

Cognitive Behavioral Therapy for Adult ADHD

Case Study and Commentary, *J. Russell Ramsay, PhD*

ABSTRACT

- **Objective:** To review principles of cognitive behavioral therapy (CBT) as a psychosocial treatment for adult patients diagnosed with attention-deficit/hyperactivity disorder (ADHD).
- **Methods:** Case presentation and review of the literature.
- **Results:** Although previously thought to be a neurodevelopmental syndrome exclusive to childhood, it is now recognized that the majority of individuals diagnosed with ADHD will continue to encounter ongoing symptoms in adulthood. These symptoms may be subthreshold but continue to cause significant coping difficulties or, in many cases, may reflect full syndromic persistence. Moreover, many individuals with ADHD are not identified until encountering problems in adulthood. A lifetime diagnosis of ADHD is associated with increased risk for impairments in most domains of adult life. Although the deficits of “attention” and “hyperactivity” are considered characteristic of ADHD, it has come to be known as a disorder of poor self-regulation such that individuals have difficulty developing and executing plans across time for which there are long-range benefits but that are not immediately reinforcing. Pharmacotherapy is the most effective single treatment for reducing the core symptoms of ADHD, though medications do not necessarily produce sufficient functional improvements in daily life for many patients. Hence, CBT has been adapted to help individuals develop and implement coping strategies with which to manage the effects of ADHD. Behavioral modification and implementation of strategies are emphasized, though cognitive modification of negative thoughts and self-assessments is an important element of treatment.
- **Conclusion:** CBT, adapted to address the needs of adults diagnosed with ADHD, has emerged as the evidence-supported adjunctive treatment of choice for patients for whom medication treatment alone is not associated with adequate symptomatic and functional improvements.

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental syndrome that is categorized as a disorder usually first diagnosed in infancy, childhood, or adolescence [1]. When the diagnosis first appeared in the formal diagnostic nomenclature (as Hyperkinetic Reaction of Childhood), it was thought to remit by adolescence [2], and the bromide that children with ADHD “would eventually grow out of it” persisted in professional and popular circles for ensuing decades. However, subsequent longitudinal research has indicated that children do not invariably “grow out of” ADHD and that its symptoms and effects extend into adulthood [3–6].

One of the factors contributing to the past view of the inexorable remission of ADHD is that the overt signs of motoric hyperactivity diminish with ongoing cortical development [7,8]. However, individuals often report ongoing internal restlessness and examples of impulsivity, such as impetuous spending or verbal behavior. Issues related to inattention, disorganization, poor time management, and procrastination persist in most cases and may, in fact, be associated with even greater life impairments in functioning than were encountered during the school age years due to the multiple responsibilities held by adults [6] and the mere fact that, based on average life expectancy, most individuals spend more of their lives in “adulthood” than in any other developmental period.

It is the life impairments associated with ADHD more than its symptoms that lead adults to seek assessment and treatment. ADHD has come to be understood as a developmental disorder of impaired executive functions [9–11]. A useful definition of executive functions are “those self-directed actions of the individual that are being used to self-regulate” [12] or, said differently, those behaviors that allow individuals to develop and follow through on goal-directed plans to improve future outcomes for which there is no immediate reinforcement. This definition may

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explain the reason that individuals with ADHD may not exhibit difficulties of neuropsychological tests of the executive functions but exhibit impairments on day-to-day tasks that require these skills [13]. In fact, self-report measures of the executive functions have emerged as a specific, reliable diagnostic indicator of adult ADHD although they are not well represented in the extant diagnostic criteria [14]; neuropsychological tests, on the other hand, have not been found to provide a reliable indication of impairment. Research on self-report measures of executive functions have identified the relevant factors as time management, organization/problem-solving, self-motivation, impulse control, and emotional management [13,14].

