

# ADHD: An overview

School resources

ADHD stands for attention-deficit/hyperactivity disorder. It is a neurodevelopmental condition with both internalising and externalising characteristics<sup>1</sup>. According to the National Institute of Mental Health, in order to be diagnosed with ADHD, a student must display an ongoing pattern of inattention, impulsivity, or hyperactivity that is severe and consistent enough to interfere with everyday functioning. A student who is inattentive tends to lose focus very easily, have difficulty persisting on a task, and can appear disorganised despite giving their best efforts. These behaviours are due to the way their brain works and not to a lack of understanding of the content being covered. The behaviours are also not a response to a situation or a particular person (for example, defiance). When a student is impulsive, they act without thinking first. They may have trouble delaying gratification, making plans, or setting goals, and instead they opt to always go for the immediate reward. Not thinking through decisions can put the student in harm's way or get them into trouble in school or in social situations. Hyperactivity means that a student has difficulty being still. They may constantly move about or wear others out with their incessant activity. Some children only display one of these symptoms, but most exhibit a combined type of ADHD with two or more of the above characteristics.

Although everyone may at times display the behaviours listed above, students with ADHD exhibit these behaviours consistently and in a way that prevents them from progressing through everyday activities in multiple areas of their life. A diagnosis of ADHD can be made by a psychologist, psychiatrist, or pediatrician after a student has had a comprehensive evaluation. In general, symptoms have to be long-lasting, interfere with everyday functioning, present before age 12, and not be attributable to any other medical condition such as an injury or situational conditions such as trauma. The characteristics of ADHD can show up as early as 3 years old and can change as a person ages. Students with ADHD often have difficulty in multiple areas of life such as poor academic performance and difficulty with relationships, while adults may experience problems at work.

## Causes of ADHD

Research is not yet clear on the specific causes of ADHD. However, it seems that both genetics and environmental factors may play a role in the development of ADHD. The American Psychiatric Association indicates that ADHD does seem to run in families as three out of four children with ADHD have a relative with ADHD. In addition, recent family, twin, and adoption studies<sup>2</sup> have linked genes to the development of ADHD.

The United States Department of Health and Human Services Center For Disease Control reports that certain events or environmental exposures could possibly lead to the development of ADHD. These include brain injury, maternal smoking, drug use or drinking during pregnancy, being born prematurely, low birthweight, and environmental exposure to lead. However, more research is needed in order to determine these factors as definite causes of ADHD.

## Common myths debunked by research

Since ADHD is so prevalent, thoughts and opinions on the disorder seem to abound. While some argue that ADHD is a modern problem or one that only exists in certain countries, ADHD research consistently demonstrates the lack of validity of the following common myths:

### ADHD is a modern problem

ADHD is the most common childhood neurodevelopmental disorder, and the number of diagnoses has been rising in recent years. Does this mean that more children have the disorder than ever before or that more children are being diagnosed? Similar to what has been found with Autism Spectrum Disorder, there is evidence that increasing awareness, changes in diagnostic criteria and access to medical care, as well as the development and evolution of policies for special education, may explain increasing rates over time. In addition, most data that have been collected show that the dramatic increase in the rate of ADHD relies on (telephone) reports of parents or physicians rather than on robust data produced by studies using standardised procedures on representative samples of the population. The most comprehensive international review on ADHD prevalence to date<sup>3</sup> found that there has not been an increase in the prevalence of ADHD from 1985 to 2012. Although understanding and diagnosis of ADHD has changed over time, there are significant published reports of ADHD prior to the 20th century<sup>4</sup>.

### People grow out of ADHD

Until the early 1990s, ADHD was considered a childhood disorder. It is still most often diagnosed in childhood when evidence of the disorder is most noticeable to others. However, it has been found that up to 85% of people with ADHD continue to experience symptoms into adulthood<sup>5</sup>, although the characteristics as well as the impacts of ADHD may change as children get older and enter adulthood. For example, children with ADHD might demonstrate hyperactivity whereas teenagers may hyperfocus on tasks that they enjoy, like video games. Although excessive energy and movement often diminish when individuals reach adulthood, many features of ADHD remain, such as inattentiveness or impulsivity. In adults, ADHD symptoms can be associated with different outcomes than in childhood, such as unemployment, relationship problems, substance abuse, and higher mortality rates<sup>6</sup>. These changes in presentation of the disorder may cause confusion as to whether ADHD persists. It seems most likely that ADHD endures over time, but as an individual grows and develops, the symptoms that they experience also change. This in turn affects the impacts that they experience as a result of ADHD.

