

How Educational Environment Supports/Prevents the Development of Students with ADHD in Early Childhood

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Abstract. The symptoms of attention deficit hyperactivity disorder (ADHD) will be reflected in the learning behavior, and then cause academic and social function impairment. This damage is also mitigated/accelerated by the protection of favorable/unfavorable educational environment factors. This study aims to understand the symptoms and manifestations of ADHD in early childhood, and to explore the mechanism of the impact of the educational environment on early ADHD children. Understanding ADHD symptoms in early childhood and how they relate to the educational environment can enrich the content of abnormal psychology, educational psychology, and developmental psychology. The results showed that symptoms of ADHD were highly detrimental to academic and social development in early childhood. However, the current general education environment with random classes is not conducive to the alleviation or treatment of ADHD children's adverse performance. Therefore, this article puts forward some suggestions to improve the educational environment of ADHD children from both families and teachers. The core is to change the way of teaching and guiding ADHD children and improve the family environment.

Keywords: Attention Deficit Hyperactivity Disorder; Early Childhood Development; Inclusive Education.

1. Introduction

Attention Deficit and Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder that seriously affects a large number of children and adults. It usually begins in childhood. Individuals with ADHD show a behavioral pattern of inattention and hyperactivity that is inconsistent with their development level [1]. School age is a stage in which children's psychological development is extremely unstable before puberty. If children with ADHD are not given appropriate treatment and help, they will develop learning disabilities, emotional disorders, mental disorders and personality development problems, etc. [2]. These problems not only affect their studies and interpersonal relationships, but also cause family and social problems.

Research into how the educational environment supports/prevents the development of students with ADHD in early childhood is important because ADHD not only affects children's individual learning, emotions, behavior and adaptation, but it also posts great challenges for teachers, parents and social workers. Preventing and intervening school-age psychological problems of children with ADHD is not only an urgent task in the education of special children and mental health education. Moreover, as a serious public health problem, ADHD deserves widespread attention from the whole society and great attention from academia.

Early childhood is an important transition period from immaturity to maturity in the development process of an individual, and it is also a critical period for physical and mental development. Studies have found that untreated individuals with neurodevelopmental disorders such as ADHD can show two trends in the development of symptoms at this stage: continue to aggravate, or slow down. Regardless, the functional impairment in both trends will be long-lasting and progressive [3,4]. Amoly et al. also found that many positive psychosocial factors have a protective effect on the impairment of the social function of ADHD individuals [5]. Most researchers have focused on the direct relationship between the two; however, according to the "bio-psychological-social" medical model, the impairment of social function caused by mental disorders is not only related to the severity

of the disorder itself, but also related to the joint action of some psychosocial factors as risk factors or protective factors.

While relatively little research has been done on the educational environment which is critical to children, this study will focus on how the educational environment supports/prevents the development of students with ADHD in early childhood. Therefore, by examining the mechanism of social support and general self-efficacy between ADHD and the educational environment, this paper proposes to optimize the basis of prevention and intervention for the improvement of social function impairment of ADHD individuals. The study helps to provide different directions for further research to deepen and broaden the understanding of ADHD.

2. Current Difficulties ADHD Students Encounter

2.1. Description

ADHD is one of the most common mental disorders among early childhood children [6]. The persistent inattention and hyperactivity that comes with ADHD can interfere with social functioning or development. Typically, ADHD individuals may present two types of symptoms. The first kind of symptoms consists of individuals with symptoms of inattention, which commonly manifests as problems maintaining attention during tasks or games, including conversations, lectures, or reading for extended periods of time, careless errors in school work, failure to follow directions, failure to problems completing schoolwork, organizing tasks and activities, poor time management, easily distracted by irrelevant thoughts or stimuli, etc. The second kind of symptoms is school-age individuals with hyperactive or impulsive symptoms, often manifested by talking incessantly, fidgeting, constantly moving or walking around, difficulty waiting, rushing to answer questions before listening, interrupting other people's conversations, or changing the subject without waiting for the conversation to end, etc. [1, 3, 7].

