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CHAPTER 1

The Adult with ADHD and the Development of the Treatment Program

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Josh dashes into my office, not bothering to stop at the receptionist's desk. He is 25 minutes late for our first appointment. He breathlessly apologizes and explains that he has lost the sheet of paper on which he had written our address and so has had to "guess" where we were located—no small challenge given the eight square blocks of New York City occupied by the Mount Sinai Medical Center! He is somewhat disheveled and looks, in fact, as though he has just tumbled out of bed, but he is otherwise good-looking, with an appealing grin. Josh is a young fellow of 27, a talented writer who is enrolled in a graduate program in journalism. His primary concern right now is that he is accumulating incompletes in his graduate courses and is afraid he will be unable to complete the program by the time his scholarship runs out.

Josh reports that he has difficulty initiating and maintaining focus on his work. When seized with an idea for a story or news piece, he can rapidly write several pages of good prose. However, once the initial enthusiasm wears off or he hits a roadblock, his mind starts to wander and he may stare at the computer, surf the Web, or pace about the room, generating little output for hours at a stretch. He has particular difficulty organizing research papers. He can't seem to go about it in an orderly fashion, and has difficulty working his way systematically through references and tracking the source of the salient points he wants to incorporate. He typically jumps into writing before he has a clear thesis or argument and inevitably has to backtrack, make changes, or start over. The aversiveness of the process contributes to his procrastination. Deadlines and due dates creep up on him and he typically

doesn't begin working on a paper until the night before it is due. He reports that he has had these difficulties "his whole life" (indeed he was required to withdraw from college once) and he wonders, rightly, how he will ever be able to function in the real world as a journalist.

Josh also mentions that he tends to repeatedly mislay his belongings—for example, keys, cell phone, organizer. His desks at home and at school are stacked with untidy piles of papers, with no clear space to work. He wastes much time searching for needed items.

In the second session, Josh describes problems with his girlfriend, who complains that he is impatient with her, is usually late when he is supposed to meet her, often seems not to be listening when she is talking, and forgets to do the things she asks him to do. He is also prone to get angry over "stupid little things." She has expressed surprise and concern that although he is on a budget limited by his graduate school stipend, he intermittently splurges on expensive items like a state-of-the-art sound system or tickets to an NBA game for himself and several friends. Josh is worried that these dissatisfactions will eventually cause his girlfriend to leave him—just as his previous girlfriend did.

Josh relates that a couple of years earlier, he was diagnosed as having ADHD and had a brief trial of methylphenidate (Ritalin). Although he was less distractible and able to focus for longer periods, it didn't really help him to better plan and complete his academic work in a timely fashion, and so he just stopped taking it when the prescription ran out.

Josh's case illustrates difficulties typically seen in adults with attention-deficit/hyperactivity disorder (ADHD). He has trouble with attentional focus and concentration and, particularly, with the "executive functions" of everyday life—time management, planning, and organization. These difficulties have impaired his academic performance, and, if not appropriately treated, are likely to undermine his performance on a job as well. In addition to his difficulties with attention, Josh's presentation illustrates the impulsive symptoms that accompany those related to attention in some, but not all, individuals with ADHD, as will be further explained. Impulsivity is reflected in Josh's restlessness, impatience, tendency to angry outbursts, and imprudent spending. These constitute symptoms that are particularly likely to lead to relationship discord.

Once thought to be exclusively a disorder of childhood, it is now estimated that 4% of adults have ADHD (Kessler et al., 2006). This prevalence estimate corresponds well with results from four separate longitudinal follow-up studies that, when taken together, indicate that ADHD persists to adulthood in about half of the 8% of schoolchildren in the United States who have ADHD. These longitudinal follow-up studies have furthermore extensively documented impairment in virtually every major area of functioning in adulthood in those with ADHD, including the academic, occupational, social, and emotional domains. (Barkley, Fischer, Smallish, & Fletcher, 2006; Biederman et al., 2006c; Mannuzza, Klein, Bessler, Malloy, & LaPadula, 1998; Weiss & Hechtman, 1993). Adults with ADHD complete fewer years of education, have higher rates of unemployment and

