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Advances in Psychotherapy –
Evidence-Based Practice

ADHD in Children and Adolescents



Attention-Deficit/Hyperactivity Disorder in Children and Adolescents

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Advances in Psychotherapy – Evidence-Based Practice

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1

Description

1.1 Terminology

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder marked by persistent patterns of inattention and/or hyperactivity-impulsivity symptoms that emerge during childhood and are functionally impairing across settings. *The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association, 2013)* assigns the following codes for this disorder:

- 314.01 Attention-Deficit/Hyperactivity Disorder, Combined Presentation
- 314.00 Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Presentation
- 314.01 Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive/Impulsive Presentation
- 314.01 Other Specified Attention-Deficit/Hyperactivity Disorder
- 314.01 Unspecified Attention-Deficit/Hyperactivity Disorder

The *International Classification of Diseases, 10th Edition, Clinical Modification (ICD-10-CM; World Health Organization [WHO], 2014)* lists ADHD under codes F90.9 “Attention-Deficit Hyperactivity” and F90.0 “Attention-Deficit without Hyperactivity.” First described in the medical literature in the late 1700s (Barkley & Peters, 2012), ADHD-related symptoms were previously referred to by numerous labels including “minimal brain damage,” “minimal brain dysfunction,” “hyperkinetic impulse disorder,” “hyperactive child syndrome,” “hyperkinetic reaction of childhood,” and “attention deficit disorder,” among others (Taylor, 2011). Changes in terminology have generally reflected evolving theoretical conceptions based on symptoms of the disorder and its management.

1.2 Definition

According to the DSM-5, ADHD is “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (American Psychiatric Association, 2013, p. 61), as defined by the following diagnostic criteria listed in Table 1.

Table 1
DSM-5 Diagnostic Criteria for ADHD

A. [Either] (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. Often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).

[A] 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.

Table 1 (continued)

- 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).
- 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.

Severity 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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The diagnostic criteria für ADHD according to ICD-10-CM are listed in Table 2.

Table 2
ICD-10 Diagnostic Criteria for ADHD

Behavioral and emotional disorders with onset usually occurring in childhood and adolescence (F90–F98)

F90 Hyperkinetic disorders

A group of disorders characterized by an early onset (usually in the first five years of life), lack of persistence in activities that require cognitive involvement, and a tendency to move from one activity to another without completing any one, together with disorganized, ill-regulated, and excessive activity. Several other abnormalities may be associated. Hyperkinetic children are often reckless and impulsive, prone to accidents, and find themselves in disciplinary trouble because of unthinking breaches of rules rather than deliberate defiance. Their relationships with adults are often socially disinhibited, with a lack of normal caution and reserve. They are unpopular with other children and may become isolated. Impairment of cognitive functions is common, and specific delays in motor and language development are disproportionately frequent. Secondary complications include dissocial behavior and low self-esteem.

Excl.:

Anxiety disorders (F41.-)

Mood [affective] disorders (F30–F39)

Pervasive developmental disorders (F84.-)

Schizophrenia (F20.-)

F90.0 Disturbance of activity and attention

Attention deficit:

– Disorder with hyperactivity

– Hyperactivity disorder

– Syndrome with hyperactivity

Excl.:

Hyperkinetic disorder associated with conduct disorder (F90.1)

F90.1 Hyperkinetic conduct disorder

Hyperkinetic disorder associated with conduct disorder

F90.8 Other hyperkinetic disorders

F90.9 Hyperkinetic disorder, unspecified

Hyperkinetic reaction of childhood or adolescence NOS

Hyperkinetic syndrome NOS

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1.3 Epidemiology

1.3.1 Prevalence and Incidence

3–10% of school-aged children and 2–6% of adolescents have ADHD

Among the most commonly diagnosed mental health disorders, ADHD is estimated to affect between 3% and 10% of school-aged children and 2–6% of adolescents (Raishevich-Cunningham & Jensen, 2011). A meta-analysis that pooled rates of ADHD across countries suggested a 1-year global preva-

lence rate of 5.3% in children and adolescents (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007). There has been widespread concern from the general public lay press as well as by some in the scientific community that rates of ADHD have increased over time. Nonetheless, evidence suggests that the significant variability in prevalence estimates over the past 3 decades is primarily accounted for by heterogeneous study methodologies (Polanczyk, Willcutt, Salum, Kieling, & Rohde, 2014). In particular, studies vary greatly in their sampling techniques, diagnostic criteria, and informants, among other factors. With regard to incidence, findings from a carefully designed study conducted by Barbaresi and colleagues (2002) suggested that the cumulative incidence of ADHD is approximately 7.5% among school-aged children.

