
Diagnostic Issues for Adolescents and Adults With ADHD



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Attention deficit hyperactivity disorder (ADHD) is a common childhood neuropsychiatric syndrome once thought to disappear with maturation. Current data indicate that ADHD remains "hidden" in many of the grown-ups who had it as children. Adult prevalence rates range from 1% to 6% of the population. Research suggests the core childhood symptoms of hyperactivity, inattention, and impulsivity shift with development, perhaps transforming into more overt difficulties in executive functions and affect regulation. ADHD is also usually nestled with other comorbid psychiatric conditions, especially in adolescents and adults, further complicating diagnosis and treatment. This article discusses how to recognize and diagnose ADHD in older patients. Key points include core symptoms present during childhood, appropriate family history in this strongly genetic condition, management of comorbidity, and the evolving role of diagnostic testing. Other medical causes for similar symptoms are considered. © 2005 Wiley Periodicals, Inc. *J Clin Psychol/In Session* 61: 535–547, 2005.

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Mary had been treated for bipolar disorder, but still suffered from extremes of distractibility, impulsivity and agitation/hyperactivity. John was a mental health professional with excellent clinical skills, but was severely behind with his patient charts and necessary paper work. Sue was a brilliant college student who somehow never recognized the need to regularly attend classes, read assignments, or write papers. All turned out to be adults with previously unrecognized ADHD whose lives were greatly improved with appropriate diagnosis and subsequent treatment. All had also been given other diagnoses in the past, and had been treatment failures, as is often the case when ADHD is missed in adults (Ratey, Greenberg, Bemporad, & Lindem, 1992).

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Attention deficit hyperactivity disorder (ADHD) is a complex neuropsychiatric syndrome (or syndromes) that is among the most common of childhood disorders. Once thought to disappear as children matured, ADHD, as current data indicate, changes form but remains clinically significant in many of the grownups who had it as children. The exact rate of persistence is a controversial subject. Outcome data suggest that anywhere from 5% to 75% still show significant levels of symptoms into adulthood, depending on who are used as informants and where the diagnostic cutoff point is set. For example, self-report of symptoms yields lower persistence rates than parent report among adolescents or young adults. Existing *Diagnostic and Statistical Manual of Mental Disorders*, third or fourth edition (DSM-III or DSM-IV), criteria yield lower persistence rates than do cutoff scores based on +2 standard deviations for age when similar dimensions are assessed (Barkley, 2002). Adult prevalence rates consequently vary, but anywhere from 1% to 6% of the general population are believed to meet the strict DSM-IV diagnostic criteria for ADHD (Wender, 1995).

The core childhood symptoms of ADHD are hyperactivity, inattention, and impulsivity. However, Paul Wender (1995), who originally created awareness of the continued adult form, drew attention to frequently associated features and subjective symptoms also seen in ADHD adults. These included affective lability, hot temper (with explosive and short-lived outbursts), emotional overreactivity (leading to poor tolerance of stress), and disorganization.

Research suggests that the core childhood symptoms shift with development, sometimes dramatically: hyperactivity often declines by adolescence, attentional problems appear to remain more constant, and impulsivity may transform into more overt difficulties in *executive functions*. It is tempting to speculate that deficits in executive functions may account for many of Wender's additional observations.

Executive functions are an evolving construct, which have become a shorthand for complex regulative processes. Many other terms are used interchangeably with *executive functions*. These include *self-reflection, self-control, planning, forethought, delay of gratification, anticipatory set, future orientation, working memory, planning, set shifting, selecting, dividing and sustaining attention, affect regulation, resistance to distraction, and metacognition*. Strictly speaking, from a neuropsychological perspective, executive functions originally referred to a more narrow set of fundamental neurological processes necessary for "independent" and "socially responsible" living (Lezak, 1982). These usually denoted problems with initiation, inhibition, shifting, sequencing, planning, and self-awareness. Failures in inhibition, as well as in attention regulation, are likely to compromise other derivative executive/regulative abilities indirectly (see Barkley, 1997; Brown, 2000).

