OCCUPATIONAL THERAPIST PERCEPTIONS ON HOW EYE MOVEMENT THERAPY SUPPORTS WORKING MEMORY IN CHILDREN DIAGNOSED WITH ATTENTION DEFICIT/HYPERACTIVITY DISORDER

By

Latrés M. Bell

Liberty University

A Dissertation Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

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ABSTRACT

Previous research reports that children with attention-deficit/hyperactivity disorder (ADHD) show a deficit in their working memory. Working memory is the ability to temporarily manipulate, store, and retrieve information during cognitive tasks. Working memory is considered a critical deficiency in individuals diagnosed with ADHD. Working memory has been shown to be a mechanism for symptoms of disorganization and inattention in individuals diagnosed with ADHD. This qualitative research study reviewed occupational therapists' perceptions on their role working with children, aged six to 10 years old, diagnosed with ADHD and low working memory, who have had eye movement therapy. The occupational therapists' perceptions of the effects of eye movement therapy on working memory, conduct, and academic ability were investigated. ADHD and low working memory have been reported and characterized in two formats. First, children diagnosed with ADHD with hyperactive-impulsive subtype exhibit advanced levels of impulsive behavior, while those diagnosed with ADHD without hyperactive-impulsive subtype show a significant decrease in working memory to reduced reaction times. This research explored the effects of eye therapy treatment on the cognition of children diagnosed with ADHD from an occupational therapist professional perspective. Previous research has shown that eye therapy has improved working memory in children diagnosed with ADHD. Overall, during this study, occupational therapists discovered that integrating EMT with other interventions, such as cognitive-behavioral and sensory integration therapies, with children diagnosed with ADHD resulted in improvements in their working memories, attention, and academic performances.

Keywords: cognitive memory, eye therapy, working memory, Attention-Deficit/Hyperactivity Disorder, cognitive

Dedication

Thank you, GOD, for the guidance to endure and to persevere. Thank you to my professors, my dissertation chair, and committee member at Liberty University for your guidance during this journey. Your prayers and words of encouragement has made this journey appreciative. Thank you to my husband, Patrick, for being my cheerleader during this PhD journey. You have been my rock through our journey of life together and I am grateful. To my handsome, smart, and blessed since in the womb twin sons, Patrick Jeremiah and Jonah Patrick. This is for you! We have endured a lot since you two have been born. Many trips to the Children's hospital and therapy sessions, you two will be a guiding light to others. May you two walk into your divine purpose to serve HIM. Thank you to my parents, sisters, brother in heaven, my nephews, in laws, family, and friends who accompanied me on this journey. THANK YOU and to GOD BE THE GLORY!!! May the Lord allow me to operate in my divine purpose.

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CHAPTER 1: INTRODUCTION TO THE STUDY

Introduction

Attention-deficit hyperactivity disorder (ADHD) is a common neurodevelopment disorder which affects forming relationships, learning, and interacting with people. Individuals diagnosed with ADHD typically exhibit inattentiveness when engaging in chores, work, and school assignments; impulsivity; and hyperactivity; however, theoretical, and empirical studies indicate various deficits that are major underlying issues in children with low working memory (Arnsten, 2009). Therefore, there is a need to find improvement to control and address with visual and spatial information to improve working memory in children to help retain information long enough to use it, follow instructions, and concentrate (Arthur et al., 2021). However, the clinical aspect is the apparent efficacy for intervening in and controlling ADHD. With the rising number of discoveries, it is evident that motivational processes may impact or control the cognitive processing in ADHD (Parke et al., 2021).

Neurodevelopment disorders are characterized by the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) as a group of conditions with onset during the developmental period that produce impairments of functions such as the following: attention-deficit/hyperactivity disorder (ADHD), communication disorder, intellectual disability (ID), autism spectrum disorder (ASD), specific learning disorders, tic disorders, and neurodevelopmental motor disorders (APA, 2022). Neurodevelopment disorders are significant as they may result in minor disruption of activities for daily living (ADLs) but can be as severe as total inhibition for an individual to serve as a contributing member of society.

