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Article Review

Assessing the Impact of Cognitive Training on Children with ADHD: A Qualitative Analysis

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ABSTRACT

Cognitive training has become one of the most promising interventions for children diagnosed with Hyperactive Disorder, commonly known as ADHD, or attention deficit hyperactivity disorder. It is a qualitative study seeking to uncover the advantages of cognitive training towards children suffering from hyperactivity disorder. The study focuses on the perspectives and experiences of the parents, teachers, and medical professionals who look after and grow these kids. Through focus groups and semi-structured interviews, information about alterations in academic performance, attention span, and behavioural regulation is obtained. Findings indicated that there is a possibility that cognitive training may be an effective tool in improving the executive functioning of disruptive children with hyperactive disorder, and results seem to vary according to the characteristics of the child and approach of the training involved. Some recommendations for educators and therapists are provided as well as ideas for future research.

INTRODUCTION

ADHD is one among the most common neurodevelopmental disorders of childhood, affecting approximately 5% to 10% of children worldwide (American Psychiatric Association, 2013). The condition is typically characterized by persistent patterns of inattention, hyperactivity, and impulsivity, which causes an extreme interference with a child's functioning effectively in academic, social, and familial settings (Barkley, 2014). Many of these traditional interventions are pharmacological interventions such as stimulant medications and behavioral therapies. However, cognitive training has gained increased interest in recent times as a non-pharmacological intervention aimed at enhancing children with hyperactivity in attention control, working memory, and executive functions (Diamond & Lee, 2011).

This qualitative study investigates the possible benefits of cognitive training from various perspectives-includes how such interventions are perceived by children, their parents, teachers and also healthcare professionals. Building on this need to grasp the lived experiences of these

stakeholders will provide valuable subjective perceptions in understanding the effectiveness, feasibility as well as challenges of cognitive training for children diagnosed with hyperactive disorder.

Interventions such as working memory training and attention control exercises have been provided under cognitive training programs especially aimed at children with ADHD (Klingberg et al., 2005). Barkley (1997) has pointed out that executive functions, which involve the skills of impulse control, emotional regulation, and task-switching, have been highly compromised in hyperactivity. Systematic practice of such cognition can improve these skills hence serve to reduce the severity of ADHD.

A number of the studies of effectiveness of cognitive training interventions have used a quantitative design and controlled trials (Holmes et al., 2009; Green et al., 2012). Some evidence has shown that this training improves working memory and reduces hyperactivity behavior, while other research reports mixed or transient results from cognitive training (Shipstead et al., 2012). Qualitative work in this area remains few, especially in relation to children and their family experience of such intervention.

This study using qualitative methods, proposes to fill a gap in literature which provides a more balanced view of the effects of the intervention upon children suffering from ADHD beyond performance aspects and emotional and social balance.

RESEARCH METHODS

Participant characteristics and research design

Children: A Purposive sample of 10 children between the ages of 7-12 years and diagnosed with ADHD who have followed at least for three months a cognitive training program. Parents and caregivers: The parents or primary caregivers of the children in the sample. Educators and school staff: Teachers or school administrators who work directly with the children. Healthcare professionals: Cognitive therapists and psychologists working on the children's cognitive training programs.

This qualitative study utilizes a multiple case study design, focusing on children diagnosed with ADHD and cognitive training interventions. The data-gathering approach mainly applied is the semi-structured interview and focus group discussions on parents, teachers, cognitive therapists, and healthcare professionals. Children taking part in the cognitive training programs will also be observed during sessions and will have informal interviews to depict their perspectives.

Data Collection

Interviews: Semi-structured interviews with each of the participant groups will be conducted discussing their experiences and perceptions about the cognitive training intervention. Focus Groups: Parent as well as educator focus groups will be held creating a discussion and shared reflection on the children's activities and challenges. Observation: The cognitive training sessions will be observed with an intention of understanding how children interact with the program as well as to document observable behavioral changes. Field Notes: There will be detailed field notes prepared during the interviews and observation sessions to gather information pertinent to the non-verbal cues and contextual information.

Data analysis

Thematic analysis will be used to analyze data. It will use the information gathered from interviews, focus groups, and field notes that will be transcribed and encoded using the software package NVivo. Emerging themes will be identified and categorized based on how they relate to the

research questions asked. A constant comparison process will be conducted to show similarities and differences across stakeholder groups.