PREVALENCE

Prevalence rates for ADHD in childhood generally fall in the 3% to 7% range [1], including in international samples, with a recent study reporting the worldwide prevalence of ADHD in children as 6.5% [15]. Estimates of the persistence of ADHD into adolescence and adulthood generally fall above 50%, though lower rates (around 40%) are found when requiring persistence of the full disorder into adulthood and higher rates (upwards of 90%) when identifying persistence of clinical impairments [6,16–18]. Even in cases in which individuals no longer manifest notable symptoms of ADHD in adulthood, there may be lingering consequences of the effects of earlier ADHD, such as academic and occupational attainment.

Prevalence rates for adult ADHD average around 4%. A survey in the United States estimated that about 8 million adults (4.4%) meet criteria for ADHD, and a similar international survey estimated a 3.4% international prevalence rate [19,20]. Studies of college students have produced similar results (2% to 8%), with lower rates found when using strict diagnostic criteria and higher rates found when using modified versions of diagnostic criteria for young adults [21].

ASSOCIATED FEATURES

The claim that “everyone has ADHD” is as inaccurate as claims of certain remission. Convergent research from cross-sectional and longitudinal studies has established the wide-ranging impairments associated with adult ADHD, making it one of the most impairing disorders in outpatient clinical psychiatry and psychology. Among the life problems associated with adult ADHD are lower levels of

academic attainment, lower salaries, various occupational functioning problems and unemployment, increased relationship discord, poor health and well-being behaviors (including higher rates of unplanned pregnancy, higher nicotine use, lack of exercise, poor diet), poorer driving behaviors, and financial problems (eg, nonpayment of bills, no or low savings and/or retirement accounts) [6,20,22–26]. Adult ADHD is also associated with higher rates of psychiatric comorbidity, most frequently depression, anxiety, and/or substance use problems, and adults with ADHD also report higher levels of pessimism and negative self-views than control groups [23,24].

Despite the aforementioned impairments associated with adult ADHD, very few individuals with ADHD receive treatment. A survey of adults with ADHD revealed that only 25.2% had received any sort of psychological or psychiatric treatment in the previous year, with less than half of this group (10.9%) receiving specialized treatment [20].

TREATMENTS

Medications currently stand as the first line of treatment for individuals with ADHD of all ages [27–30]. Pharmacotherapy, particularly with psychostimulant medications, has been shown to be effective in reducing the core symptoms of ADHD. In many cases, medications alone may be sufficient to treat symptoms and produce and maintain desired improvements in functioning. In cases in which psychostimulants are not effective or are not tolerated, there are non-stimulant medication options that have been found to be effective in the treatment of ADHD.

Although medications provide important symptom relief in most cases, they do not necessarily result in functional improvements, particularly in the consistent use of coping strategies that are required to manage the effects of ADHD over the long term. Thus, many patients with ADHD may require adjunctive treatment to achieve desired improvements in daily functioning and overall well-being, which are the ways in which patients measure the personal value of treatment.


There has been increased interest in the development and study of nonmedication, adjunctive treatments that can be combined with medications to achieve functional improvements for adults with ADHD [31]. The adjunctive treatment with the strongest evidence support is psychosocial treatment, namely cognitive behavioral therapy

(CBT) adapted for adult ADHD. There have been a variety of CBT approaches for adult ADHD that have been studied, including group and individual approaches, time-limited modular treatments, and individualized approaches. There is considerable overlap in the therapeutic methods and coping skills used, which are designed to serve as prosthetic skills with which to address various manifestations of executive dysfunction. CBT for adult ADHD emphasizes the use of coping strategies with which to manage the effects of ADHD, modify the maladaptive cognitions that contribute to poor follow through and excessive self-criticism (or excessive positive bias), as well as treat comorbid mood, anxiety, and self-esteem issues. However, as many individuals with ADHD say, "I could coach someone else in what needs to be done, but I cannot do it for myself." Thus, the greater challenge in treatment is to help individuals with ADHD to consistently and efficiently implement these coping strategies and to handle the inevitable slip ups that will occur.

The application of adjunctive CBT for adult ADHD will be illustrated in the case presented below.

