Assessment & Diagnosis

Adults With Attention-Deficit/ Hyperactivity Disorder: Assessment and Treatment Strategies

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Attention-deficit/hyperactivity disorder (ADHD) among adults is characterized by inattentiveness and impulsivity. This article provides counselors with information about the etiology, assessment, and treatment of adult ADHD. The identification of the genetic and neurological features of ADHD has led to improvements in evaluation and treatment. Assessment of ADHD requires knowledge of the defining characteristics, subtypes, comorbid features, and functional aspects of ADHD. Effective treatments include both medical management and counseling to address psychosocial deficits.

Attention-deficit/hyperactivity disorder (ADHD) was first described 100 years ago by Still and has been known as hyperactivity, hyperkinesis disorder of childhood, or minimal brain dysfunction (Seidman, Valera, & Bush, 2004). Still (1902) suggested that the symptoms were a result of a lack of moral control and the failure of the individual to conform to the environmental expectations for behavior. At that time, the factors that contributed to this form of moral failure were unidentifiable, but Still speculated, "That there are cortical changes . . . seems almost certain from our knowledge of these conditions" (p. 1012). In the 1920s, physicians noted that there was a relationship between neurological impairment, such as that caused by cerebral trauma, and behavior disorders (Strother, 1973). This relationship set the stage for symptoms of ADHD to be considered as a reflection of a neurobiological-based disorder (Doyle, 2004). Researchers began to examine hyperactivity and impulsivity in children and adults as a neurological disorder of the frontal lobe (Quinn, 1995).

Recent advances in the methods of identifying and treating ADHD among adults have been the result of advances in research focused on the role of cognitive impairment in the constellation of symptoms that define ADHD (Doyle, 2004). The focus on the neurobiological features of adult ADHD has advanced understanding of the functional implications of this disorder and aided in the development of effective assessment and counseling treatment strategies for adults with ADHD. The purpose of this article is to review for counselors the recent advances in pathophysiology research, evaluation strategies, and counseling treatment of ADHD among adults. This article highlights research from the literature of neuropsychology and counseling in order to describe the neurological impairments that are a central feature of ADHD among adults and to describe the impact of these impairments on psychosocial functioning. The clinical application of this research to the assessment and treatment of ADHD is described in order to promote evaluation and intervention strategies that counselors may use to address both the neurological dysfunction and psychosocial deficits characteristic of ADHD.

ADHD Among Adults

Pathophysiology

In contrast to Still's (1902) proposition that the etiology of ADHD lay in moral failure, today, there is strong evidence that the symptoms of ADHD that compose the typical clinical presentation by adults are an expression of a genetic disorder that affects the neurobiology of the frontal lobes (Faraone, 2004). Although the events that trigger the symptomatic expression of ADHD are unclear, familial risk factors strongly implicate a genetic basis for ADHD (Biederman et al., 1995). Hudziak et al. (1995) reported that approximately 70% of the offspring of parents with ADHD inherit the disorder. A number of studies have found evidence that symptoms of ADHD are elevated among siblings (Faraone, 2004).

Dysfunction in the prefrontal cortex was first implicated as a neurobiological expression of the genetic disorder in the late 1970s (Mattes, 1980). Since that time, abnormalities in the brain structure and function of adults with ADHD have been extensively documented (Harvey, Aaron, Epstein, & Curry, 2004; Seidman et al., 2004). The hyperactive and inattentive

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behaviors in adults are thought to be the result of an underresponsive regulation of neurotransmitters or neurotransmitter functions in the prefrontal cortex (Erk, 2000). The clinical expression of the underresponsive behavioral inhibition system includes the inability to prioritize and implement four executive functions: (a) nonverbal working memory, (b) internalization of self-directed speech, (c) self-regulation of mood and arousal, and (d) reconstitution of the component parts of observed behaviors (Barkely, 1997). These deficits in executive functioning may represent a clearer portrait of the phenotypical behaviors that are the expression of the genetic disorder in contrast to the motor activity more frequently reported among school-age children (Faraone, 2004).

Prevalence

Childhood ADHD symptoms and associated impairments may endure through adulthood, often in modified forms (Denckla, 1993; Doyle, 2004; Montano, 2004). ADHD is generally described as occurring in approximately 4.7% of adults worldwide; however, prevalence rates vary because studies of the prevalence of ADHD among adults define the diagnosis differently (Barkely, 2002; Biederman, Mick, & Faraone, 2000; Mick, Faraone, & Biederman, 2004; M. D. Weiss & Weiss, 2004). Although ADHD is more often diagnosed in male children, the diagnostic rates for adult ADHD is equally divided among men and women (Biederman, 2004). There appear to be differences in the referral pattern between children (most often referred by others) and adults (most often a self-referral) because there is no evidence that male adolescents outgrow ADHD to a greater degree than female adolescents (M. D. Weiss & Weiss, 2004).