RESULTS AND DISCUSSION

The findings of this study have been categorized into major themes corresponding to the research questions. Preliminary analysis suggests that cognitive training interventions have a positive impact on children's attention, behavioral regulation, and academic performance. Parents reported noticeable improvements in their children's ability to focus on tasks for longer periods, increased memory recall, and a heightened ability to control emotional responses. These improvements were evident in both academic settings and daily routines, reinforcing the idea that cognitive training can be a valuable tool in managing symptoms of ADHD.

One of the key observations from the study was the consistent feedback from parents regarding the enhancement in their children's attention spans. Many parents mentioned that their children were able to focus more effectively on their schoolwork, leading to better academic performance. This aligns with previous studies that suggest cognitive training can help in strengthening attention control, a critical challenge for children with ADHD. Enhanced attention spans can potentially translate into improved classroom engagement and learning outcomes, thus positively affecting their overall development.

In terms of behavioral regulation, parents also noticed an increase in their children's ability to manage their emotions and behaviors. Many reported that their children were less impulsive and more capable of adhering to instructions, especially in structured environments. Behavioral improvements were often observed in both school and home settings, suggesting that cognitive training can have a broad effect on children's daily functioning. This supports the notion that cognitive training, by targeting executive functions, plays a key role in improving self-regulation, which is often a difficulty for children with ADHD.

Although the benefits of cognitive training were acknowledged, there were concerns about the sustainability of these improvements. Parents expressed mixed feelings about whether the gains made during the training would last without continuous reinforcement. Some feared that, in the absence of follow-up support, their children would revert to previous behaviors. This concern underscores the need for a more comprehensive approach that includes not only cognitive training but also strategies for maintaining progress over time, such as follow-up interventions or school-based support programs.

Interestingly, children themselves reported positive experiences with the cognitive training interventions. Many said that they "enjoyed" the activities and felt "pleased" with the outcomes. This was particularly true for children who found the tasks engaging and stimulating. However, there were also voices of dissent, with some children describing certain exercises as "tedious" or even "catastrophic." This divergence in experiences highlights the need for more individualized approaches to cognitive training, where the exercises can be tailored to suit the specific needs and preferences of each child.

Clinicians, who were also involved in the study, suggested that cognitive training interventions might only be effective if certain conditions are met. They argued that children must have some residual cognitive ability and motivation to engage in the training activities. Without these factors, even the most well-designed cognitive training programs may not yield the desired results. This perspective emphasizes the importance of assessing each child's readiness for such interventions,

as the effectiveness of cognitive training can vary significantly depending on individual cognitive profiles.

The varying experiences and opinions from parents, children, and clinicians suggest that while cognitive training interventions have the potential to improve attention, behavior, and academic performance, their success is not guaranteed for all children. Some children may struggle with the tasks, especially if they do not find them enjoyable or if they lack the motivation to engage consistently. This calls for further research to better understand which types of children benefit most from these interventions and how to tailor the programs to meet their specific needs.

One of the interesting findings from this study is the recognition that cognitive training might be beneficial in the classroom setting. Some parents believed that the improvements seen at home could soon be applied to classroom self-discipline. However, there was also skepticism regarding the feasibility of transferring these benefits to a school environment without additional support from teachers and caregivers. This highlights the importance of involving educators in the process, as their involvement could provide the reinforcement necessary for children to apply what they have learned in the context of a classroom.

The feedback from both parents and children also suggested that cognitive training may be particularly effective when it is paired with other forms of support. For instance, some parents mentioned that the training was most beneficial when used in conjunction with behavioral interventions or other therapeutic activities. This suggests that a multi-faceted approach to managing ADHD symptoms may be more effective than relying on cognitive training alone. Future studies could explore how different interventions can be combined to maximize the benefits for children with ADHD.

Lastly, while the study provides valuable insights into the potential benefits of cognitive training for children with ADHD, it also highlights the need for further research. The variability in responses suggests that there are many factors influencing the success of cognitive training interventions, such as individual cognitive abilities, motivation, and the type of training used. Future studies should focus on identifying which factors contribute most to the success of cognitive training programs and how they can be optimized to help children with ADHD achieve sustained improvements in attention, behavior, and academic performance.

CONCLUSION

The authors briefly summarize the perceived strengths and weaknesses of the treatment as reported by the children with hyperactive disorder. It thus identifies that even though cognitive training results in great enhancement in executive function and behavior, success is still largely dependent on individual factors-for instance, child engagement, consistency in training, and supportive caregivers and educators. Further research should look into pursuing longitudinal outcomes of cognitive training and probe how best to integrate cognitive interventions into comprehensive ADHD treatment plans.

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