While neurodevelopment disorders have increased in prevalence and incidence, extensive research indicates that neurodevelopment disorders are linked to working memory particularly in individuals diagnosed with ADHD. ADHD is a leading diagnosis among children between the 6-12 years of age (Louthrenoo et al., 2022). The condition has different

signs and is characterized by hyperactivity, inactivity, inattention, and impulsivity. Other studies have shown that children with the disorder experience cognitive-related complications, and exhibit altered attention and impulsivity (Abramov et al., 2019). The condition affects primary functions in children, such as limited relationships with peers in school, parents at home, and siblings (Louthrenoo et al., 2022). Those diagnosed with the disorder additionally show chronic deficits in response inhibition as a significant feature of impulsivity. The inability to control impulses leads to impaired executive cognitive functions and cognitive-motor functions. Children with ADHD show abnormalities when managing saccadic eye movements, challenges with visual fixation, and abnormal eye movements. Because of brain dysfunction, children with ADHD also experience motor complications in parts of the brain, such as the cerebrum and the front striatal circuit (Emser et al., 2018).

The working memory consists of different but coordinating neural systems that manage attention, temporarily store information, and provide essential support for specialized cognitive processes (Ackermann et al., 2018). Various research has provided sufficient extensive evidence with short-term memory storage capabilities and how limited working memory will be determined in a child diagnosed with ADHD. Teachers report that children with a deficit in working memory are less attentive, and their attention lasts for a limited time (DeCarlo et al., 2016).

Children with low working memory also report complications in other functional areas (Arnsten, 2009). For example, their teachers reported the children as exhibiting impulsive responses and as deficient in working memory, the ability to manage and survey activities, and organization and planning (Arnsten, 2009). Low working memory is a developmental complication among children with ADHD and is considered a barrier to educational excellence. Thus, the disorder has become an interest in potential approaches to enhance children's working memory. Several strategies, including therapy and intensive

training, have been reported to improve performance in children with ADHD and low working memory. Many therapists have reported more benefits in enhancing low working memory in children (Kejani & Raeisi, 2020).

Background

According to the Centers for Disease Control and Prevention (CDC, 2022), approximately 6 million children in the United States are diagnosed with attention deficit/hyperactivity disorder (ADHD). Among the 6 million children, the data from 2016-2019 includes: ages 3-5 years: 265,000, 6-11 years: 2.4 million, and 12-17 years: 3.3 million diagnosed with ADHD. The data showed that 13% of boys and 6% of girls were diagnosed with ADHD and that boys were more likely to be diagnosed. The percentage steadily increases but no concrete reasons have been identified. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychiatric Association, 2013) described ADHD as a neurodevelopmental disorder with a pattern of hyperactivity, inattention, and hyperactivity-impulsivity that will impact the development and function of the brain. Additionally, children of black, non-Hispanic, and white non-Hispanic origin are more likely to exhibit ADHD symptoms than those of Hispanic or Asian non-Hispanic origin. The data in the form of percentages are displayed below (APA, 2020):

Origin	**Rate of diagnoses (%)**
Black children/ non-Hispanic	12
White non-Hispanic children	10
Hispanic children	8
Asian non-Hispanic children	3

Table 1. *The rate of ADHD diagnoses among states in the United States*

According to the Centers for Disease Control and Prevention (ADHD, 2021) survey, state rates of ADHD range from 6% to 16 % among children between the ages of three to seven years old. It is evident from the survey that treatment in children diagnosed with the

condition in each state varies between 58% to 92%. The study also shows that six of 10 children diagnosed with the condition portray other mental or emotional complications, including anxiety and conduct problems. Other conditions prevalent in children with ADHD include depression, Tourette syndrome, and autism (ADHD, 2021).