Core features of ADHD may present differently with the passage of time and developmental maturation (Halverstadt, 1998; Mick et al., 2004; Montano, 2004; L. Weiss, 1997). Most often, symptoms of hyperactivity and impulsivity ameliorate as persons reach young adulthood, but inattention remains a prominent clinical feature in up to 90% of clinically referred adults (Millstein, Wilens, Biederman, & Spencer, 1997). Longitudinal studies of individuals with ADHD show a persistence of symptoms from childhood through adulthood in 66% to 85% of cases (Biederman et al., 2000). Biederman (2004) reported that approximately 40% of adults who were diagnosed with ADHD as children continue to meet the full diagnostic criteria for ADHD, whereas 60% continue to report partial symptoms. Biederman also noted that 90% of adults diagnosed with ADHD in childhood report continued low levels of overall functioning, although they do not meet the full diagnostic criteria for ADHD because they only report one or two areas of functional impairment. As Barkely (2002) noted, "a child with ADHD may outgrow the DSM *[Diagnostic and Statistical Manual of Mental Disorders]* criteria but not necessarily outgrow the disorder" (p. 12).

Assessment of Adults With ADHD

Defining Characteristics

The decision to seek evaluation for ADHD is often precipitated by an event that induces the individual to seek the services of a counselor, such as termination from employment, a failing relationship, or a substance abuse disorder (Jackson & Farrugia, 1997). Symptoms that are often comorbid with ADHD, such as depression and anxiety, may be predominant in the presenting complaint of adults with ADHD who seek counseling services because adults with ADHD have lived with the symptoms of ADHD for a lifetime, and thus the symptoms may not seem to be abnormal as compared with the immediacy of the presenting complaint (M. D. Weiss & Weiss, 2004). The identification of ADHD among adults seeking counseling requires that professionals have knowledge of (a) the *DSM-IV-TR* (American Psychiatric Association [APA], 2000) criteria for the differential diagnosis of ADHD from common comorbid disorders, (b) the functional features of the expression of ADHD among adults, and (c) effective psychosocial and cognitive assessment strategies (Montano, 2004; M. D. Weiss & Weiss, 2004).

Researchers and clinicians have long debated the defining characteristics of ADHD and the strategies that best identify the disorder (Woods, Lovejoy, & Ball, 2002). Specific diagnostic criteria for ADHD among adults have not been published (Montano, 2004). Clinicians and researchers in the United States most often use the criteria of the *DSM-IV-TR* (APA, 2000). The *DSM-IV-TR* criteria specify that the diagnosis of ADHD is applicable if the individual experiences six conditions that are organized in the *DSM-IV-TR* as Criteria A to E. An adult must display a minimum of six symptoms related to hyperactive or inattentive maladaptive behavior (Criterion A) that persist for a minimum of 6 months and are inconsistent with the individual's developmental level. In addition, the individual must meet the conditions of *DSM-IV-TR* Criteria B to E: the symptoms are present prior to age 7 years (Criterion B), the symptoms are displayed in more than two settings (e.g., occupation, leisure; Criterion C), the symptoms result in clinically significant impairment in two or more major life domains (e.g., social, occupation, family; Criterion D), and the symptoms are not accounted for by any other mental disorder (e.g., mood disorder, anxiety, personality; Criterion E [Montano, 2004]). Adler (2004) noted that although a childhood history of ADHD is a requisite for diagnosis of adult ADHD, the full childhood *DSM-IV-TR* criteria for the disorder is unnecessary as long as significant symptoms and impairments can be identified through retrospective self-report of childhood symptoms, family history, and the reports of others.

Subtypes

Three subtypes of ADHD are commonly recognized in clinical settings: (a) predominantly inattentive, (b) predominantly

hyperactive/impulsive, and (c) combined inattentive–hyperactive/impulsive (Doyle, 2004; Seidman et al., 2004). Subtypes are distinguished by a predominance of symptoms in excessive motor activity, impulsive behavior, or both (Doyle, 2004). Among adults with ADHD, the predominantly inattentive subtype is the most common type of diagnosis, whereas among children with ADHD, the predominantly inattentive subtype is diagnosed only in approximately 3% to 5% of cases (Erk, 2000). Thus, this schema of subtypes based on attention and motor activity is of limited clinical use among adults because adults seeking counseling services primarily report symptoms consistent with the predominantly inattentive subtype (Montano, 2004). Among adults presenting with predominantly inattentive features, subtypes that differentiate clinical features may be of use in treatment planning. Seidman et al. described three clinically distinct subgroups of adults with ADHD: (a) those with a first-degree relative with ADHD, (b) those with a comorbid learning disability, and (c) those with additional cognitive deficits. Approximately 57% of adults with ADHD fit the criteria for the first subtype, and these individuals may have a greater degree of brain abnormality and demonstrate greater functional impairment than members of the latter subtypes (Biederman et al., 1995).