As a result of executive deficits in adults, adults with adaptive functioning may be as frequent as, if not more frequent than, problems with disruptive behaviors or inattention. Consequently, difficulty in keeping jobs and maintaining routine and poor organization of time and/or money are common (Wolf & Wasserstein, 2001). For example, individuals may report frequent missing of appointments or work deadlines, repeated failure to file taxes, poor tracking of bill payments and even bankruptcy, as well as restlessness and difficulty in unwinding and subtle forms of motor fidgeting such as pacing, leg shaking, playing with rubber bands, or rustling papers while talking.

Complex presentation is the rule in adults and adolescents. That is, the ADHD is usually nestled with other comorbid psychiatric conditions, such as substance abuse, antisocial behavior, residual learning disabilities, conduct disorders, and/or mood and anxiety disorders (Brown, 2000). In adult patients, the ADHD may be missed because the comorbidities are the more common focus of attention of mental health professionals. In adolescents the ADHD may be the treatment focus, while the comorbidities may not be

recognized and addressed. Last, frequent problems with social skills and adaptive functions can be very stressful to relationships. Consequently, divorce and multiple marriages are not uncommon among these adults. I have also found that some adults who have ADHD form codependent relationships wherein they become overly submissive to a controlling and highly organized partner. With the right balance such a relationship can be adaptive for the dyad, but mutual resentment and misunderstanding of the underlying forces frequently occur.

Adults and adolescents who have ADHD may show stimulus-seeking behaviors, which may lead to poorer health, criminal records, more serious motor vehicle accidents, less education, and lower occupational achievement. Nevertheless, anecdotally, success in risky and exciting occupations (e.g., entrepreneurial ventures and sales) has been reported (Weiss & Murray, 2003). Others have speculated that aspects of ADHD can be channeled into creative productivity, with the right supports and nurturance (Wolf & Wasserstein, 2001).

Recognizing ADHD in Adult Patients

The DSM-IV (1994) currently recognizes three types of ADHD: ADHD Predominantly Hyperactive Impulsive Type, characterized by motor and impulse control problems; ADHD Predominantly Inattention Type, characterized by problems in attention and arousal; and ADHD Combined Type, characterized by problems in both areas. Unfortunately, the fixed symptom threshold that was created was based on children (ages 4–17); while the diagnostic criteria are used for *all* ages. Additionally, many items are not entirely applicable to adults. Examples include behaviors such as *often runs about or climbs excessively, often has difficulty playing or engaging in leisure activities quietly, or often avoids or strongly dislikes tasks that require sustained mental effort, such as schoolwork or homework*. Thus a priori, fewer items can be used to rate adults, and fewer chances to meet criteria result. Moreover, because ADHD is conceptualized as a developmental disability, target symptoms must be age-inappropriate relative to peers. These sorts of considerations argue that current DSM-IV standards are less appropriate for adult sufferers, who may still have relative deficits and show many ADHD-based problems but do not fully meet criteria (Barkley, 2002). That is, they may have “outgrown” the normative sample, but not the disorder. The existing DSM-IV standards must be nevertheless considered, although there are no formal guidelines regarding such subthreshold presentations. In such cases I often use ADHD: not otherwise specified (NOS), although the DSM again provides no definite criteria. Incidentally, I have found that low self-esteem, against a backdrop of many solid abilities, is a good marker for diagnostic risk.

In order to make the diagnosis, it is essential that the core symptoms were present during childhood. Given the strong genetic contribution in this condition (e.g., Wender, 1995; Levy, Hay, McStephen, Wood, & Waldsman, 1997), I stress examination of family history, especially in borderline presentations. For example, it is quite common for adults to seek evaluation when their own children have been diagnosed. It is also not unusual to find a strong family history of learning disabilities or other psychiatric disorders in a true proband. If I see no family history, I am much less likely to make the diagnosis, unless there have been perinatal or other risk factors for acquired symptoms (see Other Relevant History and Medical Mimics).

There are two main groups of adolescents/adults who have ADHD: (1) Those who were originally diagnosed as children and (2) those who were never diagnosed. The first group is easier to recognize and often includes men or those who were hyperactive as children. The second group is more likely to include females and/or the inattentive subtype,

because they were less likely to have been disruptive during their childhood. That is, the true inattentive type children are often not identified during childhood.

