

# Yes, ADHD Is a Real Disorder!

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## MYTH OR FACT?

The goal of this book is to give teachers the necessary understanding and tools to work with children with attention-deficit/hyperactivity disorder (ADHD) in their classroom. An important beginning step for teachers is the acceptance of ADHD as a real disorder and not a myth, because preschool and school-age educational support is very important in minimizing problematic ADHD behaviors and learning challenges.

ADHD is not a mythical disorder recently fabricated by the American Psychiatric Association (APA) or pharmaceutical companies for personal gain, as suggested by some groups and writers. As Anastopoulos and Shelton (2001) note, "There is little justification for claiming that ADHD is merely a 'disorder of the 90's'" (p. 21). Descriptions of behaviors that are indicative of ADHD go back to the year 1902. The scientific community has researched the disorder for many years, both in the United States as well as in the international mental health community. Over the years, the diagnostic criteria have undergone numerous transformations, from changes in conceptual emphasis to changes in how the symptoms are listed. Despite the large body of literature on ADHD, the core neuropsychological impairments in ADHD have not been fully resolved (Doyle, 2006). The diagnosis of ADHD is still a fluid and dynamic process, and only time will tell whether the current criteria will hold up under future empirical scrutiny (Anastopoulos & Shelton, 2001).

## DIAGNOSTIC CRITERIA

The name, definition, and diagnostic criteria for ADHD have changed a number of times over the last few decades, reflecting changes in the

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conceptualization of the disorder by experts in the field. These changes have led to confusion for practitioners, parents, and teachers. Developmental pediatricians, psychiatrists, psychotherapists, learning specialists, and many other experts all have their own unique and valid perspectives on what constitutes ADHD and how it should best be treated. Numerous research studies have contributed significantly to our understanding of this complex disorder, but much remains to be learned with respect to the most effective interventions for those with ADHD.

ADHD is currently recognized as a disorder with behavioral, emotional, educational, and cognitive aspects that are manifested to some degree in a child with ADHD every day of the year. The APA *Diagnostic and Statistical Manual of Mental Disorders* (2000) notes that “the essential feature of Attention Deficit Hyperactivity Disorder is a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development” (*DSM-IV-TR*, 2000, p. 85). The affected child will manifest persistent patterns of ADHD behaviors that are “more frequent and severe,” unlike an unaffected child, who may show ADHD behaviors only at times. The APA manual also notes that

signs of the disorder may be minimal or absent when the person is under very strict control, is in a novel setting, is engaged in especially interesting activities, is in a one-to-one situation . . . or while the person experiences frequent rewards for appropriate behavior. (*DSM-IV-TR*, 2000, pp. 86–87)

The context-related variability of the disorder, in which a child will manifest behaviors indicative of ADHD in one setting or time and not another, is often taken to mean that it isn't present (Anastopoulos & Shelton, 2001).

### **MANIFESTATIONS OF ADHD**

ADHD is a disorder that is often misunderstood by teachers because there are many different manifestations of ADHD in children. Not all children present ADHD in the same way or to the same degree. The current diagnosis of ADHD is divided into four categories. The precise category that a child's diagnosis will fall under will depend on the component that is most representative of the child's behavior. The four subtypes are:

#### *1. ADHD, Combined Type*

This diagnosis applies to a child who presents predominantly with inattention and hyperactivity, but not significant impulsivity (*DSM-IV-TR*, 2000).

## 2. ADHD, Predominantly Inattentive Type

This diagnosis applies to a child who presents with inattention, but neither hyperactivity nor impulsivity (*DSM-IV-TR*, 2000). This child is often seen as a daydreamer or as an underachiever, and is inattentive and unfocused. His or her distractibility is many times internalized and is not always recognized by teachers.

## 3. ADHD, Predominantly Hyperactive-Impulsive Type

This diagnosis applies to a child who presents hyperactivity and impulsivity that is maladaptive and inconsistent with his or her developmental level. The child does not usually present with inattention (*DSM-IV-TR*, 2000). This population of children typically has the most difficulties with schools and outside agencies (e.g., law enforcement or social services).