Studies have shown that the link between ADHD and impaired academic performance and achievement is strong in very young children [4]. In addition, ADHD's impact on students' academic performance is gradual, including early academic failure, grade repetition, and eventual dropout. Academic problem behavior refers to the manifestation of executive function (EF) deficits in learning activities. ADHD patients have marked EF deficits that limit their abilities, including impairment of mental functioning (e.g. inattention, poor memory, poor control of psychomotor), problems with motor function and complex motor sequencing and limitations in specific learning abilities (e.g., dyslexia, dysgraphia, dyscalculia). These symptoms occur in patients with ADHD because of deficits in their core EFs that demonstrate marked impairment of self-regulation. These deficits include self-regulation of affect/motivation, inhibitory control, working memory, pre-thinking, and problem-solving.

Adolescents with ADHD were observed to perform significantly worse than normal controls, with lower scores in all subjects on their report cards, lower class ranks, and lower scores on standardized academic achievement tests [6]. Course failure is common as the symptoms of ADHD interfere with a student's academic function and performance, leading to multiple learning risks. The symptoms of ADHD may be eliminated at a certain age, and may also be manifested throughout a person's life, but whether it is phased or persistent, ADHD's damage to the individual's learning function is long-lasting [7]. Manifestations of ADHD symptoms have cumulative effects on educational performance as individuals age.

Research notes that "adolescents with ADHD also score lower than their peers on performance tests, although these studies generally report on younger adolescents rather than high school-age adolescents"[1]. A study on "Long-Term Learning Outcomes in Children with ADHD: Based on A Population's Perspective" found that as children progressed from elementary school through high school, the link between ADHD and impaired school functioning became more pronounced, as demonstrated by absences per school year between ADHD cases and controls. The median difference

in days increased with higher grades. Of the 301 ADHD cases remaining at the end of follow-up, 22.9% had dropped out of high school, compared with only 10.0% of the corresponding 609 control cases; the proportion of subjects who dropped out of school was 2.7 times that of the control group. Another study also pointed out that in the follow-up of the same series of samples in the 19-25 age group, ADHD patients did not perform as well as the control group. It was found that the non-ADHD community control group has a dropout rate of 0% and a repetition rate of 13%. However, ADHD patients present a dropout rate of 31% and higher repetition rates of 42% [2]. Another investigator followed a sample of children with ADHD who were referred from an outpatient clinic for 4 years and found that their grades were consistently problematic [6].

2.2. The impact of the current educational environment on children with ADHD

Most children with ADHD have IQ levels within the normal range, but their academic performance is far behind that of normal children of the same age [8]. In ordinary schools, most of the teachers do not have professional qualities. They are insufficient in educational management concepts and teaching skills related to special education, and cannot provide children with ADHD with education suitable for their development. In addition, most parents have misconceptions about the disease of attention deficit hyperactivity disorder, such as thinking that their ADHD child is not sick, but just very playful, or that ADHD children can concentrate on learning as long as they are cheered up [9]. The inadequate education of teachers and the wrong cognition of parents lead to the stagnant academic performance of ADHD children. With the growth of age and the rise of grades, students' study time has increased significantly, and academic tasks have continued to increase. If teachers and parents do not actively take corresponding measures, ADHD children will have more serious learning difficulties, and their grades will be left far behind. This situation can easily make ADHD children excluded and isolated from other students, and it is also easy for teachers to treat them as poor students. At the same time, inappropriate treatment by teachers and parents may increase ADHD children's chances of depression, low self-efficacy, anxiety and other psychological problems, and then trigger or externalize into more serious emotional and behavioral problems. The backward academic performance and serious emotional and behavioral problems of ADHD children also affect teachers' education and teaching work, which adds extra psychological pressure to teachers and poses great challenges to teachers' professional development.

In addition to teachers and parents, the peer relationship in the educational environment of children with ADHD is also worthy of attention. The negative class social status of ADHD children has been formed in the middle of elementary school or even earlier in the educational environment of learning in regular classes. The class social status of ADHD girls is higher than that of boys, but the overall peer acceptance level of ADHD children is not optimistic [9]. Ordinary children show neglect and rejection attitudes toward ADHD children, which will inevitably lead to impaired peer relationships and class maladjustment of ADHD children [10]. It is worth noting that some studies have shown that children's class social status is quite stable. If no corresponding measures are taken, negative social status and peer acceptance may accompany the entire school career network.