Comorbid Disorders

Most adults who are diagnosed with ADHD exhibit one or more comorbid psychiatric disorders (Montano, 2004). Comorbid psychiatric disorders include oppositional defiant disorder, conduct disorders, antisocial personality disorder, substance abuse problems, learning disabilities, as well as mood and anxiety disorders (Denckla, 1993; Spencer, Biederman, & Wilens, 2004). ADHD among adults is also associated with Tourette's syndrome and tic disorders (Spencer, Biederman, Faraone, et al., 2001). Jackson and Farrugia (1997) noted that 15% to 20% of adults diagnosed with ADHD are also diagnosed with antisocial personality disorder, conduct disorder, or oppositional defiant disorder. Among adults with active substance abuse disorders, the rate of ADHD ranges from 14% to 33% (Jackson & Farrugia, 1997). Adults with ADHD abuse substances at an earlier age and more frequently than their peers without ADHD (Wilens, 2004). Adults with ADHD may have elevated rates of abuse because self-medication may reduce intrusive impulses and reduce impulsive symptoms (Baker, Knight, & Simpson, 1995).

Differential diagnosis of learning disorder and ADHD may be complex because of the interrelated functional aspects of the disorders that have the common outcome of poor academic functioning (Adler, 2004; Jackson & Farrugia, 1997). Likewise, differential diagnosis of ADHD from disorders of mood and conduct among adults referred for counseling may also be difficult because of common features such as mood swings, inability to concentrate, memory impairments, restlessness, and irritability (Adler, 2004). Ratey, Greenberg, Bemporad, and Linden (1992) noted that adults referred for evaluation of ADHD frequently report a history of treatment for mood disorders as well as a history of personal failures that generate additional emotional and self-concept difficulties. The low self-concept that is associated with adults with ADHD may further complicate the clinical presentation of the disorder (Leimkuhler, 1995).

Functional Aspects

Although adults and children share some similar clinical features such as cognitive difficulties that result in impairments across domains of daily living, the core features of the disorder may present differently with the passage of time and developmental maturation (Mick et al., 2004; Seidman et al., 2004; M. D. Weiss & Weiss, 2004). Age is associated with an abrupt decline in symptoms of hyperactivity between the ages of 9 to 11 years and a more modest decline in symptoms of inattentiveness through age 20 years (Mick et al., 2004). It is unclear if these declines in the symptoms of motor activity are the effect of maturation, changes in environments, development of coping skills, or the result of effective pharmacological and cognitive interventions (Wilens, Faraone, & Biederman, 2004). However, changes in the presentation and severity of symptoms reported by adults may be influenced to a greater degree by the environmental conditions in which working adults must be effective as compared with younger school-age clients (Doyle, 2004; M. D. Weiss & Weiss, 2004).

Although impaired performance on tasks that require vigilance, motor inhibition, organization, planning, problem solving, verbal learning, and memory are characteristic of adults with ADHD, the psychosocial impairments that are the result of inhibition of executive functioning are unique to each individual (Denckla, 1993; Mick et al., 2004). Long-term prospective follow-up studies indicate that adults diagnosed with ADHD tend to experience psychosocial problems that include academic failure, vocational problems, legal difficulties, and auto accidents (M. Weiss & Murray, 2003). Adults with ADHD experience failures because of impulse control difficulties rather than a lack of incompetence or poor ability (Mannuzza, Klein, Bessler, Malloy, & LaPadula, 1993). The spectrum of functional impairments associated with ADHD among adults may not be completely understood. Barkely (2002) as well as Loeber et al. (2001) remarked that studies of functional impairments have focused on persons with ADHD of the combined inattentive–hyperactive/impulsive and predominantly hyperactive/impulsive subtypes. The predominantly inattentive subtype often found among adults with ADHD is less well researched with regard to functional outcomes (Barkely, 2002). Barkely (2002) also noted that studies of life outcomes have focused on males, adults younger than 30 years of age, and clinical populations.

Assessment Techniques

The assessment of adults who present with ADHD-like symptoms can be completed accurately by counselors using

self-report, retrospective self-report, family history, rating scales, and cognitive evaluation (M. D. Weiss & Weiss, 2004; Wilens et al., 2004). Differentially diagnosing ADHD from other disorders in adults requires careful attention to the longitudinal course of the disorder and cognitive deficits affecting executive function (Montano, 2004; Wilens et al., 2004). Multiple measure strategies improve diagnostic accuracy, especially among adult clients presenting with atypical symptom constellations and childhood histories that do not clearly indicate a significant impairment across all criteria (M. D. Weiss & Weiss, 2004).

Psychosocial assessment. Clinical interviews and self-report behavioral checklists are the assessment tools most commonly used by counselors to assess the psychosocial functioning of clients with symptoms of ADHD (Woods et al., 2002). A comprehensive clinical interview in which open-ended questions about childhood and adult behaviors are used to elicit information is one of the most effective methods used to identify ADHD in adults (Adler, 2004; Jackson & Farrugia, 1997; Murphy & Adler, 2004; Wilens et al., 2004). Counselors should be cautioned that comorbid conditions tend to obscure ADHD, and careful attention to the consistency of clinical features across settings, recollected self-report of functional impairments associated with inattentiveness and hyperactivity prior to adolescence, substance abuse history, and medical history can differentiate a lifelong history of ADHD from psychiatric and medical difficulties that often first manifest in late adolescence or adulthood (Adler, 2004; Montano, 2004).