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underemployment, elevated rates of antisocial behavior and arrests, more driving accidents and citations, and relationship difficulties manifested in interpersonal conflict and higher rates of marital separation and divorce. In addition, adults with ADHD have higher rates of substance and alcohol abuse disorders (18%) as well as increased rates of anxiety (51%) and depression (32%; Kessler et al., 2006), and adult women with ADHD are at greater risk for eating disorders (Biederman et al., 2010). A recent study calculated the economic cost of ADHD in terms of lost productivity and reported that adults with ADHD earned $8,900–$15,400 less per annum than those with comparable education without ADHD, yielding a nationwide total cost to the economy of $77 billion (Biederman & Faraone, 2006).

Diagnostic Criteria and Presenting Problems

The *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition [DSM-5]; American Psychiatric Association, 2013) delineates the criteria for the diagnosis of ADHD (Table 1.1). (For a complete discussion and critique of DSM criteria as they apply to adults, see Barkley, Murphy, & Fischer, 2008.) Criterion A delineates the two major symptom clusters—those that reflect inattention and those that reflect hyperactivity and impulsivity—and indicates that, for adults, at least five of the nine symptoms in one or both domains must be present for diagnosis. Individuals meeting this symptom cutoff for the inattentive domain but not the hyperactive–impulsive domain are designated as having the "predominantly inattentive" presentation, whereas those who meet symptom cutoff in both domains are designated as the "combined" presentation. A "predominantly hyperactive–impulsive" presentation is also delineated. However, it appears to be largely limited to the preschool-age group (Lahey, Pelham, Loney, Lee, & Willcutt, 2005).

The other DSM-5 criteria require onset of symptoms by age 12; impairment in more than one setting (e.g., home and work or school); and reduction in social, academic, or occupational functioning. The last criterion (E) requires exclusion of patients with certain other mental conditions or whose symptoms are better accounted for by other disorders. The typical presenting problems associated with each of the two symptom clusters in adults are described in the following sections.

Inattentive Cluster

Adults with ADHD typically report distractibility and loss of focus when they engage in reading or conversations, or attend lectures or other programs, particularly those they perceive as lengthy or boring. Adults with ADHD typically have difficulty tracking time, arrive late for appointments, and experience problems completing tasks and projects in a timely fashion. Also common is difficulty initiating tasks that are routine or otherwise lacking in novelty or interest. These may include such recurring tasks as paying bills, as well as longer-term projects such as filing taxes that may as a result be delayed by many

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TABLE 1.1. DSM–5 Criteria for ADHD

A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):

1. **Inattention:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

   Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.

   a. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).
   b. Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).
   c. Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).
   d. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked).
   e. Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).
   f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).
   g. Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
   h. Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).
   i. Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).

2. **Hyperactivity and impulsivity:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

   Note: The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or a failure to understand tasks or instructions. For older adolescents and adults (age 17 and older), at least five symptoms are required.

   a. Often fidgets with or taps hands or feet or squirms in seat.
   b. Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).
   c. Often runs about or climbs in situations where it is inappropriate. **(Note:** In adolescents or adults, may be limited to feeling restless.)
   d. Often unable to play or engage in leisure activities quietly.
   e. Is often "on the go," acting as if "driven by a motor" (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with).
   f. Often talks excessively.
   g. Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation).
   h. Often has difficulty waiting his or her turn (e.g., while waiting in line).
   i. Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people's things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).

B. Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.

C. Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities).

(cont.)

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TABLE 1.1. *(cont.)*

D. There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal).

Specify whether:

314.01 (F90.2) Combined presentation: If both Criterion A1 (inattention) and Criterion A2 (hyperactivity-impulsivity) are met for the past 6 months.

314.00 (F90.0) Predominantly inattentive presentation: If Criterion A1 (inattention) is met but Criterion A2 (hyperactivity-impulsivity) is not met for the past 6 months.

314.01 (F90.1) Predominantly hyperactive/impulsive presentation: If Criterion A2 (hyperactivity-impulsivity) is met and Criterion A1 (inattention) is not met for the past 6 months.

Specify if:

In partial remission: When full criteria were previously met, fewer than the full criteria have been met for the past 6 months, and the symptoms still result in impairment in social, academic, or occupational functioning.