The ultimate goal of school education is to integrate students into society. The class is a small society where children participate first. The density, scale and structure distribution of the class social network are inseparable from children's peer relationships. The social network density of the classes where children with ADHD attend classes is relatively low, which indicates that the social network structure of the classes where children with ADHD engage is relatively loose [11]. ADHD children have less emotional communication and interaction with other students, and the closeness of their peer relationships needs to be improved. The reason for such an issue is that most ADHD children have problem behaviors, while ordinary children still lack understanding and acceptance of ADHD children, which affects the social atmosphere of the class [12].

3. Suggestions

In large classrooms, it is challenging for teachers to consistently monitor children with ADHD. As a result, these students may struggle to follow the pace of instruction and complete their tasks on time. To provide more effective support and boost their confidence and sense of achievement, educators should consider adapting their teaching strategies. Implementing more practical and inclusive instructional methods can better support the academic development of students with ADHD. As primary school students engage in more peer interaction, the influence of classmates becomes more significant. Teachers can leverage this dynamic by incorporating peer tutoring and collaborative learning techniques into their classrooms. By pairing ADHD students with peers of the same age in one-on-one settings, educators can help enhance their academic outcomes, ease the instructional burden on teachers, and improve classroom efficiency overall. To apply Class-wide Peer Tutoring (CWPT), teachers should begin by instructing both students with ADHD and their peers on the steps involved in the tutoring process. After the training, students are randomly paired for collaborative learning. During the session, teachers or trained facilitators verbally present subject-related content, and students respond to questions out loud. The students then switch roles and repeat the process. Throughout the activity, the teacher supervises the interactions and offers support as needed. Moreover, educators should adjust the length of learning tasks based on the specific needs of students with ADHD. Breaking down complex assignments into smaller, manageable parts that can be completed in a shorter time frame can enhance engagement and success. Incorporating bright colors and visual elements into task materials can also help maintain attention. In addition, teachers should deliver task instructions clearly and briefly, ensuring that students understand both the objectives and the steps needed to complete their work. When it comes to the classroom environment, it is important to maintain a tidy and organized space. Removing items that might easily distract students with ADHD can help minimize external disruptions and create a more focused learning atmosphere.

Family is an important place for children's physical and mental growth and development, and parents play an important role in children's lives. The negative impact of attention deficit hyperactivity disorder on the family is mainly that ADHD children cannot meet the expectations of their parents, cannot complete the homework requirements assigned by schoolteachers like normal children, nor get along with teachers and classmates in a friendly manner. These problems often lead to parents being summoned and admonished by the school, which creates tension in the family environment. The tense family relationship also brings great pressure on the education and upbringing of parents, and various bad emotions and even extreme behaviors appear. The parenting pressure on ADHD children's parents is much higher than that of normal children. Parents' negative emotions can also lead to wrong parenting methods, which can easily lead to more serious problems in ADHD children. Therefore, parents of children with ADHD should give more patience and support to their children. When a child with ADHD behaves unexpectedly, criticizing but communicating with the child may be more effective. In daily life, parents should make plans for children with ADHD, and reward them after completing the plan. This can improve children's mobility and avoid conflicts between parents and their ADHD children.

4. Conclusion

This article examines symptom presentation in children with ADHD and how educational settings can support/prevent the development of students with ADHD in early childhood. The results of the study show that children with ADHD do not perform as well as normal children at school, at home, and socially due to the negative effects of ADHD. The current educational environment for children with ADHD will further amplify this negative effect. Students with academically problematic behaviors generally have poorer performance in learning activities, not only in academic performance but also in other aspects of school performance. Therefore, schools and families should pay close attention to changing the current educational environment and providing them with strong social support.

This article reviews the symptoms of ADHD children and the impact mechanism of the educational environment on ADHD children in early childhood. Although the research has obtained some results that are relatively consistent with previous related research results, the research conclusions still need further supplementary verification in the future. This study has limitations in the following aspects: due to the limited resources available to the researchers, the number of ADHD children visited in the field is not large enough, so the focus of the research objects is on children with ADHD in early childhood. Therefore, future research can select sampling objects in different regions and ADHD populations of different ages, and further explore the deep mechanism of the educational environment on ADHD children.

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