traditional cognitive restructuring strategies (Beck, 1995) to help clients begin to recognize when overly negative thoughts and assumptions might be blocking their use of skills and increasing avoidance. Clients are then taught to question these automatic thoughts and develop more realistic and motivating ways of thinking. Clients have the option of completing a session that applies previously learned skills to the problem of procrastination. In addition, they have the option of a session involving a significant other or family member, so that this person can learn about the treatment and discuss how they might help to support the client's efforts at behavior change.

Clinical efficacy of this approach is supported by two RCTs. The first was a trial of 31 medication-treated adults with ADHD and continued symptoms, randomized to either CBT or continued medication only (Safren, Otto, et al., 2005). CBT was associated with significant ADHD symptom reduction, as rated by blinded investigator and self-report with very large effect sizes compared to continued medication alone (Cohen's d = 1.2–1.7). The second RCT of 86 patients taking medication compared CBT to an attention-matched control group that received sessions of relaxation training applied to ADHD symptoms (Safren et al., 2010). This study was a more rigorous test of the specific efficacy of the skills taught during CBT. CBT was associated with significantly greater reductions in blinded investigator-rated and self-reported ADHD symptoms (Cohen's d = 0.52 and 0.77 at posttreatment compared to control), and there were more treatment responders in the CBT group (e.g., 67 vs. 33% by self-report). Importantly, responders and partial responders to CBT maintained their gains at 6- and 12-month follow-up, showing durability of effects.

Group CBT for Adult ADHD

Mary Solanto and her colleagues (Solanto, 2011; Solanto et al., 2008) developed a group CBT[3] designed to help clients develop executive self-management skills to compensate for core neuropsychological deficits that underlie the inattentive symptoms of ADHD. Weekly 2-hour group sessions train clients in time management, organization, and planning of a longer-term project. This order of skills presentation allows clients to work first on skills that apply to basic daily tasks, then master skills relevant to more complex self-management. Clients also learn to address motivation by using self-reward and by learning skills to recognize, challenge, and restructure depressive or anxious cognitions that block skill use.

Importantly, the treatment incorporates several elements designed to help clients implement skills in daily life (Solanto, 2011). First, a full hour of each 2-hour group session is devoted to reviewing the at-home practice assignment from the previous week. This allows for extensive troubleshooting and provides clients with an opportunity to receive feedback and positive reinforcement from other group members for their behavior change efforts. Second, each take-home practice activity is guided by a structured worksheet that includes session notes, instructions, and prompts for

clients to use in evaluating the results of the activity. Third, the treatment makes use of maxims or mantras that are invoked repeatedly throughout the treatment to help clients remember to use skills in key situations (e.g., "If you're having trouble getting started, then the first step is too big"). Finally, clients are encouraged to actively visualize the longer-term positive outcomes of using their skills in order to increase motivation. Each of these elements is designed to increase the likelihood that clients will successfully implement skills in daily life and generalize them to new situations.

Clinical efficacy of this approach is supported by an open trial (Solanto et al., 2008) and an RCT (Solanto et al., 2010). In the open trial, 38 participants with ADHD who varied in medication status completed an 8- or 12-week version of the group CBT. Self-reported DSM-IV inattentive symptoms decreased significantly from pre- to posttreatment, with a very large effect size (Cohen's d = 1.22), and self-reported organization and planning skills increased by a similar magnitude (Cohen's d = 1.11). Outcomes did not depend on medication status. Solanto and colleagues (2010) followed up this open trial with a larger RCT (N = 88) comparing group CBT to a support group control condition. CBT was associated with significantly greater reductions in blind investigator-rated DSM-IV inattentive symptoms (Cohen's d = 0.55 at posttreatment compared to control) and inattention and memory problems as reported by a significant other (Cohen's d = 0.57). For self-reported inattention and memory problems, level of pretreatment symptoms interacted with treatment group such that participants with the highest levels of symptoms at baseline experienced the greatest benefit from CBT over and above supportive therapy. Again, in this study medication status did not moderate any of the observed effects.