Diagnostic Procedures

Accurate diagnosis of adult ADHD remains a clinical challenge. It is a “hidden disorder” representing extremes of normal behaviors, with no clear consensus regarding the clinical boundaries (Levy et al., 1997), particularly for adults. Although neuroimaging data have established a biological substrate, which largely implicates frontostriatal system dysfunction (e.g., Castellanos et al., 2002), there are still no objective biological tests. Neuropsychological testing most consistently finds deficits in tests of attention, behavioral inhibition, and working memory (Hervey, Epstein, & Curry, 2004). These findings have helped to establish the neuropsychiatric validity of ADHD. There is also a growing body of research that may implicate dysfunction of right hemisphere systems in ADHD (see Stefanatos & Wasserstein, 2001, for a review). However, reported findings are typically observed for ADHD groups and not necessarily seen in all individuals. As yet no characteristic neuropsychological profile exists. There is consequently no definitive “test” for ADHD, although certain deficit patterns are more likely to occur in ADHD. The role of testing in the diagnostic evaluation is still evolving and is likely to become an ever more important source of objective information. Clinical history, specialized symptom rating scales, and selective testing (on an as-needed basis) are the current state of the art.

In the diagnostic process, I recommend the following components:

- Assess current level of symptoms.
- Assess degree of functional impairment.
- Establish childhood history.
- Perform general psychological evaluation.
- Obtain developmental history.
- Obtain family psychiatric and neuropsychiatric history.
- Institute specialized psychological or neuropsychological testing.
- Be mindful of medical mimics.

Current Level of Symptoms

Current level of symptoms is most easily assessed by using one or more of the existing ADHD scales, which provide adult and adolescent norms. There is debate about the accuracy of these measures, although empirical studies typically find underreporting of symptoms among adults (Barkley, 2002). Thus use of the scales may actually lead to an underestimate of the level of problems, because of the patients’ underreporting or blunted self-awareness. I have found underestimating problems to be especially likely among adolescents who are still struggling with identity formation, rather than among adults, who have experienced more persistent challenges. Sometimes people overreport because they are motivated to get the diagnosis in order to secure academic accommodations, provide an explanation for their dysfunction, or generally be symptom magnifiers (a response set). It is helpful to have additional input from a collateral reporter, such as a spouse or parent (who can be given the same scales), although many adults are reluctant to involve others. For adolescents, collateral informants may be essential because of their tendency to be poor self-observers.

The Brown Attention Deficit Disorder Scales (Brown, 1996) and the Conners' ADHD rating scales (Conners, Erhardt, & Sparrow, 1999), adult and adolescent versions, are among the most widely used ADHD scales in clinical practice. Each scale has been shown to have reasonable sensitivity and specificity when differentiating between those who have ADHD and control populations. The scales differ in the dimensions of the disorder they emphasize. The Brown scale consists of 40 items that focus on the executive spectrum of problems and, as such, assess difficulties with activation, perseverance, affect regulation, and working memory, as well as with the core symptom of inattention. Sample questions also address tendencies for procrastination, disorganization, and poor self-regulation (e.g., difficulty in waking up in the morning, tendency to feel overwhelmed, slowness of reactions, need for extra time). Hyperkinetic and impulsive spectrum issues are not sufficiently queried. By contrast, the Conners' scale adheres more closely to the DSM-IV criteria, thereby also providing adult norms for hyperactivity and impulsivity, as well as for core inattention/memory problems. It consists of 66 items, which address a wider spectrum of ADHD symptoms, including poor self-image. For example, boredom, restlessness, and verbal impulsiveness are directly queried on this measure, as is affective lability. However, the many manifestations of executive dysfunction deficits are not as closely assessed. Clinically, I have found the Brown to be more sensitive for inattentive spectrum problems and Conners' more sensitive for hyperactive/impulsive spectrum problems. It is useful to administer both measures and draw diagnostic conclusions from the total data set. Scores can also be used as baseline measures to target specific areas for intervention and to monitor change.

Degree of Functional Impairment

Functional impairment is usually evaluated by clinical interviews of the patient and significant others (such as spouse or parent). The general questions here are how much suffering and dysfunction ADHD symptoms are causing in the person's life. Are the symptoms compromising work and/or social functioning, contributing to the person's failure to achieve specific life goals, resulting in significant suffering to others (e.g., spouse, children, coworkers), or increasing significant health risks (e.g., substance abuse, risky driving, sexual promiscuity)? Two additional questions need to be considered when evaluating the preceding questions: The first again relates to poor recognition of problems by the client. The second relates to the level of effort required for the person to function, thereby possibly masking the existence of "impairment."

