

## About ADHD



Everybody can have difficulty sitting still, paying attention or controlling impulsive behavior once in a while. For some people, however, the problems are so pervasive and persistent that they interfere with every aspect of their life: home, academic, social and work.

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder affecting 11 percent of school-age children (Visser, et al., 2014.) Symptoms continue into adulthood in more than three-quarters of cases (Brown, 2013.) ADHD is characterized by developmentally inappropriate levels of inattention, impulsivity and hyperactivity.

Individuals with ADHD can be very successful in life. However, without identification and proper treatment, ADHD may have serious consequences, including school failure, family stress and disruption, depression, problems with relationships, substance abuse, delinquency, accidental injuries and job failure. Early identification and treatment are extremely important.

Medical science first documented children exhibiting inattentiveness, impulsivity and hyperactivity in 1902. Since that time, the disorder has been given numerous names, including minimal brain dysfunction, hyperkinetic reaction of childhood, and attention-deficit disorder with or without hyperactivity. With the Diagnostic and Statistical Manual, Fifth Edition (DSM-5) classification system, the disorder has been renamed attention-deficit/hyperactivity disorder or

*More than 75 percent of children with ADHD continue to experience significant symptoms in adulthood. In early adulthood, ADHD may be associated with depression, mood or conduct disorders and substance abuse.*

*Adults with ADHD often cope with difficulties at work and in their personal and family lives related to ADHD symptoms.*

ADHD. The current name reflects the importance of the inattention aspect of the disorder as well as the other characteristics of the disorder such as hyperactivity and impulsivity.

### Symptoms

Typically, ADHD symptoms arise in early childhood. According to the DSM-5, several symptoms are required to be present before the age of 12. Many parents report excessive motor activity during the toddler years, but ADHD symptoms can be hard to distinguish from the impulsivity, inattentiveness and active behavior that is typical for kids under the age of



four. In making the diagnosis, children should have six or more symptoms of the disorder present; adolescents 17 and older and adults should have at least five of the symptoms present. The DSM-5 lists three presentations of ADHD—Predominantly Inattentive, Hyperactive-Impulsive and Combined. The symptoms for each are adapted and summarized below.

#### ADHD predominantly inattentive presentation

- Fails to give close attention to details or makes careless mistakes
- Has difficulty sustaining attention
- Does not appear to listen
- Struggles to follow through with instructions
- Has difficulty with organization
- Avoids or dislikes tasks requiring sustained mental effort
- Loses things
- Is easily distracted
- Is forgetful in daily activities

#### ADHD predominantly hyperactive-impulsive presentation

- Fidgets with hands or feet or squirms in chair
- Has difficulty remaining seated
- Runs about or climbs excessively in children; extreme restlessness in adults
- Difficulty engaging in activities quietly
- Acts as if driven by a motor; adults will often feel inside as if they are driven by a motor
- Talks excessively
- Blurts out answers before questions have been completed
- Difficulty waiting or taking turns
- Interrupts or intrudes upon others

#### ADHD combined presentation

- The individual meets the criteria for both inattention and hyperactive-impulsive ADHD presentations.

These symptoms can change over time, so children may fit different presentations as they get older.

#### Confusing labels for ADHD

In 1994, the name of the disorder was changed in a way that is confusing for many people.

Since that time all forms of attention deficit disorder are officially called “Attention-Deficit/Hyperactivity Disorder,” regardless of whether the individual has symptoms of hyperactivity or not. Even though these are the official labels, a lot of professionals and lay people still use both terms: ADD and ADHD. Some use those terms to designate the old subtypes; others use ADD just as a shorter way to refer to any presentation.



#### Severity of symptoms

As ADHD symptoms affect each person to varying degrees, the DSM-5 now requires professionals diagnosing ADHD to include the severity of the disorder. How severe the disorder is can change with the presentation during a person’s lifetime. Clinicians can designate the severity of ADHD as “mild,” “moderate” or “severe” under the criteria in the DSM-5.

**Mild:** Few symptoms beyond the required number for diagnosis are present, and symptoms result in minor impairment in social, school or work settings.

**Moderate:** Symptoms or functional impairment between “mild” and “severe” are present.

**Severe:** Many symptoms are present beyond the number needed to make a diagnosis; several symptoms are particularly severe; or symptoms result in marked impairment in social, school or work settings. As individuals age, their symptoms may lessen, change or take different forms. Adults who retain some of the symptoms of childhood ADHD, but not all, can be diagnosed as having ADHD in partial remission.

