

**Attention Deficit Hyperactivity Disorder:  
A Continuing Focus for Educators**

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**Abstract**

*Attention Deficit/Hyperactivity Disorder (ADHD) affects executive function and attention. Many children display ADHD-like symptoms. However, diagnosis requires at least six symptoms that interfere significantly with a child's life for a period of time. School and home can be greatly influenced by executive function deficits that characterize the disorder. A variety of interventions are needed at home and at school to support children with ADHD. Without appropriate interventions, they may have more difficulty coping with the long-term challenges in their lives.*

Attention Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder (Frick & Brocki, 2019) characterized by executive function and attention deficits. ADHD has a genetic component, but the specific gene has yet to be identified (Capodieci et al., 2019). There are three categories of ADHD symptoms. Diagnosis requires at least six symptoms in a category that interfere significantly with a child's life for more than six months. The interventions include medications and at-school and at-home supports. Without appropriate support, children with ADHD can struggle with poor grades, relationship issues, and problems with authority throughout their lifetime (American Academy of Pediatrics, 2019). Even with appropriate support, they may have long-term challenges in their personal and professional lives.

**Categories of Symptoms**

Symptoms of ADHD can be divided into three categories: inattention, hyperactivity, and impulsivity. A child with ADHD may have symptoms in all categories, a single category, or a combination of categories. A child with inattention symptoms may seem to be forgetful, to daydream, and to be disorganized. Someone with hyperactivity symptoms may fidget, talk too much, and be in constant motion. Someone with impulsivity symptoms may be seen to blurt out in conversation, act without thinking, and have trouble being patient (American Academy of Pediatrics, 2019). Most children have moments when they display symptoms of ADHD. However, for some children this is more than just an occasional dysregulation. Symptoms of ADHD are frequent and interfere with their daily lives (American Academy of Pediatrics, 2019).

**Diagnosis**

Diagnosis requires six symptoms from inattention and/or six symptoms from hyperactivity/impulsivity that lasts longer than 6 months (A.D.A.M. Education, 2019). They must also demonstrate high levels of ADHD in multiple settings, such as home and school (Hinshaw, 2014). In evaluating ADHD, teachers, parents, peers, and sometimes the child complete rating scales regarding the child's behaviours (Hinshaw, 2014). The number ADHD diagnoses has increased over the past decade, due to the increasing expectations that children face both in and outside school (Wienen et al., 2019).

## **Executive Function Deficits**

Executive function is the part of the brain that manages thoughts and behaviour (Frick & Brocki, 2019). Executive function deficits create problems in inhibition, shifting, and working memory – which are major qualities for academic success (Frick & Brocki, 2019). Children with ADHD are missing key skills to perform academically, such as writing essays, organizing materials and ideas, memorization, reading comprehension, and math problem solving (Zeigler Dendy, 2011). Executive function allows the brain to learn from the consequences of an action and make plans around those actions in the future (Children and Adults With Attention-Deficit/Hyperactivity Disorder [CHADD], n.d.). Children who lack executive function will have a hard time adjusting their behaviours, or learning, based on past events and may need help to manage their behaviours.

### **How Does It Influence Learning?**

Executive function deficits are a major reason for academic challenges faced by students with ADHD. Students with executive function deficits will struggle to write or problem solve because they have difficulty breaking information down and reorganizing it into their own ideas (Zeigler Dendy, 2011). They may have issues with substitutes, hyperfocus, and dealing with transitions because of a difficulty in shifting (Zeigler Dendy, 2011). They may struggle to get started, work on, and complete assignments (CHADD, n.d.). Students struggling with impulsivity may blurt out or challenge authority (Zeigler Dendy, 2011).

### **How Does It Influence Home Life?**

Executive function deficits influence life for children at home as well as at school. Talking back, blurting, and starting fights are some of the behaviours a child with impulsivity issues will display (Zeigler Dendy, 2011). These behaviours can affect the relationship between parent and child and may cause conflict at home. Parents will need to help regulate impulses, and other behaviours, for their children with ADHD (Frick & Brocki, 2019). Parents may need to help their children with ADHD to get started on assignments, plan assignments, stay on task, and organize. They may need to be the external voice until their children's internal voices can control their behaviours and reflect on their actions. Parents of children with ADHD and executive function deficits will need to spend more time regulating and managing their children than those of typically developing children. Executive function deficits can greatly influence a child at home and at school.

## **Treatment and Interventions**

Children with ADHD will require accommodations and support to become successful academically and in their personal lives. Once diagnosed, parents, teachers and the child's doctor will work together to make a plan to support the child. Doctors may prescribe medications to help with neurological deficits and may suggest changes to the child's diet. Teachers may need to make accommodations and develop teaching strategies to target certain behaviours. Parents may need to provide access to therapists, change diet, communicate with teachers and doctors, and reinforce expected behaviours.

### **Medication**

Doctors use two types of medications to treat ADHD: stimulants and nonstimulants. The most common ADHD medications are stimulants, for example Ritalin or Adderall, which increase dopamine and norepinephrine in the brain, thus increasing concentration and focus

(Healthline Editorial Team, 2017). Nonstimulant medications are usually prescribed when stimulants are not working. Nonstimulant medications such as Strattera or Pamelor increase norepinephrine, which increases attention and memory (Healthline Editorial Team, 2017). Medication works on some symptom areas of ADHD, but it does not affect executive function deficits (Zeigler Dendy, 2011). Medications have side effects that may outweigh the benefits for some children. They include headaches, trouble sleeping, weight loss, stomach upset, and nervousness (Healthline Editorial Team, 2017). Medications may not be an appropriate choice for every child, and there are some concerns over using medications while the brain is still developing and whether medications should be used to control behaviours (Hinshaw, 2014).