1.3.2 Sex

ADHD is diagnosed more frequently in males than in females, with an estimated ratio of 2:1 or higher (Polanczyk et al., 2007). However, this sex difference may be a result of older diagnostic criteria that were developed with predominantly male samples. Additionally, girls are more likely to present with primarily inattentive features and less likely to exhibit overt comorbid conduct problems as compared with their male counterparts, which may account for markedly higher treatment referral rates among boys. Perhaps due to more careful identification of specific subtypes (primarily inattentive) over the past decade, there has been a significant increase in the prevalence of ADHD among females (Barkley, 2006). While ADHD is more common among boys, research suggests that both groups experience significant functional impairments in academic performance, comorbidity with learning disorders (LDs), and social problems (Hinshaw et al., 2012).

ADHD is more frequent in males than females

1.3.3 Age

ADHD typically emerges early in childhood and is most commonly identified during the elementary-school years, when symptoms become more evident and impairing, particularly in academic settings. In preschool-aged children, this disorder primarily manifests as excessive motor activity. While ADHD may be diagnosed in very young children, as suggested in the DSM-5, hyperactivity symptoms are particularly difficult to differentiate from normative behaviors for children below the age of 4 years (American Psychiatric Association, 2013). Inattention appears to become more prominent during elementary school. During adolescence, hyperactivity symptoms tend to shift from overt motoric signs (e.g., running, climbing) to more subtle symptoms including fidgetiness, restlessness, or impatience. A substantial proportion of children with ADHD continue to exhibit symptoms into adulthood that result in impairments across settings and situations (American Psychiatric Association, 2013).

ADHD occurs across all nationalities and cultures

1.3.4 Ethnicity

While prevalence rates and diagnostic practices vary across countries, there is little doubt that ADHD occurs across all nationalities and cultures. Polanczyk and colleagues (2007) found that prevalence was highest in South America (11.8%) and Africa (8.5%) and lowest in the Middle East (2.4%). However, after controlling for variability in diagnostic and assessment methods across studies, these differences were not significant. Furthermore, in geographical regions with sufficient data available for narrow confidence intervals (i.e., North America, Europe, Oceania, Asia), prevalence rates of ADHD were similar (3.7–6.3%). Further, there is evidence for a consistent two-factor ADHD symptom structure across cultures for school-aged children, thereby supporting the validity of this disorder (Bauermeister, Canino, Polanczyk, & Rohde, 2010). Nevertheless, there is preliminary research to suggest that cultures may vary in their interpretation of ADHD-related symptoms. As a result, treatment rates vary widely across countries (Forero, Arboleda, Vasquez, & Arboleda, 2009). Additional research is needed to better understand the cultural variation in the identification and management of ADHD and its related symptoms.

1.4 Course and Prognosis

ADHD frequently persists into adulthood

As previously noted, the onset of ADHD symptoms typically occurs during early childhood. Preschool-aged children who exhibit inattentive and hyperactive behaviors for 1 year or more are likely to be diagnosed with ADHD and to continue to display symptoms into school-age and adolescent years (Olson, Bates, Sandy, & Lanthier, 2000). From childhood to adolescence, inattention becomes more prominent, whereas hyperactivity tends to shift from impulsive, disinhibited behavior to feelings of restlessness or impatience. A considerable proportion of children with ADHD (i.e., between 50% and 80%) continue to meet criteria for this disorder into adolescence as well as adulthood (American Psychiatric Association, 2013) again attesting to the validity of the disorder across the lifespan. Greater child oppositional and defiant behavior, parent–child conflict, and maternal negativity predict persistence of ADHD symptoms from preschool into childhood and adolescence (Olson et al., 2000). If left untreated, ADHD can result in significant impairment and often results in poor academic achievement, higher rates of school dropout, a higher frequency of auto accidents, impaired social functioning and self-regulation, lower adaptive and self-care capacities, and compromised occupational outcomes in children with ADHD relative to their peers without the disorder (Barkley, 2006; Lee, Lahey, Owens, & Hinshaw, 2008). For example, individuals with ADHD are more likely to drop out of high school and less likely to complete college. In addition, they are more apt to be employed in lower paying jobs relative to their education. Approximately one quarter or more (25–45%) of children with ADHD also will meet criteria for conduct disorder (CD), and a significant subset are at higher risk for substance use or abuse in adulthood (Mannuzza & Klein, 2000).

