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The Power of Teaching Strategy and its Impact on Children with ADHD

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Abstract: Attention deficit hyperactivity disorder (ADHD) is a type of disorder caused by brain dysfunction that is easy to be found in childhood, and it is common in children, adolescents, and adults. Although there is a lot of research on attention deficit hyperactivity disorder (ADHD), there seems to be a lack of comprehensive research on educational strategies and their effects on this disorder. This literature review attempts to discuss what ADHD is and some risk factors associated with the prevalence of ADHD, the executive function problems associated with ADHD and related interventions, other possible interventions or educational strategies, and ultimately, what kind of collaboration relationship should be achieved between the educator and the parent or family will be discussed.

Keywords: ADHD; Teaching strategy; Strength; Children; Influence

1. Defining ADHD and prevalence of ADHD

AttentionDeficit Hyperactivity Disorder (ADHD) is one of the most common childhood mental health disorders and is characterized by continuing inattention, impulsivity, and hyperactivity (Barkley, 1997). It is estimated that there is at least one child with ADHD in each classroom (Barkley, 1990) based on a global meta-analysis estimating that 5.3% of children and adolescents are diagnosed with ADHD (Polanczyket al.,2007)[1]. Regarding the factors or related factors that affect the prevalence of ADHD, many studies have reported that the prevalence of ADHD is higher in disadvantaged groups (Biedermanet al., 2002). Socioeconomic status (including income and education) and parental history of ADHD are both important risk factors for ADHD that may interact with each other to determine the prevalence(Rowland et al., 2017)[2].

2. Executive function and related interventions

Attention deficit hyperactivity disorder (ADHD) is a mental disorder that includes cognitive impairment (attention disorder). Therefore, neuropsychologists have conducted a lot of research on executive functions (EFs). EFs are understood as the ability to deliberately act under the influence of dynamic feedback from the environment. Typical aspects of EFs include cognitive inhibition, cognitive elasticity, planning, and working memory. Neuropsychologists also believe that cognitive inhibition is the most significant EF deficit in ADHD (Geurts et al., 2004; Pauli-Pott & Becker, 2011; Willcutt et al., 2001). Studies have shown that children with ADHD perform worse on attention tests, and also perform poorly on working memory, inhibition, and planning tests. The latter three are classified as the main categories of executive functions. At the same time, impaired inhibition has also been shown to be a characteristic of children with ADHD (Willcutt et al., 2001).

3. Interventions

There are a few specific cognitive profiles for ADHD patients because the type and severity of dysfunction in ADHD patients are heterogeneous and vary greatly at the individual level (Willcutt et al., 2005)[3]. Sustained attention and executive function are affected areas (Nigg, 2005; Willcutt et al., 2005), although only half of children with ADHD have actual executive function deficits (Lambek et al., 2010)[4]. Medication is effective for the core symptoms of ADHD, but the effects on cognition, especially executive function, are limited (Pietrzak et al., 2006; Coghill et al., 2007), so more treatment or intervention options are needed.

Cognitive training has been proposed as a possible new treatment for ADHD (Klingberg et al.,2005). Most cognitive training methods focus on improving both on the directly trained functions (Bikic et al., 2018). The theory of cognitive training is based on the concept of neuroplasticity, hoping to change the brain through new experiences. The goal of cognitive training is to reduce symptoms and improve function by enhancing defective networks and regions through external stimulation. There are cognitive training methods based on different theoretical frameworks, mainly training methods for working memory, followed by some training for attention and some executive function (Semrud-Clikeman et al., 1999; Johnstone et al., 2012; Shalev et al., 2007). Cognitive training studies often use parental and teacher ratings as outcome measures of symptoms and executive functions. Meta-analysis showed significant impacts on the overall symptoms and inattention symptoms of ADHD and rated executive function (Cortese et al., 2015).

4. Other interventions

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In addition to cognitive training, there are other interventions or educational strategies that are effective in the classroom, class or school. First, academically, children with ADHD are more likely to have lower grades, score lower on standardized tests, and are more likely to be in special education (Loe & Feldman, 2007)[5]. Students with ADHD are also more likely to have higher absenteeism rates, are three times more likely to stay in elementary school, and are at higher risk of dropping out of high school (Barbaresi et al., 2007). Students with ADHD face many different types and chronic difficulties (DuPaul & Stoner, 2003). Some effective school intervention strategies including behavioral interventions, self-regulation intervention and family-school collaboration relationships will be discussed.