ADHD is among the primary neurodevelopmental complications in children (APA, 2022). Although the condition is first diagnosed during childhood, it persists during adulthood. The condition in children is characterized by the inability to maintain attention, impulsivity, and being overactive. Arnsten (2009) argued that the condition is characterized by inattention, hyperactivity, and impulsivity. With new imaging strategies and knowledge of genetics, better intervention strategies for the condition have been established. Studies have established a significant relationship between the condition and the weaker prefrontal cortex. The prefrontal cortex thus plays a primary function in controlling attention, emotions, and behavior. It is usual for children to have the inability to focus and behave at the same time. To effectively understand ADHD, it is significant to note that it manifests in several ways (Veloso et al., 2020). Therefore, a child with the condition might easily forget events, daydream a great deal, make mistakes carelessly and unknowingly talk too much, or have challenges fighting temptations (Veloso et al., 2020).

Scientists have revealed various types of ADHD, depending on the manifestation and the range of symptoms (Esmer et al., 2018). According to Emser and his counterparts (2018), it is difficult for an individual to compete for tasks (i.e., homework assignments) in the predominantly inattentive presentation type of ADHD. In predominantly inattentive presentations, individuals with ADHD experience challenges when following instructions, are easily distracted, and easily forget (Emser et al., 2018). A different type, the predominantly hyperactive-impulsive presentation, is characterized by the inability to concentrate for long, restlessness, and speaking inappropriately. In this type, the child is

impatient and will have a hard time listening when directed on tasks. The combined presentation form of ADHD combines the two types, and all symptoms are equally present in the person (Veloso et al., 2020).

Hyperactivity involves an excessive motor activity such as restlessness, tapping, excessive talking, and fidgeting (Veloso et al., 2020). Inattention refers to difficulties in sustaining attention, loss of focus, forgetfulness, and being disorganized. Hyperactivity is associated with inappropriate social behaviors such as intruding/interrupting others, and difficulty in waiting turn (Marx et al., 2022). In addition, children with attention deficits show deficits in executive functions and working memory (Marx et al., 2022). Executive functioning is defined as mental skills that help an individual execute their goals and monitor and assist with their individual plans. Executive functioning involves problem solving which would involve working memory, emotional self-control, and inhibition (Goh et al., 2020). The working memory component of executive functioning involves an individual's ability to focus on a task and utilize the information (Vernucci et al., 2019). ADHD has been prominent in the lateral prefrontal cortex region in the brain. The prefrontal cortex region of the brain supports cognitive functioning, such as executive attention, working memory, and cognitive functions (Vernucci et al., 2022).

Images taken from the brain of patients with ADHD indicate structural and functional abnormalities in both the prefrontal and striatal structures. According to Janmohammadi et al. (2019), in children diagnosed with ADHD, there is a primary difference between their brain size and that of children who are not diagnosed with ADHD. The normal function of the brain includes eye movements when gaining control over movements (Janmohammadi et al., 2019). Thus, children with ADHD experience impaired functions compared to functions in a normal brain. The crucial role of the oculomotor system is to function as an innervation to the pupil and the eye lens, innervation to the upper eyelid, and innervation to the eye muscles. As

an innervation of the eye muscles, the oculomotor system allows visual tracking and gaze fixation. Thus, as a mediator, the system shows complications in brain cells in children with ADHD, including deficits in the reticular compositions, the thalamus, and the cerebrum (Janmohammadi et al., 2019).

Children with ADHD have altered eye movements and challenges in inhibition. Children additionally tend to eye-track for shorter times, and their saccadic movements are full of errors, especially when activities demand more time. They cannot manage unnecessary saccadic eye movements, and among the essential elements of ADHD during eye movements is the inhibition of return. Oculomotor complications in children with ADHD thus lead to slower processing rates, lower automation rates, and an additional effort to complete assigned tasks (Veloso et al., 2020). Research additionally revealed that the kind of emotional valance in images impacts eye movements in visual studies, the duration of eye gaze, and controls (Veloso et al., 2020). For instance, the energetic cognitive model argued that a significant relationship is evident between disorganized motor behavior and errors due to behavioral output.