Given that ADHD is a chronic disorder that places children at risk for a variety of negative psychosocial outcomes, it is important that appropriate

treatment be initiated as early as possible and that it address multiple domains of functioning and be continuously evaluated over time (see Chapter 4 for further discussion of treatment). While some intensive treatment programs have demonstrated success in reducing ADHD and oppositional defiant and internalizing symptoms, as well as increasing social skills, parent–child relations, and school achievement, as compared with control conditions, these effects appear to dissipate by 1 year following treatment cessation (Molina et al., 2009). Furthermore, presentation or intensity of treatment for ADHD does not appear to predict functioning 6 to 8 years later, whereas early ADHD symptom trajectory accounts for more than half of clinical outcomes later in childhood or adulthood (Molina et al., 2009). Thus, even with intensive treatment, most children with ADHD continue to display symptoms through adolescence and adulthood, thereby leading many professionals to suggest that the diagnosis of ADHD indeed carries a guarded prognosis.

1.5 Differential Diagnosis

ADHD is a disorder in which young people exhibit signs and symptoms that are also present in a number of other psychiatric and/or medical conditions, which can make differential diagnosis challenging even for the experienced practitioner (see Table 3). The categories in which symptomatic overlap occur most frequently include emotional or behavioral conditions (e.g., anxiety, depressive, oppositional defiant, and conduct disorders), neurological or developmental disorders (e.g., learning and language disorders or other neurodevelopmental disorders), physical or medical conditions (e.g., tics, lead poisoning, sleep apnea), and psychosocial or environmental factors (e.g., stressful home environment, trauma, parental psychopathology, ineffective schooling). Because these conditions may mimic or be comorbid with ADHD, the clinician should consider alternative explanations and, if appropriate, diagnose each condition separately, because each diagnosis may require a specific mode of treatment. In the case of a comorbid condition, the clinician should determine which of the coexisting conditions is primary or secondary (e.g., disorders that are exacerbated by the ADHD), as this will influence treatment decisions. Finally, clinicians should consider how cultural factors influence symptom presentation and how these cultural factors may affect management of ADHD.

ADHD is often comorbid with other psychiatric disorders and medical conditions

1.5.1 Behavioral Conditions

ADHD combined presentation and ADHD predominantly hyperactive/impulsive presentation share some common core characteristics and symptom patterns such as impulsive behavior, interrupting or intruding on others, and difficulty waiting one's turn, with disruptive behavioral disorders such as oppositional defiant disorder (ODD), CD, and intermittent explosive disorder (IED). Because ODD and CD are the most common comorbid conditions associated with ADHD, clinicians should assess for ADHD when a child presents with ODD or CD. When considering a diagnosis, practitioners should also be

ADHD, ODD, and CD share some common core characteristics

Table 3
Overlapping Symptoms Between ADHD and Other Psychiatric Disorders

ADHD	ODD	Conduct disorder	Depression	Anxiety	OCD	Adjustment disorder	Bipolar disorder	PTSD	Substance use/abuse
Inattention symptoms									
Fails to give close attention to details or makes careless mistakes in schoolwork			X						
Trouble holding attention on tasks or play activities			X	X	X	X		X	X
Does not seem to listen when spoken to directly			X						
Does not follow through on instructions and fails to finish schoolwork or chores			X				X		X
Trouble organizing tasks and activities			X						
Loses things necessary for tasks and activities			X						
Easily distracted									X
Forgetful in daily activities			X						X
Hyperactivity and impulsivity symptoms									
Fidgets with or taps hands or feet, or squirms in seat				X			X		
Leaves seat in situations when remaining seated is expected									
Runs about or climbs in situations where it is not appropriate									X

Table 3 (continued)