4.1Behavioral Interventions

Behavioral interventions for students with ADHD include both antecedent- and consequence-based strategies. Antecedents are events that occur before and may trigger the occurrence of a particular behavior. Behavioral interventions include direct changes to the environment to reduce children's delayed reactions to the environment. At the same time, many antecedent-based interventions have been used to prevent inattention and disruptive behaviors. Teachers can publish and strategically review classroom rules (DuPaul & Weyandt, 2006) with a small number of rules and adopt positive wording. Another commonly used antecedent strategy is changing the length and/or content of assignments to fit the student's attention span which can help reduce disruptive behavior (DuPaul & Stoner, 2003). Consequence-based strategies involve manipulating environmental events to change the frequency of a given behavior after it occurs, such as positive reinforcement and self-management interventions (DuPaul & Weyandt, 2006).

4.2Self-regulation Interventions

Self- regulating interventions are usually combined with the successful adoption or subsequent application of a teacher-mediated behavioral approach to encourage students with ADHD to monitor, evaluate, and/or strengthen their behavior. It can also help students reduce delayed reactions. Teachers and students with ADHD can simultaneously use the Likert scale to regularly evaluate their classroom behavior and work performance, and students will be strengthened according to the degree of matching between their self-evaluation and teachers' grades. As the students improve, the frequency of matching with the teacher's grade is gradually reduced, and only self-evaluation is used eventually. A meta-analysis showed that self- evaluation and other self-regulating interventions had significant positive effects on the work behavior and academic performance of students with ADHD (Reid et al., 2005). Meanwhile, in a study by Gureasko-Moore et al. (2007), results showed that training middle school students with ADHD to monitor their homework and classroom preparation can help them improve their organizational skills quickly and persistently.

4.3Educator-parent Collaboration

Both family and school are very important components and influencing factors for children with ADHD, so effective communication and cooperation between family and school are of vital importance (DuPaul et al., 2011). Daily report cards (DRC) are one of the most frequently implemented effective interventions for children with ADHD (Owens et al., 2005). DRC can provide feedback to students and parents on classroom performance, work completion, academic performance, social relationships, etc. DRC can successfully improve classroom behavior and academic performance of students with ADHD, especially those with mild symptoms of ADHD (Murray et al., 2008).

5. Discussion and Implication

Although there have been many studies on ADHD, there are still many aspects that are not perfect or lack larger or different samples. School-based interventions are a key component of the treatment plan for ADHD students, but family education, cooperation and attention to mental health are also critical. Although there are many effective interventions that can more effectively meet the needs of students with ADHD, more research is needed.

Conclusion

In this literature review, the definition of attention disorder hyperactivity disorder (ADHD), prevalence, and some influencing factors for prevalence were discussed. At the same time, different educational methods, such as self-management, cognitive training and behavioral intervention, can be targeted to help students with ADHD with different needs. More research is needed to explore interventions, and the importance of cooperation between families, society, educators, and students with ADHD should not be ignored.

References:

[1] Barbaresi, W. J., Katusic, S. K., Colligan, R. C., Weaver, A. L., & Jacobsen, S. J. (2007). Long- term school outcomes for children with attention-deficit/hyperactivity disorder: A population-based perspective. Journal of Developmental and Behavioral Pediatrics, 28,265–273.

[2] Barkley, R. A. (1990). Attention deficit hyperactivity disorder: A handbook for diagnosis and treatment. New York: Guildford Press.

[3] Barkley, R. A. (1997). Behavioural inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. Psychological Bulletin, 121(1), 65–94.

[4] Biederman, J., Faraone, S.V., & Monuteaux, M.C. (2002). Differential effect of environmental adversity by gender: Rutter's index of adversity in a group of boys and girls with and without ADHD. American Journal of Psychiatry, 159, 1556–1562.

[5] Bikic, A., Leckman, J., Christensen, T., Bilenberg, N., & Dalsgaard, S. (2018). Attention and executive functions computer training for attention-deficit/hyperactivity disorder (ADHD): results from a randomized, controlled trial. European Child & Adolescent Psychiatry, 27(12), 1563-1574. https://doi.org/10.1007/s00787-018-1151-y

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