

World Federation of ADHD

Summary of Findings

World Federation of ADHD has curated evidence-based statements about ADHD which paint a picture of the disorder that we summarize as follows:

ADHD is a chronic disorder in which developmentally inappropriate symptoms of inattention and/or hyperactivity/impulsivity lead to impairments in many aspects of living. The disorder, which starts in childhood or early adolescence and is more common in boys than girls, affects 5.9 % of youth and 2.8 % of adults worldwide. There are multiple genetic and environmental risk factors that accumulate in various combinations to cause ADHD. These risk factors lead to subtle changes in multiple brain networks and in the cognitive, motivational, and emotional processes they control. People diagnosed with ADHD have an elevated risk for school failure, antisocial behavior, other psychiatric problems, somatic disorders, drug and alcohol abuse, accidental injuries, and premature death, including attempted and completed suicide. As a result, ADHD costs society hundreds of billions of dollars each year. Several medications are safe and effective for treating ADHD and for preventing many adverse outcomes. Non-medication treatments are available but, compared with medications, are less effective for reducing inattention, hyperactivity, and impulsivity.

Despite this large body of evidence, we have much more to learn about the disorder and its various manifestations. Epidemiologic studies have taught us that ADHD occurs around the world, but we know little about how culture affects the expression of ADHD symptoms or the response to treatment. Because most research about ADHD is based on Caucasian and East Asian samples, we must be cautious in generalizing our assertions to other groups. In addition, far more research pertains to males than females. We also need to learn more about ADHD in older adults. Future research into ADHD should examine more diverse samples from a wider range of cultural contexts.

We have learned much about the causes of ADHD but are only beginning to understand how genes and environment combine to cause the disorder and affect the brain to produce symptoms and impairments. Some of these causes may be shared with ADHD's somatic comorbidities. Examples include oxidative stress, inflammation, and insulin resistance. Future work should focus on biological and psychological causal mechanisms to find points of intervention that will improve the effectiveness of medical and non-medical treatments and, eventually, prevent onset of the disorder. Although the medications that treat ADHD are highly effective, we need better methods to prevent the misuse and diversion of these medications, especially among adolescents and young adults ([Faraone et al., 2020](#)). Many decades of research have led to a method of diagnosing ADHD that is highly valid as a predictor of treatment response, family history of ADHD, many clinical features, measures of brain structure and function, and adverse outcomes. Nevertheless, there are several new directions for diagnosis. One is to better understand the nature and causes of emotional symptoms in ADHD and whether these should be incorporated into diagnostic criteria ([Faraone et al., 2019b](#)). Another is to determine if and how mild or sub-threshold cases of ADHD should be diagnosed and treated ([Kirova et al., 2019](#)). Different trajectories of ADHD across the life-cycle need to be further investigated.

Many researchers are trying to develop computerized or biological tests using information about the patient's behavior, brain and/or genetic makeup. The hope is that such tests will one day diagnose the disorder, predict a personalized approach to treatment, or assist clinicians in these areas. Others are working on methods that use the vast data available from medical records to predict which patients

with ADHD are at greatest risk for adverse outcomes later in life. Such work may someday allow healthcare systems to allocate resources to the highest risk patients.

Although we have good treatments for ADHD, even the best treatments are only partially effective. The future of treatment for ADHD will include new medications currently in development and a stronger evidence base for novel non-medication treatments for treating ADHD symptoms or associated impairments, such as trigeminal nerve stimulation (McGough et al., 2019) and game-based treatments (Craven and Groom, 2015; Dovis et al., 2015). And more data are needed to improve existing non-medication treatments and to test the efficacy of traditional therapies such as acupuncture, yoga, and Ayurvedic therapies. Also, little is known about how the somatic disorders that co-occur with ADHD interact with treatments for ADHD and how the symptoms of the disorder affect somatic outcomes. We need to learn more about how duration of treatment affects outcomes over longer periods of time.

We also know little about stigma and ADHD. Stigmatizing attitudes toward ADHD are common and may play a role in socially and clinically important outcomes. These negative attitudes affect patients at all stages of their life. Such attitudes have been documented among individuals at all ages and in all groups, including family, peers, teachers, clinicians, and even individuals with ADHD themselves (Lebowitz, 2016).

Despite these and other gaps in our knowledge about ADHD, nearly two and a half centuries after the first textbook description of an ADHD-like syndrome, the statements about ADHD which we have curated, make us confident that the contemporary diagnosis of the disorder is a valid and useful category that can be used around the world to improve the lives of the many people who suffer from the disorder and its complications.

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