Essentially, both visuospatial capability and oculomotor management are essential in planning and praxis. Over the years, different intervention approaches to control ADHD prevalence in children have been of significant concern for scientists and other researchers. Since the brain designs the control of oculomotor movements in children diagnosed with ADHD, researchers assume that eye movement's key role in promoting control might help attain cognitive functions in participants and primarily children diagnosed with ADHD (Esmer et al., 2018). According to the literature, it has been found that eye therapy improves cognitive functions in children with ADHD (Esmer et al., 2018). Therefore, there is a need to increase awareness for children with ADHD to ultimately undergo eye therapy since earlier

research established the influence of eye movement practices and their impacts and inhibitory significance in children with ADHD (Esmer et al., 2018).

Mostly, ADHD is better treated through combined intervention approaches. However, treatment first demands establishing if a child has ADHD. One of the steps includes having medical exams such as hearing and vision examinations. Mostly, the condition is treated through a combination of behavior therapy and medication. For younger children aged between 4 to 5 years, the best intervention strategy demands parents' instruction as the first step before administering drugs. Nevertheless, the best intervention strategy for children and adolescents with ADHD depends on the child and their background. Therefore, effective intervention strategies that control ADHD prevalence call for close monitoring, follow-ups, and changes if needed during an intervention (Cardillo et al., 2020).

The deficits of ADHD and potential interventions can be better understood by researching various studies and theories of working memory, attention, and eye therapy (Garcia et al., 2019). The Posner and Petersen (1990) model proposed the concept of cognitive functioning and how it simultaneously interacts with neural networks in the brain to influence comprehension (Abramov et al., 2019). Posner and Petersen (1990) mentioned that attention interconnects with three networks: executive network, orienting network, and alerting network. The executive network entails the orbital frontal cortex, the dorsolateral prefrontal cortex, portions of the basal ganglia and thalamus, and the cingulate supplementary motor area (Posner & Petersen, 1990). Orienting network is associated with some parietal areas and precentral gyrus, and the ability to selectively pay attention to specific stimuli while ignoring the rest (Posner & Petersen, 1990). Alerting network is associated with the parietal and frontal areas of the brain which involves keeping focus (sustained attention) (Posner & Petersen, 1990). Alerting network has been associated with detention errors, switching from tasks to tasks, lack of attention and coordination. The mechanisms of these networks have

been linked to ADHD (Chai et al., 2019). Furthermore, there is continued research on the Attention Network Test (ANT) model, which is a computerized test created to evaluate the accuracy and efficiency of the three networks among individuals with ADHD and various other neurodevelopmental diagnoses (Chai et al., 2019).

Developmental psychology is a branch that focuses on cognitive, motivational, psychophysiological, and social functioning changes throughout a human's life span (Johnson et al., 2002). Developmental psychology is a scientific study of why and how human beings evolve (Geary, 2006). Around the age of five, children's brain starts to form chemicals and synapses. Johnson's (2010) views discuss the Transformational View. "For God's foolishness is wiser than human wisdom, and God's weakness is stronger than human strength" (1Cor 1:22-25, NIB). Christian-based psychologists have a spiritual foundation that aids in developmental psychology (Geary, 2006; Johnson, 2010). Integrating faith and science, in this case, developmental psychology breaks down unless rooted in a philosophic system. Transformational psychology supports the application of faith practices even in developmental psychology (Coe & Hall, 2010a). Transformational psychology protects the integrity of psychology's perspective understanding the greater good. Some may not agree that Wolter (2005) did not distinguish between man's creation and God's creation. He focuses on God's creation and how can mankind execute God's plan. Wolter discusses how God's truth can be lost in translation (Wolters, 2005). Researching the "why's" goes beyond empiricism to acknowledge Christianity's truth. Christianity comprises spiritual, relational, and ethical aspects of interacting with reality. One component of Transformational psychology's integration is the interchange between the science itself and the clinician doing the science (Wolters, 2005).