CASE STUDY

Initial Presentation

 Jack, a 45-year-old married man presents for an evaluation for adult ADHD. He noted that his 13-year-old son was recently diagnosed with ADHD and had a positive response to medication treatment. In the process of completing questionnaires for his son's evaluation, Jack noticed that many of the features of ADHD seemed to apply to him. His wife had the same observation and encouraged Jack to seek an evaluation for adult ADHD.

Jack's diagnostic evaluation involved his completing a number of self-report questionnaires regarding both past and current symptoms of ADHD and having people familiar with him complete identical observer reports of his past and current functioning. He also underwent a structured clinical interview to determine if there are co-existing conditions that might better explain his current symptoms, and a thorough review of his developmental history.

Developmental History

Regarding his developmental history, Jack said that his parents described him as a "handful" when he was

a young child because he would "get into things" and his "motor never stopped." He earned average grades throughout his school years though Jack said that he could have earned better grades had he been more focused and organized in his work. In preparation for the evaluation, Jack learned that his mother had saved his report cards from school. Teachers' comments indicated that Jack "was not fulfilling his potential," did not pay attention in class, and was disorganized, often losing points for submitting assignments that were incomplete or late. Jack said that he put off projects and studying for exams "until the last minute," sometimes failing tests, often having inconsistent grades across marking periods, but never failing a class for the year.

Jack encountered similar difficulties in college. He required 3 years to complete a 2-year community college degree due to failed courses and withdrawals. He then enrolled in a nearby state university and moved away from home, but was placed on academic probation after the first semester because he skipped classes, fell behind in his work, and found that "waiting until the last minute" was not a feasible option for him in college. Even when he focused on his work, Jack required more time than his peers to complete the same assignments. Jack ultimately required a total of 6½ years to complete an undergraduate degree in business.

Jack had difficulties finding and keeping jobs in his field after college, generally not lasting past the 6-month probation period due to disorganization, procrastination, and poor follow through. He also grew frustrated trying to keep up with the workload expected of him and with the regular monitoring of his productivity. He sometimes became defensive about his performance and verbally lashed out at colleagues and supervisors. Although he would quickly apologize, his emotional impulsivity negatively affected his work relationships and likely his employment status.

Jack eventually found a job working in real estate sales around the time he needed a steady income because he was married and his wife was pregnant. He found the flexible schedule and dealing with people to be desirable features of the job, though he had difficulties tracking the paperwork and detailed steps required to complete each transaction. On several occasions he lost potential deals because of poor follow through and disorganization. There were escalating marital tensions at home regarding Jack's chronic poor follow through

on household projects, unheeded requests by his wife for him to “lend a hand” on weekends, unwise spending habits, and what his wife considered to be his risky driving behaviors, including when their children were in the car.

Diagnostic Assessment

Regarding assessment of ADHD symptoms, there was convergent evidence across self- and observer reports of the emergence of symptoms of ADHD in childhood that persisted to adulthood. Similarly, clinician review of past and current functioning indicated a developmental profile of symptoms and behaviors consistent with ADHD. Results on norm-based inventories for adult ADHD provided further evidence of current symptoms [32–34]. Coupled with the corroborative evidence of impairments from past academic and occupational assessments, observer reports, and the evidence of current functional impairment, there was sufficient evidence documenting the essential elements of a diagnosis of ADHD in adulthood.

• What is the most likely diagnosis for this patient?

Jack’s case fulfilled diagnostic criteria for ADHD, combined type. More clinically useful was the observation that he had exhibited a chronic pattern of wide ranging executive function difficulties related to problems with time management, impulse control, organization/problem-solving, self-motivation, and emotional management [13]. These factors better explained the impairments in his personal and professional functioning than did the symptom criteria and they provided targets for treatment.