As illustrated by these treatment approaches, CBT is designed to help adults with ADHD acquire and implement skills in their daily lives that help to compensate for their symptom-related deficits and maintain their motivation to apply skills over time. The next section provides a few clinical recommendations for helping adults with ADHD learn and use skills in the context of CBT.

HELPING ADULTS WITH ADHD USE SKILLS

The preceding sections of this chapter have focused on the "what" of CBT for adult ADHD—the theoretical rationale for its use, the empirical evidence thus far, and a description of two key approaches. This section offers some recommendations on the "how" of CBT for adults with ADHD designed to increase the likelihood that clients acquire and implement skills to compensate for their ADHD symptoms, improve their functioning, and achieve their goals. These recommendations are based on elements from empirically supported approaches described earlier, from the clinical literature on CBT for adult ADHD, and from clinical experience in this emerging area of practice.

Before addressing specific recommendations, it must be emphasized that the therapist's interpersonal skills and the quality of the therapeutic relationship are exceptionally important. CBT therapists are sometimes wrongly characterized as rigidly adhering to protocols and not valuing a collaborative working relationship to the same extent as therapists trained in other orientations. Nothing could be further from the truth. CBT therapists invite their clients into the risky process of learning new ways of thinking and behaving. They ask their clients to trust them as they work together to figure out the most effective tools. For this process to work, it is imperative that the therapist have a flexible, nonjudgmental problem-solving orientation, viewing client difficulties in treatment as a normal part of the behavior change process and framing each successive approximation of a new skill as a sign of progress. Skilled CBT clinicians must bring all of their interpersonal skills and capacity for empathy to bear on their work with adults with ADHD, and the best CBT therapists are expert teacher–motivators who can flexibly apply the cognitive-behavioral model to each individual client.

The recommendations offered here do not constitute a comprehensive discussion of how to conduct CBT for adult ADHD. For more extensive clinically oriented guidance, readers should access the aforementioned treatment manuals and the excellent book on CBT for adults with ADHD coauthored by J. Russell Ramsay and Anthony Rostain (2008). Two other recent practice-oriented chapters on the subject may also be of interest (Knouse & Safren, 2011, 2013b). In addition, the reference section at the end of this chapter has been annotated to provide even more guidance on particularly helpful resources for this area of practice.

Readers are also encouraged to seek out training opportunities and supervision to develop their skills. Adults with ADHD, because of their deficits in executive functioning and self-regulation (Chapters 10 and

16), can pose a significant challenge to one's skills as a CBT clinician—particularly in keeping treatment structured, goal-directed, and on track. However, working with adults with ADHD who are ready for change can be extremely rewarding—particularly when clients experience success via an approach tailored to their needs after years of struggling to manage their symptoms on their own.

Three recommendations are offered here for helping clients acquire and—most importantly—*use* CBT skills in their daily lives.

Do More with Less (Content, That Is)

Asking an adult with ADHD to learn self-regulation skills is no small request, and a skilled CBT therapist understands that a client with ADHD will have to work much harder than a person without ADHD to acquire and consistently use compensatory skills. This is a clinical population for whom the "spaghetti at the wall" approach (i.e., throwing out a lot of content and "seeing what sticks") is particularly ill-advised. Fully integrating a particular skill into the behavioral repertoire may take several iterations and clients (and therapists!) can become overwhelmed if too much information and too many skills are presented too quickly. As mentioned earlier, the most successful CBT treatments thus far maintain a laser-focus on skills implementation rather than including a wider range of psychoeducational content.

Clinicians may want to consider covering fewer skills but spending more time in treatment "locking them in." The choice of which skills to include must be based on a detailed assessment of the client's most problematic symptoms and functional impairment. For example, in her treatment manual, Solanto (2011) includes instructions for adapting group CBT for adult ADHD to an individual format, including assessment tools to aid therapists in choosing the most relevant skills to target. Fewer well-learned and consistently implemented skills effect more positive change in the client's life than lots of content that never leaves the therapist's office.

