

Lowe, Patricia A., and Kristin Powers. "Attention Deficit Hyperactivity Disorder." *Encyclopedia of School Psychology*. 2005. SAGE Publications.

(*DSM-IV-TR*) (American Psychiatric Association, 2000), there are three subtypes of ADHD:

1. ADHD, Predominantly Inattentive Type
2. ADHD, Predominantly Hyperactive-Impulsive Type
3. ADHD, Combined Type

The ADHD, Combined Type is the most common, and individuals with this subtype exhibit inattentive and hyperactive-impulsive behaviors. To meet the diagnostic criteria for this subtype, individuals must exhibit both of the following:

- At least six of the nine inattentive symptoms (fails to attend to details, does not seem to listen, has difficulty sustaining attention in tasks and play activities, does not follow through on instructions, has difficulty organizing tasks and activities, avoids tasks requiring sustained mental effort, often loses necessary things, is easily distracted, and is often forgetful in daily activities)
- At least six of the nine hyperactive-impulsive symptoms (e.g., often fidgets with hands or feet, often leaves seat in the classroom, often runs about or climbs excessively, has difficulty playing or engaging in leisure activities, acts if "on the go" or "driven by a motor," interrupts others, has difficulty awaiting turn, blurts out responses, and talks excessively)

Inattentiveness characterizes the ADHD, Predominantly Inattentive Type. Individuals with this subtype must exhibit at least six inattentive symptoms and fewer than six hyperactive-impulsive symptoms. In contrast, the symptoms of motor excess and impulsive responding characterize individuals with ADHD, Predominantly Hyperactive-Impulsive Type. Individuals with this subtype must exhibit six or more hyperactive-impulsive symptoms and fewer than six inattentive symptoms. For all three subtypes, the symptoms must be present for at least six months and some of the symptoms must have appeared before seven years of age. Impairment associated with these symptoms is exhibited in at least two settings (e.g., home and school), and the impairment affects social or academic functioning and is clinically significant.

As with other disorders, the prevalence of ADHD among children and adolescents has been difficult to

ATTENTION DEFICIT HYPERACTIVITY DISORDER

Attention deficit hyperactivity disorder (ADHD) is one of the most common types of childhood disorders. Individuals with ADHD exhibit attention problems as well as hyperactive and impulsive behaviors. Children and adolescents with ADHD may have difficulty sitting still, listening to instructions or classroom lectures, organizing materials, completing schoolwork or homework, or playing or engaging in activities quietly. These individuals frequently make careless mistakes in their schoolwork or they may forget or lose things.

According to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition-Text Revision*

ascertain. Prevalence estimates have ranged from 1% to 14%, with 3% to 7% as the most common prevalence estimates reported in recent years. ADHD is reported to be more common in males than in females, with male-to-female ratios ranging from 2:1 to 9:1 (American Psychiatric Association, 2000).

Children and adolescents with ADHD are at risk for developing comorbid disorders. More than 50% of these individuals are reported to have one or more co-occurring disorders (Barkley, 1998), with the most prevalent co-occurring disorders being oppositional defiant disorders, conduct disorders, mood disorders (i.e., bipolar disorders and unipolar depression), anxiety disorders, learning disorders, and communication disorders. Of these disorders, the disruptive behavior disorders (i.e., oppositional defiant disorders and conduct disorders) are the most common comorbid conditions (American Psychiatric Association, 2000).

Many elementary and secondary students with ADHD experience cognitive, academic, and social problems. Students with ADHD are more likely to be behind their peers in intellectual development. There is evidence to suggest that these students may score an average of 7.5 to 15 points below their classmates on standardized intelligence tests (Hoff & colleagues, 2002). Along with cognitive difficulties, these individuals are at risk for academic problems. Many students with ADHD experience academic difficulties in reading, mathematics, and spelling and may qualify for special education services under the specific learning disability of the Individuals With Disabilities Education Act (IDEA), the major special education law in the United States. These individuals may also qualify for special education services under the other health impairment (OHI) category of IDEA, or they may qualify for accommodations in the regular education classroom under section 504 of the Rehabilitation Act of 1973, a federal law that protects the rights of individuals with disabilities. Because of the academic and cognitive difficulties, some students with ADHD experience failure in school (Hoff & colleagues, 2002) and eventually drop out. Besides experiencing academic and cognitive difficulties, these students are more likely to demonstrate disruptive, intrusive, and off-task behaviors in the classroom, which interferes with their learning and possibly other students' learning, and may make these students less popular with their classmates. In addition to having behavioral, academic, and cognitive difficulties, many students with ADHD experience significant social impairments. These individuals may