## 4. ADHD, Not Otherwise Specified (NOS)

This population, typically adolescents and adults, who don't meet the full criteria for ADHD but still present some of the symptoms, are often diagnosed with either ADHD-NOS, or with "ADHD in Partial Remission" (*DSM-IV-TR*, 2000).

The symptoms exhibited by children with these variations of ADHD, except for ADHD-NOS, will be covered in more depth in Chapter 2.

## PREVALENCE OF ADHD

ADHD has been the most studied of all psychological disorders in children and is one of the most common reasons for referring children to psychiatric and mental health agencies (Barkley, 1990). For those seeking more information on this disorder, there are thousands of scientific articles, numerous books, support group newsletters, and Web sites available for your review. So much effort and study has been dedicated to ADHD because it has social and educational implications, and the cost to society for untreated ADHD is high. Children with ADHD usually have impairments across multiple settings—home, social interactions, and school (Barkley, 2000; DuPaul, McGoey, Eckert, & Van Brakle, 2001; Lavigne et al., 1996; Vaughan & Kratochvil, 2006). There is little debate that once ADHD has been diagnosed, the disorder persists throughout childhood in the majority of cases (Teeter, 1998). Early diagnosis and treatment are critical, therefore, for minimizing the problems affected children will encounter in academic activities and in interactions with peers and adults. Treatment of an affected child is most successful when all parties are involved: parent, school, and doctor.

ADHD is a disorder that affects 3% to 20% of the population, depending on the information source. Most experts accept a range of 3% to 7% as the

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percentage of the population diagnosed with ADHD (Vaughan & Kratochvil, 2006); however, one study suggested 4% to 12% as the range in an unscreened school-age population (6 to 12 years old; Brunk, 2000). Findings of studies conducted in New Zealand, Canada, and Germany show an overall prevalence rate of 3% to 7%, similar to prevalence rates in the United States (Hoagwood et al., 2000). Russell Barkley (1995), a recognized expert on ADHD, had proposed that more than 2 million school-age children have ADHD, and a more recent report from the 2003 National Survey of Children's Health stated that approximately 4.4 million children ages 4 to 17 years in the United States had a history of ADHD diagnosis (Bukstein, 2006).

Over the last three decades, the numbers have been increasing for children diagnosed with ADHD. According to the U.S. National Ambulatory Medical Care Survey, the number of children who received a diagnosis of ADHD increased 250% from 1990 to 1998. Kelleher, McInerney, and Gardner (2000) reported that pediatricians identified ADHD disorders in 9.2% of children in 1996, compared with 1.4% of children in 1979, an increase of 657%. Do these statistics represent an epidemic, a heightened awareness of the problem, or a variety of forces at work pushing the diagnosis?

We believe there are a variety of reasons for the increase in the number of children diagnosed with ADHD. First, there is a greater awareness by the general public about ADHD. Second, over the last decade, preschool and adolescent children are increasingly being identified with ADHD, whereas in the past, preschool children were rarely identified, and professionals felt that most children outgrew ADHD by the time they had reached adolescence. Today, we know that both age groups can be appropriately identified and diagnosed with ADHD. Third, because of insurance guidelines and restrictions, most children today are initially diagnosed with ADHD by pediatricians and family physicians. There are still very few *developmental* pediatricians. Often, referrals to mental health specialists (such as child and adolescent psychiatrists) are made only if a child is presenting significant mental health concerns in addition to ADHD. Unfortunately, the consequence can be that a child may be misdiagnosed either because of limited time for assessment or because of inadequate expertise in ADHD by a pediatrician or family practitioner. Although over-diagnosis does occur, the reality is that most teachers will have at least one child with ADHD in their classroom (Scahill & Schwab Stone, 2000).

### **RECOGNIZING AND UNDERSTANDING ADHD IN YOUNG CHILDREN**

Diagnosing ADHD in very young children is very difficult. Very young children are expected to be inattentive, impulsive, and very active at times.

Anyone who has lived or worked with very young children understands that these kinds of behaviors can be the norm rather than the exception. Consequently, mental health and medical providers are usually very cautious when diagnosing a young child with ADHD.