A structured clinical diagnostic interview was also performed to assess for comorbid conditions (or alternative explanations for presenting symptoms). Jack did not endorse evidence of any prominent mood or anxiety disorders, though he endorsed subthreshold, but notable levels of depression and anxiety that were categorized as anxiety disorder, not otherwise specified (ie, mixed anxiety-depression symptoms) [1]. It is increasingly recognized that a core feature of ADHD is problems with emotional management or dysfunctional emotional self-regulation (DESR) [35,36]. DESR may be relatively short-lived but can be sufficiently disruptive to a task at hand, as opposed to chronic mood or anxiety disorders

that reflect disordered emotional states across time and situations.

• Are there any prognostic indicators that indicate risk of poor outcome?


The difficulties Jack encountered in his postsecondary education as well as his checkered employment history indicate a moderate level of functional impairment. His current status in his job could be described as tenuous and there was rising marital stress, though he was not facing immediate risk for either termination or divorce. However, Jack’s level of executive function difficulties raised concerns about his ability to follow through on treatment.

On the other hand, Jack’s comorbidity profile was relatively benign. He did not have a history of learning disorders, substance use problems, or significant mood disorders. Though experiencing a period of discord, his marriage and home life were stable. His real estate job was similarly stressful due to his low earnings, though many of his peers experienced less productivity due to economic factors, thus deflecting attention from his personal coping difficulties. Overall, Jack was considered a good candidate for treatment.

• What further assessment is required at this stage?

The aforementioned evaluation represents the essential elements of a comprehensive assessment for adult ADHD—review of childhood ADHD symptoms and assessment of current ADHD symptoms using multiple measures and multiple informants; establishing evidence of impairment with corroborative information; and a comprehensive developmental review and diagnostic assessment to assess for comorbid conditions or alternative explanations of symptoms. Neuropsychological and/or psychoeducational testing may be used if there are concerns about specific neurologic or learning problems to clarify the diagnostic picture. However, these tests have not been found to adequately measure executive functioning impairments or identify symptoms of ADHD, with self- and observer report inventories and corroborative data regarding real world functioning (eg, grade reports, performance evaluations) providing better measures of impairment [10].

Diagnosis and Treatment Plan

 During the feedback session following his evaluation, Jack was told that the results of the evaluation confirmed a diagnosis of ADHD with co-existing mixed depression-anxiety. The review of the measures collected during the evaluation as well as the conceptualization of his experiences through the lens of ADHD provided an opportunity for psychoeducation about the effects of ADHD in adult life, discussing his presenting difficulties in terms of executive functioning problems.

When the discussion turned to treatment planning, medications were discussed as an option to treat ADHD symptoms. Jack noted that his son was prescribed a stimulant for ADHD and had a positive response, including improved school performance. Jack also admitted that he had “borrowed” his son’s medication a few times and noticed improved concentration. Hence, Jack agreed to try a course of pharmacotherapy but deferred starting cognitive behavioral therapy because he had seen his son’s behaviors change on medications alone and he thought he simply needed to “work harder” to change his habits.

Jack was followed closely by a psychiatrist during the first several weeks as his stimulant medication dosage was titrated to a stable, therapeutic dose. Jack noticed a quick and positive response, citing examples of his improvements, such as fewer instances of misplacing or forgetting items (eg, keys, cell phone) and increased ability to focus on reading despite the presence of minor distractions. His wife noted that Jack seemed more attentive and his memory was better, but she noted that he still had poor follow through on tasks at home. Jack said that he continued to struggle at work due to problems with disorganization, poor time and task management as well as with handling stress. At the urging of his psychiatrist, Jack agreed to pursue concurrent CBT to address these issues.

• What is the content of CBT for adult ADHD?

The beginning of CBT is a particularly crucial time for adults with ADHD. Coupled with a proclivity to be easily frustrated and sensitive to setbacks, these patients may be at risk to drop out of treatment in the early stages [37]. It is important to set up clear goals and realistic expectations for CBT. Setting up a reasonable outlook for treatment includes the anticipation and normalization of setbacks as part of the change process. What is more, it is useful to emphasize that many of the

coping skills to be reviewed may not be novel to the individual (eg, using a daily planner, breaking down large tasks into small steps, organization skills) but that the main objective in CBT is to promote the consistent implementation of these skills.