### More boys than girls have ADHD

Research has found that gender ratios of ADHD can vary significantly<sup>7</sup>. According to the American Psychological Association, parents and teachers often miss ADHD in girls because their symptoms tend to differ from the symptoms of boys. In addition, current diagnostic criteria often result in more boys being diagnosed with ADHD than girls. Girls are usually not hyperactive and instead display inattentiveness, difficulty sustaining attention, and internalising behaviours. Women and girls with ADHD tend to have issues with feeling frequently overwhelmed, time management, disorganisation, money management, anxiety, or depression. Because of these factors, fewer girls than boys are referred for treatment for ADHD. However, it seems likely that ADHD is just as prevalent in girls as it is in boys.

### ADHD is just a problem in certain cultures/countries

Historical studies have found that variance in rates of ADHD in the United States, United Kingdom, Australia, New Zealand, and Canada may be due to discrepancies in the diagnostic criteria and definitions of the condition rather than an actual disparity in the prevalence of the disorder. Cultural factors including

stigma and what is considered to be 'normal' behaviour may contribute to varying rates of diagnosis. In addition, receiving an official diagnosis of ADHD requires access to medical care and often an evaluation by a specialist such as a psychologist or psychiatrist. There are many populations of children in the world that do not have access to these resources due to location or socioeconomic status.

## Classroom behaviours of students with ADHD

Students with ADHD may:

- Make mistakes in school work or overlook details
- Seem distracted by their own thoughts or other things going on around them
- Seem not to listen even when spoken to directly
- Constantly lose essential belongings like school supplies, keys, or glasses
- Be easily distracted from the task at hand, resulting in missed appointments, forgetting to turn in assignments, and not doing chores. They may start but are easily sidetracked and don't remember to finish
- Experience difficulty completing long reading assignments and listening to lengthy conversations or lectures
- Have trouble sitting in their seat and staying still even when expected to do so
- Consistently demonstrate restlessness or be constantly on the go
- Talk nonstop
- Have difficulty waiting for his or her turn and often blurt out the answer instead
- Have trouble with appropriate social interactions because they interrupt, say whatever comes to mind first, act without thinking of how it will affect others, or intrude on others' space or conversations

In short, children with ADHD, although they may display a variety of different symptoms, have difficulty managing and regulating their own thoughts. This is the skill that scientists call [executive function](#). They have a harder time controlling their impulses, thinking before acting, making a plan and sticking to it, telling their brain when to be active and when to be still, controlling emotional responses, and staying focused when they are not especially interested.

## Awesome characteristics of children with ADHD

We often hear about the negative aspects of working with students with ADHD but very rarely are we reminded of the positive qualities that many students have as a result of their ADHD. Having students with ADHD can bring energy and life to your classroom as they are often creative and innovative thinkers, talented in the arts, imaginative, curious, and willing to take risks. As a teacher, focusing on student strengths can create learners who are more engaged and thus more likely to improve. Adapting your teaching style to give students the opportunity to recognise and focus on strengths, allow for choices, and help students find a purpose will make for a more positive learning environment for all students, not just for those with ADHD.

## Teaching children with ADHD

Students with ADHD are at a higher risk for low academic achievement. As a result, they are frequently recommended for special education programmes and spend more years in those programmes. They also experience more discipline problems. Literacy and numeracy scores for students with ADHD are 8-10% lower than their peers even when there is no learning disability present. This is due to inattention during the elementary years, when foundational skills are taught frequently, and causes students with ADHD to struggle long-term. Educators often focus exclusively on behavioural interventions, but, unless they also target missed academic skills, these interventions will be unsuccessful. In order to help students with ADHD, teachers must remember to address gaps in foundational knowledge, behavioural and study skills, and organisational or executive functioning interventions. When teaching students with ADHD teachers should:

### Provide routines and clearly stated behavioural expectations

Research has shown that it is much easier for students with ADHD to succeed when they clearly know what is expected<sup>8</sup>. Teachers should aim to create an organised and predictable learning environment with clearly displayed behavioural expectations and consequences. To maintain order, it is important to stick to the same routines each day, even when activities change. A routine helps students to feel comfortable when attempting a new skill.