ADHD rating scales can accurately reflect the frequency and intensity of symptoms, but alone, they cannot provide sufficient information to make a diagnosis of ADHD because rating scales are subject to reporting biases and errors in memory (Murphy & Adler, 2004). Rating scales include the Connors's Adult ADHD Rating Scales (Connors, Erhart, & Sparrow, 1999), the Brown Attention-Deficit Disorder Scales (Brown, 1996; Brown & Gammon, 1991), the Wender Utah Rating Scale (Ward, Wender, & Reimherr, 1993), the Current Symptoms Scale (Barkely & Murphy, 1998), the Adult ADHD Self-Report Scale-v1.1 Symptom Checklist (Adler, Kessler, & Spencer, 2003), the Adult ADHD Questionnaire (Nadeau, 1991), and the Copeland Symptom Checklist for ADHD (Copeland, 1989).

Cognitive assessment. The use of traditional interview and screening assessments that focus on self-report may result in the underdiagnosis of ADHD among adult clients because adults frequently present with atypical symptoms or have found ways to compensate for the executive function impairments (Ratey et al., 1992; M. D. Weiss & Weiss, 2004). Underdiagnosis also occurs because (a) ADHD symptoms in adults continue to be attributed to personal failure to maintain control despite 100 years of evidence to the contrary; (b) many believe the disorder occurs only in children; (c) common comorbid disorders, such as anxiety, are often diagnosed in preference to ADHD in adults; and (d) there is a lack of knowledge about adult ADHD among counselors (Betchen, 2003). Furthermore, Barkely (2002) noted that adults (particularly those with ADHD as children) may not recall childhood events accurately, thereby compromising self-report measures of psychosocial functioning.

ADHD in adults may be characterized by a greater expression of cognitive inefficiency as compared with overt behavioral symptoms associated with hyperactivity that are characteristic of the expression of the disorder among children (M. D. Weiss & Weiss, 2004; Woods et al., 2002). Assessment of cognitive efficiency is an important part of a comprehensive assessment because difficulties related to disinhibition of the executive function are a prominent feature of the complaints of adults with symptoms suggestive of ADHD (Montano, 2004; M. D. Weiss & Weiss, 2004). Measures of sustained and divided attention, verbal fluency, complex information-processing speed, response inhibition, and verbal list learning are useful for identifying the unique functional impairments that are manifestations of response inhibition difficulties (Woods et al., 2002). Although these measures alone have limited predictive validity in distinguishing ADHD from other psychiatric or neurological conditions that are accompanied by attention and executive impairments, these measures can improve the validity of psychosocial assessment and provide baseline and posttreatment measures of the effectiveness of medication and counseling interventions (Epstein et al., 2003). Counselors may need to refer clients to professionals trained to administer and interpret assessments of cognitive performance in order to obtain objective measures of inattentiveness and impulsivity.

Continuous performance tasks (CPTs) are objective cognitive assessments of sustained attention and response control that are a useful part of a multimethod assessment for ADHD. CPTs are also useful in objectively measuring the treatment effects of stimulant medications because they are less influenced by reporter and ecological biases that can significantly affect the validity of behavioral ratings. O'Laughlin and Murphy (2000) described in detail the four commercially available CPTs commonly used to assess response inhibition and sustained attention: Gordon Diagnostic Systems (Gordon, 1986), Test of Variables of Attention (Greenberg & Waldman, 1993), Connors's CPT (Connors, 1992), and the Intermediate Visual and Auditory CPT (Sandford, 1995). These CPTs consist of a series of visual or auditory discrimination tasks presented by means of a computer and keyboard in which the percentage of trials in which a client fails to respond to target stimuli (omission) and responds to nontarget stimuli (commission) is computed and compared with normative data maintained by the assessments' publisher.

Although little research has been conducted to determine the nature of the relationship between the various behavioral aspects of the task (e.g., errors of omission and commission) and the behavioral aspects of ADHD, CPT performance measures

have been reported to be highly related to the symptoms of ADHD (Epstein et al., 2003). Connors's CPT has been shown to have the ability to discriminate between adults with ADHD, adults with an anxiety disorder, and control adults (Epstein, Johnson, Varia, & Conners, 2001). However, O'Laughlin and Murphy (2000) cautioned that CPT measures may be sensitive to the client's familiarity with a keyboard and mouse, may have a limited ability to discriminate between ADHD and other disorders that include psychomotor difficulty, and may have a high false-negative rate. Individuals with experience with a computer, individuals with higher cognitive abilities, and those who respond well to one-to-one attention may demonstrate attention that is an overestimation of their typical ability to focus on a task (O'Laughlin & Murphy, 2000).

The Treatment of ADHD in Adults

Wilens et al. (2004) noted that there is a lack of formal guidelines for the treatment of ADHD in adults. No single treatment strategy has emerged as the most efficacious in the treatment of adult ADHD (Montano, 2004; M. D. Weiss & Weiss, 2004). Likewise, it is unknown if effective treatment of ADHD leads to a remission of ADHD symptomatology as the individual matures (Mick et al., 2004). Montano remarked that most adults with ADHD are not treated for ADHD because, in part, of underrecognition of the disorder.