The focus of this book is not to discuss guidelines for diagnosing ADHD in young children, but to provide teachers with a better understanding of this disorder and how it can impact a child's educational and social/emotional development. An important first step for teachers in helping a young child with ADHD is to become familiar with the disorder and to recognize that ADHD can present itself differently in children.

It is important also to note that even though a child may not meet the criteria for a diagnosis of ADHD, he or she can still present many symptoms of ADHD that will challenge him or her in a classroom or in social settings. Therefore, you will find the ideas discussed in the following chapters helpful in the management and education of many young children.

## WHAT CAUSES ADHD?

According to the experts, ADHD is viewed as a neurobiological disorder with strong evidence of family genetic risk factors (Anastopoulos & Shelton, 2001; Barkley, 2000; Biederman et al., 1992; Comings, 2001).

### Genetics

*Heredity*, or a positive family history, appears to be the most common identifiable cause of ADHD (Comings, 2001). In fact, the frequency of the disorder in siblings is much greater than in the general population. Studies of adopted children with ADHD found that ADHD occurred more often in the birthparents than in the foster parents (Barkley, 1995; Biederman et al., 1992; Comings, 2001). That these children develop the disorder despite being raised by unaffected adoptive parents suggests that the transmission is by genetic rather than environmental factors. Studies of twins suggest that ADHD is one of the most heritable of the psychiatric disorders (Biederman et al., 1992; Levy, Hay, McStephen, Wood, & Waldman, 1997).

When environment plays a role in the development of ADHD, environmental factors alone do not cause ADHD (Barkley, 1990). However, in populations with a genetic predisposition, early environmental insults (e.g., maternal smoking, obstetric complications) or other factors, such as maternal alcohol consumption, significant prematurity of birth, and smallness for gestational age, may increase or play a contributing role in the probability of developing ADHD in childhood over and above the risk determined by genetics alone (Barkley, 1997).

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ADHD is seen today as primarily a *polygenic disorder* (meaning that more than one gene contributes to it) that can be minimized or exacerbated by environmental factors. Studies from recent years, for example, are finding specific genes that contribute to ADHD (“Current ADHD Insights,” 2004).

### **Biological Contributors to ADHD**

ADHD is a biologically determined spectrum disorder presenting a myriad of variables and distinctions, yet it is often best treated by making conscientious changes to the environment and through medication. ADHD can manifest itself in various ways in each individual, and consequently, no child should be thought of as a poster child for ADHD.

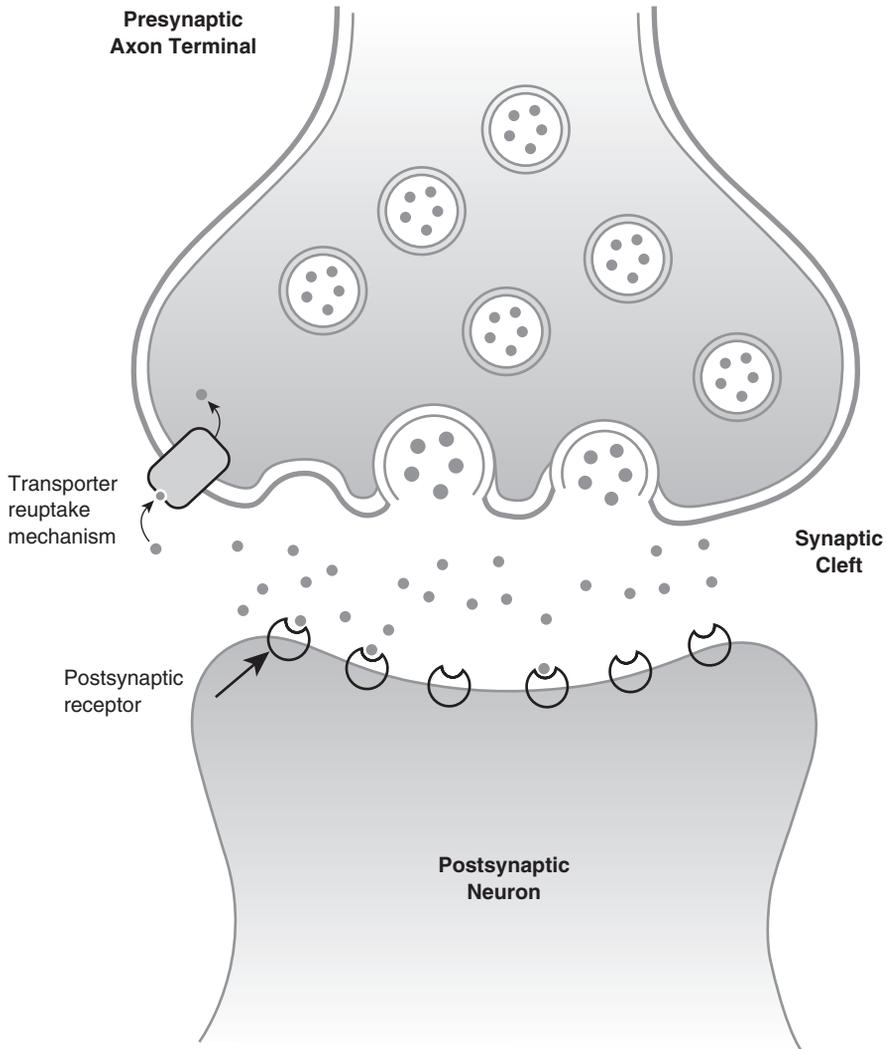
*ADHD* actually refers to several chronic and distinct neurobiological disorders that interfere with an individual’s capacity to regulate age-appropriate activity level, inhibition, and attention; however, there is no one blood test, brain scan, or definitive psychological test that can currently diagnose ADHD. The lack of a definitive test is not unique to this disorder, but applies to most psychiatric disorders, including disorders such as schizophrenia and autism (National Institute of Mental Health, 1999).