Poor recognition is usually not a concern for self-referred patients. By definition they have sought an evaluation because they believe there is some impairment. In this context the clinician needs to clarify the exact problems and parameters. It is tempting to view examples as "only normal," and one needs to be mindful of base rates of problem behaviors. For example, how frequently do they lose track of required things or conversations at work? How behind are they on their bill payment and e-mail responses? How many areas are out of control? Poor recognition is more likely when someone seeks an evaluation at the request of another. Again, outside reporters are essential when poor self-awareness exists or is suspected. Work evaluations can also be very useful.

There is some disagreement among experts regarding what constitutes functional impairment. There is no argument when individuals overtly fail at work or in school because of ADHD-related symptoms, such as chronic lateness, failure to meet deadlines, and interpersonal difficulties (e.g., noncompliance). Disagreement emerges when people do not fail, and may even perform well, but describe expending excessive amounts of

time and energy in order to do so. Some argue that, as for an alcoholic, one does not need to be actively drinking (i.e., failing) to have a problem. Simply working excessively hard to compensate, and often at great personal and social cost, becomes the marker for functional impairment. Although this point may seem arbitrary, many individuals who show this profile (and also meet other current and historical diagnostic criteria) often experience dramatic symptom relief with treatment.

Establish Childhood History

Childhood history of ADHD is essential and typically evaluated through a clinical interview. Awareness of the usual developmental course of ADHD is important. In general, the more characteristic developmental findings in a given individual's life span, the more likely the diagnosis of ADHD. History gathering can also be supplemented by commercial structured history forms. For example, an excellent adult version, created by Brown, is available through Psychological Corporation. Administration of standardized retrospective self-report questionnaires, such as the Wender-Utah Rating Scale (WURS; Wender, 1995) is also useful. It is a 25-item measure, gleaned from 61 original items, which separated adults who have ADHD from normal control and depressed adults. However, the recommended cutoff scores are somewhat conservative and were designed to be so for research purposes. In my experience, people who had milder forms of hyperactivity/impulsivity or pure inattentive type ADHD during childhood are likely to be missed on this measure. However, as it was designed to be, a positive score is strongly predictive of accurate diagnosis and good stimulant medication response in adults.

When reviewing personal history, I look for the following common developmental markers of ADHD. Poor cooperation with peers and noncompliance are most pronounced in preschoolers but may be seen throughout the life span. Preschoolers also tend to have difficulty with transitions and focused group activities (e.g., circle time). In addition to distractibility and hyperactivity/impulsivity, school-aged children show difficulty in developing routines of daily living (e.g., sleep, grooming, even toilet training) and often have trouble in acquiring basic academic skills. Poor handwriting is extremely common, as are all specific learning disabilities, disorganization, and general underachievement. Adolescents tend to be immature, have more conflicts with parents, have poor social skills, and engage in more high-risk activities, such as alcohol and drug use, unprotected sex, and reckless driving. Academically, teens who have ADHD show difficulty completing homework and longer projects (Weiss & Murray, 2003). Clinically, I have found that preschoolers who have ADHD have a high rate of pervasive developmental delay NOS, and many school age children who have ADHD/inattentive type show nonverbal learning disability profiles. As teens, I have found, boys who have ADHD/combined type are more isolated or antisocial; girls who have ADHD/combined type are more hypersocial, although variations exist.

When looking for childhood symptoms, it is important to recall that a highly organized home life can mitigate the expression of many ADHD symptoms. For example, availability of sports or structured teachers, organized schools, or even regimented cultures can mask the expression of many symptoms. As a result, interviews with parents or significant others may be necessary to unveil the existence of earlier excessive impulsivity, disorganization, inattention to detail, forgetfulness, and the like. Overt problems may have only become apparent during middle school, higher education, or even later in the work world. That is, ADHD problems become ever more manifest as environmental demands become more complex and, concurrently, external supports are increasingly

removed (Wolf & Wasserstein, 2001). When available, report cards and/or teacher letters can be extremely helpful.

