

Clinical Implications of ADHD Diagnosis in Adults and Prevalence

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Abstract

Adult ADHD has gained new insight and recognition due to the evolutionary changes in diagnostics and has a fairly significant prevalence throughout the world. While most adults have ADHD that continues from their childhood, some develop it in later life during adulthood. Although clinical implications are primarily based on the triad of inattention, hyperactivity, and impulsivity most of the symptoms get masked with comorbid psychiatric conditions. Cutting the edge through the challenges faced in its screening techniques such as the DSM-5 version has made diagnosis easy and discreet. Early intervention that comprises a combination of psychosocial education, pharmacological treatment, and cognitive therapies can help adults manage ADHD symptoms and lead a better life.

Keywords: ADHD, Adult ADHD, Diagnosis of ADHD, Treatment of ADHD

1. Introduction

Adult Attention-Deficit Hyperactivity Disorder (ADHD) is a common psychiatric disorder of neurodevelopmental nature that is usually a lifelong condition that needs to be managed. It is observed that the symptoms of ADHD in adults are typically the same as in children, however, in adults they seem to be of a more diversified nature.¹ Moreover, adult ADHD is often seen as associated with some comorbid psychiatric conditions such as depression and bipolar disorder. Earlier the condition was thought to be present in childhood and gradually decreased with increasing age, however, studies provide evidence that several people have adult ADHD. While some populations have childhood ADHD that persists till adulthood others may develop ADHD in adulthood. In both cases, the symptoms diminish gradually with increasing age.¹⁻³

In general, around 2.5% of the adult population has ADHD and it is associated with the personal burden that each adult carries. The symptoms are very diversified in adults and they typically range from indecisiveness, and emotional imbalance and go to a greater extent affecting the person's societal behavior.² Although it is well-proven that ADHD does exist in adults and is not just a childhood condition, it remains underdiagnosed. While ADHD affects most of the areas of functioning of an individual, its diagnosis needs to be comprehensive enough to consider all the symptoms that may point to the condition and should also at the same time be discreet enough to differentiate ADHD from other psychiatric conditions, which may have overlapping symptoms.⁴ Figure 1 shows commonly observed symptoms of ADHD in adults.

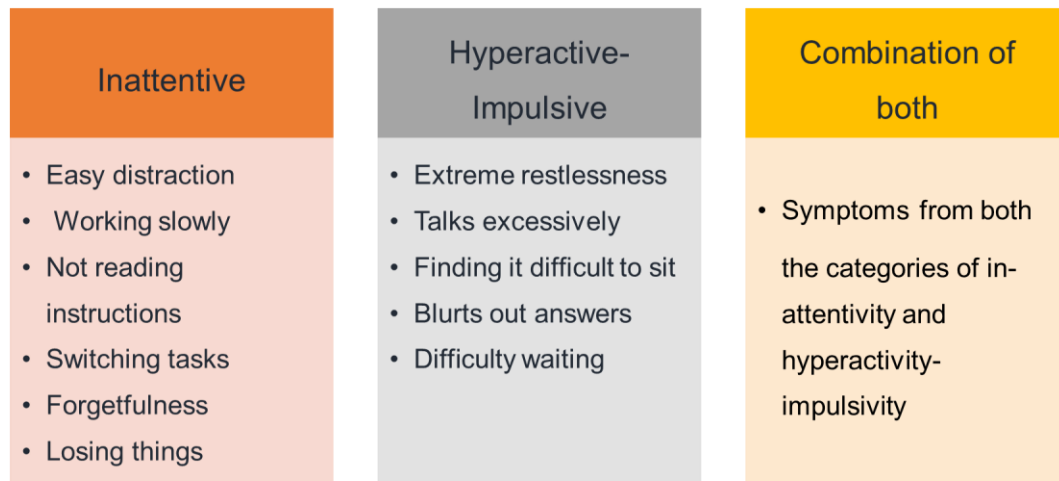


Figure 1. Classification of commonly observed symptoms of ADHD in adults.