Goal-setting

A primary agenda item in the first session of CBT is to set out specific treatment goals that are relevant for daily life. The overarching goals that patients bring to treatment are quite logical—better organization, setting up and executing plans, reducing procrastination, etc.—but stated as such are too broad. It is important to clarify specific and typical examples of these difficulties (eg, “Describe a recent instance when procrastination caused a problem for you”) in order to keep sessions focused on specific, manageable, and reasonable goals. It is useful to err on the side of “starting small,” helping the patient have initial success experiences in using coping strategies and then generalizing these skills for use in more challenging situations. Some time-limited CBT programs employ a specific sequence of skill modules [38–40] while others use an individualized approach [41] to prioritizing coping skills, though there is considerable overlap in the specific skills and interventions emphasized in these treatments.

Establishing a Daily Planning System

A common first goal is to institute a daily planning and schedule keeping system in order to improve time and task management [42,43]. While there are many electronic systems, traditional paper planner books have the benefit of keeping information easily accessible and external. Moreover, the act of writing out and reviewing one’s schedule allows for sustained processing of this information as well as having a durable record of it.

The daily planner provides a means for establishing a schedule for the current day. Even if a patient already has a good daily planning system, she or he may not use it to its full effect each day. The daily schedule offers, first, a prospective tool for setting out a strategic plan for a particular day, externalizing time (eg, leaving enough time to travel between appointments) and providing a structure for setting up a realistic plan (eg, neither over- nor under-scheduling), and, second, an objective record of how time (and effort) was managed on that day. Constructing this schedule and viewing it in externalized form also allows for prospective problem-solving to identify and address

difficulties before they are encountered (eg, “It always takes me longer to get across town during rush hour. I had better allow more time to get to that meeting.”).

Prioritization, Organization, Time Management

The use of the daily planning system provides a platform for identifying various difficulties managing and organizing behavior across time in everyday contexts. Problems following through on the tasks provide opportunities for interventions related to prioritization of tasks, choreographing the daily plan (ie, managing time, effort, and energy), and developing tactics for initiating and maintaining follow through on longer range tasks that require organization and persistent effort across time (eg, college assignments, projects for work). Issues related to procrastination and disorganization arise as natural extensions of dealing with planning topics.

Coping strategies with which to execute these skills are reviewed thoroughly in sessions. For example, Jack worked with his therapist to develop and review tasks on a daily “to do” list. A ranking system was used to assess the relative priority of each task as “high,” “medium,” or “low” and the list was pruned down to a manageable collection of tasks for the day. The high-priority tasks were then scheduled in the planner in gaps between obligations during the day (eg, work, family meal). The daily planner was also reviewed for pockets of time throughout the day that could be used productively (eg, “What is a task you could complete while you are waiting to pick up your son from practice?”). Attention is paid to keeping the daily schedule realistic (eg, “Do you really think you can travel across town in 10 minutes during rush hour?”) and to reserve time for restorative activities (eg, exercise) as well as “down time.” Finally, a regular routine for setting up and reviewing the daily plan throughout the day is also emphasized. Difficulties that are encountered offer opportunities for problem solving and strengthening the coping skill.

The objective of these coping skills is to help individuals with ADHD develop sustainable coping plans that they are able to use in their daily lives. Although the coping skills may be familiar to patients, they are reintroduced with an understanding and appreciation of the effects of ADHD in order to find ways to increase the likelihood of their implementation.

Emphasis on Implementation of Coping Strategies

As was mentioned earlier, ADHD is not characterized by the lack of knowledge about coping skills, but

rather problems with the implementation of them. Coping strategies such as the use of the planner and templates for handling organization, procrastination, and emotional regulation strategies represent common elements of CBT for adult ADHD. However, focus on the generalization of behaviors [44] and implementation intention strategies [45] increases the likelihood of the durable use of coping skills, which is the measure of treatment effectiveness.