Pharmacological Interventions

The effectiveness of medication in the treatment of adult ADHD has not been well established (Spencer, 2004; Wilens et al., 2004). The U.S. Food and Drug Administration has approved the use of mixed amphetamine compounds and the noradrenergic specific reuptake inhibitor atomoxetine for adult use in the treatment of ADHD (Montano, 2004; Spencer, 2004). The stimulants methylphenidate and amphetamine have been the most commonly prescribed treatment for adults with ADHD (Michelson et al., 2003). Both amphetamine and atomoxetine compounds have an immediate onset of action and are effective for 4 to 12 hours, depending on the release agent (Wilens et al., 2004). Wilens (2003) reported that these medications remain effective and are tolerated over extended periods of time. Common adverse effects of amphetamine compounds include insomnia, headache, and edginess. Common adverse effects of atomoxetine compounds include gastrointestinal distress and sexual dysfunction in men (Michelson et al., 2003). Mild increases in heart rate and blood pressure may occur as an adverse effect of both treatments, necessitating medical monitoring (Spencer, Biederman, Wilens, et al., 2001). Although the prescribing of stimulant medication to clients at risk for substance abuse is controversial, Wilens (2004) reported that recent studies indicate that treatment with pharmacotherapy reduces, rather than increases, substance abuse among adults with ADHD.

Counselors should be aware that stimulant medication is an ineffective treatment for approximately 30% of adults diagnosed with ADHD because individuals do not respond adequately to treatment or cannot tolerate stimulant medication (Spencer et al., 2004). Spencer et al. (2004) conducted controlled clinical trials of nonstimulant medications among adults with ADHD and reported that tricyclic antidepressants, bupropion, and cholinergic agents may be effective alternatives to stimulant medication in the treatment of ADHD in adults. However, further short- and long-term studies of the safety and efficiency of treatment of both stimulants and nonstimulant medication in adults is needed (Spencer et al., 2004).

Counseling Interventions

A treatment approach that combines medication and counseling may be most efficacious in reducing the impairments associated with ADHD (Leimkuhler, 1995; McDermott & Wilens, 2000; Montano, 2004; Murphy, 1995; M. D. Weiss & Weiss, 2004). Erk (2000) suggested that many disorders with etiologies that appear to have a neurobiological or neurochemical basis, specifically ADHD predominantly inattentive subtype, may be efficaciously treated with counseling. Counseling strategies focus on empowering the client to take responsibility for managing the cognitive and behavioral manifestations of the neurological disorder through interventions that link functional difficulties (e.g., relationship difficulties, poor self-esteem, inability to focus) to altered cognitive functioning rather than to internalizing factors (e.g., excessive anxiety, mood swings, poor coping skills) that limit self-control (M. D. Weiss & Weiss, 2004). Specific therapeutic activities may include (a) education about ADHD, (b) attention management training, (c) behavioral management training, (d) social skills training, (e) stress management training, (f) anger management training, and (g) problem-solving training (Jackson & Farrugia, 1997; M. D. Weiss & Weiss, 2004). Betchen (2003), Nadeau (1996), as well as M. D. Weiss and Weiss cautioned that traditional insight-oriented, nondirective psychotherapy may not be as effective as structured, directive therapy that includes medical and educational components, behavioral interventions, cognitive restructuring, communication and social skill training, and exploration of family of origins.

A number of authors (e.g., Erk, 2000; Hallowell, 1995; Murphy, 1995; Nadeau, 1996) noted that adults with ADHD may have experienced years of academic, vocational, and relationship failures that generate self-blame, frustration, anxiety, a sense of helplessness, and avoidance of situations that have been historically troublesome. These expectations are a significant barrier to treatment success because the expectation for failure reduces the likelihood of compliance with medication therapy and investment in psychotherapy (Murphy, 1995). Adults with ADHD may need assistance to reconceptualize their self-identity and reframe past failures in light of the disorder (Hallowell, 1995). Therapeutic activities that educate clients with regard to the biological basis of ADHD reframe past failures as symptoms of the disorder rather than

symptoms of personal failure and offer ongoing support to clients with ADHD as they practice organizational, time management, anger control, and self-monitoring skills are important components of successful counseling interventions (Erk, 2000; Jackson & Farrugia, 1997). Group counseling is likely to benefit many affected adults by reducing their sense of isolation and encouraging sharing of coping strategies (Murphy, 1995). Many adults with ADHD benefit from participation in support organizations such as Children and Adults With Attention Deficit/Hyperactivity Disorder (www.chadd.org).

Executive inhibition problems impair psychosocial functioning across life activities and in the therapeutic encounter. Counselors working with adults with ADHD may need to establish clear guidelines in terms of the treatment process, timeliness, and financial responsibilities (Betchen, 2003). Counselors may notice long pauses in the speech patterns of persons who are inattentive. Adults with ADHD may stop speaking in the middle of a sentence, forget what they were discussing, wander in the room or leave the room, request that things be repeated, or stare into space rather than focus on a person (Betchen, 2003). Halverstadt (1998) noted that adults with ADHD often crave stimulation within the counseling encounter and within encounters with others (e.g., spouses). Persons with ADHD may perceive others as too rigid and controlling while others may perceive the adult with ADHD as contrary and immature (Halverstadt, 1998; Searight, 1999). Counselors may notice that adults with impulse control problems interrupt the conversations of others, want things immediately, and may not think about the consequences of their behavior (Jackson & Farrugia, 1997).