The guidelines for diagnosing adult ADHD have been updated to include symptoms and behavioral characteristics that are particularly observed in adults. Screening tools that consist of self-reporting systems and questionnaires help in the assessment of symptoms that may confirm adult ADHD. Clinical reports and family history are also a powerful diagnostic tool for adult ADHD.⁴ Emotional symptoms are also used for the diagnosis of ADHD. In most cases, there is impairment of emotional symptoms which may point to adult ADHD. The accuracy of diagnosis of adult ADHD and the ease of differentiating ADHD from other psychiatric disorders are crucial in diagnosing the condition.⁵

Adult ADHD is a psychiatric condition with neurobiological involvement and has a high global prevalence. Developing validated assessment scales and well-designed questions for self-reporting based on clinical implications are necessary for accurate diagnosis. The present review is an attempt to discuss the prevalence of adult ADHD, different screening techniques and challenges that are faced during the diagnosis, and common clinical implications that form the basis of the diagnosis and management of adult ADHD.

2. Prevalence of adult ADHD:

ADHD is a neurodevelopmental condition often considered to be present only in children. However, studies have revealed that its occurrence in adolescents, young adults, and adults is very common. Researchers have analyzed studies around the globe to understand the trend of the epidemiology of ADHD in adulthood over the years. Several attempts have been made by scientists to make a statement on the prevalence of adult ADHD worldwide. The prevalence statements largely depend on the diagnosis model used to examine the adults so that ADHD can be confirmed. Psychiatrists in the U.S. and around the world widely use The Diagnostic and Statistical Manual of Mental Disorders (DSM) by the American Psychiatry Association. The pooled prevalence stated in one of the studies between 1996 to 2005 showed 2.5% for adult ADHD. A study that covered the years 1996 to 2011, reported the adult ADHD prevalence to rise to 5% by using the DSM-IV criteria.^{3,6,7}

When a structured questionnaire was used to determine the prevalence of ADHD in adults, the results indicated that 1% adult population had ADHD when only a single criterion was considered during the study. At the same time, when four different criteria were included, the prevalence was up to 4% in adults. According to the data published from this study in 2017, the prevalence of adult ADHD in the U.S. was 4.4% and on average 3.4% out of 10 countries showed that adults had ADHD. These figures depict how potentially impactful is adult ADHD and emphasize the importance of its diagnosis. Most of the studies

show that ADHD in adults has been a persistent condition that developed initially in childhood and was present even during adulthood. There are chances of 40-50% that ADHD in childhood is persistent in adulthood. It is necessary to develop multimodal diagnosis models to know the prevalence and incidence of this condition in adulthood.⁸

A cohort study published in 2019, examined the prevalence trend in 20 years in various ethnic groups in the United States. The study examined a total of 5 282 877 adult patients belonging to different ethnic groups who used a certain medical plan. The study showed that 21.9% of adults in the study population had ADHD. They also noted that during the study period, there was a constant rise in the number of adults having this condition. The World Mental Health survey data published in the 2019 work shows a prevalence of 2.8% and stated that the prevalence was higher in high-income countries.⁹

It is worth noting that according to a study, adult ADHD was high almost 3.6% in the high-income group followed by 3.0% in the upper-middle than the low or lower-middle-income countries (1.4%). When the prevalence of adult ADHD was studied gender-wise by some researchers, it was likely to be more associated with males, previously been married and less educated. Moreover, it was also seen to be associated with other psychiatric comorbid conditions such as mood disorders, anxiety, certain behavior disorders, and substance disorders. It is also a matter of concern that in all these studies the treatments were targeted towards other psychiatric conditions than ADHD. Hence although the condition is highly prevalent and disabling, it is underdiagnosed and undertreated across many countries worldwide and in different cultures.¹⁰

The prevalence of adult ADHD is on the rise as years have passed by. This may be attributed to the development and evolution of diagnostic methods and well-defined questionnaires. Better diagnosis can help in identifying the condition and help adults self-report the difficulties that they experience in their daily functioning. This can help in better treatment options targeted towards adult ADHD.