Level of Explanation, the most liberal of the Five Views (Coe & Hall, Johnson, 2010; 2010a), is a multi-layer of understanding human behavior. It focuses on cognitive and helping

researchers understand cognition. With the rise of developmental delays among youth, discovering the root causes and how to avoid them or finding other solutions can be beneficial. From a redemption perspective, understanding human behavior is defined as to have meaningful day-to-day experiences in the profession. Christians are inclined to connect their daily experiences to carry out their divine purposes (Wolters, 2005). Christians can relate to the grand narrative of Scripture and how they can fit those narratives into their daily lives (Wolters, 2005). The history of the grand narrative involves creation, fall, and redemption; however, restoration is a part of the narrative (Wolter, 2005). Genesis teaches that in the beginning, God created everything well even before sin entered (Genesis 1:28, NIB 2016). Once sin entered the world, it became difficult as it created some twisted and tainted ways that God did not intend – the fall. After Christ's death and resurrection, things were reconciled. "Reconcile all things to him" (Col 1:20, NIB, 2016) – redemption. Once this world has purged its sins, then creation will reap the restoration of God's will. As Christians integrate psychological science and biblical view, they are a call to God's ministry of reconciliation. In Al Wolters' (2005) words: "If Christ is the reconciler of all things, and if we have been entrusted with 'the ministry of reconciliation' on his behalf, then we have a redemptive task wherever our vocation places us in his world″ (NIB, 2016). As psychology professionals work in their field, they will encounter toil. Redemption from a worldview is based on theology, how one evaluates creation, impact one has, and one's efforts to mitigate toil within one's careers.

Pondering over evolutionary psychology (Geary, 2006), psychologists should review in their research on how it works, what must be, and how one understands it. Psychological sciences continue to understand the science behind the work and try to connect with theological practices and beliefs. Psychologists would be able to foster the needs of those in their psychological development, finding ways to understand one's faith and coping

strategies, especially if it is due to trauma. Integration plays a major role in connecting one's faith with emotional and psychological stresses (Geary, 2006).

Providing validity to disorders and diseases and how it correlates to both psychological sciences and biblical worldview will promote optimal understanding and development of a patient (Coe & Hall, 2010a; Johnson et al., 2010). Utilizing psychological tools and applications will help one access and self-reflect. Overall, research will recognize the creation, see God's intent at his creation, and recognize intentions in the field of psychology and overall purpose. When the direction is toward God, his redemption power at work can be seen (Wolters, 2005).

The Effect of Vision is the main way of receiving external input and the dominant sense for most people; moreover, more than 50% of the brain processes visual input and information (Hagen, 2012). The visual pathway in the brain processes 80% of external input, thus vision plays a significant role in the ability for people to function and perform basic daily activities and tasks (Jerath, Crawford, & Barnes, 2015). Visual deficits or impairments greatly impact children's function and independence in their daily activities, such as play, school-based activities and school assignments, and independent daily tasks. Additionally, visual deficits affect all areas of development, including cognitive/working memory, language development, social and motor skills, due to decreased exploration of the environment and limited interest and participation in social interactions amongst their peers (Willings, 2017).

Pediatric visual impairments have a negative effect on health-related quality of life (HRQoL) overall as shown by the negative effects on multiple domains, including psychosocial interactions, school, and activities of daily living (DeCarlo, McGwin, Bixler, Wallander, & Owsley, 2012). Furthermore, according to a systematic review by Augestad (2017), children with visual impairments have more anxiety and depression problems than

children without visual impairments. Visual deficits have a negative impact on health-related quality of life (HRQoL) and psychological well-being. Identifying, assessing, treating, and referring for visual deficits is important for children to increase psychological function and independence in meaningful activities, and maximize well-being.