In addition, it is helpful to all students to describe behavioural expectations explicitly before beginning a new activity. For example, tell students who are working in a group that they may talk to their group members in a quiet voice but that they may not talk to students in another group or across the room. Remind students of appropriate ways to get your attention, and appropriate and inappropriate things to be doing during group work time. Give some thought to managing daily transitions. Have a specific musical tune, hand signal or visual cue, or use all of the above to signal a transition and help students practise the appropriate response.

When a student does not meet expectations, the teacher should address behaviour consistently and without anger. Students with ADHD often also have issues with confidence and respond in a more positive manner to consequences delivered in a calm and rational manner. Also remember to recognise and make parents aware when a student is doing well. Negative behaviour is easy to notice and react to, but, by remembering to celebrate desirable behaviour, we increase the likelihood of compliance in the future.

### Use lists, learning objectives, and scaffolding

Often arriving to class with the correct materials is a challenge for students with ADHD. Listing materials on a sign outside the door or on the board for younger students makes it clear what is needed for the lesson. It is also helpful to display learning objectives for the lesson as numbered steps on the board and summarise them aloud. For a bigger project or paper, giving students a written description as well as clearly going over expectations can be helpful.

Research links deficits in executive functioning skills with the tendency to procrastinate and become easily overwhelmed by long-term tasks<sup>9</sup>. Breaking larger tasks into steps or smaller assignments, each with a detailed description, separate due date, and clearly defined deadline can help make it easier to get started. This also teaches students the skill of how to manage big projects on their own in the future. In addition, having a clear deadline and giving feedback on each step can create the urgency necessary to complete the task.

Starting with a review of the skills and knowledge necessary for the lesson allows them to access the information and not begin the lesson at a disadvantage. It is also a great opportunity for the teacher to activate interest and help students relate their interests to the lesson. Students with ADHD can be capable of focusing intensely on something they are interested in. However, they may need your help connecting the class content to their strengths and passions.

### Teach study and executive function skills explicitly

Research demonstrates that students with ADHD often lack basic study skills and struggle with executive function<sup>10</sup>. Coaching them so that they are aware of how to implement and apply more effective study skills can help them to become better students. Think about the tasks that students need to complete in the classroom and teach them strategies for managing those tasks. For example, if students need to take notes, teach them how to use a note-taking format. If students need to study for a test, teach them how to break up the material into manageable chunks and give them a variety of study techniques so that they can be encouraged to find a strategy that works well for them.

Many students with ADHD have trouble staying focused on assignments. The teacher can show them how to choose a specific task, block out distractions, focus for a period of time, and then take a short 'brain break' and move around. Gradually, they should be able to increase the time they are staying focused and working. If students need help with time-management, set specific time limits and make students aware of how much time they will have. A visual countdown timer with five and ten minute warnings can be helpful for this, although time limits should not be the cause of anxiety. For some students, it also helps to time tasks that could be considered dull in order to turn necessary but tedious practice into a competition or game. Often graphing or recording the scores and comparing over time helps students to set personal goals and grow in their basic skills.

### Provide choice and variety

Allowing students to make choices about where they sit, how they complete an activity, what books they read, or what type of project they complete encourages active participation. We all give more effort when we are doing something we have chosen and enjoy. It is also an easy way for the teacher to help the student connect the assignment with their interests. Some students with ADHD or other learning differences may need to access assistive technology or accommodations. If all students are making choices about how they learn best, students with learning differences will not feel singled out when they need to use a computer to dictate notes or listen to an article read aloud from an online textbook.

Helping children with ADHD succeed in school can be a challenge for teachers. Luckily, strategies that are effective for teaching students with ADHD are also helpful to most students. In fact, modifying your teaching style and curriculum to meet the needs of diverse learners often results in better teaching for all as lessons become more versatile, interesting, and practical.

---

## References

Attention-Deficit/Hyperactivity Disorder. (2019, September). Retrieved November 5, 2019, from <https://www.nimh.nih.gov/health/topics/attention-deficit-hyperactivity-disorder-adhd/index.shtml>.