3. Diagnosis of adult ADHD and challenges faced in screening:

Adult ADHD typically in approximately 60% of cases has its onset in childhood. Most of the time, it remains undiagnosed in children and adolescents owing to several complexities. Often, the comorbid psychiatric disorders make the diagnosis even more difficult. Primary care centers and workplaces need proper and updated diagnostic tools for the early detection of adult ADHD so that effective treatment strategies can be executed. There are differences in screening for childhood ADHD and adult ADHD and hence it is necessary to understand the difference clearly. Despite the high prevalence very few patients are screened particularly for ADHD and are most commonly mistaken for other psychiatric disorders resulting in wrongly targeted treatment.¹¹

3.1 Commonly used screening tools:

The ADHD experts in collaboration with the World Health Organization (WHO) World Mental Health Survey Initiative have developed the Adult ADHD Self-Reporting Survey (ASRS). The ASRS v1.1 contains a symptom checklist based on an 18-item scale that contains questions based on the symptoms from DSM-IV. The objective of this scale is to identify patients who may be at risk for ADHD. Besides the symptom checklist, there is a screening scale that comprises 5 points viz: 0 = never, 1 = rarely, 2 = sometimes, 3 = often, and 4 = very often) over the prior 6 months. The symptom checklist also helps in quantifying the symptoms of the patients before the beginning of the treatment at the baseline and also during the treatment and follow-up visits where the responses can be monitored.¹¹ The DSM-IV was later updated into a newer version DSM-5 that incorporated several changes that made diagnosis more accurate and sensitive. Using a

structured interview based on the DSM-5 version, adult ADHD can be diagnosed. The DSM-5 version assists in the establishment of key diagnostic criteria in assessing adult ADHD based on two main criteria viz: Inattention which includes 9 points and hyperactivity and impulsivity which includes another 9 points.

The commonly used tools that can be used in diagnosing ADHD include the Diagnostic Interview for ADHD in Adults (DIVA-5), Conner's Adult ADHD Diagnostic Interview for DSM-IV (CAADID), and the Adult ADHD Clinical Diagnostic Scale (ACDS v1.2). All these tools are highly systematized and they assist in establishing longitudinal history and how long the symptoms persist. Moreover, the tools also help in reviewing how the clinical symptoms may impact the life of the patient. Additionally, some scales use symptomatic and functional inventories that help in capturing emotional dysregulation and functional deficits in adults with ADHD. Some examples of such scales used in the screening of ADHD are: the Brown Attention Deficit Disorders Scale (BADDS) which includes a 40-item scale to assess the symptoms, the Conners' Adult ADHD Rating Scale (CAARS) has an 8-item scale and the Wender-Reimherr Adult Attention Disorder Scale (WRAADS) that screens under 7 domains.^{8,11}

Using these screening techniques once the adult patient tests positive for the condition, it is necessary to conduct a psychiatric interview that is comprehensive and interpersonal. This interview in combination with the symptom scale rating will help confirm the diagnosis of adult ADHD. During this entire process, it is necessary to note that many adult patients are not capable of recollecting the experiences or symptoms that they had during childhood.¹¹

A lot has been discussed about the neuropsychological assessment of adults for ADHD. A test battery for neuropsychological assessment has been developed and it covers 16 different neuropsychological functions that adults perform daily. The assessment battery might be helpful as an adjunct to the existing screening tests.¹² However, some researchers in this field have stated that the neuropsychological test is not discriminative and cannot differentiate between the functions of patients with ADHD and those without ADHD.¹³

Some techniques that are different from self-assessment reports or symptom monitoring are being studied for diagnosing adult ADHD. Electroencephalogram (EEG) is one such method that helps to identify a biomarker in neurodevelopment disorders. Since the other methods are subjective, EEG would prove to be an objective method to diagnose adult ADHD. However, as suggested in a review the use of EEG in diagnosing adult ADHD has several complexities and can be used only as an adjuvant in the diagnosis.¹⁴ Neuroimaging of the brain areas using MRI techniques can also provide valuable insights into studying the brain of ADHD patients. However, more in-depth research is required in this method. More research is also necessary in the genetic studies to diagnose or predict ADHD in adults.¹⁵

3.2 The challenges in diagnosing adult ADHD

While diagnosing adult patients for ADHD, it is important to note, that most patients do experience severe symptoms of impairment during childhood. While it is easier to diagnose the condition in childhood, it is often seen that with the increase in age, the symptoms evolve. During childhood, ADHD symptoms are obvious as inattention, hyperactivity, and impulsivity. Manytimes, hyperactivity gets internalized as the patient grows and other emotional symptoms get masked. As a result, the symptoms are reflected as anxiety or obsessive behavior, hence in adults, it becomes challenging to discriminate between ADHD and other psychiatric conditions.¹⁶