#### ADHD throughout the lifespan

Children with ADHD often experience delays in independent functioning and may behave younger than their peers. Many children affected

by ADHD can also have mild delays in language, motor skills or social development that are not part of ADHD but often co-occur. They tend to have low frustration tolerance, difficulty controlling their emotions and often experience mood swings.

Children with ADHD are at risk for potentially serious problems in adolescence and adulthood: academic failure or delays, driving problems, difficulties with peers and social situations, risky sexual behavior, and substance abuse. There may be more severe negative behaviors with co-existing conditions such as oppositional defiant disorder or conduct disorder. Adolescent girls with ADHD are also more prone to eating disorders than boys. As noted above, ADHD persists from childhood to adolescence in the vast majority of cases (50–80 percent), although the hyperactivity may lessen over time.



Teens with ADHD present a special challenge. During these years, academic and life demands increase. At the same time, these kids face typical adolescent issues such as emerging sexuality, establishing independence, dealing with peer pressure and the challenges of driving.

More than 75 percent of children with ADHD continue to experience significant symptoms in adulthood. In early adulthood, ADHD may be associated with depression, mood or conduct disorders and substance abuse. Adults with ADHD often cope with difficulties at work and in their personal and family lives related to ADHD symptoms. Many have inconsistent performance at work or in their careers; have difficulties with day-to-day responsibilities; experience relationship problems; and may have chronic feelings of frustration, guilt or blame. Individuals with ADHD may also have difficulties with maintaining attention, executive function

and working memory. Recently, deficits in executive function have emerged as key factors affecting academic and career success. Executive function is the brain's ability to prioritize and manage thoughts and actions. This ability permits individuals to consider the long-term consequences of their actions and guide their behavior across time more effectively. Individuals who have issues with executive functioning may have difficulties completing tasks or may forget important things.

### Co-occurring Disorders

More than two-thirds of children with ADHD have at least one other co-existing condition. Any disorder can co-exist with ADHD, but certain disorders seem to occur more often. These disorders include oppositional defiant and conduct disorders, anxiety, depression, tic disorders or Tourette syndrome, substance abuse, sleep disorders and learning disabilities. When co-existing conditions are present, academic and behavioral problems, as well as emotional issues, may be more complex.

These co-occurring disorders can continue throughout a person's life. A thorough diagnosis and treatment plan that takes into account all of the symptoms present is essential.

### Causes

Despite multiple studies, researchers have yet to determine the exact causes of ADHD. However, scientists have discovered a strong genetic link since ADHD can run in families. More than 20 genetic studies have shown evidence that ADHD is strongly inherited. Yet ADHD is a complex disorder, which is the result of multiple interacting genes. (Cortese, 2012.)

Other factors in the environment may increase the likelihood of having ADHD:

- exposure to lead or pesticides in early childhood
- premature birth or low birth weight
- brain injury

Scientists continue to study the exact relationship of ADHD to environmental factors, but point out that there is no single cause that

explains all cases of ADHD and that many factors may play a part.

Previously, scientists believed that maternal stress and smoking during pregnancy could increase the risk for ADHD, but emerging evidence is starting to question this belief (Thapar, 2013.) However, further research is needed to determine if there is a link or not.

The following factors are NOT known causes, but can make ADHD symptoms worse for some children:

- watching too much television
- eating sugar
- family stress (poverty, family conflict)
- traumatic experiences

ADHD symptoms, themselves, may contribute to family conflict. Even though family stress does not cause ADHD, it can change the way the ADHD presents itself and result in additional problems such as antisocial behavior (Langley, Fowler et al., 2010.)

Problems in parenting or parenting styles may make ADHD better or worse, but these do not cause the disorder. ADHD is clearly a neurodevelopmental disorder. Currently research is underway to better define the areas and pathways that are involved.

## Diagnosis

There is no single test to diagnose ADHD. Therefore, a comprehensive evaluation is necessary to establish a diagnosis, rule out other causes, and determine the presence or absence of co-existing conditions. Such an evaluation requires time and effort and should include a careful history and a clinical assessment of the individual's academic, social, and emotional functioning and developmental level.

There are several types of professionals who can diagnose ADHD, including clinical psychologists, clinical social workers, nurse practitioners, neurologists, psychiatrists and pediatricians. Regardless of who does the evaluation, the use of the DSM-5 diagnostic criteria for ADHD is necessary.