Specify current severity:

Mild: Few, if any, symptoms in excess of those required to make the diagnosis are present, and symptoms result in no more than minor impairments in social or occupational functioning.

Moderate: Symptoms or functional impairment between "mild" and "severe" are present.

Severe: Many symptoms in excess of those required to make the diagnosis, or several symptoms that are particularly severe, are present, or the symptoms result in marked impairment in social or occupational functioning.

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weeks, months, or even years. It is not unusual, for example, for people with ADHD to have their utilities turned off or to forfeit large penalties on bills or taxes because of late payment. In one recent case, an otherwise highly competent professional got himself in a particularly tight corner with his licensing board because he had procrastinated for years on renewing his registration to practice. Paperwork required on the job may similarly be challenging for adults with ADHD. For example, a bright woman in her 30s who worked as a sales representative was talented in communicating effectively with potential customers, but she had such difficulty filling out and submitting her expense reports in an organized and timely manner that she was ultimately dismissed. In another instance, a teacher who worked effectively and imaginatively with children was repeatedly unable to plan her curricula and file her student grade reports on time. She found the effort so exhausting that she eventually sought employment in a different field.

Adults with ADHD typically struggle to keep track of personal belongings. Disorganization at home and in the office may make it difficult to locate important papers, records, and personal items, resulting in daily inefficiency and messiness. For example, a young professor's new home was so cluttered for months with unpacked movers' boxes that it was difficult to walk from one room to another. Not only did he have to repeatedly search for needed items, he was too embarrassed and ashamed to have friends over to visit, creating obstacles in his pursuit of a social life. In the workplace, disorganization

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can create significant difficulty as well. An otherwise competent lawyer was unable to maintain a system for organizing client files. She had a backlog of unfiled material and therefore was unable to quickly or easily determine the status of a client's case and the next court date or legal action needed. Her position was in jeopardy until another group member, who also happened to be a lawyer who had dealt successfully with this issue, came to her workplace to help her organize her files.

Adults with ADHD are quite often enthusiastic at the start of new projects—they are excited by novelty and fresh ideas. However, when the newness wears off, when challenges are encountered, or detailed follow-up work is required, they often lose interest and energy, and move on to the next new project that promises excitement. This cycle, experienced repeatedly, typically results in a string of unfinished projects, incomplete academic courses, job changes, and even abandoned relationships. One bright young woman with a degree from an Ivy League university held 10 different jobs in the 9 years following her graduation—not because she was fired, but because she couldn't decide what she really wanted to do. Everything seemed appealing at first but ultimately became boring to her. Needless to say, over the long term this process undermines and derails the identification and achievement of major academic, occupational, and personal goals.

Hyperactive–Impulsive Cluster

The core deficit underlying this domain of symptoms is an intolerance of delay—between thought and action, or between an impulse and its expression. Adults with the combined subtype of ADHD have more difficulty than others controlling impulses of many types, including desires for food, drugs or alcohol, and sex. Impaired impulse control may thus account for the increased comorbidity between ADHD and alcohol and substance abuse/dependence, and between ADHD and eating disorders. Adults with ADHD are also more likely to drive at high speed or violate other rules of the road, accounting for their having more auto accidents and citations (Barkley, Murphy, O'Connell, & Connor, 2005). An attraction to activities that involve physical risk, such as skydiving, is also a common expression of the hyperactive–impulsive dimension of symptoms in adults with ADHD.

Impulsivity may also be manifested in one's cognitive style as a propensity to jump to conclusions or to arrive at decisions with insufficient deliberation or planning. Impulsivity can affect personal decisions large and small—from taking off on a road trip without directions or a map, to changing a job or residence with insufficient consideration of the problems or consequences that might ensue. One gentleman, bemoaning his lack of career success, expressed the impact of this tendency metaphorically when he said, "I always took the first bus that came along, instead of waiting for the one that was going where I wanted to go."

Another expression of the hyperactive–impulsive domain is motor overactivity or physical restlessness, experienced by some, but not all, adults with combined-type ADHD. It is important to note here that the expression of hyperactivity–impulsivity in adults is

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typically quite different from its manifestation in children. That is, whereas children with combined-type ADHD may be overtly restless or fidgety, such characteristics may be less discernible to the observer of an adult with ADHD. This is because many adults report internal feelings of restlessness or may struggle to sit through a meeting, but are usually less motorically active.