In particular, implementation intention strategies adapted to ADHD [46,47] focus on using the environment to provide cues for adaptive behaviors instead of relying solely on “will power.” “Environmental engineering” or setting up one’s environment to be more ADHD-friendly (eg, removing distractions from a study area, having a consistent resting place for essential daily items such as keys, wallet, or cell phone) is a commonly employed intervention. However, implementation strategies also use environmental cues in the planning for new, adaptive activities, such as spending time orchestrating how an individual will use a coping skill, including the anticipation of various distractions and linking adaptive coping responses to each one [45]. In this way, the environment is utilized as a means to cue adaptive skills.

For example, Jack had difficulties completing all the steps involved in real estate transactions at work. Jack and his therapist went through the exercise of operationalizing the precise objective of the behavioral plan. Jack initially said that the goal was to complete all of the administrative steps to finalize a recent transaction. However, this goal, while being the ultimate, long-range outcome, was too overwhelming for him to organize and execute. Jack and his therapist wrote out and developed a sequence of tasks involved in achieving the ultimate objective of completing the transaction but focused on a step or steps that would be reasonable for Jack to complete before his next session. This process is known as backwards planning or “chunking” and involves breaking down a task into manageable steps. Externalizing this process also helps the adult with ADHD to visualize the information and provides a discrete behavioral strategy to help become “unstuck” when facing a complex, multi-step project.

After Jack and his therapist defined a specific, time-limited task goal that Jack found feasible (ie, spend 15 minutes working on a specific form), the task was scheduled in his planner as a specific time-based “ap-

pointment.” However, remembering that ADHD is a problem of implementation, Jack and his therapist defined the specific time location where the task would be completed and anticipated the various distractions that might interfere with his follow through. The potential distracting stimuli were associated with coping reminders that have been rehearsed (ie, “If the phone rings while working on the form, I will mute the ringer and keep working on the form”) or reinforced with visible prompts (eg, place a reminder note on the phone).

No coping strategy will work or be implemented 100% of the time; however, the implementation approach increases the likelihood of follow through and, in cases of poor execution, provides a means for reviewing what went wrong in order to revise and improve the coping plan. As can be seen from Jack’s case, the executive functions are interrelated and most often when you start working on one skill related to a goal (eg, daily planning), there will be opportunities to address other related skills (eg, organization, procrastination).

Cognitive Modification

Cognitive and emotional factors can interfere with implementation. Exploring negative anticipatory cognitions (eg, “What thoughts go through your mind about using the planner?” or “How might you ‘talk yourself out of’ following this plan?”) or emotions (eg, “When you have tried to follow through on paperwork in the past, what is it like ‘being in your skin’ at that moment?”). Cognitive modification strategies can be used to identify rationalizations for procrastination and, in turn, to develop adaptive attitudes about task follow through.

Considering the central role of emotions in motivation [35], it is useful to anticipate and normalize that the patient will experience at least mild emotional discomfort associated with a task. However, this discomfort can be reframed as time-limited and manageable, and adaptive outlooks can be developed to challenge attitudes about emotions (eg, “You do not have to be ‘in the mood’ to do the task in order to follow through on the plan” or “You can invest one minute of discomfort in order to start this task.”). Defining the “smallest step of behavioral engagement” helps identify a step the patient feels able to take (eg, “The first step is getting and reading a copy of the form to determine what you have to do.”).

Patient Course



Jack attended 20 sessions of CBT over 9 months, attending more frequently during the first 3 months and currently continues with monthly booster sessions. Jack made impressive progress in the course of CBT. He exhibited the ability to consistently implement coping skills, including identifying when he had drifted away from using his skills and taking steps to re-implement them. Jack recognized that there were areas of his life in which he continued in the process of “undoing” some effects of ADHD on his life, such as in his financial situation (ie, no retirement plan), personal health (ie, sedentary habits), and marriage.