ADHD	ODD	Conduct disorder	Depression	Anxiety	OCD	Adjustment disorder	Bipolar disorder	PTSD	Substance use/abuse
Unable to play or take part in activities quietly				X			X		X
Often “on the go” acting as if “driven by a motor”							X		
Talks excessively							X		
Blurts out an answer before a question has been completed							X		
Has trouble waiting his/her turn	X	X							
Interrupts or intrudes on others	X	X							
Nondiagnostic associated characteristics									
Labile Mood						X	X		X
Low self-esteem			X			X		X	
Temper outbursts	X	X					X	X	X
Demoralization			X					X	
Dysphoria			X						X (during withdrawal)

Note. OCD = obsessive-compulsive disorder; ODD = oppositional defiant disorder; PTSD = posttraumatic stress disorder.

aware that young people with ADHD and comorbid ODD or CD frequently display more severe hyperactive-impulsive symptoms compared with children with ADHD alone (Newcorn et al., 2001). What makes differential diagnosis especially difficult is that there may be isolated instances of the symptoms of ODD and CD in an ADHD child. Thus, the astute practitioner should make certain that the symptom patterns are excessive for the developmental level of the child and that the symptom threshold for ADHD or ODD/CD is met according to ratings of frequency, severity, and impairment across settings and activities as detailed in the DSM-5 or ICD-10.

1.5.2 Emotional Conditions

Difficulties with sustained attention, maintaining concentration, and avoiding distraction are symptoms of ADHD that may overlap with emotional conditions or mood disorders such as depressive disorder, anxiety disorder, reactive attachment disorder, bipolar disorder, disruptive mood dysregulation disorder (DMDD), and posttraumatic stress disorder (PTSD). Practitioners are likely to encounter young people who believe, or whose caregivers believe, that the child suffers from ADHD when in fact the child may be experiencing symptoms associated with a mood disorder. For instance, adolescents with depression may exhibit impaired concentration and trouble paying attention at school, while a child with PTSD may demonstrate impulsivity. Therefore, when making a differential diagnosis, clinicians should be aware of any constitutional predisposition toward problems with symptoms of inattention and impulsivity and for some overactivity as well as the early onset and long course history of the disorder. In contrast, when these symptoms are associated with depression or anxiety, they tend to be more transient in nature and are temporally related to the onset of the mood disorder.

Symptoms of ADHD may overlap with emotional conditions or mood disorders

1.5.3 Neurological or Developmental Conditions

Neurodevelopmental disorders that either share symptoms or are comorbid with ADHD include intellectual disability, specific LDs, language or communication disorders, autism spectrum disorders (ASDs), neurodevelopmental syndromes (e.g., fragile X, phenylketonuria [PKU]), seizure disorder, and motor coordination disorders (e.g., stereotypic movement disorder). Specific LDs and language or communication disorders share a number of the overt ADHD symptoms such as difficulty following instructions or shifting from one uncompleted task to another. However, these symptoms are more directly connected to the LD or language or communication disorder as the core issue to be resolved. Thus, when children receive specialized educational interventions that improve their ability to read, such as in the case of dyslexia, an additional benefit may be that the child becomes more attentive and better able to follow instructions. Frequently, many children who receive a diagnosis of ADHD have a comorbid LD (Larson, Russ, Kahn, & Halfon, 2011). Properly diagnosing each disorder is critically important because the management of the two disorders differs: The management of a specific LD involves various

ADHD symptoms overlap with numerous specific neurodevelopmental disorders

ADHD is frequently comorbid with learning disorders

cognitive and special educational or remedial approaches, and the treatment of ADHD may require behavioral management and/or medication.

Symptom patterns and characteristics associated with ADHD that may overlap with ASDs, neurodevelopmental syndromes, seizure disorder, and motor coordination disorders include cognitive impairments (e.g., inattention, disorganization, executive dysfunction), behavioral challenges (e.g., hyperactivity and impulsivity), and difficulty establishing and maintaining peer relationships. Differential diagnosis of ADHD from neurodevelopmental disorders may require specialized testing – for instance, taking a thorough history, observations of behavior across settings and situations, and administering psychoeducational or neuropsychological testing are standard for distinguishing ADHD from a specific LD or an ASD. It is noteworthy that the DSM-5 now recognizes that ADHD can be diagnosed as comorbid with an ASD (American Psychiatric Association, 2013). This represents a change from the *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000), in which the diagnosis of ADHD was prohibited when an underlying pervasive developmental disorder was present (American Psychiatric Association, 2000). Genetic testing is often recommended for neurodevelopmental syndromes such as fragile X or PKU. An electroencephalography (EEG) is used to determine the presence of a seizure disorder, whereas a comprehensive occupational therapy evaluation can assist in the diagnosis of a motor coordination disorder.