have poor peer and adult relationships because they are bossy, impulsive, and easily frustrated in their interactions with their peers. These negative behaviors may lead to peer and adult rejection, which puts these individuals at further risk for subsequent behavioral, emotional, and social problems.

There are a host of plausible explanations for the occurrence of ADHD, with neurological and genetic factors receiving substantial support. ADHD tends to run in families and so, hereditary factors are thought to play a role in this disorder. Possible neurological etiologies include prenatal and perinatal complications; abnormalities in brain structure, function, or chemistry; exposure to environmental toxins; and infections. Barkley (1997) contends that a neurological impairment in the behavioral inhibition system is central to this disorder and provides an explanation for the problems these individuals have (i.e., regulating their behavior to situational demands). Environmental factors have also been suggested as possible explanations for this disorder, including certain parenting styles and parenting characteristics, chaotic home environments, and poverty. However, there is little empirical evidence to support these factors as causes of ADHD (Anastopoulos & colleagues, 2001).

To assess children and adolescents with ADHD, a multimethod assessment approach is strongly recommended. A multimethod assessment approach involves using different measures, informants (parent, teacher, student, peers), and settings (home, school) to glean information about the areas of concern; and then using this information to develop intervention strategies to address the areas of concern. In a clinical setting, a comprehensive evaluation is conducted and typically includes one or more clinical interviews with the parent(s) and child or adolescent, a medical examination, and completion of behavioral rating scales. Intelligence tests, academic achievement tests, neuropsychological tests, personality and/or projective tests, and observations may also be included in the assessment battery to aid in differential diagnosis or to assess the severity of collateral impairments that may occur with this disorder (Gordon & Barkley, 1998). In a school setting, the assessment of students with ADHD may be conducted within a problem-solving model, a model used to identify and resolve problems that a student may be experiencing. Parent, teacher, child, and possibly peer interviews, direct observations (in and outside the classroom), and behavioral ratings scales make up the core of the assessment

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battery used in the schools and within this model. In recent years, other techniques such as functional behavioral assessment—used to identify the function of a behavior—and curriculum-based measures—used to assess students’ fluency in basic skills (e.g., reading and math)—have also been used in the assessment of some students with ADHD who exhibit behavioral or academic difficulties, respectively. If interventions selected and implemented based on the assessment results from the previously administered instruments do not produce positive change in the area(s) of concern, a comprehensive evaluation is likely to follow and may include intelligence tests, academic achievement tests, and other measures, depending on the area or areas of concern. Based on the assessment results of this comprehensive evaluation and discussion among school personnel and the parent(s) and possibly the child or adolescent, placement in special education or implementation of a 504 plan (i.e., accommodations in the regular education classroom) may result.

A variety of strategies have been used in the treatment of children and adolescents with ADHD. Evidence suggests that a multimodal approach, where two or more strategies are combined—such as medication and behavioral modification techniques (e.g., methods used to change behavior by rewarding appropriate behavior and ignoring or punishing inappropriate behavior)—may be more effective in the treatment of ADHD than the use of medication alone.

Stimulant medication such as Ritalin or Concerta is the most common type of medication used to treat children and adolescents with ADHD. Tricyclic antidepressant medications have also been used, especially if a tic disorder (i.e., repetitive motor movements and/or vocalizations) such as Tourette’s syndrome is present. Psychostimulant medication tends to increase tic behavior when children and adolescents have both of these disorders. When monitored effectively by school personnel and physicians, stimulant medication is effective, in the short-run, in reducing inattentiveness and decreasing disruptive behaviors, as well as facilitating learning and social functioning. However, there are some significant concerns associated with the use of stimulant medication with these children and adolescents, including:

- Medication costs
- Stigmatization associated with taking the medication

- Adherence to medication regimen
- Dosage levels that are either too high or too low
- Quick-fix approach rather than the selection of intervention strategies to change behavior on a permanent basis
- Short-term side effects (e.g., stomach aches, weight loss, appetite suppression, sleep problems)
- Long-term side effects (e.g., depression, sleep difficulties, height and weight suppression, increased blood pressure)

A variety of nonpharmacological interventions (e.g., environmental modifications, behavior modification techniques, parent training, social skills training, self-monitoring, peer strategies, and home-school notes) have been used with children and adolescents with ADHD, either alone or in combination with medication. The nonpharmacological interventions selected and implemented will depend on a number of factors such as the problem being addressed, age of the individual, severity of the problem, time needed to implement the strategy or strategies, and individuals who will be responsible for implementing the intervention(s).

Environmental or task modifications involve changing the environment or the task in order to obtain the desired outcome. Examples of environmental or task modifications include moving the student’s desk closer to the teacher’s desk in order to increase on-task behavior or assigning shorter assignments in order to increase completion of schoolwork and/or homework. Behavior modification strategies are interventions used to change behavior by rewarding appropriate behavior and ignoring or punishing inappropriate behavior. The use of verbal praise or the administration of a tangible reinforcer (e.g., a sticker) to a student for sitting in his or her seat during independent seatwork would be an example of a behavior modification strategy in which appropriate behavior (sitting in one’s seat) is rewarded. The act of ignoring a student blurting out answers in class where the classroom rule is for students to raise their hands and to wait to be called on by the teacher is another example of a behavior modification strategy; in this case, the strategy (teacher not paying attention to the undesirable behavior) is used to decrease inappropriate behavior (i.e., blurting out answers).

Parent training involves training parents in behavior modification techniques to reduce noncompliant and other inappropriate behaviors found in many

children and adolescents with ADHD. In parent training, a mental health professional such as a school psychologist works with parents to teach them behavior modification techniques, such as making a request of their child or adolescent and the child or adolescent responding in an appropriate manner to the parent's request in a short period of time. Parents can also be trained to use behavior modification strategies to increase the frequency of appropriate behavior demonstrated by their child or adolescent. Another strategy to increase the frequency of appropriate behavior, including attending behavior, is self-monitoring.

Self-monitoring is a cognitive-behavioral approach (i.e., a technique used to change behavior by changing one's cognitions). In self-monitoring, students with ADHD monitor their own behavior (e.g., their own attending behavior) to increase the frequency of that behavior. Although self-monitoring is an attractive strategy to parents and teachers, because it is implemented by the child or adolescent and does not require the adult's time, there is some evidence to suggest that this strategy is not effective in changing the individual's behavior.

A strategy used to promote positive peer and adult interactions for some students with ADHD is social skills training. Social skills training involves a mental health professional working with children or adolescents either individually or in groups. The children or adolescents learn skills to interact successfully with peers and adults or learn to perform these skills more frequently or less awkwardly. Skills learned may include how to manage one's anger, how to deal with teasing, how to begin a conversation, or how to join a group of peers.

Other strategies to promote positive peer interactions and to increase the academic performance of students with ADHD are peer strategies, including peer tutoring and classwide peer tutoring. In peer tutoring and classwide peer tutoring, students with ADHD are paired with other students, preferably good role models, in the classroom; the students with ADHD are tutored by the other students (peer tutoring), or the students in the entire class take turns tutoring each other (classwide peer tutoring). Another popular intervention strategy is home-school notes, which are used to address a number of behaviors such as off-task behavior and incomplete assignments. The strategy requires a note or daily report card, evaluating the student's performance or behavior in the classroom to be completed

by the student's teacher. Then the student carries the note home where it is reviewed and signed by the student's parents, and consequences are delivered to the student by the parent for his or her performance or behavior demonstrated at school that day. The student returns the signed note to the school the next day. Home-school notes can be effective in addressing problematic behaviors experienced by many children and adolescents with ADHD as long as collaboration exists between the home and the school in the implementation of this intervention strategy.

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See also Attention; Behavior Intervention; Conduct Disorder; Diagnosis and Labeling; Individuals With Disabilities Education Act; Learning Disabilities; Psychotropic Medications

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