Brain scans of children with ADHD—which, it should be noted, are done for research purposes only and are not recommended for the routine evaluation of children with ADHD—can demonstrate decreased metabolic activity in areas of the brain thought to be responsible for the regulation of attention and inhibition; however, no one specific area or subsystem of the brain causes ADHD by itself (Gustafsson, Thernlund, Ryding, Rosén, & Cederblad, 2000).

The variability in symptoms in individuals with ADHD can be explained in part by anomalies in different parts of the brain circuitry. Children with ADHD show decreased metabolic activity in cortical areas of the brain that are thought to be responsible for the regulation of inhibition and attention (Durstun et al., 2003). Medications used to treat ADHD act on neurotransmitters, such as dopamine and norepinephrine, which are active in the basal-frontal circuitry. When Ritalin or other stimulant medications are administered, for example, previously underactive structures that are involved in moderating motor activity and distractibility become more aroused (Vaidya et al., 1998).

### **Nerve Cell**

To understand the role of neurotransmitters in ADHD, it’s helpful to understand the role of the nerve cell. The nerve cell is not only the holder of the neurotransmitters, but also the roadway on which messages pass through the central nervous system (see Figure 1.1).

**Figure 1.1** Nerve Cell

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Communication within nerves is electrical, whereas communication between nerves is chemical. An electrical impulse traveling through one nerve (the presynaptic nerve) triggers the release of the nerve cell's neurotransmitter from the cell into the *synaptic cleft*, or space between the nerve cell's terminal end and adjacent nerve cells. These neurotransmitters then bind to receptor sites on adjacent nerve cells, and electrical impulses are

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generated in these nerves. In this way, information gets passed from one nerve cell to potentially millions of other cells in the central nervous system (Lougy & Rosenthal, 2002).

The movement of impulses across the synapse is the physiological mechanism by which we learn. Garber, Garber, and Spizman (1996) use the example of learning to play a piano. When we learn to play the piano, electrical impulses must make their way from the fingers to the brain and back again. With each practice, the pathway becomes better established and we play the piano more fluently. They state: "Learning occurs after an electrical impulse produced by a stimulus is transmitted and moves across a neuron-synaptic course several times" (Garber et al., 1996, p. 89). This explains why repetition is so important. With practice and repetition, the pathway becomes automatic. "If in ADHD these neural bridges are blocked or incomplete, whatever is being learned does not become automatic" (Garber et al., 1996, pp. 89–90).