1.5.4 Environmental and Psychosocial Factors

ADHD is a disorder in which the manifestation of symptoms is contingent on the environment in which the disorder occurs. Stressful home environments or an inappropriate educational setting do not cause ADHD; however, these environmental factors may contribute to the expression of inattentive, hyperactive, or impulsive behavior. One factor that can help differentiate the contribution of these factors relative to ADHD is the impact of the behavior in different settings. For example, children who live in unstructured, stressful home environments are more likely to demonstrate negative behaviors at home but not at school, while those young people in an inappropriate educational setting are more likely to demonstrate challenging and inattentive behaviors at school but not at home. In contrast, children with ADHD typically display these negative behaviors across multiple settings (e.g., home and school).

Several psychosocial factors that may complicate a diagnosis of ADHD include child trauma (neglect, physical or sexual abuse), bullying (victim or perpetrator), recent significant stressors (death or separation from a relative), parent–child temperament mismatch, poor attachment with caregivers, parental dysfunction (inconsistent or harsh discipline), and parental psychopathology or substance abuse. For example, studies have found that mothers with depression are more likely to report higher levels of ADHD symptoms on rating scales (Chi & Hinshaw, 2002). On the other hand, parenting a child with ADHD is also associated with maternal depression and higher levels of stress relative to parents of children without ADHD (for a review, see Johnston & Mash, 2001). In both instances, the use of multiple informant ratings (e.g.,

Multiple informant ratings across settings aid in the diagnostic process

caregivers, teachers) across settings can help clarify whether the child meets criteria for ADHD.

1.5.5 Physical and Medical Conditions

There are a number of physical and medical conditions whose symptom presentation may resemble ADHD, including sleep disorders (e.g., obstructive sleep apnea, restless-leg/periodic limb movement disorder, delayed sleep phase syndrome), lead poisoning, low birth weight, fetal alcohol syndrome, thyroid irregularities (hypothyroidism and hyperthyroidism), and visual or hearing impairments. In addition, the adverse side effects of certain medications such as Albuterol, a medication used to manage asthma, may mimic some of the symptoms of ADHD (Pearl, Weiss, & Stein, 2001). Lastly, some of the sequelae (e.g., impaired concentration) associated with the use and/or abuse of substances may present in a fashion similar to that of ADHD. Some of the key differential characteristics between these conditions include the symptom fluctuation associated with disease course or adverse effects of medication as compared with the relatively stable, pervasive, and persistent symptom presentation associated with ADHD.

Side effects of some medications may resemble symptoms of ADHD

1.6 Comorbidity

The presence of a single or even multiple comorbid disorders is often the norm rather than the exception for those young people who present for evaluation and treatment of ADHD at mental health clinics, with estimates as high as 80% for the presence of at least one additional mental health disorder (Kadesjo & Gillberg, 2001). However, there is significant variability in prevalence estimates of comorbidity depending on gender, stage of development (childhood vs. adolescence), and whether the study was conducted in a community or clinic setting. Therefore, the prevalence rates described for the different conditions below represent averages of rates across sexes, developmental levels, and different settings.

Comorbid conditions are the norm rather than the exception for young people with ADHD

Disruptive or externalizing behavior problems are the disorders that most frequently co-occur with ADHD

The disorders that fall in the disruptive or externalizing behavior problems domain are the conditions that most frequently co-occur with ADHD. For example, ADHD is comorbid with ODD in 40% of children, and co-occurs with CD in 15% of young people with ADHD (Waschbusch, 2002). Approximately 25% of young people with ADHD also have a comorbid specific LD (Larson et al., 2011). The prevalence rate for anxiety disorders that include separation anxiety disorder and generalized anxiety disorder is about 25% in young people with ADHD (for a review, see Nigg & Barkley, 2014). Estimates are lower for mood disorders (including DMDD), with about 15% of young people with ADHD also having one or more of these comorbid conditions. The prevalence rate for comorbidity with tic disorders is 15%, while the rate is 5% for ASDs. Finally, rates of co-occurring substance use disorders (SUDs) in adolescents and young adults is 15%, while approximately 30% of young people with ADHD have symptoms of sleep disorders (for a review,