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- **What are other common aspects of CBT for adult ADHD?**
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Treating Comorbid Conditions

Psychiatric comorbidity is the rule rather than the exception in clinic-referred adults with ADHD. CBT has the benefit of being a flexible psychosocial model that, in addition to evidence of its efficacy in the treatment of adult ADHD, has proven to be effective in the treatment of the common co-existing problems [48]. However, recent investigation into the role of DESR in ADHD casts new light on emotional difficulties experienced by adults with ADHD. Emotional management and cognitive modification strategies are important components of developing emotional self-regulation skills.

Resilience and Persistence in Treatment

Although an accurate diagnosis of ADHD and specialized treatment can inspire hopefulness, changing behavioral patterns is hard work. Individuals may become frustrated with setbacks, negative feedback from others, and dealing with the cumulative effects of longstanding executive dysfunction.

Explicitly setting realistic expectations with patients at the outset of treatment is an important step to normalize the change process. Moreover, normalizing setbacks as part of the therapeutic process as well as typical process of learning and behavior change is an important cognitive reframe. Although individuals with ADHD will likely have to exert greater effort to compensate for the effects of ADHD, most are willing to invest the effort in order to achieve reasonable results from their efforts. Frustra-

tions that occur in the course of psychosocial treatment, including arriving late for session and difficulties with therapeutic homework, can be used as opportunities for skill practice and implementation and finding individualized and sustainable coping strategies.

Establishing Good Health and Well-Being Patterns

An underappreciated aspect of ADHD is that it can interfere with the maintenance of health routines, from basic eating and sleeping patterns to keeping track of regular medical and dental visits and self-monitoring overall health patterns. Children with ADHD tracked into adulthood have been found to have lifestyles that would seem to put them at risk for poorer health outcomes later in life [6]. Conscientiousness is a personality variable that is positively correlated with long-term well-being; low conscientiousness, on the other hand, is associated with shortened life expectancy. Studies of adults with ADHD have found that this group consistently scores at the lower end of measures of conscientiousness [10,49–51].

The use of a daily planning system provides an opportunity to review a patient's health patterns, most often aiming to establish reasonable and healthy sleep-wake patterns. A proclivity for distractibility may also result in poor self-monitoring of and response to physical cues, such as fatigue, hunger, and stress. Individuals may also be at risk for substance use, nicotine use, as well as excessive use of the computer or other technologies to the detriment of other activities, making them more likely to develop a sedentary lifestyle and to drift towards unhealthy behaviors. A focus on adaptive health hygiene, reasonable activity and exercise, and other health patterns can help boost overall well-being and self-regulation.

Relationship Issues

A primary selection pressure that gave rise to the executive functions is the demand for reciprocity involved in group living arrangements [10,52]. The effects of ADHD on interpersonal functioning have been underappreciated until relatively recently. In fact, relationship discord, be it in romantic, personal, or professional relationships, is a common domain of impairment for adults with ADHD.

There have not been clinical outcome studies of relationship treatments that target adults with ADHD. Many treatment programs discuss the option of including a significant other in treatment, though usually on a

limited basis. Psychoeducation for significant others in the lives of adults with ADHD can help them understand the source of frustrations in their relationships as well as to understand the difficulties encountered by adults with ADHD. However, even this level of understanding may not be adequate to address the frustration felt by those close to the adult with ADHD. A specific series of meetings devoted to relationship issues or concurrent relationship treatment may be required, ideally with a clinician familiar with ADHD.

• What is long-term management of adult ADHD?

Although all studies of CBT for adult ADHD include end-of-treatment measures of progress, it is unrealistic to expect that desired effects of the coping strategies for ADHD will be fully actualized at that point. This is not to say that there have not been notable improvements or improved self-efficacy derived from treatment. Rather, the measure of success of treatment of ADHD is in the long range and consistent use of coping strategies and improvement in daily functioning.