Be Intentional about Implementation

To help clients with ADHD successfully apply skills in daily life, the CBT therapist must constantly be questioning when, where, and how the client will implement the to-be-learned skill and building in intervention components that cue and support skills application. Discussions about skills are of no use in CBT if they do not actually lead to use of skills. When planning homework assignments for skills practice, the therapist should help the client identify the specific situations and times where the skill will need to be used. This includes having a specific location for any tools that are needed (e.g., daily planner, task list), preferably at the "point of performance" (Chapter 16; Barkley, 1997, 2012; Barkley, Murphy, & Fischer, 2008) or close to the location where the client needs to perform the skill. If possible, the client should practice using the skill during the session as much as possible before he or she is required to use it in the "real world." Finally, when presenting each homework assignment, the therapist should ask the client what is likely to get in the way of successfully using the skill. If barriers are identified in advance, then strategies can be included to address them before they derail the client's change efforts.

It is equally important that the therapist diligently follow up on each skills practice assignment the following session. When assigning homework, it may be helpful for therapists to keep in mind a maxim adapted from behavioral parent training: Don't give a homework assignment that you don't intend to follow up on. Therapist and client should take the time to thoroughly assess and troubleshoot skills attempted the previous week, modifying strategies and reassigning practice as necessary. Detailed follow-up is especially important when the client does not complete the assignment, as it can provide important information on motivational barriers to skill use.

As far as specific strategies to aid implementation and generalization, some elements of current manualized treatments that have been discussed earlier include maxims or mantras, workbooks or structured homework sheets for skills practice, and use of self-reward and cognitive restructuring to address emotional and motivational barriers. Another important strategy is to place cues for skills use at key points in the client's physical environment or at critical points in time (Safren, Perlman, et al., 2005). For example, a client might set a cell phone alarm to go off daily at a specific time when he or she is likely to get off task, and use it as a cue to look at the task list. Finally, and perhaps most importantly, the client is most likely to experience lasting behavior change if he or she is supported in practicing new skills repeatedly, until they become habitual and an integral part of his or her daily life.

Assess Avoidance

Avoidance is at the behavioral core of disorders such as anxiety and depression[4] (Ferster, 1973; McNally, 2007), and it is addressed directly by CBT for those disorders (e.g., exposure; behavioral activation). The role of avoidance in the problems experienced by adults with ADHD has been discussed in prior clinical writings (Mitchell, Nelson-Gray, & Anastopoulos, 2008; Ramsay, 2002) and when manuals address the behavioral effects of negative automatic thoughts (i.e., reducing the likelihood that clients will use skills). Nonetheless, the role of cognitive and behavioral avoidance of aversive emotional states in adult ADHD may be underappreciated. Difficulty tolerating unpleasant thoughts and feelings ("experiential avoidance" in the language of acceptance and commitment therapy, Hayes, Strosahl, & Wilson, 2012) may motivate adults with ADHD rapidly shift attention and intention away from the provoking stimulus. Unfortunately, in daily life, important tasks often provoke unpleasant feelings, at least initially. Aversive states triggered by everyday experiences include anxiety, self-doubt, boredom, impatience, frustration, helplessness, and feeling overwhelmed. Due to either their learning history of past failure experiences (Ramsay, 2010; Safren et al., 2004) or symptom-related problems with delay aversion and distress tolerance (Sonuga-Barke, 2003), adults with ADHD may be more likely than other adults to respond to fleeting aversive states by moving attention elsewhere, engaging in alternative activities, or thinking overly optimistic thoughts (i.e., cognitive and behavioral avoidance) (Knouse & Mitchell, in press; Knouse, Zvorsky, & Safren, 2013; Sprich, Knouse, Cooper-Vince, Burbridge, & Safren, 2010). As a result, behaviors that might otherwise be described as distractibility, forgetfulness, or even impulsivity may be the result of attempts to avoid unpleasant feelings (Knouse & Safren, 2013b).