As described in greater detail below, the hyperactive–impulsive cluster of symptoms may also be expressed as verbal impulsivity.

Impact on Interpersonal Relations

Manifestations of inattentiveness as well as hyperactivity–impulsivity take a toll on relationships with family, friends, employers, and coworkers. Adults who do not listen carefully appear not to care about the feelings and needs of others. Difficulty remembering or following through on commitments to others generates disappointment and conflict and may eventually undermine trust. Difficulty tolerating delay leads adults with ADHD to interrupt conversations and activities or to be overly directive or controlling in relationships. Verbal impulsivity may also be manifested as inappropriate, insensitive, or poorly timed comments, as well as excessively verbose, detailed, or digressive speech that may be off-putting to the listener. One up-and-coming young executive, for example, was dismayed to hear from her superiors that she talked too much in staff meetings and that her comments about the work of her colleagues were "too blunt." Disinhibition may also lead to inappropriate expressions of anger, or extreme expressions of affect, which similarly alienate or distress others. Personal messiness and disorganization impact negatively on others in the household, also creating stress and conflict. In this vein, the wife of a lawyer with ADHD who has a young child confided that she feels she has "two children in the house." Given the myriad ways that the symptoms of ADHD affect others, it is perhaps not surprising that adults with ADHD are more likely to be separated or divorced (Biederman et al., 2006a) and to have difficulty in social relations with friends and coworkers (Barkley et al., 2006).

Insufficiency of Medication as a Comprehensive Treatment for ADHD

Paralleling results with children, the stimulant drugs methylphenidate (e.g., Ritalin and Concerta) and amphetamine (e.g., Adderall and Vyvanse) have been shown to be effective in reducing the core symptoms of ADHD as measured by psychiatrists' ratings of severity of DSM-IV-TR symptoms and measures of clinical global improvement. Response rates to methylphenidate are somewhat lower than those seen in children, and have ranged from 37 to 70% in controlled studies (Adler et al., 2009; Biederman et al., 2006b; Medori et al., 2008; Spencer et al., 2005). Response rates for amphetamine-based stimu-

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lants in adults are similar to those for methylphenidate (Adler et al., 2008; Spencer et al., 2001; Weisler et al., 2006). A recent meta-analysis by Faraone and Glatt (2010) reported that the overall effect size (number of standard deviation units of difference between drug and placebo) for long-acting stimulants in adults was 0.73 ("large"), with no differences between methylphenidate-based and amphetamine-based treatments. The norepinephrine reuptake inhibitor atomoxetine (Strattera) has also been shown to significantly improve symptom ratings of ADHD in adults; however, effect sizes in two large-scale studies were 0.35 and 0.40 (Michelson et al., 2003) and thus only about 55% of the average effect size reported for the long-acting stimulants described above. Atomoxetine is useful, however, when stimulants are poorly tolerated, suboptimally effective, or when there is a potential for stimulant abuse.

For a more extensive discussion of the clinical use of medication to treat ADHD in adults, the reader is referred to articles by Spencer, Wilens, and colleagues on stimulant (Spencer, Biederman, & Wilens, 2004b; Wilens, 2008) and nonstimulant (Spencer, Biederman, & Wilens, 2004a) treatment.

Although stimulant and nonstimulant drugs are effective in treating adults with ADHD, there are limitations associated with drug treatment for this disorder. First, efficacy in these studies was documented on ratings of the core symptoms of ADHD; there is little information from these studies concerning the impact of drug treatment on specific forms of functional impairment, such as disorganization or time-management difficulties. Clinical experience indicates that because of the likely lack of development of metacognitive skills in these critical areas in childhood (Douglas, 1999) drug treatment alone may not be sufficient to remediate these deficits and that some explicit skills training in these areas in adulthood may be necessary. Second, a significant subgroup (30–50%) of adults are nonresponders or adverse responders to drug treatment, which also necessitates the use of alternate interventions. Finally, since "response" in pharmacological studies typically refers to those individuals who demonstrate at least a 30% reduction in symptoms, even many of those considered to be "responders" do not achieve full remission of symptoms, leaving room and need for improvement through psychosocial intervention.

