

Attention Deficit Hyperactivity Disorder: Connotation, Influencing Factors, Treatment and Prevention

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Abstract: This paper provides an overview of Attention Deficit Hyperactivity Disorder (ADHD) in terms of its causes, prevention and treatment. In the literature review section, the definition and types of ADHD are firstly presented, namely Hyperactive, Inattentive and Combined. Naturally, the environmental and personal causes of ADHD are presented as well as some of the adverse effects on the sufferer and even on the offspring of the sufferer, and it is found that the most significant factor is the parental environment, so it is inferred that in the treatment of ADHD as well as in the prevention of ADHD, some guidance can be given to parents to intervene in the development of ADHD through them to avoid lifelong effects on the sufferer. Some preventive measures and specific approaches to treatment are then discussed. Finally, some suggestions are made for future treatment and follow-up research on ADHD. Overall, reading this article will provide a comprehensive understanding of ADHD, especially its causes, a detailed understanding of the causes for better treatment interventions, and an insight into the effects of ADHD on people.

Keywords: ADHD, causes, effects, prevention, treatment

1. Introduction

During the course of a person's life, childhood seems to make all the difference in laying the foundations for future development, and it is essential to have a healthy body in order to lay a good foundation for the future. ADHD, which was once considered a childhood disorder (and has now been shown to persist throughout adolescence and even adulthood), is also likely to manifest itself during this period [1]. ADHD is a brain-based neurodevelopmental disorder that affects, to varying degrees, a person's educational attainment, socialization, work, relationships, parenting, etc. [1].

ADHD typically manifests itself in children's lives as distractions when talking to others, inability to follow instructions and complete tasks, forgetfulness, distractions and disruptions in the classroom [2]. These manifestations of ADHD are sometimes overlooked by their caregiving parents and there is a possibility that they may be perceived as inattentive. Some parents may think that it is because the child is young and will get better as they get older (these symptoms), which may lead to a better time to intervene being missed.

The controversy surrounding ADHD revolves around its causes, whether caused by the environment (parents, teachers, etc.) or by the individual (genetics, genes, etc.) and what percentage of the time it accounts for. This issue is still uncertain. The current diagnosis of ADHD differs from

most other disorders in that it is based on test results. In contrast, the diagnosis of ADHD relies more on the subjective judgement of the treating doctor and is not supported by relevant data. This may lead to misdiagnosis or negatively impact subsequent treatment if the condition is not detected in time.

In brief, this article will review and summarise the causes of ADHD and briefly outline the current mainstream treatments. Furthermore, a summary of the current mainstream treatments will be presented. Thus, the objective of this paper is to have a comprehensive overview of what is being learned about ADHD and to contribute a clear direction for future research.

2. Literature Review

2.1. Attention Deficit Hyperactivity Disorder

2.1.1. Description

Attention Deficit Hyperactivity Disorder (ADHD), first described in 1920, is more common and influential in childhood and is now considered one of the most common causes of learning and behavioural difficulties in school-aged children [3]. There are three types of ADHD: Hyperactive, characterized by environmental discomfort. Hyperactivity and rushing without thinking; Inattentive type, characterized by a lack of concentration; and Combined type. ADHD affects three to five out of every hundred children of school age and can persist into adulthood; notably, more boys than girls are diagnosed, and the presentation varies by gender [2].

2.1.2. Diagnostic

There are a few steps to diagnosis, the first of which is to get a detailed understanding of the patient, in the case of a child, and to obtain information about the child's behavior at home and school, commonly by asking parents and schoolteachers to complete a standard questionnaire which will help to diagnose ADHD [3]. Secondly, it is necessary to ensure that the child's learning behavior is not affected or interfered with by other disorders, and further tests may need to be arranged [3]. Thirdly, specific areas of difficulty for the child are identified through specific tests [3]. Finally, the doctor assesses this information and makes a diagnosis, which is explained to the child's parents [3].

Based on the above-mentioned diagnostic methods, it can be seen that they are not entirely scientific, and there is a degree of subjective assessment and judgement by doctors. No medical or genetic tests for ADHD have been found.

2.2. Reasons

To better treat ADHD, the most important thing is to understand the causes of the disorder and then to provide appropriate and comprehensive treatment according to the causes. It is currently speculated that a combination of factors may cause it, but not limited to the environment (parental or school influences), individual genes or genetics.

2.2.1. Environment Factors

The quality of parental interaction (adverse, harsh or warm), abuse, parental relationship status (divorced or single parent), and exposure to the child's media have been successfully shown to be directly and significantly associated with ADHD outcomes, except for some cases within the quality of parental interaction, which are negatively associated with ADHD outcomes [4].

