MIND MARVEL

Assess Your Marvelous Brain

# Abstract

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# Introduction

ADHD is a neurodevelopment disorder often classified by a persistent pattern of inattention and hyperactivity-impulsivity found in both children and adult. If you or your loved ones has suffered from ADHD, you might be familiar with its impact and side effect on the victim’s daily life. The after-effects of ADHD vary from person to person. Some, find difficulty in doing their daily activities while others can cope with it in their life. We can verify that numerous individuals in our vicinity have been diagnosed with ADHD and are working against its symptoms to establish a stable life.

As part of my dissertation work for the academic year 2023-2024, I intend to conduct a comprehensive investigation into Attention Deficit Hyperactivity Disorder (ADHD), exploring its manifestations and associated symptoms, as well as the efficacy of utilizing games as a means to ameliorate ADHD. This research will encompass in-depth examinations of the intersection between games and ADHD, the influence of online gaming on users, and the potential for game-based interventions to enhance ADHD-related outcomes. The overarching goal of this research is to develop a dedicated gaming website tailored for individuals affected by ADHD. The creation of a gaming website specifically designed for people with ADHD serves several purposes. Firstly, it aims to raise awareness about this particular neurodevelopmental disorder among the general public. Moreover, the platform is envisaged to contribute to the enhancement of concentration, focus, and attentional capabilities among individuals grappling with ADHD.

This undertaking is not only a manifestation of my academic pursuits but also represents an effort to apply the acquired academic competencies toward addressing a tangible real-world problem.

# Attention Deficit Hyperactivity Disorder (ADHD)

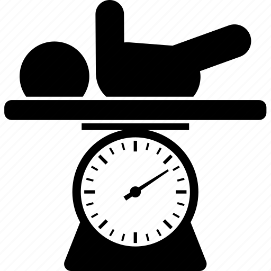
Attention Deficit Hyperactivity Disorder is not a newly evolved disorder. The history begins with the clinical reports from the parts of Europe around two centuries ago. Researches and outcomes regarding ADHD are obtained from two different angles: biomedical and historical-behavioural psychology (“View of the Importance of Games for the Therapy of Children with ADHD | Seven Editora” 2023). In the scope of biomedical concept, ADHD is a neurobehavioral condition found in an individual since childhood. As stated by National Health Service(NHS), people with ADHD exhibit characteristics such as restlessness, diminished focus, deficient concentration skills, and a propensity to act impulsively. It is not a spreadable disease, rather a group of hyperactive symptoms causing changes in the behaviour, emotional intelligence, psychological, and/or learning capabilities in the victim(Furman 2005). According to cultural-historical theory, a man can change over the course of time due to the evolving circumstances. This concept broad understanding of man now and in the future.

Signs and symptoms of ADHD can be observed in the early stage of childhood and becomes more evident in accordance with the changing environment (like when the child starts schooling). This attention deficit disorder in a child can overlap the normal behaviour development. Diagnostic manuals like DSM-5, ICD-11 and RDoC prefers diagnosis of ADHD in individuals under the age of ‘12’ if they display multiple inattentive and/or hyperactive impulsive signs. With the help of proven psychological therapy and scientific methods the symptoms can be reduced to six or less in 6 months. When it comes to older adolescents and adults, ADHD is diagnosed if there are five or more symptoms present and those symptoms interfere the growth and quality of the individual’s social, family, academic, and professional life. Since decades, the diagnostic conceptions and symptom analysis of ADHD has not changed. It is a categorial, childhood-onset neuro-developmental disorder marked by the age-inappropriate, extreme, and unbalanced attention skill, and hyperactive.

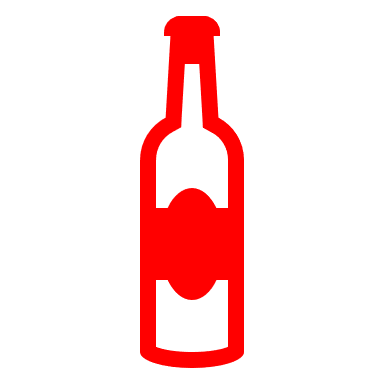
Studies conducted by ‘The World Federation of ADHD International Consensus Statement: 208 Evidence-Based conclusions about the disorder’ states that around 5.9% of youth and 2.5% of adults are diagnosed with ADHD symptoms (Faraone et al. 2021). When we take gender into account, male-female sex ratio of having ADHD is balanced among them. In children, about 2.5 and 4 times more males than females present with ADHD (Sonuga‐Barke et al. 2022).