General Psychological Evaluation

Inattention and impulsivity are to psychopathology what fever is to medicine. That is, many core ADHD symptoms can be nonspecific symptoms of many other psychological disorders, not only of ADHD. Consequently, it is necessary to rule out other possible psychiatric diagnoses as alternative explanations for the symptoms. Further complicating the diagnostic process is the fact that ADHD frequently occurs in combination with other psychiatric disorders (Wender, 1995; Brown, 2000). Thus the presence of a comorbid condition does not rule out ADHD.

The setting in which assessment occurs is likely to influence the type of comorbidity seen. Prospective studies that follow children into adulthood report high rates of anti-social and substance abuse disorders. By contrast, adults who seek treatment in clinical settings are more likely to report depression and anxiety (Gallager & Blader, 2001). By extension, self-referred people may be more likely to have the mood and anxiety disorders, whereas the people taken in by others (often adolescents) may be more likely to have acting-out problems.

Standardized checklists are helpful and speed up the evaluation process. I use the Symptom Checklist-90 Items Revised (SCL-90R) and/or the Beck Depression and Anxiety Scales. All provide well-normed standards. When a more complicated analysis of personality functioning is required or requested, more elaborate questionnaires such as the Minnesota Multiphasic Personality Inventory (MMPI-2) or the Million Clinical Multiaxial Inventory (MCMI) are useful. However, the reader is cautioned that current computer-generated reports for adults were not created with ADHD as a diagnostic possibility. As a result, many ADHD symptoms can be subsumed under mania and/or antisocial personality. Projective testing may prove useful, as dictated by the taste, experience, and preferences of the diagnostician.

Because ADHD can coexist with depression and anxiety, a differential diagnosis is sometimes very difficult. In such situations the time line of core symptoms needs to be closely evaluated. I note whether or not symptoms have remained constant throughout life, improved somewhat in adulthood, or fluctuated along with mood/anxiety changes. Those who have true ADHD often describe some symptom remission over time. They also convincingly argue that their comorbid problems are secondary to their lifelong dysfunction from ADHD. For example, they report always having been inattentive and disorganized, irrespective of their emotional state. Absent periods of normal functioning and given a positive family history, diagnosis of ADHD with depression (or anxiety disorder) may be appropriate. Those who have primary mood disorder report concentration difficulties that parallel their degree of depression (during childhood or adulthood). Similarly, severe anxiety can disturb concentration and cause physical overactivity. If the symptom course is unclear, treating these more reversible conditions first and postponing the final diagnostic decision regarding ADHD may be prudent. Sometimes the person's concentration, attention, and organization improve dramatically with relief of depression or anxiety. Often the symptoms remain, thereby clarifying the diagnosis. Hyperactive/impulsive symptoms may also be difficult to differentiate from hypomania or extreme anxiety. Periodicity of symptoms and overt signs of mania (e.g., excessive spending, hypersexuality, primitive and loose thinking) can help in forming a diagnosis of bipolar illness. Treatment of anxiety can clarify the existence of residual ADHD. Again, family history of probable genetic risk is useful, but not definitive, in this regard.

Other Relevant Histories

Developmental history is typically obtained in the course of establishing a childhood history of ADHD. At that time, an inquiry is made into difficulties surrounding pregnancy, birth, and prenatal course. Complications during this period are particularly likely to lead to an ADHD phenotype, even without a genetic risk.

Most adults do not know their developmental milestones but may recall being told of extremes. Adolescents have the benefit of still having parents as reporters. In any case, developmental delays are not unusual (particularly in motor and toileting skills), as are many minor congenital anomalies. Some adults report hyperactivity from the time they were able to walk. An accident-prone tendency (due to impulsivity or spacy inattention) is also common (Wender, 1995). I have observed a high base rate of allergies.

Families of people who have ADHD are populated with a large spectrum of neuropsychiatric illnesses. The typical patient has members who have ADHD, learning disability (LD), substance abuse, and/or mood disorder. Autism and Tourette's syndrome are also common. The exact genetic interrelationship among these syndromes is not well understood, but their presence in a patient's first-degree family members (especially of ADHD or LD) increases the diagnostic likelihood (Levy et al., 1997).

Specialized Testing

Psychological and neuropsychological testing is useful for evaluating attention and executive functions, as well as for gaining a better understanding of commonly comorbid LDS. Other neuropsychological domains, such as memory, language, and visuomotor abilities, may also be compromised to varying degrees (Gallagher & Blader, 2001). Despite some guidelines derived from the child literature (e.g., executive dysfunction), as yet there is no consensus regarding the expected neuropsychological profile of adults (Hervey et al., 2004).