Conclusion

It is clear that executive function impairment is a prominent manifestation of the cognitive dysfunction associated with ADHD among adults. Impairments in executive skills may appear as impulsive, inattentive, unfocused, and immature cognitive and behavior patterns that impair functioning in multiple environments, including the counseling relationship. Counselors should gather a psychosocial history and incorporate an evaluation of cognitive processes as a part of a comprehensive assessment strategy for adult clients presenting with a history of, and symptoms consistent with, ADHD. Information regarding attention, memory, and judgment may define the functional impact of this disorder and may serve as independent measures of treatment effectiveness.

In summary, the recent research advances have the following implications for counselors:

1. There appears to be a genetic basis for neurological dysfunction that results in the inattentive and impulsive symptoms typically expressed by adults with ADHD (Harvey et al., 2004).
2. As a result of inattentive and impulsive behavior and thought processes, many adults with ADHD experience psychosocial difficulties that may precipitate an immediate crisis for which adults may seek counseling (Jackson & Farrugia, 1997).
3. A combination of psychosocial and cognitive evaluation appears to be an effective method to identify ADHD among adult clients who have difficulty sustaining attention or inhibiting impulsive behavior (Wilens et al., 2004).
4. Effective treatment for adults with ADHD includes both medical management to optimize cognitive functioning and counseling to optimize psychosocial functioning (Erk, 2000).

References

Adler, L. A. (2004). Clinical presentations of adult patients with ADHD. *Journal of Clinical Psychiatry, 65*(Suppl. 3), 8–11.

Adler, L. A., Kessler, R. C., & Spencer, T. (2003). *Adult ADHD Self-Report Scale-v1.1 (ASRS-v1.1) Symptom Checklist.* New York: World Health Organization.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Baker, D. B., Knight, K., & Simpson, D. D. (1995). Identifying probationers with ADHD-related behaviors in a drug abuse treatment setting. *Criminal Justice and Behavior, 22,* 33–43.

Barkely, R. A. (1997). Behavioral inhibitions, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin, 121,* 65–94.

Barkely, R. A. (2002). Major life activity and health outcomes associated with attention-deficit/hyperactivity disorder. *Journal of Clinical Psychiatry, 63*(Suppl. 12), 10–15.

Barkely, R. A., & Murphy, K. R. (1998). *Attention-deficit hyperactivity disorder: A clinical workbook* (2nd ed.). New York: Guilford Press.

Betchen, S. J. (2003). Suggestions for improving the intimacy in couples in which one partner has attention deficit/hyperactivity disorder. *Journal of Sex & Marital Therapy, 29,* 103–124.

Biederman, J. (2004). Impact of comorbidity in adults with attention-deficit/hyperactivity disorder. *Journal of Clinical Psychiatry, 65*(Suppl. 3), 3–7.

Biederman, J., Faraone, S. V., Mick, E., Spencer, T., Wilens, T., Kiely, K., et al. (1995). High risk for attention deficit hyperactivity disorder among children of parents with childhood onset of the disorder: A pilot study. *American Journal of Psychiatry, 152,* 431–435.

Biederman, J., Mick, E., & Faraone, S. V. (2000). Age-dependent decline of symptoms of attention deficit hyperactivity disorder: Impact of remission definition and symptom type. *American Journal of Psychiatry, 157,* 816–818.

Brown, T. E. (1996). *Brown Attention-Deficit Disorder Scales.* San Antonio, TX: Psychological Corporation.

Brown, T. E., & Gammon, G. D. (1991). *The Brown Attention-Activation Disorder Scale: Protocol for clinical use.* New Haven, CT: Yale University Press.

Connors, C. K. (1992). Continuous performance test computer program (Version 2.0) [Computer software]. North Tonawanda, NY: Multi-Health Systems.

Connors, C. K., Erhart, D., & Sparrow, E. (1999). *Connors' Adult ADHD Rating Scales, technical manual.* New York: Multi-Health Systems.

Copeland, D. E. (1989). *Copeland Symptom Checklist for adult attention deficit disorders.* Atlanta, GA: Southeastern Psychological Institute.

Denckla, M. B. (1993). The child with developmental disabilities grown up: Adult residua of childhood disorders. *Neurologic Clinics, 11,* 105–125.

Doyle, R. (2004). The history of adult attention-deficit/hyperactivity disorder. *Psychiatric Clinics of North America, 17,* 203–214.

Epstein, J. N., Erkanli, A., Conners, C. K., Klaric, J., Costello, J. E., & Angold, A. (2003). Relations between continuous performance test performance measures and ADHD behaviors. *Journal of Abnormal Child Psychology, 31,* 543–554.