What might account for ADHD?   
While the question remains pertinent, the cause is unknown up to the present date. Major factors that could be considered are:

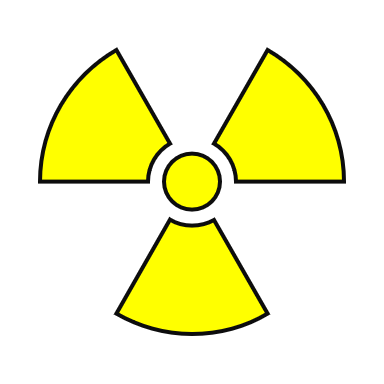
* Premature birth of the child ( being born before the 37th week of pregnancy)
* Low birthweight of the child.



* Using substances like cigarette, alcohol, and drugs during the pregnancy.



* Interaction with harmful substances.



* Genes and their interaction with environment can be a path for ADHD. Carrying out an analysis on the DNA of 20,000 ADHD people and over 35,000 without ADHD, came to conclusion that polygenic is the cause for majority cases of ADHD. This implies that a very small impact on many genetic variants in an individual can increase that chance of having ADHD.   
  Refer the paper for more information: [https://www.sciencedirect.com/science/article/pii/S014976342100049X#sec0035](https://www.sciencedirect.com/science/article/pii/S014976342100049X%23sec0035)



* Nutrient Deficiencies can be a path for ADHD. Research paper ‘‘The World Federation of ADHD International Consensus Statement: 208 Evidence-Based conclusions about the disorder’ state that reduction in ferritin (a protein that stores iron), low levels of omega-3 in blood and lack of vitamin D in maternal stage can increase the risk of ADHD.   
  Refer the paper for more information: [https://www.sciencedirect.com/science/article/pii/S014976342100049X#sec0035](https://www.sciencedirect.com/science/article/pii/S014976342100049X%23sec0035)



* Stress , Poverty, Infection, and childhood trauma can play a role in ADHD.



It is important to recognise that when the brain begins to function in a manner than what is considered typical, it can result in various neurological disorders.

## Cope with ADHD

Leading a normal life in social, academic, and professional realm with ADHD is a challenging task for the victim. Life is different with ADHD and the impact also varies depending on the age frame of the individual. Guardians or Parents might encounter difficulty in encouraging the ADHD child complete their daily activities. It is important to realise that parents or guardians can neither alter nor influence the ADHD child’s behaviour. More caution needs to be given on their moves and activities as they can be restless, hyperactive, impulsive, and fearless. Taken appropriate measure by parents like planning a day, setting a routine, encouraging positive behaviour, enforceable consequences taken when boundaries are not obeyed, providing instructions, and well-timed social situations can help the child cope with ADHD. Schooling and education do play a major role in ADHD children. At some cases these children might need a helping hand to rise above in the academics

When we take youth and adults into account, the impact of ADHD is different. Typical patients dose not experience adverse outcomes, but some might face hectic problems. Discussing the life problems of an adult ADHD patient:

* Growth in Life  
  There is a large impairment in the quality of life of an adult with ADHD compared to a normal person. Emotional and social skills of the victim is affected the most compared to physical growth. The way they process and analyse a situation is different compared to their peers. Academic and professional excellences purely depend on the victim, studies do show that some excel in certain fields while others not. For instance, Michael Fred Phelps, an American former competitive swimmer, was diagnosed with ADHD on his sixth grade. He used swimming as a medium to channel his energy and it helped him to control his ADHD situation.
* Accidental Injuries  
  Individuals, with ADHD, known for their impulsive nature are more susceptible to accidents and injuries. Due to their surplus energy, it can be challenging for them to suppress or control it. In some cases, this increased risk may even result in outcomes such, as self-harm, or premature death.
* Crime and Conviction  
  120A study of the Danish population using national wide registers found that, compared with non-ADHD youth, the victims were more likely to be convicted of criminal offenses (Faraone et al. 2021).   
  A highly effective approach to managing ADHD is to redirect the energy, impulsiveness, and hyperactive behaviour into a constructive outlet where the individual can excel.

Who diagnoses ADHD?   
ADHD can be diagnosed by a licensed clinician, mental health professional or physician. One of the used methods, for assessing ADHD is the Diagnostic and Statisticaertyl Manual of Mental Disorders (DSM). The DSM is a manual that provides information, symptoms, and medical descriptions of mental health conditions. Medical professionals rely on it to analyse and diagnose ADHD. Initially, an interview is conducted with the patient or their family. Following an assessment is done by the patient to find the current stage of ADHD in them. With the time-to-time clinical sessions and medications the impact of ADHD can be controoled.