Clinicians should consider assessing for the potential role of avoidance when their clients experience difficulty implementing CBT skills in daily life and instead engage in off-task behaviors. Key questions to ask include the following:

"What feelings come up when you think about doing that task?"

"What runs through your mind when it comes time to use that skill?"

"When you do it the old way, what do you *not* have to deal with?"

"What feelings do you find it the hardest to just sit with and not push away from?"

The best way to get accurate answers to these questions is probably to have clients self-monitor their reactions in daily life. Tools from the cognitive restructuring modules of manualized treatments are especially useful in facilitating self-monitoring. If it becomes clear that avoidance of negative private experiences is derailing a client from using skills, therapist and client can work together to increase awareness of these vulnerable situations and develop techniques to promote active coping (Knouse & Mitchell, in press). For example, the client could formulate an implementation intention that states what the client will do when he or she notices the aversive feeling or thought (i.e., engage a particular skill) (Gawrilow, Gollwitzer, & Oettingen, 2011; Ramsay, 2010). Or consider the maxim used in Solanto's (2011) manual: "If I feel overwhelmed, then the first step is too big"—an excellent example of a specific skill linked to an aversive emotion. Depending on the client and the situation, other versions might include "If I feel like I'm drifting, then I need to look at my task list," "If I feel like I want to escape, then I may need a short (timed!) break," or, "If I feel deprived, then I should choose a reward for myself when I complete the task at hand."

Assessing the role of avoidance and folding it into the treatment strategy is another way to promote the client's implementation of skills in daily life.

ON THE CBT HORIZON

CBT for adult ADHD is still in the early stages of development compared to approaches for other disorders. This section highlights CBT research directions that are taking shape and provides recommendations for future directions that would improve CBT outcomes and access to care.

Mindfulness

Mindfulness-based approaches to psychotherapy have shown promising results in people with anxiety and depression (Hofmann, Sawyer, Witt, & Oh, 2010), and

mindfulness techniques are being applied to a growing variety of clinical problems. For emotional disorders, it is hypothesized that the ability to be nonjudgmentally aware of experiences in the present moment facilitates emotion regulation by giving clients the opportunity to reappraise automatic maladaptive thoughts and divert emotion-driven behaviors (Barlow et al., 2011). Zylowska and colleagues (2008) conducted an open feasibility study of mindfulness meditation training for adolescents and adults with ADHD, hypothesizing that mindfulness practice might improve attention and executive functioning skills, and emotion regulation. Study completers self-reported significant reductions in ADHD symptoms at posttreatment (d = 0.80). A recent pilot RCT compared group mindfulness meditation training to a waiting-list control group and found very large effect sizes for self-reported and clinician-rated ADHD inattentive and hyperactive–impulsive symptoms and emotion dysregulation (Mitchell et al., in press). Furthermore, adaptations of DBT skills training (Linehan, 1993) for adult ADHD also incorporate mindfulness skills, along with other, more traditional CBT skills.

The recent increase in research attention to mindfulness for adult ADHD is encouraging and establishes a stronger empirical basis on which to recommend these skills as part of CBT for adult ADHD. In addition, future studies should focus on better understanding the mechanism of action of mindfulness skills for adult ADHD. For example, these skills may exert their effects via improved emotion regulation (see Chapter 3) or greater awareness of avoidance-motivated behavior. Importantly, although there may not yet be enough evidence to support mindfulness meditation as a monotherapy for adult ADHD, there is ample reason to integrate mindfulness practice into a comprehensive treatment program for clients with ADHD who also experience difficulties with stress management or comorbid internalizing symptoms.