## **Best Teaching Practices**

A major area of concern for children with ADHD is their academic success. Teachers can help to improve academic success by following whole-class best practices, accommodations, targeted training, and clear communication with home. The whole-class approaches, among others, are having clear rules and expectations, monitoring, creating interesting lessons, and providing immediate feedback (Parker, 2000). Inclusive classroom strategies in the modern classroom build empathy for a variety of behaviours within the classroom (Wienen et al., 2019). All students, and particularly students with ADHD, can benefit from receiving positive and immediate feedback about their behaviours. Teachers should praise the behaviours they want to see from students instead of reprimanding the mistakes (Parker, 2000).

Accommodations that may be appropriate for students with ADHD are monitoring work, longer test taking time, help with note-taking, movement breaks, play time, and providing assignments with step-by-step instructions (ADHD Editorial Board & Zeigler Dendy, 2019). Students with ADHD benefit from having a reduction in distractions in their work area by having teacher proximity, less objects in the classroom or on the walls, and sitting away from noises and windows (ADHD Editorial Board & Zeigler Dendy, 2019). Advanced notice for transitions may help alleviate any issues a student has with shifting.

Targeted training for students with ADHD should be used in conjunction with accommodations and whole-class strategies. Computerized attention training was proven to improve visual and auditory attention (Ghuman & Ghuman, 2014). Working memory and metacognition training improved attention and inhibition as well as parents' and teachers' ratings of behavioural symptoms (Capodieci et al., 2019).

Daily communication between school and home helps in the beginning to create behaviour plans that work for students at home and at school (Parker, 2000). Parents need to play an active role in helping their children at school by reinforcing the learning and behaviours at home. Parents can also provide many other supports for their children at-home.

## **At-Home Strategies**

Parents influence all children's lives. However, they play an even larger role in the lives of children with ADHD because they help to regulate behaviours (Frick & Brocki, 2019). Parents manage access to therapies, support groups, eating habits, and relaxation techniques. The therapies include psychotherapy, behaviour therapy, and cognitive-behaviour therapy. In talk therapy, parents can learn how to manage behaviours by limiting distractions, allowing for enough sleep, eating enough and consistency (A.D.A.M. Education, 2011). Therapy, support groups, and family bonding can help to remove the social stigma of the disorder.

Positive, healthy family relationships can help to build resiliency for children. Children with ADHD need strong bonds with their family to cope with the challenges they often face at school with their peers. Families should focus on maintaining a healthy lifestyle with healthy eating and exercise at the centre of it. Eating a good combination of proteins and complex carbs along with massage, yoga, meditation, and exercise can improve symptoms, particularly attention and

executive function deficits (Ghuman & Ghuman, 2014). Doctors, teachers, and parents need to work together to provide support for children with ADHD.

### **Long-Term Challenges**

ADHD can lead to personal and professional life challenges, due in part to peer rejection and challenges with academics. These issues persist into adulthood even when some of the symptoms of ADHD have lessened.

#### **Personal Life Challenges in Adulthood**

Many people with ADHD have challenges in their personal lives, mostly with regards to relationships due to peer rejection in their adolescence and conflict with parents. The emotional dysregulation that can be seen in children with ADHD often means that children with ADHD are the target of bullies in school. The emotional outbursts motivate aggressors, which leads to greater victimization of children with ADHD (Lee et al., 2018). Many children continue through school with the same peer groups, where the familiar peer group may already have formed a pre-existing expectation of the child's behaviour and may notice negative actions more readily while overlooking any positive actions (Lee et al., 2018). Peers favour preconceived ideas about their reaction, thus rejecting them for past behaviours. Peer rejection can trigger other mental health disorders, such as anxiety and depression, and can carry forward into peer problems in adulthood. Girls with ADHD often have higher peer conflict and experience more situations of bullying, making them vulnerable to domestic violence problems in adulthood (Guendelman et al., 2016). Men with ADHD have a higher likelihood of taking greater risk with their sexual behaviours, which can increase the chances of physical health problems (Guendelman et al., 2016). Male and female adolescents with ADHD have a larger number of sexual partners over their lifetime, putting them at greater risk of sexually transmitted infections (Wiener & Daniels, 2016). Children and adolescents with ADHD often have a greater likelihood of conflict with their parents (Wiener & Daniels, 2016). Due to peer rejection and family conflict, many adolescents with ADHD associate with deviant peer groups, increasing their risk of substance abuse (Wiener & Daniels, 2016). Substance abuse rarely stays in adolescence, thus leading to drug and alcohol abuse in adulthood, and trouble with the law (A.D.A.M. Education, 2011). Peer rejection, family conflict, and substance abuse can develop into lifelong challenges for people with ADHD.

#### **Professional Life Challenges in Adulthood**

Children with ADHD are less likely to graduate high school (Wiener, & Daniels, 2016), which makes it harder to get a job in adulthood. The peer rejection they often face in school alters their perceptions of school, coupled with academic challenges, so they often reject school (Wiener, & Daniels, 2016). Without a high school education, adults with ADHD will struggle to find meaningful employment and have difficulty keeping a job (Films Media Group, 2011). Personal and professional life challenges can continue into adulthood for children with ADHD.

### **Conclusion**

ADHD is a disorder that affects attention and executive function. It may manifest with different symptoms in different individuals, but the underlying categories of symptoms remain the same. Executive function deficits are a large part of ADHD and heavily influence school and home life. A variety of interventions are available for someone with ADHD, ranging from medications to therapy and healthy lifestyles. Without appropriate support, ADHD can lead to lifelong challenges in their personal lives and their professional lives.

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## About the Author

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