Crawford, N. (2003, February). ADHD: a women's issue. *American Psychological Association Monitor*, 34(2), 28. Retrieved from <https://www.apa.org/monitor/feb03/adhd>

- Danielson, M. L., Bitsko, R. H., Ghandour, R. M., Holbrook, J. R., Kogan, M. D., & Blumberg, S. J. (2018). Prevalence of parent-reported ADHD diagnosis and associated treatment among U.S. children and adolescents, 2016. *Journal of Clinical Child & Adolescent Psychology*, 47(2), 199–212. doi: 10.1080/15374416.2017.1417860
- Faraone, S. V., Sergeant, J., Gillberg, C., & Biederman, J. (2003). The worldwide prevalence of ADHD: is it an American condition? *World Psychiatry*, 2(2), 104–113. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1525089/>
- Information and Resources for Educators. (n.d.). Retrieved October 22, 2019, from <https://caddac.ca/adhd/understanding-adhd/in-education/information-resources-for-educators/>.
- Parekh, R. (Ed.). (2017, July). What is ADHD? Retrieved November 5, 2019, from <https://www.psychiatry.org/patients-families/adhd/what-is-adhd>.
- What is ADHD? (2019, August 26). Retrieved November 5, 2019, from <https://www.cdc.gov/ncbddd/adhd/facts.html#Causes>.

## Endnotes

- <sup>1</sup> Kang, N. R., & Kwack, Y. S. (2019). Temperament and character profiles associated with internalizing and externalizing problems in children with Attention Deficit Hyperactivity Disorder. *Psychiatry Investigation*, 16(3), 206–212. <https://doi.org/10.30773/pi.2019.01.10.1>
- <sup>2</sup> Faraone, S. V., & Larsson, H. (2019). Genetics of Attention Deficit Hyperactivity Disorder. *Molecular Psychiatry*, 24, 562–575. doi: 10.1038/s41380-018-0070-0
- <sup>3</sup> Polanczyk, G. V., Willcutt, E. G., Salum, G. A., Kieling, C., & Rohde, L. A. (2014). ADHD prevalence estimates across three decades: An updated systematic review and meta-regression analysis. *International Journal of Epidemiology*, 43(2), 434–442. doi: 10.1093/ije/dyt261
- <sup>4</sup> Martinez-Badia, J., & Martinez-Raga, J. (2015). Who says this is a modern disorder? The early history of attention deficit hyperactivity disorder. *World Journal of Psychiatry*, 5(4), 379–386. doi: 10.5498/wjp.v5.i4.379
- <sup>5</sup> Mahone, E. M., & Denckla, M. B. (2017). Attention-Deficit/Hyperactivity Disorder: A historical neuropsychological perspective. *Journal of the International Neuropsychological Society*, 23(9-10), 916–929. doi: 10.1017/S1355617717000807
- <sup>6</sup> Kessler, R. C., Adler, L., Barkley, R., Biederman, J., Conners, K., Demler, O., ... Zaslavsky, A. M. (2006). The prevalence and correlates of adult ADHD in the United States: Results for the National Comorbidity Survey Replication. *American Journal of Psychiatry*, 163(4), 716–723. doi: 10.1176/appi.ajp.163.4.716
- <sup>7</sup> Baldursson, G., Coghill, D., Curatolo, P., Dalsgaard, S., Dopfner, M., Falissard, B., ... Vlasveld, L. (2009). Influence of gender on attention-deficit/hyperactivity disorder in Europe—ADORE. *European Child Adolescent Psychiatry*, 18(3), 194–196. doi: 10.1007/s00787-006-1003-z
- <sup>8</sup> Reiber, C., & McLaughlin, T. F. (2004). Classroom interventions: Methods to improve academic performance and classroom behavior for students with attention-deficit/hyperactivity disorder. *International Journal of Special Education*, 19(1). Retrieved from <https://files.eric.ed.gov/fulltext/EJ852038.pdf>
- <sup>9</sup> Rabatin, L., Fogel, J., & Nutter-Upham, K. E. (2011). Academic procrastination in college students: The role of self-reported executive function. *Journal*

of Clinical and Experimental Neuropsychology, 33(3), 344–357. doi:  
10.1080/13803395.2010.518597

<sup>10</sup> Langberg, J. M., Epstein, J. N., Becker, S. P., Girio-Herrera, E., & Vaughn, A. J. (2012). Evaluation of the homework, organization, and planning skills (HOPS) intervention for middle school students with ADHD as implemented by school mental health providers. *School Psychology Review*, 41(3), 342–364. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4209597/>

PREPARED FOR THE EDUCATION HUB BY

---



### Nina Parrish

Nina is a teacher, mother, writer, and entrepreneur who lives in the United States. She is the founder and director of a learning center that provides supplementary educational services to students of all ages. Nina holds a school counseling and special education teaching license and has 16 years of experience in education. She specialises in working with students with learning disabilities, ADHD, intellectual disabilities, and emotional and behavioural disorders.