Dissemination and Effectiveness Research

Although additional controlled trials may be needed, research on CBT for adult ADHD must also begin to focus on testing the effectiveness (i.e., external validity; ecological validity) of manualized approaches in "real-world" clinical practice settings (Knouse & Safren, 2013a) and with samples of clients that are more representative of the entire population of adults with ADHD (Knouse & Safren, 2011). Researchers should also evaluate what level of training and supervision therapists in the community need to deliver CBT for adult ADHD in a way that results in optimal response rates. Is studying the therapy manual or attending a workshop enough, or do clinicians need to be supervised by an expert clinician to be effective? Research could also investigate whether lower-intensity versions of the treatment delivered in alternative formats (e.g., online) might be a cost-effective treatment for less impaired clients. As with CBT for other disorders (McHugh & Barlow, 2010), improving access to treatment and optimizing it for the "real world" are important next steps in refining CBT for adult ADHD.

Adapting CBT for Comorbidity

Because a large proportion of adults with ADHD also meet criteria for other psychological disorders, including mood, anxiety, and substance use disorders (Kessler et al., 2006; Miller, Nigg, & Faraone, 2007), clinicians need additional guidance on how best to address comorbidity in therapy. CBT for adult ADHD may be combined with CBT approaches for other disorders and, in some cases, there is overlap in the skills recommended for each disorder (e.g., as in CBT for depression; Knouse et al., 2013). For example, van Emmerik-van Oortmerssen and colleagues (2013) are conducting an RCT of CBT for adults with comorbid ADHD and substance use disorders. They are comparing the efficacy of an empirically supported CBT for substance use disorders by itself versus combining substance abuse treatment with Safren, Perlman, and colleagues' (2005) approach for adult ADHD. Hypothesizing that ADHD symptoms contribute directly to problems with substance use, the researchers are particularly interested in whether adding treatment of ADHD enhances the impact of CBT on substance use. This intriguing study is one example of how CBT for ADHD might be integrated with treatments for other disorders and potentially enhance their effects.

Adapting CBT for Specific Settings

Current CBT approaches for adult ADHD were developed for the general adult population, but skills could also be tailored to the unique needs of adults with ADHD in specific settings. For example, Fleming, McMahon, Moran, Peterson, and Dreesen (in press) recently completed a pilot RCT (N = 33) of group DBT skills training adapted for the unique developmental

needs of college students with ADHD (Fleming & McMahon, 2012). Compared to students who received self-guided skills handouts, participants in the 8-week group showed significantly greater improvements in executive functioning on the Brown Attention-Deficit Disorder Scales, greater improvements in quality of life, and a trend toward significantly greater reductions in self-reported DSM-IV inattentive symptoms. In addition to these promising findings, other treatment studies being conducted at the time of this writing are evaluating adaptations of CBT for adult ADHD for college students, and these results should be available in the next few years.

In addition to targeting higher-functioning young adults with ADHD who have been able to enroll in college, CBT researchers should also investigate whether their treatments can be adapted to better meet the needs of young adults who do not attend college (the majority) and who better represent the general population of adults with ADHD in the community. Furthermore, because adults with ADHD are overrepresented in the prison population (Rösler et al., 2004), CBT should be adapted to that setting. Additional settings that might be appropriate for specialized CBT for adult ADHD include vocational rehabilitation programs and child psychopathology clinics where adults with ADHD may be identified via their child receiving an ADHD diagnosis, and where child-focused ADHD interventions may need to be adapted for parents who themselves have ADHD (Chronis-Tuscano et al., 2011).

Developing New Funding Sources

Compared to federally funded research studies of psychosocial treatment for other disorders, funding for adult ADHD has been surprisingly sparse considering the prevalence rate of the disorder in the U.S. population (4.4%; Kessler et al., 2006) and its strong association with multidomain functional impairment. Only two R01 research grants investigating CBT for adult ADHD have been funded, and a recent perusal of *clinicaltrials.gov* did not identify any additional studies in progress. Given the general tightening of federal resources for scientific and medical research, it makes sense to seek creative ways to fund the next phase of innovations in CBT for adult ADHD. For instance, private sources, such as foundation grants, may also fund an increasing proportion of studies in the future and even "crowdsourced" funding from many small donors may not be outside the realm of possibility.