It is worth discussing whether positive emotions are essential for both children and adults, regardless of the situation, and whether they can potentially mitigate the development of ADHD. Studies have examined the mediating role of the adoptive family environment by comparing pre-and post-adoptive ADHD symptoms in adopted adolescents and have found that children with an antisocial biological parent who also experienced negative adoptive family interactions were more likely to develop aggressive behavior, and that maternal depression predicted depression in children regardless of the adoption status, confirming that the family environment is crucial for children [5]. The research suggests that a focus on whether family interaction is a positive or negative pattern may contribute to improvements in the final outcomes of adopted children [5]. The study sample was predominantly well-educated whites, which is not representative or diverse and is less referable to the general public as not all parents are well-educated. Similarly, in a related study by Johnston and Mash, the experiment showed that mothers of children with ADHD were more directive and negative, interacted less, and had more negative children than the control group [6]. Both studies successfully demonstrated that parental emotions might contribute to children being at risk of developing ADHD.

Another factor of concern regarding the causes of ADHD is abuse. In most people's subconscious, abuse mainly occurs in domestic violence between spouses and bullying incidents in the workplace or at school. Still, few people notice that children can also be abused in the home, leaving a severe mark on them throughout their lives, with potentially lifelong effects. Research-based on Richard's article published in 2013 showed that ADHD was the most common diagnosis in a sample of hospitalized sexually abused children, as well as the interplay between the effects of parental marital smoke breakdowns and physical abuse, increasing the risk of having ADHD fifteen-fold compared to children in intact families who had not been abused [6]! Children with ADHD were found to have higher rates of abuse, and girls had a higher probability of having ADHD after experiencing physical and sexual abuse [7].

In traditional Chinese education, it seems that mothers are inherently expected to give more time and energy to their children's development. This study will not discuss whether this is right or wrong but only whether mothers have some influence on children with ADHD. In the same article by Nona, it is also shown that if the mother has a borderline personality disorder, there is a high probability that the child will have ADHD or a disruptive behavior disorder [7]. The hypothesis that this depression in mothers may lead to ADHD in children is that depression may lead to mothers being less emotionally available or more critical of their children [7]. These may lead to children developing ADHD because they do not receive the emotional care or approval they need from their mothers. There are also behaviors and problems experienced by mothers during pregnancy that are associated with ADHD in children, for example, if current smoking and drinking during pregnancy increase the risk of ADHD in children [8].

Most children have their own school experience, and children with ADHD are no exception. Children experience many things at school, such as classes, meals, playing with peers, etc. The inevitable part of the student experience is exam results. The increasing focus on grades in education, the pressure of exams,

The current data shows that the influence of the environment on ADHD is more related to the parents, in particular the different family atmosphere created by parental affection and the emotional values provided, and less to the parental home environment and the school, probably because the parents are directly related to the child and have had earlier and longer contact.

2.2.2. Individual Factors

Few things in people's real-life scenes are absolute, which is the same in psychology. A factor does not cause the formation of a lot of mental illnesses. A variety of factors often causes it. For example,

the cause of ADHD, which is the focus of this study, is caused by the environment and individual factors such as genes, genetics or brain mechanisms.

Using twins as study subjects seems to be a good option when determining whether some diseases are hereditary and at what approximate rates. For example, the sample of study participants used in Gatz et al.'s study of the heritability of Alzheimer's disease were twins [9]. Similarly, ADHD, as a psychiatric disorder with a high heritability rate (officially around eighty percent), has a much higher heritability rate than most other psychiatric disorders. Recent findings suggest a specific genetic basis for both children and adults, which increases the risk not only of developing ADHD but also of other psychiatric diagnoses [10].

People also seem to think about genes when they think about genetics because the first thing most people learn about genetics in high school biology is the Mendelian effect, in which different genes pair up to form different phenotypes that can display a variety of genetic diseases. Now that most research has proven that ADHD is highly heritable, a deeper understanding and treatment for people with ADHD is to identify the specific genes that are involved in ADHD. Based on the work of Swanson et al., two attention networks, including areas of the brain rich in dopamine receptors, may be associated with attention deficits in ADHD, which is why dopamine agonist drugs can be used to treat children with ADHD [11].

2.2.3. Treatment and Prevention

In a clinical sense, a large part of the understanding and research into the causes of ADHD is aimed at better prevention and treatment of ADHD more scientifically and comprehensively. Through the exploration of the causes in this paper, it appears that some interventions, particularly at the parental level, can have a beneficial effect on the early treatment of ADHD, such as avoiding weak interactions with the child, being patient with the child in sharing and daily routines, and giving appropriate recognition and affirmation to the child.