Determining if a child has ADHD is a complex process. Many biological and psychological problems can contribute to symptoms similar to those exhibited by children with ADHD. For example, anxiety, depression and certain types of learning disabilities may cause similar symptoms. In some cases, these other conditions may actually be the primary diagnosis; in others, these conditions may co-exist with ADHD. A thorough history should be taken from the parents and teachers, and when appropriate, from the child. Checklists for rating ADHD symptoms and ruling out other disabilities are often used by clinicians; these instruments factor in age-appropriate behaviors and show when symptoms are extreme for the child's developmental level.

For adults, diagnosis also involves gathering information from multiple sources, which can include ADHD symptom checklists, standardized behavior rating scales, a detailed history of past and current functioning, and information obtained from family members or significant others who know the person well. ADHD cannot be diagnosed accurately just from brief office observations or just by talking to the person. The person may not always exhibit the symptoms of ADHD in the office, and the diagnostician needs to take a thorough history of the individual's life. A diagnosis of ADHD must include consideration of the possible presence of co-occurring conditions.

As part of the evaluation, a physician should conduct a thorough examination, including assessment of hearing and vision to rule out other medical problems that may be causing symptoms similar to ADHD. In rare cases, persons with ADHD may also have a thyroid dysfunction. Diagnosing ADHD in an adult requires an evaluation of the history of childhood

problems in behavior and academic domains, as well as examination of current symptoms and coping strategies.

## Treatment

### Treatment in children with ADHD

ADHD in children often requires a comprehensive approach to treatment that includes the following:

- Parent and child education about diagnosis and treatment
- Parent training in behavior management techniques
- Medication
- School programming and supports
- Child and family therapy to address personal and/or family stress concerns

Treatment should be tailored to the unique needs of each child and family. Research from the landmark NIMH Multimodal Treatment Study of ADHD showed significant improvement in behavior at home and school in children with ADHD who received carefully monitored medication in combination with behavioral treatment. These children also showed better relationships with their classmates and family than did children receiving this combination of treatment (Hinshaw, et al., 2015.) Further research confirms that combining behavioral and stimulant treatments are more effective than either treatment alone (Smith & Shapiro, 2015.)

### Medication

Psychostimulants are the most widely used class of medication for the management of ADHD related symptoms.

Approximately 70 to 80 percent of children with ADHD respond positively to psychostimulant medications (MTA 1999.)

Significant academic improvement is shown by students who take these medications: increases in attention and concentration, compliance and effort on tasks, as well as amount and accuracy of schoolwork, plus



decreased activity levels, impulsivity, negative behaviors in social interactions and physical and verbal hostility (Spencer, 1995; Swanson 1993.) These improvements show up clearly in the short term, however, long-term effectiveness is still being studied by researchers (Hinshaw, et al., 2015.) A nonstimulant medication—atomoxetine—appears to have similar effects as the stimulants. Antidepressants, antihypertensives and other medications may decrease impulsivity, hyperactivity and aggression. However, each family must weigh the pros and cons of taking medication. Medications may carry the risk of side effects. Physicians need to monitor their patients who take medication for potential side effects, such as mood swings, hypertension, depression and effects on growth.

### Behavioral interventions

Behavioral interventions are also a major component of treatment for children who have ADHD. Important strategies include being consistent and using positive reinforcement and teaching problem-solving, communication and self-advocacy skills. Children, especially teenagers, should be actively involved as respected members of the school planning and treatment teams.

School success may require a variety of classroom accommodations and behavioral interventions. Most children with ADHD can be taught in the regular classroom with minor adjustments to the environment. Some children may require special education services. These services may be provided within the regular education classroom or may require a special placement outside of the regular classroom that meets the child's unique learning needs.

### ADHD treatment for adults

Adults with ADHD can benefit by identifying the areas of their life that are most impaired by their ADHD and then seeking treatment to address them. Adults with ADHD may benefit from treatment strategies similar to those used to treat ADHD in children, particularly medication and learning to structure their environment. Medications effective for childhood ADHD

continue to be helpful for adults who have ADHD. Various behavioral management techniques can be useful. Some adults have found that working with a coach, either formally or informally, to be a helpful addition to their ADHD treatment plans. In addition, mental health counseling can offer much-needed support to adults dealing with ADHD in themselves or someone they care about. Since ADHD affects the entire family, receiving services from ADHD-trained therapists skilled in Cognitive-Behavioral Therapy can help the adult with ADHD learn new techniques to manage living with ADHD.

### **Suggested reading and references**

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