Most of the time, in adults the symptoms of other psychiatric disorders also exist. The overlapping nature of these symptoms poses a big challenge in diagnosing ADHD in adults. Most often, unipolar or bipolar mood

disorders, anxiety disorders, and personality disorders such as antisocial personality disorder can coexist in an adult with ADHD. In such cases, confirming ADHD is difficult.¹⁷

Similarly, many disorders such as insomnia, restless leg syndrome, and hypersomnolence (excessive sleepiness during the day after a sound sleep at night) share a common pathophysiology as ADHD. Nevertheless, many comorbidity-related symptoms result in functional impairment at family, social, and work levels which resemble the clinical implications of adult ADHD. In such cases diagnosing the underlying conditions based on the self-reporting scales is a challenge for psychiatrists.¹⁷

Challenges also exist in differentiating the subtypes of ADHD in adult patients. It may be only an inattentive type of ADHD or a combination of hyperactivity, inattentiveness, and impulsivity. Out of the different domains that mark the neuropsychological response of adult patients, it is difficult to distinguish whether ADHD is only an inattentive type or whether it is a combination of other symptoms.¹⁸

4. Clinical Implications of the adult ADHD

With early diagnosis, there can be a proper trajectory of treatment plan executed to help adult ADHD patients live a better-quality life. It is typically observed that almost 80% of cases of adult ADHD are associated with anxiety, bipolar disorder, and depression. Therefore, the clinical implications that are experienced by the patients in their daily lives are extremely broad. The burden of ADHD is heavy to carry and detrimental to adult patients having this condition. Several clinical implications can be seen that impair the routine functioning of these individuals.² Certain clinical implications that are commonly considered in the diagnosis questions include points such as leaving a seat while expected to be seated, problems in concentrating on what others are telling, completing sentences spoken by others, and difficulty in unwinding and relaxing.¹¹ Another implication in adults with ADHD is their perception of time is different than normal individuals. Their processing of time is faster than others and they always have a feeling that they do not have enough time to complete a task properly.¹⁹

The most noteworthy implication is dysfunction in attention that results in the impairment of focus and sustainability of attention. Most adult ADHD patients also experience several neuropsychological difficulties that affect their memory, executive functioning, decision-making capacity, and emotional dysregulation. The deficits in executive functioning include a lack of planning and self-motivation and reduced problem-solving ability. While these impairments affect the interpersonal relations of the patient, they also take a toll on societal behavior and self-esteem. Adult ADHD people have a tough time maintaining relations with colleagues at work, family members, and friends which indirectly results in less satisfactory lives for such people on personal, professional, and social levels.²

According to a review, the clinical implications strongly displayed by adults having ADHD involve broad-spectrum symptoms. The symptoms include an inability to give attention to details, lack of skills when it comes to organizing certain activities, involvement in excessive talking or continuously fidgeting, overworking, unable to relax, getting easily distracted from the current task, and forgetfulness.² Adult ADHD may affect the health and overall quality of life of patients and at times may also put the adult in risky situations. Some untoward events that may be a result of adult ADHD include poor driving abilities that may lead to increased traffic fines and a greater risk of road accidents. The review has also cited a Japanese study that showed adults with ADHD have more hospitalization incidents with more frequent visits to the emergency room as compared with non-ADHD adults. In Denmark, the life expectancy of adults with ADHD was less than those without ADHD. Moreover, adults with ADHD have more chances of being unemployed due to low productivity rates at work. They also tend to have more chances of criminal behavior than other adults.²

Emotional dysregulation is the most important psychological symptom visible in adult ADHD. The commonly observed emotional behavior in adults with ADHD includes increased frequency of mood changes, difficulty in expressing feelings, especially angry feelings, and increased sensitivity to criticism.²⁰

Clinical Implications that are visible in adults with ADHD are the very foundation of the diagnostic tests and screening tools. A correct diagnosis will pave the way for implementing a treatment regimen for these patients.