Conceptualizations of ADHD

Executive Dysfunction

The deficits in organization and efficient self-management of individuals with ADHD may be attributed, at least in part, to underlying deficits in executive functions (Barkley, 1997; Castellanos, Sonuga-Barke, Milham, & Tannock, 2006) that encompass working memory, self-inhibition, resistance to distraction, attentional shifting, organizing, planning, and self-monitoring. These deficits have been demonstrated in numerous studies on neuropsychological tests both in adults (Hervey, Epstein, & Curry, 2004) and in children (Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005). Consistent with this conceptual-

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ization, structural and functional neuroimaging studies both in adults (Seidman, Valera, & Bush, 2004) and in children (Seidman, Valera, & Makris, 2005) have revealed deficits in the volume and activation of regions of the prefrontal cortex known to subserve these executive functions. Although executive dysfunction, as defined on neuropsychological tests, is not universal among individuals with ADHD (Doyle, 2006; Willcutt et al., 2005), those adults (Biederman et al., 2006d) and children (Biederman et al., 2004) who do have executive function deficits on such measures have greater occupational and academic impairment, respectively, than those who do not. Furthermore, some noted investigators have argued that children and adults with ADHD clearly exhibit executive dysfunctions in daily life even if they are not necessarily captured on the neuropsychological tests that are conventionally used to measure such deficits (Barkley & Fischer, 2010; Brown, 2008).

A complementary view of the etiology of ADHD emphasizes a fundamental deficit in inhibitory control (Barkley, Murphy, & Bush, 2001; Nigg, 2006) that encompasses abilities to inhibit or delay a prepotent cognitive or behavioral response, stop an ongoing response, and prevent interference from extraneous stimuli. According to Barkley's model, inadequate inhibitory control gives rise over the course of development to a cascade of deficits in key self-regulatory executive functions. Inadequate inhibitory control results in a proneness to respond to immediate external or internal stimuli, and is manifested cognitively as poor working memory, distractibility, failure to carry tasks through to completion, inattention to detail, and "careless" errors. Tasks that are lengthy, multistep, or inherently challenging will be particularly vulnerable to disruption. Inadequate working memory may result in difficulties in monitoring and adjusting current behavior so as to maximize timely progress toward overarching goals. Recent research provides corroborating evidence that adults (Barkley et al., 2001) as well as children (Barkley, Koplowitz, Anderson, & McMurray, 1997) with ADHD have deficits in time tracking, which may make it more difficult for them to estimate how long a task will require or how much available time has already elapsed.

Insensitivity to Reinforcement

Another conceptualization of ADHD postulates that individuals with this condition have diminished sensitivity or responsiveness to reinforcement (rewards) such that they experience particular difficulty on tasks or activities that are inherently effortful or aversive and that provide little immediate gratification. According to this theory, the behavior of individuals with ADHD is less well controlled by learned contingencies and hence is more likely to revert to the control of task-irrelevant stimuli (distracters) (Luman, Oosterlaan, & Sergeant, 2004). More frequent, more immediate, or more salient reinforcers may therefore be necessary to compensate for a postulated *elevated reward threshold* in ADHD, as first articulated by Barkley (1989) and Haenlein and Caul (1987), and tested empirically in studies reviewed by Luman et al. (2004).

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Individuals with ADHD may also have a steeper *delayed reinforcement gradient*. The delayed reinforcement gradient refers to the observation, first demonstrated in animal studies (Ainslie, 1974) that there is a dropoff in the rewarding value of distant reinforcers as a function of time into the future. The result is that the more distant the reward, the less power it has to motivate behavior in the present. Research suggests that this gradient is steeper for people with ADHD, such that delayed rewards lose their reinforcing value as a function of time delay more quickly than is the case for individuals without ADHD (Aase & Sagvolden, 2006). This may explain why delayed or deferred reinforcers, such as advanced educational degrees, job promotions, and accumulated savings toward large purchases (e.g., house or car) appear to be less effective in motivating and sustaining effort toward those goals in individuals with ADHD.