The main thing that is important in the treatment of any disorder is that it is effective. Medication, behavioral therapy and a combination of the two are proven effective treatments for ADHD [12]. Cognitive behavioral therapy is widely used in the treatment of children, such as verbal self-direction, self-assessment and reinforcement. In detail, professionals teach children cognitive skills and help them control themselves to avoid inattentive or impulsive behavior in the environment [12]. Unfortunately for cognitive behavioral therapy, this therapy does not make a significant difference to the learning dimension of ADHD in a clinical sense. Still, it may be effective in other dimensions (non-learning dimensions), especially when combined with a multi-component treatment program [12]. Clinical behavioral therapy is also a form of behavioral therapy that usually involves training the patient's parents, teachers, or both [12]. The training for clinical parents is usually an eight-to-sixteen-week schedule of sessions that includes group activities, homework, and follow-up and discussion [12]. These sessions are usually carefully designed to teach them the basics of social learning theory and basic information about ADHD to help them understand ADHD [12]. There has been some research into the effectiveness of clinical behavioral therapies, and there are currently some improvements. There is no restriction on the setting in the schoolroom or home [12]. Behavioral therapies seem to have some advantages at the environmental level as they are not restricted to the environment. They are easier to implement in schools, clinics or homes and can be improved.

As demonstrated earlier in the behavioral therapy section, most behavioral therapy relies on early intervention by parents, teachers, and others, which can reduce the ongoing development of ADHD. However, studies have shown that interventions are ineffective for long periods, so medication should be considered [13]. Two types of medication (psychostimulants and norepinephrine reuptake inhibitor, atomoxetine) are effective in treating ADHD for a limited period of time [13]. It is

important to note that the side effects of medication should be taken into account, as there is no such thing as a completely harmless medication, and the treatment of ADHD is likely to take a long time or even a lifetime. Psychostimulants do provide some control of ADHD, but they can also cause adverse effects such as appetite problems, sleep problems, etc. [13].

Unfortunately, the detection and identification of ADHD are still primarily determined by doctors or professionals based on the patient's presentation and their own experience, and it seems complicated to detect ADHD before it occurs. As a result, prevention of ADHD is now more likely to occur early in the life of the person with ADHD, particularly in early childhood (a critical period of brain development), where early intervention may be essential to address ADHD and, more importantly, where there is preliminary evidence that intervention early in the life of the person with ADHD is likely to result in sustained favourable treatment [14].

3. Future Implication

Since ADHD was first recognized, there has indeed been an increasing amount of research and attention paid to it, but there is still much to explore and delve into in the future concerning ADHD.

In terms of the causes of ADHD, more research has been done on the environmental aspects of the child's life, such as the mother's behaviour during pregnancy and the impact of the mother's mental illness. The second is the effect of violence on ADHD, whether it is domestic violence or violence in schools or even sexual abuse in some welfare institutions. Or psychological disorders. This is, therefore, an area where future research could focus and improve.

In addition, although behavioural therapy has less impact on the patient's health than medication, it faces significant and non-negligible resistance, for example, in the early stages of the condition, especially in childhood, but hardly in adolescence, and it is impossible to ignore factors such as parental education, time and understanding. The effect of this therapy is often seen in the early years of the patient's life, especially in childhood, but it is difficult to achieve results in adolescence. It cannot ignore the level of parental education, time and understanding. The effects of medication are relatively significant at present. Still, the impact on the patient is even more significant, above all, in terms of the parents and the patient's ability to accept the medication and the side effects, which are unpleasant at first, such as insomnia, which is painful for most people. The second issue is the family's financial ability and compliance with the medication, as most adolescent children are not very compliant. The cost of the medication itself and how easy it is for the patient to use are also essential. Current treatment for ADHD tends to be a combination of the two, but each has disadvantages. Future research will therefore look at behavioral therapies to increase their effectiveness while prolonging the period of effectiveness and at medication to find effective drugs with minimal adverse effects.

Finally, there is the objective reality of ADHD, as the majority of patients are children, and most children do not have a proper understanding of ADHD, which makes it challenging to engage them in treatment fully. Therefore, the dissemination of basic information about ADHD and the subsequent standard of treatment is something that needs to be studied and defined in the future.

4. Conclusion

In conclusion, the causes of ADHD, particularly at the level of environmental parents, have attracted much attention from researchers. As far as treatment options are public environmental disturbances predominate, and genetic inheritance seems to appear more in the causal and less in the therapeutic context. Regarding prevention, it seems that a degree of lifelong positive impact can be achieved by the right kind of intervention from parents and school teachers at the early stages of the child's symptoms.

This article describes two causes of ADHD, namely the environmental and the individual level. Compared to other psychological disorders, the early symptoms of ADHD are not obvious. Still, the effects can be lifelong, not only in terms of education and personal relationships at work but also in terms of marriage and the education of children after the birth of a child. Mothers with ADHD have less patience with their children's upbringing, which can also lead to the possibility of their children having ADHD.

For the prevention of this dreadful ongoing effect, early detection and early intervention guidance are essential, as well as more genetic-related research that can be used for prevention and treatment at more levels.

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