5. Management of adult ADHD

Adult ADHD management involves a comprehensive strategy that includes different therapies such as stimulant and non-stimulant medicines, psychological treatment, cognitive training, and neurofeedback strategies. Adult ADHD patients struggling with coexisting psychiatric conditions may tend to switch therapies according to the condition that bothers them the most at a particular time. It is therefore necessary for therapists and psychiatrists to be flexible and make tailor-made treatment strategies on an individual basis for their patients. Early intervention can prove helpful in managing the condition. Some common therapies are discussed in brief:

5.1. Psychosocial treatment:

The regimen is designed to beat the self-defeating cognitions in patients by educating and inculcating skills of better work organization, time management, and prioritization. Psychiatrists, psychologists, and ADHD coaches may help with these skills to improve the executive functioning in adult ADHD. This regimen can be combined with the pharmacological therapy.

5.2. Stimulant and non-stimulant medicines:

Classical stimulants such as methylphenidate and dexamphetamine are the first-line treatment drugs for ADHD. Refer to Figure 2. It is necessary to use these drugs under strict supervision as they have the risk of substance abuse. When used judiciously, these drugs can improve functioning in adult ADHD. Non-stimulant therapy with antidepressants and Alpha-2 agonists is the second line of treatment that may be used as monotherapy or as adjunct therapy to stimulants.

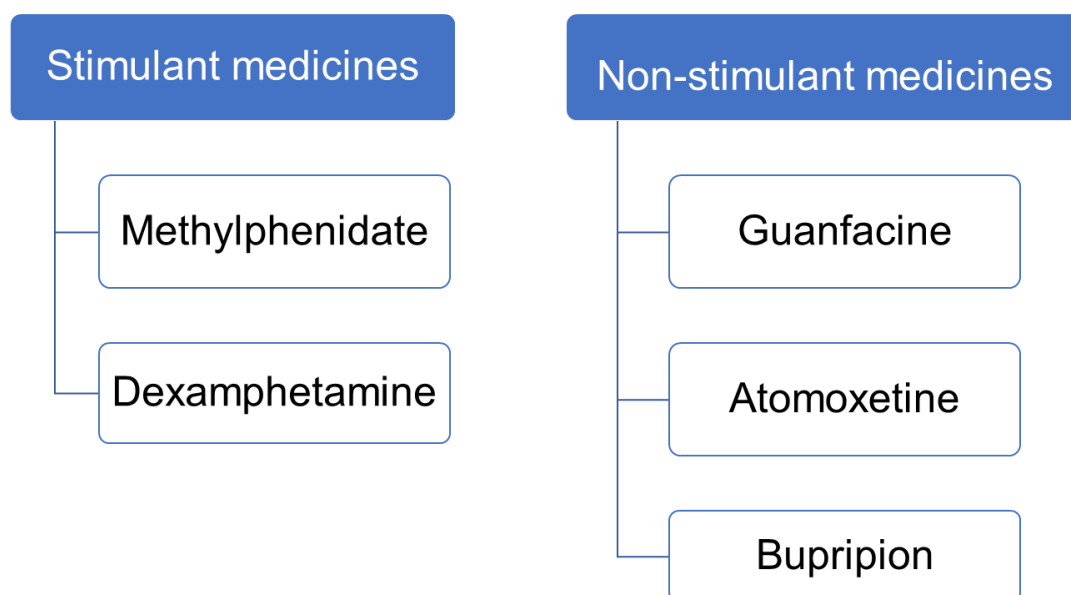


Figure 2. Stimulant and non-stimulant examples of drugs used in the treatment of ADHD.

5.3.Others:

Other treatment options include cognitive training and neurofeedback, however they need to be explored at this time.

6. Conclusion

Adult ADHD has a high prevalence almost in all countries in the world. The Clinical implications of ADHD diagnosis are very complex owing to the multidimensional status of the symptoms that are typically observed. The diagnosis that is based on the symptoms and their intensity often faces problems due to complexities that arise due to the overlapping nature of the symptoms. With the development in screening, accurate diagnoses can be made that help in planning the treatment strategies. Timely treatment can help adults with ADHD manage their symptoms and have a better quality of life.

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