Epstein, J. N., Johnson, D. E., Varia, I. M., & Conners, C. K. (2001). Neuropsychological assessment of response inhibition in adults with ADHD. *Journal of Clinical and Experimental Neuropsychology, 23,* 362–371.

Erk, R. R. (2000). Five frameworks for increasing understanding and effective treatment of attention-deficit/hyperactivity disorder: Predominately inattentive type. *Journal of Counseling & Development, 78,* 389–399.

Faraone, S. V. (2004). Genetics of adult attention deficit hyperactivity disorder. *Psychiatric Clinics of North America, 27,* 303–321.

Gordon, M. (1986). Microprocessor-based assessment of attention deficit disorders. *Psychopharmacology Bulletin, 22,* 288–290.

Greenberg, L. M., & Waldman, I. D. (1993). Developmental normative data on the test of variables of attention. *Journal of Child and Adolescent Psychiatry, 34,* 1019–1030.

Hallowell, E. M. (1995). Psychotherapy of adult attention deficit disorder. In K. Nadeau (Ed.), *A comprehensive guide to attention deficit disorder in adults: Research, diagnosis, and treatment* (pp. 135–145). New York: Brunner/Mazel.

Halverstadt, J. S. (1998). *A.D.D. and romance: Finding fulfillment in love, sex, & relationships.* Dallas, TX: Taylor.

Harvey, A. S., Aaron, S., Epstein, J. N., & Curry, J. F. (2004). Neuropsychology of adults with attention-deficit/hyperactivity disorder: A meta-analysis review. *Neuropsychology, 18,* 485–503.

Hudziak, J., Heath, A., Madden, P., Reich, W., Bucholz, K. K., Slutske, W., et al. (1995). Latent class and factor analysis of *DSM-IV* ADHD: A twin study of female adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 37,* 848–857.

Jackson, B., & Farrugia, D. (1997). Diagnosis and treatment of adults with attention deficit hyperactivity disorder. *Journal of Counseling & Development, 75,* 312–319.

Leimkuhler, E. M. (1995). Attention-deficit disorder in adults and adolescents: Cognitive, behavioral, and personality styles. In J. M. Ellison, C. S. Weinstein, & T. Hodel-Malinofsky (Eds.), *The psychotherapist's guide to neuropsychiatry: Diagnosis and treatment issues* (pp. 174–216). Washington, DC: American Psychiatric Press.

Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., Moffitt, T. E., Caspi, A., & Lynam, D. (2001). Male mental health problems, psychopathy, and personality traits: Key findings from the first 14 years of the Pittsburgh Youth Study. *Clinical Child and Family Psychology Review, 4,* 273–297.

Mannuzza, S., Klein, R. G., Bessler, A., Malloy, P., & LaPadula, M. (1993). Adult outcomes of hyperactive boys: Educational achievement, occupational rank, and psychiatric status. *Archives of General Psychiatry, 50,* 565–576.

Mattes, J. A. (1980). The role of frontal lobe dysfunction in childhood hyperkinesis. *Comprehensive Psychiatry, 21,* 358–369.

McDermott, S. P., & Wilens, T. E. (2000). Cognitive therapy for adults with ADHD. In T. Brown (Ed.), *Subtypes of attention deficit disorders in children, adolescents, and adults* (pp. 569–606). Washington, DC: American Psychiatric Press.

Michelson, D., Adler, L., Spencer, T. J., Reimherr, F. W., West, S. A., Allen, A. J., et al. (2003). Atomoxetine in adults with ADHD: Two randomized, placebo-controlled studies. *Biological Psychiatry, 53,* 112–120.

Mick, E., Faraone, S. V., & Biederman, J. (2004). Age-dependent expression of attention-deficit/hyperactivity disorder symptoms. *Psychiatric Clinics of North America, 27,* 215–224.

Millstein, R. B., Wilens, T. E., Biederman, J., & Spencer, T. J. (1997). Presenting ADHD symptoms and subtypes in clinically referred adults with ADHD. *Journal of Attention Disorders, 2,* 159–166.

Montano, B. (2004). Diagnosis and treatment of ADHD in adults in primary care. *Journal of Clinical Psychiatry, 65*(Suppl. 3), 18–21.

Murphy, K. R. (1995). Empowering the adult with ADD. In K. Nadeau (Ed.), *A comprehensive guide to attention deficit disorder in adults: Research, diagnosis, and treatment* (pp. 135–145). New York: Brunner/Mazel.

Murphy, K. R., & Adler, L. A. (2004). Assessing attention-deficit/hyperactivity disorder in adults: Focus on rating scales. *Journal of Clinical Psychiatry, 65*(Suppl. 3), 12–17.

Nadeau, K. (1991). *Adult ADHD Questionnaire.* Annandale, VA: Chesapeake Psychological Services.

Nadeau, K. (1996). *Adventures in fast forward: Life, love, and work for the ADD adult.* New York: Brunner/Mazel.