Problem Statement

Recent studies, including cognitive training, have shown that executive functions, including goal selection, self-regulation, the use of feedback, and planning in children with ADHD, typically improve their cognitive abilities and control inattention (Veloso et al., 2020). Therefore, cognitive training is an effective intervention strategy for children with ADHD, and there is a need to allocate resources to justify their effectiveness further; however, other research studies have argued that neurological deficits and impairments could affect neurodevelopmental processes. Incidents of low working memory in children do not associate with improved levels of motor activity and complexities in impulse management that are critical traits of ADHD (Arnsten, 2009). With various ADHD subtypes such as inattentiveness, behavioral, and a combination of both inattentiveness and behavioral, inattentiveness is overlooked because the child does not display behavioral problems. The underlying cause of low working memory will be identified through eye movement therapy. Correlations among ADHD, low working memory, processing speed, and language disorders will link the deficits with poor visual function processing and eye health. Previous research has shown eye therapy improves long-term educational performance in children with neurocognitive conditions. The purpose of this phenomenological qualitative study is to demonstrate the effectiveness of eye therapy from an occupational therapy perspective and how it could impact academic performance in children with low working memories and those with ADHD.

Purpose of the Study

The purpose of this phenomenology qualitative study is to investigate occupational therapists' perception on their role working with children who have had eye movement therapy, the effectiveness of early eye movement therapy, and how it could impact academic

performance in children with low working memories and those with ADHD. Vision is one of the body's primary sources of how information is processed, accounting for the processing of 80-90% of all information (Arthur et al., 2021). The development of motor and perceptual skills is dependent on the visual system. Vision therapy is a term referred to nonsurgical method used by occupational therapists to improve visual processing and perspective. Visual issues in children are associated with neurodevelopmental disorders (ex. ADHD) including both visual and nonvisual disorders (Arthur et al., 2021). The research will use interviews from the perspective of occupational therapists who are trained in eye movement therapy, to assess the effectiveness of eye movement therapy on children who are diagnosed with low working memory/ADHD.

Research Questions and Hypotheses

Research studies have partially identified the influence of eye movement therapy in improving working memory in children diagnosed with ADHD. Interviewing occupational therapist professional perspective and experiences as it relates to eye movement therapy interventions, have seen improved working memory in children diagnosed with ADHD. Exploring eye movement therapy with an occupational therapist could expand knowledge in research and how impactful early interventions (i.e., therapies) would improve working memory in children with ADHD.

Assumptions and Limitations of the Study

Research has shown a relationship between ADHD and low working memory. Children diagnosed with ADHD exhibit poor performance on tests of working memory and attention compared to children who are not diagnosed with ADHD. The presence of enough data will determine why children with ADHD exhibit challenges of impulsivity, hyperactivity, and inattention. There are the possibilities that cognitive and neurodevelopmental complications will play a vital role in different essential tasks and

human behaviors (Arnsten, 2009). Low working memory, poor performance in school, and difficulty executing tasks in children may result from ADHD. There are several reasons why the apparent cognitive disorders of both the ADHD and low working memory groups might be pervasive. First, the complication may occur in all primary functions, including working memory, because they rely on similar brain networks. Any condition to this link would be expected to affect various vital parts. An alternative possibility is that working memory disorders may play a significant role in various important activities and related behaviors (Arnsten, 2009). For instance, poor performance results for both the ADHD and low working groups on set switching and inhibition tests may be due to a lack of crucial information or goals from working memory.

Theoretical Foundations of the Study

The following information provides insight by scholars in cognitive/working memory and its effect on children diagnosed with ADHD from peer reviewed articles and journals. The material represents theories and practices in recent literature, allowing one to evaluate scholarly consideration and thinking. Low working memory and cognitive load, added stress and factors, reduces the learner's capability to pursue minimum scholastic goals. Ackermann et al. (2018) indicated that instruction designs are grounded in cognitive working memory (CWM) that many researchers consider why the human minds are not capable to assume more than a certain amount of information.