### **Neurotransmitters**

In recent years, many neurotransmitters' systems, each with their own specific brain circuits, have been identified in the brain, although the exact number has yet to be determined. Each system uses its own unique neurotransmitter to transmit messages within that system, although separate systems are able to communicate with each other.

The two primary neurotransmitter systems most directly involved in ADHD are the dopamine and norepinephrine systems. Dopamine and norepinephrine levels influence a variety of behaviors, including attention, inhibition, motor activity, and motivation, and relative deficiencies in these neurotransmitters help explain the signs and symptoms seen in those with ADHD. These two neurotransmitter systems work in concert with each other to control attention, inhibition, and motor planning. The medications used in the treatment of ADHD intervene by regulating norepinephrine and dopamine levels, thereby normalizing brain function and improving self-control (Barkley, 1990; Shekim, Javid, Dans, & Bylund, 1983).

Put somewhat differently, medications can stimulate a child's "brake pedal," thus providing support for some children whose feet are always on the "gas pedal" (Taylor, 1994).

## **CREATING AN OPTIMAL LEARNING ENVIRONMENT**

Although ADHD has a strong biogenetic basis that is the primary factor in ADHD expression, environment can affect the adaptation and expression of

these characteristics. The extent to which and manner in which “we can alter the environment may reduce the impact of symptoms of ADHD and the overall adjustment of individuals” (Teeter, 1998, p. 20).

Children with ADHD who are taught in a chaotic and highly stimulating classroom setting will often present more problems than a child taught in a more structured and calming setting. The classroom environment can accentuate or attenuate many of the traits of ADHD.

### **“Goodness of Fit” in Schools**

Unsupported children with ADHD often are presented with many challenges in school, and statistics are not positive. One study reported that nearly 2% of 3- to 5-year-olds met the criteria for ADHD and found that problematic behavior ratings were two standard deviations greater than unaffected children. Also, pre-academic deficits in math and reading, as well as fine motor skills, were more frequent at the time of school entry with children diagnosed with ADHD (Vaughan & Kratochvil, 2006). Roughly a third of affected children will be held back one grade in school. About one-third will not complete high school, and between 40% and 50% will receive special education services. More than half have an oppositional component to their ADHD that gets them into trouble with school staff. Up to 15% to 20% will be suspended or expelled from school because of their behavior (Barkley, 1995).

These are not pleasant statistics. With more appropriate educational supports, children with ADHD can be more successful. Schools are currently struggling to find ways to appropriately teach the active child. Admittedly, the most patient of teachers can be easily worn down. The classroom experience can be even more difficult if there is a poor fit between teacher and child.

An important goal of this book is to provide teachers with suggestions to make attainable a “good fit” between them and children with ADHD. We recognize how difficult this can be. Traditional classroom settings may not provide enough flexibility to encourage stress-free circumstances for all kinds of children. Also, educational requirements and teacher preferences make some characteristics more acceptable than others. Success requires hard work by the teacher, knowledge about ADHD, and empathy for the child.

Teachers can, to some degree, modify their handling of children who are challenged by the symptoms of ADHD. Teaching styles can, at times, be adapted to the learning style of the child with ADHD, and classroom accommodations can sometimes be put in place to address the child’s educational and behavioral challenges. However, it is important to recognize that in school there are limitations to the goodness of fit. Some of the behaviors of children with ADHD are so pronounced and problematic that

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even with significant accommodations, goodness of fit is nearly impossible to achieve.

### **SUMMARY**

Our knowledge about ADHD has advanced greatly over the last decade, and as a result, affected children are achieving greater success. Children with ADHD are presented with a number of challenges in school and at home. Schools can go a long way in providing environmental changes to make the school day more positive for the affected child. Children with ADHD generally want to do the right thing but have great difficulty doing it. Core symptoms of ADHD (such as difficulty completing tasks, waiting one's turn, waiting in line, following directions, and self-regulating emotional outbursts) make day-to-day performance in school more difficult.

But the dilemma for many affected children is not that they are not ready for schools, but that schools are not ready for them. Toward better preparing schools and teachers for the children with ADHD who will inevitable be on their playgrounds and in their classrooms, this book offers a number of recommendations and interventions to make the teaching day more successful.