Arousal and Activation

Another approach to understanding ADHD focuses on arousal and activation processes, mediated by subcortical brain regions. The former are concerned with perceptual input, whereas the latter mediates response output. These concepts were first delineated by Tucker and Williamson (1984), and were recapitulated and applied to ADHD in the "cognitive-energetic model" by Sergeant (2005). This model posits the existence of arousal and activation "pools" of cognitive resources, both of which are maintained and modulated by an overarching "effort" pool. Slow or inaccurate processing of incoming information implicates a deficit in arousal, whereas poor readiness to respond or inaccurate responding implicates a deficit in activation. A series of studies testing this model in children with ADHD, reviewed by Sergeant, found little evidence for arousal deficits but did find deficits in activation. The analogous research has not yet been conducted in adults. In the rest of this book, we shall use the term "activation" broadly to refer to self-mobilization and initiation of tasks, which many adults with ADHD find difficult.

Multiple Pathways

It should be noted here that models of ADHD based on executive dysfunction and those based on altered motivation or sensitivity to reinforcement, or cognitive-energetic factors, are not necessarily incompatible, but rather may represent alternate or combined pathways to ADHD in different individuals, capturing the heterogeneity within this diagnostic category (Sonuga-Barke, Sergeant, Nigg, & Willcutt, 2008; Sonuga-Barke, 2003).

Comorbid Anxiety and Depression

The pronounced and persistent difficulties experienced by individuals with ADHD in self-mobilization, organization, time management, and sustained effort ultimately inter-

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fere with the accomplishment of long-term educational, occupational, and personal goals. Underachievement and ineffectiveness over years, beginning in childhood and persisting through critical stages of development into adulthood, contribute to feelings of inadequacy and low self-esteem, which may ultimately lead to depression, commonly comorbid with ADHD in adults. Feelings and fears of incompetence may also give rise to performance anxiety or to obsessive and perfectionistic "compensatory" cognitions and behaviors. In addition, projection of future failures may perpetuate feelings of demoralization or depression. These negative emotions constitute further obstacles to effective self-management and must be addressed in their own right in treatment.

Program Principles and Components

The program of treatment described in this book was designed to address many of the most common problems and complaints that are documented as areas of deficit for adults with ADHD and freely vocalized by patients as sources of distress and frustration: inefficiency, failure to complete tasks, difficulties initiating and terminating tasks and activities in a timely fashion, disorganization, poor planning, procrastination, tardiness, forgetfulness, indecisiveness, difficulty prioritizing, and perfectionism. In this book, treatment for ADHD comprises a set of highly structured interventions that address the multiple postulated mediators of these difficulties in ADHD that, as described above, include executive dysfunction, reduced sensitivity to reinforcement, deficits in activation, and irrational dysphorogenic cognitions. It is likely the case that these deficits are represented to different degrees in different adults with ADHD. Ultimately, with further research, we may be able to delineate these individual differences and use this information to identify a priori the subsets of skills and strategies that will most directly address each patient's needs.

The interventions may be categorized as described below and listed in Table 1.2.

Explicit Skills Training

Some treatment components may be described as training in explicit skills for self-management that, either because of attentional deficit or lack of exposure in the course of development, some adults with ADHD may never have had an opportunity to acquire. Included in this category are discussions of the mechanics of planner use to schedule and prioritize daily tasks, and the organization of physical space to maximize efficiency.

Development of Compensatory Strategies

This treatment program does not attempt to directly habilitate fundamental deficits in executive function. Rather the program aims to inculcate cognitive and behavioral

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TABLE 1.2. Catalogue of Strategies/Skills to be Developed during the Cognitive–Behavioral Treatment Program