O'Laughlin, E. M., & Murphy, M. J. (2000). *Use of computerized continuous performance tasks for assessment of ADHD: A guide for practitioners.* Retrieved January 15, 2005, from http://www.division42.org/MembersArea/IPfiles/IPFall00/CE/ADHD.html

Quinn, P. Q. (1995). Neurobiology of attention deficit disorder. In K. G. Nadeau (Ed.), *A comprehensive guide to attention deficit disorder in adults: Research, diagnosis, and treatment* (pp. 18–31). New York: Brunner/Mazel.

Ratey, J. J., Greenberg, M. S., Bemporad, J. R., & Linden, I. J. (1992). Unrecognized attention-deficit/hyperactivity disorder in adults presenting for outpatient psychotherapy. *Journal of Child and Adolescent Psychopharmacology, 2,* 267–275.

Sandford, J. A. (1995). *Intermediate Visual and Auditory Continuous Performance Test: Administration and interpretation manual (Version 1.2).* Richmond, VA: BrainTrain.

Searight, R. (1999). Close relationships, intimacy, and AD/HD. *Attention, 6,* 44–47.

Seidman, L. J., Valera, E., & Bush, G. (2004). Brain function and structure in adults with attention-deficit/hyperactivity disorder. *Psychiatric Clinics of North America, 27,* 322–347.

Spencer, T. J. (2004). ADHD treatment across the life cycle. *Journal of Clinical Psychiatry, 65*(Suppl. 3), 22–26.

Spencer, T. J., Biederman, J., Faraone, S. W., Mick, E., Coffey, B., Gelleret, D., et al. (2001). Impact of tic disorders on ADHD outcome across the life cycle: Findings from a large group of adults with and without ADHD. *American Journal of Psychiatry, 158,* 611–617.

Spencer, T. J., Biederman, J., & Wilens, T. E. (2004). Nonstimulant treatment of adult attention-deficit/hyperactivity disorder. *Psychiatric Clinics of North America, 27,* 373–383.

Spencer, T. J., Biederman, J., Wilens, T. E., Faraone, S., Prince, J., Gerard, K., et al. (2001). Efficacy of a mixed amphetamine salts compound in adults with attention deficit/hyperactivity disorder. *Archives of General Psychiatry, 142,* 547–552.

Still, G. (1902). The Gloulstonian lectures on some abnormal physical conditions in children: Lecture 1. *Lancet, 1,* 1008–1082.

Strother, C. R. (1973). Minimal cerebral dysfunction: A historical overview. *Annals of the New York Academy of Sciences, 205,* 6–17.

Ward, M. F., Wender, P. H., & Reimherr, F. W. (1993). The Wender Utah Rating Scale: An aid in the retrospective diagnosis of childhood attention deficit hyperactivity disorder. *American Journal of Psychiatry, 150,* 885–890.

Weiss, L. (1997). *Attention deficit in adults: Practical help and understanding* (3rd ed., rev.). New York: Cooper Square Press.

Weiss, M., & Murray, C. (2003). ADHD and driving safety [Letter to the editor]. *Canadian Medical Association Journal, 169,* 16.

Weiss, M. D., & Weiss, J. R. (2004). A guide to the treatment of adults with ADHD. *Journal of Clinical Psychiatry, 65*(Suppl. 3), 27–37.

Wilens, T. E. (2003). Drug therapy for adults with attention-deficit hyperactivity disorder. *Drugs, 63,* 2395–2411.

Wilens, T. E. (2004). Impact of ADHD and its treatment on substance abuse in adults. *Journal of Clinical Psychiatry, 65*(Suppl. 3), 38–45.

Wilens, T. E., Faraone, S. V., & Biederman, J. (2004). Attention-deficit/hyperactivity disorder in adults. *Journal of the American Medical Association, 292,* 619–623.

Woods, S. P., Lovejoy, D. W., & Ball, J. D. (2002). Neuropsychological characteristics of adults with ADHD: A comprehensive review of initial studies. *The Clinical Neuropsychologist, 1,* 12–34.

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(*JCD*, Volume 85, Number 1, Winter 2007)

Examination Questions

1. Adults diagnosed with ADHD who seek counseling services typically report
   - ☐ a. Symptoms consistent with the predominantly inattentive subtype of ADHD
   - ☐ b. Symptoms consistent with the predominantly hyperactive/impulsive subtype of ADHD
   - ☐ c. Symptoms consistent with combined inattentive-hyperactive/impulsive ADHD
   - ☐ d. No childhood history of ADHD symptoms
2. Assessment of ADHD in adults requires careful attention to
   - ☐ a. The recent course of the disorder and excessive neurological activity
   - ☐ b. The recent course of the disorder and quality of life
   - ☐ c. The longitudinal course of the disorder and deficits in executive functioning
   - ☐ d. The longitudinal course of the disorder and deficits in motor ability
3. For adults, the most effective treatment in reducing the impairments associated with ADHD may be
   - ☐ a. Medication alone to address neurolobiological imbalance
   - ☐ b. Medication to address the neurological disorder combined with directive psychotherapy.
   - ☐ c. Medication to address the neurological disorder combined with nondirective, insight-based psychotherapy
   - ☐ d. Psychotherapy alone to address lack of responsibility

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