Computerized tests (CPTs) of sustained attention are among the most frequently employed neuropsychological measures. This high utilization rate probably reflects the fact that CPTs measure the two primary neurocognitive domains associated with ADHD, attention and response inhibition. Specifically, CPTs require the examinee to respond rapidly when presented a target stimulus and not to respond when shown a distracter stimulus. Multiple response dimensions can be computed, usually including omission errors, commission errors, reaction time and different types of variability. Traditional CPTs (e.g., Test of Visual and Auditory Attention; TOVA) have few target stimuli embedded among many nonsignal stimuli, thereby stressing attention. Other CPTs (for example, the Conners') have a higher target stimulus probability, thereby stressing the ability to inhibit (see Riccio & Reynolds, 2001, for a review). Most are visual, although some also use the auditory mode (e.g., Integrated Visual and Auditory [IVA] CPT and TOVA).

Hervey and colleagues supported the importance of this assessment approach in their recent meta-analysis of adult ADHD research (2004). On a group level, CPTs were highly successful in discriminating between normal control individuals and identified patients. Moreover, CPT versions and response dimensions that emphasized attention (i.e., traditional CPTs and omission errors) were more sensitive than CPT versions and tasks emphasizing inhibition (i.e., commission errors and less traditional CPTs). Other response dimensions were less frequently studied, although reaction time variance was also highly discriminating. On an individual level, however, as for all standards for ADHD, there can be false negative and false positive results. I have found the first occurs when people can compensate for their deficits during the relatively brief period required for the test (about

15–20 minutes). The second occurs when there are alternative disruptive mechanisms operative, such as an anxiety or mood disorder or psychosis.

Measures of executive functioning (e.g., Trails B or Rey Complex Figure Drawing) are also promising, but not universally sensitive. That is, not all people who have ADHD have deficits on all, or even some, measures of executive functions (Gallagher & Blader, 2001). These results may reflect limits in current assessment methodology. Nevertheless, selected neuropsychological tests of executive functions are often compromised in those who have ADHD, thereby permitting some objective support for the diagnosis. Complete evaluation is especially indicated for adolescents and young adults who are still in the process of completing their education. They may be unaware of coexisting learning problems and of their specific underlying neuropsychological basis, both of which the testing can clarify. Many people who have ADHD may, in fact, have some degree of nonverbal learning disorder (Stefanatos & Wasserstein, 2001), which is only unmasked through testing. Identifying and clarifying unrecognized learning disabilities, or validating their past existence, can be one of the most valuable contributions of formal evaluations.

Overall then, in both adolescents and adults, comprehensive evaluation is useful for the following:

1. Understanding better the individual's strengths and weaknesses when planning treatment.
2. Generating a baseline against which to monitor change through interventions, both from pharmacotherapy and psychotherapy.
3. Providing evidence for legally mandated accommodations at school or on the job.
4. Informing diagnosis.

In short, specialized testing is not considered necessary for diagnosis, but can be essential for allowing a more objectively informed diagnosis and providing legal services. It is also helpful for understanding of the individual and for permitting the individual to better understand himself or herself. Finally, treatment can be shaped, monitored, and facilitated with testing input.

Medical Mimics

There are a number of medical conditions (e.g., hypertension, glaucoma) that either cause symptoms that resemble ADHD, coexist with ADHD, or may affect an individual's ability to tolerate stimulant medication. All would require further medical evaluation, and some might change the diagnostic formulation.

Head injury and lead toxicity are the two most common causes of acquired inattentive/hyperactive dysexecutive syndromes. Seizure disorders of all types can be mistaken for inattentive ADHD, and the presence of discrete staring spells or episodic inattentive symptoms indicates need for neurological referral. Sleep disorders are common among children and adults who have ADHD and may worsen the clinical presentation. These disorders may also exist independently of ADHD and cause disturbed attention because of lack of sleep. In particular, narcolepsy or obstructive sleep apnea may be suspected when there are reports of excessive daytime somnolence. Referral to a sleep expert should be considered when these symptoms are severe, diurnal rhythms are extremely irregular, or there is clear sleep stage disorganization (e.g., dreaming as soon as the person falls asleep). Endocrinopathies, particularly thyroid disorders, can lead to extremes of arousal and/or irritability but are usually accompanied by other significant physical problems (e.g., temperature intolerance, bowel and skin changes) (Pearl et al., 2001). In middle

aged women autoimmune hypothyroidism, and possibly menopause, can cause poor concentration. This may worsen borderline ADHD cases and can lead to the unusual presentation of symptoms that increase in adulthood. Again, medical consultation is necessary if any of these illnesses is suspected.