Strategies/skills	Cognitive-behavioral principle	Session(s)
Regular attendance at group	Positive habit	1
On-time attendance at group	Positive habit	1
Completion of in-home exercises	Positive habit	1
Time estimation	Explicit skill	2
Use of planner for scheduling	Explicit skill; positive habit	2
Breaking down tasks/projects into manageable parts	Compensatory strategy; self-reinforcement	3, 7, 8, 9
Contingent self-reinforcement	Contingency management	3, 7, 8, 9
Timely initiation of tasks	Self-cue and reinforcement; compensatory strategy	3, 4, 5
Timely termination of tasks	Compensatory strategy	3, 4
Use of planner for to-do lists	Explicit skill; compensatory strategy	4
Use of planner for prioritizing	Explicit skill; compensatory strategy	4
Follow-through of daily items on agenda	Stimulus management; compensatory strategy	4, 5, 6
Identifying interfering/self-sabotaging cognitions/emotions	Challenging negative self-statements	5
Visualization of long-term rewards	Self-reinforcement	6
Resistance to distractors	Compensatory strategy; anticipatory self-reinforcement	6
Organization of physical space for efficiency	Explicit skill; stimulus management; compensatory strategy	7, 8
Organization of physical space to reduce distraction	Stimulus management; compensatory strategy	7, 8
Maintenance of organizational systems	Immediate and anticipatory self-reinforcement; stimulus management	9
Planning/organization of projects	Explicit skill	10, 11
Execution of long-term projects	All enumerated principles	11
Self-instruction via maxims	Self-instructional training; self-cueing, positive habit formation	All

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strategies that can compensate for deficits in executive functions, or that can induce patients to more consistently and effectively utilize the executive skills they already possess. Examples include setting up a work environment to minimize potential distracters and maximize the salience of prompts related to targeted goals, and setting a timer to cue the completion of one task or activity and transition to the next. The first is intended to compensate for poor resistance to distraction, and the second for a deficit in time tracking and/or self-inhibition.

Use of Reinforcement

The experience of reinforcement is enhanced in two ways: (1) the program incorporates strategies intended to help participants compensate for a deficit in sensitivity to reinforcement that, as described, may bear an etiological relationship to the symptoms expressed in ADHD; and (2) direct experiences of reinforcement are provided by the home exercises (and group feedback) in order to promote the acquisition, generalization, and maintenance of the behavioral and cognitive changes engendered by the program.

Compensation for Deficit in Reward Sensitivity

Just as effective behavioral interventions for children with ADHD entail increasing the frequency, salience, and immediacy of reinforcement contingent upon desired target behaviors, so too adults with ADHD are taught to schedule their activities so as to increase the frequency and intensity of experiences of reinforcement. For adults, the latter include feelings of satisfaction and experiences of competence and achievement, as well as pleasant events and other more visceral behavioral reinforcers. This is accomplished by such methods as teaching adults with ADHD to break down tasks into smaller, more manageable parts followed by breaks and/or pleasurable scheduled activities, or, when feasible, to *pair* aversive or effortful activities with pleasurable ones. In order to compensate for a steeper delayed reinforcement gradient, participants are also taught to actively visualize the future rewards that will be obtained upon completion of current effortful and/or aversive tasks (positive visualization), thereby increasing the motivational influence of those delayed reinforcers in the present moment.

Facilitation of Generalization and Maintenance

In order to facilitate the automatization of new cognitive and behavioral skills, participants are provided with simple-to-remember mantras or maxims that are introduced in the relevant session and repeated strategically throughout the program. Examples include "If it's not in the planner, it doesn't exist" and "If you're having trouble getting started, then the first step is too big." These self-instructive cognitions are designed to facilitate positive habit formation by strengthening connections between the cue (the problem

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situation or stimulus) and an adaptive response, thereby facilitating generalization and maintenance of the adaptive behavior in the real world.

The structure of the program is designed to increase the likelihood that participants will be reinforced for their efforts to make changes so that new behaviors will be encouraged and maintained. Toward this end, the sequence of home exercises begins with small, easy-to-manage tasks and progresses to more complex ones. In this way, exercises are designed to maximize early experiences of success and help patients to overcome their fears of failure and negative self-attributions and expectations. The roundtable review of the Take-Home Exercise allows ample opportunity for social reinforcement of positive change in the form of praise, encouragement, and support from the therapist and from other group members. In-session exercises provide further opportunities for modeling of the therapist and other group members. Throughout the program, progressive shaping of adaptive behaviors, and cognitive and behavioral rehearsal and overlearning are fostered. The ultimate goal is that the newly acquired positive behaviors and cognitions become self-reinforcing and therefore autonomously maintained.