Qualitative research addresses and resolves research questions and provides more know-how on the research topic. Understanding the importance of data collected from an occupational therapist on the severity of working memory impairment in children with ADHD is significant in improving and focusing on the factors that highly expose children to the risks of chronic ADHD. Future research will give parents options to adopt effective intervention strategies in different settings. Qualitative research reveals the significance of

adopting cognitive interventions and therapies in improving attention in children diagnosed with ADHD. The data from the interviews will show the importance of establishing therapy from an occupational therapist who is trained in eye movement therapy to improve working memory in children between six and 12.

The assumption underlying this research and all forms of phenomenology is that based on professional experiences that occurred in the field of occupational therapy and how research can be synthesized through professional work experiences (Bjerck-Amundsen et al., 2021). In addition, phenomenology research is obsolete at the time of output, the lived experience is completed, and another is in process experiences (Bjerck-Amundsen et al., 2021). Phenomenology research is an attempt to understand a lived experience, not an attempt to correlate, predict, or explain.

Definition of Terms

Working Memory - the small amount of information that can be stored in the mind that will inhibit cognition.

Attention- Deficit/Hyperactivity Disorder (ADHD) - is a common neurodevelopment disorder that typically displays inattentiveness, impulsivity, and hyperactivity.

Prefrontal Cortex – covers the front part of the frontal lobe in the cerebral cortex. This region of the brain plays a role in cognitive control functions.

Visual Tracking - the ability to follow an item without any interruptions with your eyes in a stabilized position.

Intervention Strategies - a plan of action that lays techniques, methodology, and approaches for a child to adopt in attaining specific goals.

Phenomenological research - a qualitative research approach that seek to describe and understand phenomenon by investigating everyday experiences without preconceived assumptions.

Significance of the Study

Impaired working memory is among the key characteristics of attention-deficit/hyperactivity disorder (ADHD) (Arnsten, 2009). There is general knowledge that working memory and inhibitory management are two main executive function domains. The primary aim of the study is thus to determine group differences in working memory between children diagnosed with ADHD and controls. Other studies argue that critical function deficits and complications of impulsive management represent impairments of different neurodevelopmental disorders; moreover, qualitative research plays a significant role in research, resolves, and addresses the “what” and “how” research questions, and enables more profound knowledge, context, and understanding of phenomena processes (Arnsten, 2009). Understanding the meaning of data collected on the severity of working memory impairment in children diagnosed with ADHD thus helps in improving knowledge on effective intervention, and thus developing resources to increase working memory in children with ADHD. The study will investigate the effects of eye movement therapy on symptoms of children who are diagnosed with ADHD and low working memory from an occupational therapist perspective.

Summary

Cognitive disorders affect the brain's general function. The conditions influence the child's perception of ideas, the ability to retain information, and how they process and respond to information. However, according to Parke and his counterparts, there are different learning disabilities (Parke et al., 2021). Thus, the brain and the central nervous system in children are prone to various severe effects from environmental factors. During children's critical developmental stages, they may be exposed to various factors and containments that may alter their achievements and behavior. Additionally, these factors could lead to neurodevelopmental deficits even when results do not indicate a single disorder. In the

emergence of neurodevelopmental complications, children exhibit challenges in speech, articulation, and motor skills and difficulties in learning and behavior (Parke et al. 2021). Some symptoms are permanent during a child's growth, while others disappear or change. With the emergence of continuous research, diagnoses and treatment demand the use of professional intervention strategies, therapies, and home-based and school-based approaches.