Conversely, I have seen previously unrecognized ADHD in an adult who had a known LD be confused with insipient dementia. During a period of protracted stress he began to show severe memory and functional problems. For example, his fiancée described his losing her engagement ring, forgetting routine daily tasks, and placing notebooks in the refrigerator. Once the ADHD was recognized and treated, and his life stress decreased, he returned to his baseline high level of functioning (chief executive officer of his own company). Thus accurate diagnosis was key, but not easy.

Case Illustration

Presenting Problems/Client Description

Cathy is a 24-year-old woman who had recently been dismissed from medical school. She sought a second opinion regarding possible ADHD, as well as help with a legal appeal for readmission to her school. A previous neuropsychological assessment had documented deficits in executive functions and processing speed. However, her poor performance was attributed to her extreme anxiety. Cognitive behavioral treatment was recommended, and academic accommodations (such as extra time for tests) were denied. Even with the recommended intervention, she still could not complete exams or manage her work load and was eventually asked to leave.

During the interview, Cathy reported lifelong distractibility, as well as miscellaneous chronic signs of neurocognitive difficulties. For example, on a symptom checklist she indicated long-standing problems with planning and switching between tasks, poor word retrieval and fine-motor control, and general forgetfulness. Sadness, stress, and anxiety were also checked. History review found delays in walking and toilet training (motor and self-control), as well as chronic struggles in school. She had repeated first grade because of poor behavioral regulation and academic delays. Her grades in middle school and high school varied greatly (A–D), and she performed least well in classes that required detailed attention to rules (i.e., math and foreign languages). Nevertheless, she then earned strong Scholastic Aptitude Test scores and was accepted at a competitive college. In college her grades still fluctuated, but she persevered and eventually gained admission to medical school.

Family history was significant for diagnosed ADHD and learning disabilities in both of her siblings, as well as clinical depression and alcoholism in her extended family. Many other family members were accomplished professionals.

Case Formulation

Some may think Cathy is unlikely to have ADHD because she is highly educated. However, this syndrome exists in all educational and socioeconomic contexts. Her presentation was typical of adults who have ADHD in that she was self-referred, complained of chronic disorganization and problems with attention, had a history of diagnostic ambiguity, and sought help because of an acute problem in school or the work world. Her legal needs were also not unusual; in this population they can range from requests for academic services (e.g., time accommodations) to criminal defense (e.g., diminished competence in sentencing decisions). Her personal history suggested the required childhood onset of her

ADHD type symptoms (i.e., behavioral difficulties and academic variability), and she reported some of the more frequently associated developmental delays (e.g., late walking and toilet training). History review had indicated that her core symptoms, although diminished from childhood levels (especially for motor overactivity), had remained fairly constant irrespective of her mood/anxiety state. Thus emotional issues did not seem to account for her cognitive difficulties. Her family neuropsychiatric history included many of conditions commonly seen in this population (i.e., ADHD/LD, depression, and alcoholism). Last, the previous neuropsychological evaluation had found deficits typically seen in ADHD but assumed incorrectly that the presence of anxiety disorder ruled out concurrent ADHD.

When these findings were taken together, an ADHD diagnosis seemed probable. That is, Cathy reported core ADHD symptoms that were lifelong and still disruptive (and recalled appropriate developmental changes), reported associated personal and family history, and described good physical health. Ordinary diagnostic needs may have been met with the addition of formal ADHD scales, symptom checklists (regarding alternative or comorbid psychiatric conditions), review of DSM-IV criteria (regarding her childhood and current life), and limited objective neuropsychological testing (e.g., CPT). When combined with the interview and history, such data are often sufficient to establish a diagnosis or the need for preliminary treatment of other conditions. However, because there were legal needs and a conflicting evaluation, a new neuropsychological evaluation was indicated. In this forensic context more objective documentation of previous and current functional problems was also required. As a result her parents were sent the WURS questionnaire, and past report cards and evaluations were requested. Some evaluators would also include formal tests of motivation/malingering when evaluating for accommodations based on ADHD, but I consider this approach biased against this specific diagnosis.