Facilitation of Activation

Several strategies are directed toward helping participants self-mobilize to begin work on tasks that are complex or aversive. The mantra "Getting started is the hardest part" is designed to reassure and remind participants that, once they start, the going will get progressively easier. Other strategies, particularly in Session 3, are designed to facilitate the activation process by guiding participants to break down difficult tasks into manageable parts.

Identifying and Resisting Emotional Distracters

Individuals are taught to recognize and challenge the anxiogenic and depressogenic self-statements that interfere with the effective deployment of executive skills, undermine motivation and progress, and serve to maintain negative self-attributions and emotional states. The cognitive-behavioral program for addressing irrational thoughts is introduced in Session 5 and draws upon the theory and methods first introduced and applied to the treatment of anxiety and depression by Aaron Beck, Albert Ellis, and others (Butler, Chapman, Forman, & Beck, 2006). Subsequently in the program, these cognitions are identified and addressed whenever appropriate in the course of discussions during the session, particularly during the review of the Take-Home Exercise. Examples of commonly occurring irrational cognitions among adults with ADHD include the following:

Disqualifying the Positive. After completing a difficult task, the patient says to him- or herself, "I should have been able to do that a long time ago. That was nothing. Look

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how much more I still have to do." Rather than congratulating him- or herself and taking pride in the progress achieved, the patient undermines the value of the accomplishment. This quickly saps motivation, leading to demoralization and perpetuating the negative belief that "I can't get anything done, I am ineffective."

Perfectionism. Patients who set perfectionist standards for themselves are typically anxious about their performance and self-worth. If their product, effort, or output is not "the best" or without flaw, they are embarrassed, feel they have failed, and are reluctant to complete or submit the paper, letter, or project. The typical underlying belief here is "If it is not perfect, then it is no good at all, and I have failed." As a result of this thinking, patients may avoid or procrastinate on tasks because they are perceived as entailing insurmountable challenges.

Impact on Response to the Program. The anticipation of failure and the fear of failure are highlighted above because they may interfere with patients' deriving benefit from the very treatment program that is intended to address their difficulties. Patients who *anticipate* failure may be haphazard and uncommitted in their participation, particularly with respect to the Take-Home Exercises. The patient who *fears* failure may also avoid the Take-Home Exercises—or may do them in excessive and exhaustive detail (e.g., typing out several pages of response). Not uncommonly, anxious patients attribute their failure to use a to-do list and planner to their worry about seeing at the end of the day a list of all the things they failed to accomplish. Highlighting and helping to moderate these patients' excessive and unrealistic expectations of themselves is an important first step in facilitating a positive response to the treatment program.

The application of cognitive-behavioral interventions to treat anxiety and depression is further illustrated in the challenging treatment cases described in Chapter 4. A more detailed discussion of the application of cognitive-behavioral treatment to address dysphorogenic cognitions in adults with ADHD, which includes instructive samples of therapist–patient dialogues, may be found in *Cognitive-Behavioral Therapy for Adult ADHD: An Integrative Psychosocial and Medical Approach* (Ramsay & Rostain, 2007).

Table of Skills and Strategies

Table 1.2 delineates the strategies and skills to be developed during the program. The session(s) during which each strategy or skill is first or primarily presented is also indicated in the table. However, it must be emphasized that the program is cumulative and reiterative, such that previously presented skills and strategies are continuously reinvoked and reapplied in new behavioral contexts, both in the sessions and in the review of the Take-Home Exercise, in order to facilitate generalization and maintenance.

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Summary

ADHD persists to adulthood in a sizable percentage of children and is accompanied by significant impairment in virtually every area of adult functioning. Medication, while effective in alleviating core symptoms, is often inadequate to address these functional difficulties. Our program was developed to address critical deficits in everyday executive self-management, including time management, organization, and planning.

Good treatment begins with a good assessment. In the next chapter we describe the components of a comprehensive evaluation for ADHD, and delineate the methods whereby the primary symptoms, comorbid conditions, and associated impairments are ascertained. The chapter concludes with presentations of prototypical clinical cases illustrating the combined and predominantly inattentive subtypes.

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