Proliferation, Refinement, Collaboration

An informal count identifies at least 12 distinct psychosocial treatment programs for adult ADHD described in the research literature, with additional approaches in the clinical literature. In the early stages of a new treatment paradigm, proliferation of different approaches is expected as clinicians and clinical researchers develop their own strategies for filling the gap. As CBT for adult ADHD enters the next phase of development, the benefits of increasing diversity of approaches (e.g., additional innovations in treatment content) can be balanced with refinements to existing programs and adaptation to new populations and settings. Importantly, studies that isolate core "active ingredients" of CBT for adult ADHD could make treatments more efficient and exportable. Finally, more frequent consultation and collaboration among research groups would help to coordinate limited resources in the most efficient way and might speed progress in the development of the best possible CBT for adult ADHD. More collaboration between clinical researchers and clinicians who focus on adults with ADHD in their outpatient practice would aid in the design and execution of dissemination and implementation studies. At this early point in the development of CBT for adult ADHD, our collective next steps could make an immense difference in the pace of future progress.

KEY CLINICAL POINTS

- ✓ CBTs rely on a scientific understanding of the interaction of thoughts, emotions, and behaviors with the environment in the maintenance of psychological disorders. These treatments are frequently subjected to empirical tests to evaluate their efficacy.
- ✓ These structured, goal-directed treatments are designed to train clients to become their own therapists by learning to use specific cognitive and behavioral skills in daily life.
- ✓ It is hypothesized that the "active ingredient" in CBT for adult ADHD is clients' implementation of compensatory skills that ameliorate their symptom-related deficits.
- ✓ Focusing on CBT strategies that enhance implementation of skills is especially important for adults with ADHD because even when they understand what to do, they have difficulty doing it.
- ✓ Cognitive-behavioral models of ADHD emphasize the

deleterious effects of core neurobiological symptoms on acquisition of self-management skills and on clients' automatic appraisals, which themselves have a negative impact on motivation to use skills.

- ✓ Empirical evidence for psychosocial treatments with cognitive-behavioral elements is promising, averaging large effect sizes in open trials and medium to very large effects in comparisons with treatment as usual. However, there is considerable variability in the magnitude of effects observed across trials.
- ✓ More recently, larger RCTs comparing CBT with active treatment controls have yielded significant effects of medium magnitude (Safren et al., 2010; Solanto et al., 2010). These studies appear to qualify CBT for adult ADHD as an empirically supported treatment (APA Division 12, 2013).
- ✓ Clinical recommendations for helping clients with ADHD use CBT skills include focusing more time and effort on fewer skills, a consistent focus on strategies to aid implementation, and consideration of the role of avoidance in failure to use skills.
- ✓ New frontiers in CBT for adults with ADHD include mindfulness skills, tailored approaches for comorbidity and specialized settings, and enhancing dissemination and effectiveness through clinical research collaborations.
- ✓ Clinicians are encouraged to learn more by reading published treatment manuals, accessing the resources described in the annotated references section, and seeking out additional training opportunities.

NOTES

1. The study of group dialectical behavior therapy (DBT) for adult ADHD by Hirvikoski et al. (2011) may also qualify it as a "probably efficacious" treatment; however, the use of only self-report outcome data and lack of significant findings using intent-to-treat analysis suggest some caution in interpreting the results. Forthcoming data from a large RCT of DBT for adult ADHD alone and combined with medication compared to medication alone (Philipsen et al., 2010) may provide further evidence for DBT for adult ADHD as an empirically supported treatment.
2. For several of the skills described in this section, video clips of role-play demonstrations are available online by accessing the article by Sprich, Knouse, Cooper-Vince, Burbridge, and Safren (2010).
3. This treatment was originally named "metacognitive therapy," as it is called in the cited treatment outcome studies, but in the published manual it is now simply referred to as CBT for adult ADHD.
4. Anxious clients engage in behaviors designed to escape anxiety-provoking stimuli in the short-term, which paradoxically maintains anxiety in the long-term. Depressed clients become locked in a cycle in which escape-motivated behaviors replace reward-motivated behaviors, reducing access to reinforcers and further narrowing the behavioral repertoire.

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