Assessment Findings

Cathy's grade school report cards documented chronic variable academic performance and behavior control problems. Teacher comments mentioned poor attention and peer group difficulties. Her childhood level of ADHD and associated symptoms on the WURS, as recalled by her parents, fell in ranges that were above those of normal control individuals but consistent with either ADHD or depression. However, they indicated high levels of most core ADHD symptoms, while denying symptoms associated with major academic or social difficulties. She denied major sadness during childhood but did report sufficient symptoms during childhood to meet ADHD/Predominantly Inattentive type criteria on the DSM-IV. Currently, Cathy met five of the necessary six inattentive DSM-IV criteria and also met three hyperactive-impulsive criteria: that is, she was not clearly a primarily inattentive or hyperactive/impulsive or combined type but had high levels of symptoms overall. I use the ADHD/NOS designation for this situation and have found that this diagnosis as well as the primarily inattentive type are especially common in adults.

Consistently with the argument that measures normed for adults are more sensitive than the existing DSM-IV criteria, Cathy's level of symptoms on two adult ADHD self-report scales were highly significant, especially for inattention and cognitive problems. Both her depression and anxiety scale scores were only mildly elevated, suggesting minimal impact on her cognition. On interview she further clarified that her anxiety and depression were largely triggered by her chronic inability to perform up to expectations,

an explanation often heard in this population. Her performance on the Conners' CPT indicated a 99% probability of attention disorder, with Markedly Atypical scores on omissions, commissions, and variability. Thus objective findings were remarkably consistent with the neuropsychological literature regarding ADHD and validated her subjective experience of problems.

On the Wechsler Adult Intelligence Scale-4th Edition (WAIS-IV), Cathy earned Very Superior range scores on all IQ measures, indicating that she is highly intelligent and has fairly equal verbal and spatial-manipulative reasoning ability. Significant variability, however, was seen in subtests (Very Superior to Deficient) and Index scores (Very Superior to Low Average), indicating disruption in her cognition. Moreover, the two Index scores that are most consistently associated with ADHD, Working Memory and Processing Speed, were also significantly below her other indices (Verbal Comprehension and Perceptual Organization). Academic skills, as assessed via the Woodcock-Johnson III, ranged from Low Average to Superior, with High Average SKILLS CLUSTER and Low Average FLUENCY CLUSTER. Thus her performance in most skill areas was significantly below expectations for her intellect and fell in markedly weak ranges compared to that of the population when she was required to perform quickly (especially for reading). When there was no time constraint, her Reading Comprehension was Superior. Thus the need for academic accommodations was objectively supported.

Additional neuropsychological testing found deficits in abilities primarily mediated by the same frontal brain system implicated in ADHD: that is, she again showed disturbed executive functions (in inhibition, sequencing, and switching), as well as poor visual-motor integration and planning, and weak memory (both verbal and visual, likely secondary to her poor initial attention). Importantly, the unique pattern of this profile was not particularly consistent with the previously diagnosed anxiety disorder.

Outcome and Prognosis

Cathy was delighted to have her diagnostic suspicions confirmed and eagerly sought pharmacotherapy and psychoeducation. She responded well to these more targeted treatments; becoming better able to manage her time and actions. Her medical school, however, would not reverse their previous decision. She still needs to mourn this lost opportunity and redefine her goals. Both can be prolonged and difficult processes in adults who have previously spent years struggling to find an appropriate career fit.

Clinical Issues and Summary

There are no clear guidelines for the diagnosis of ADHD in adults for whom the DSM-IV criteria are developmentally inappropriate. The diagnostic process is somewhat easier for adolescents who fall within the original standardization age range. It is a spectrum disorder that can coexist with other conditions that either worsen the presentation or distract from full diagnosis. There is much disagreement regarding where "normal" ends and the "disorder" begins. Despite the caveats, accurate diagnosis is possible and primarily based on clinical skills at this time. The role of testing is evolving. At this stage, formal assessment is most indicated for treatment planning, ambiguous diagnostic situations, and when legal services are being sought.

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