Considering that ADHD is a developmental syndrome, a long-range coping model has been adopted regarding its management, similar to the management of diabetes or other chronic medical conditions. For many individuals, ongoing pharmacotherapy is an important component of a long-range management plan. The goal of CBT for adult ADHD is to help individuals make coping strategies a natural part of their daily lives, to routinize these coping behaviors and environmental modifications to increase their consistent implementation. Visual reminders and externalized problem solving and plans serve as reminders for helpful processes. Coping phrases and personal "rules" (eg, adaptive cognitions) also promote the implementation of coping skills. Many individuals may continue to seek booster sessions of CBT in order to reinforce the use of coping skills or may participate in events sponsored by local ADHD organizations.

• How efficacious is CBT for adult ADHD? What are future directions for clinical research?

CBT stands out as the nonmedication, adjunctive treatment for adult ADHD with the strongest empirical support for its use. Early clinical outcome studies of CBT

and CBT-oriented approaches were primarily comprised of clinic-based studies that were often open, nonrandomized, or did not have control groups. Although having methodological limitations, reviews of these early studies indicate that CBT produced improvements in measures of ADHD symptoms as well as mood, anxiety, and other measures of well-being [31,37,53–57]. There has been an acceleration of published studies of CBT for adult ADHD over the past several years, including randomized controlled designs of individual and group CBT compared with active control groups [39,40] and a multicenter study [38]. Most adults with ADHD in psychosocial treatment studies were on a stable pharmacotherapy regimen concurrent with CBT, though comparisons with individuals who completed treatment without medications revealed that there were no significant differences in psychosocial treatment response. In fact, a small open study reported positive outcomes from CBT for adults with ADHD who declined medications [58].

The extant research has yielded several evidence-supported CBT treatment manuals for adult ADHD. Individual CBT programs are represented by a time-limited approach (12 to 14 sessions) that devotes specific sessions to skill-building modules, including the use of a daily planner, prioritization, and extending attention [42] as well as a case conceptualization based model in which the relative clinical time spent on skill domains is personalized to the individual, including an emphasis on the implementation of coping skills and addressing common comorbidities seen in clinical practice [47]. Group CBT programs are represented by a 12-session modular program that promotes skill-building that targets common difficulties associated with executive dysfunction [43] as well as a Dialectical Behavior Therapy group program that has been modified for use with adults with ADHD, focusing on common skills domains for adult ADHD but also integrating topics of mindfulness and emotional regulation [38]. Modular programs can be modified for either individual or group treatment. All manualized approaches emphasize the development and consistent implementation of coping strategies and the importance of between-sessions practice of skills. Although the behavioral coping strategies are emphasized, cognitive modification interventions play an important role in fostering motivation for and reducing barriers to follow through.

Extending the aforementioned studies, future research on CBT for adult ADHD may focus on the response of individuals who, for whatever reasons, cannot take medi-

cations for ADHD. The preponderance of clinic-based studies of patients who seek out treatment likely results in biased samples insofar as the individuals reflect a higher functioning group who are able to afford treatment. An increase in funded studies will allow for recruitment of individuals with more severe symptoms and impairment who might not otherwise have had access to treatment. Moreover, although ADHD symptom inventories are used as outcome measures in studies, CBT targets impairments in functioning rather than the symptoms. Thus, it will be important to design and utilize outcome measures of functional impairment to capture the true benefit of CBT and other treatments [59].

SUMMARY

ADHD is a neurodevelopmental syndrome characterized by difficulties with self-regulation. That is, affected individuals experience difficulties following through on important life tasks that require organization of behavior across time. Hence, individuals with ADHD often state that they “know” what needs to be done but have a hard time “doing” what needs to be done. These sorts of self-regulation difficulties are associated with a range of impairments that cut across most domains of adult role functioning.

Medications can help reduce symptoms of ADHD but many individuals continue to have difficulties managing the effects of ADHD in daily life. CBT is a psychosocial treatment that has been adapted to address the needs of adults with ADHD insofar as it helps individuals develop and implement effective coping strategies. CBT is the adjunctive treatment for adult ADHD with the strongest research evidence base for its efficacy, and future studies will focus on examining the long-range outcomes after treatment ends as well as targeting specific areas of functioning that are relevant for individuals.

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