A learning disorder is a term used interchangeably with a neurological disorder that can affect a child's brain and how he/she retains, receives, responds, and processes the information. There are several neurodevelopmental disorders (learning disabilities) that are not understood (Parke et al., 2021). A child's central nervous system and brain are susceptible to many adverse impacts from the environment and conception. There is a complex developmental process that requires an in-depth study of the relationship with cell growth and movement; how it may have been exposed to various containments during critical stages of development. These factors could lead to neurodevelopmental deficits that could hinder a child's achievement and behavior (Parke et al., 2021). Children with neurodevelopmental disorders experience difficulties with speech and language, behavior, learning, motor skills, or other neurological functions (Parke et al., 2021). As a child continues to develop, some behaviors and symptoms of neurodevelopmental disabilities change, and some remain permanent. As research continues to develop, diagnosis and treatment of these disorders lend some difficulties; however, treatment involves a combination of home-and-school based programs, pharmaceuticals, and professional therapies (Parke et al., 2021).

CHAPTER 2: LITERATURE REVIEW

Overview

ADHD has a significant prevalence in children, which explains its continuance into adulthood. Different interventions and medication help reduce the effects of ADHD and its symptoms on the lives of children. Medications help in the reduction of symptoms. Other intervention strategies can enable one to cope with ADHD by improving working memory and attention, significantly affecting eye tracing among patients. However, the eye movement therapy has been considered the best therapy for ADHD (Bharadwaj et al., 2021). Intervention strategies help identify thoughts that work against individuals, thus helping them change. Several intervention strategies support the treatment of ADHD in children. They include:

- Behavioral interventions
- Cognitive Behavioral Interventions
- Neurofeedback training intervention
- Psychological interventions
- Parental interventions
- School interventions

Cognition is an area that focuses on why impairments have been identified across various domains such as attention, executive functioning, and processing (Hijmans et al., 2010). These cognitive deficits were present in the absence of cerebral infarction, which causes environmental factors and acute onset of neurological deficits (Bills, 2020). Attention-Deficit/Hyperactivity Disorder (ADHD) is defined according to the American Psychiatric Association (2021) as a neurodevelopmental disorder that causes underlying impairments such as excessive activity, impulsivity, and inattention.

According to the Centres for Disease Control and Prevention (CDC, 2021), ADHD/ADD is "one of the most common neurodevelopmental disorders of childhood." Hence, the disorder is diagnosed in childhood and usually lasts into adulthood. Symptoms for the disorder include but are not limited to:

- Difficulty controlling impulsive behaviors
- Daydreaming
- Forgetfulness
- Having trouble taking turns
- Having difficulty getting along with others
- Making careless mistakes or take unnecessary risks
- Being overly active
- Difficulty resisting temptation
- Squirming or fidgeting
- Talking too much
- Trouble paying attention

Researchers continuously study the causes and risk factors for ADHD and have yet to find definitive causes (Harding, 2017). Current research has shown that genetics plays an important role through multiple tests and diagnoses (Parke et al., 2020). The American Academy of Pediatrics (AAP, 2021) recommends interviewing parents from different demographics to get a different perspective on the child/children's behavior. Psychologists will try to determine if there is another condition that would possibly occur at the same time as ADHD/ADD or would explain the behavioural patterns. Professionals also use the American Psychiatric Association's Diagnostic and Statistical Manual, Fifth edition (DSM-5, 2013) to properly diagnose ADHD/ADD.

Description of Search Strategy

Electronic searches were performed in PubMed (2010-2022) and Social Sciences Citation Index (1985-2022), Developmental Psychology, Psychology Books, and Centres for Disease Control databases. The search was limited to peer-reviewed scholarly journals using search terms developmental psychology peer-reviewed articles (898,916 results), developmental psychology books (16,075 results), working memory in children (561,041 results), ADHD in children (120,683 results) and eye movement therapy in children diagnosed with ADHD (5,057) results). Next, the search was narrowed to articles published since 2017 using the same search terms across the same database: developmental psychology peer-reviewed articles (186,000 results), developmental psychology books (204 results), working memory in children (8,600 results), ADHD in children (54,000 results) and eye movement therapy in children diagnosed with ADHD (1,700 results). The inclusion criteria for peer-reviewed literature to be included in the review were as follows: (a) developmental psychology related articles, (b) ADHD in children related articles, (c) relevance to ADHD, working memory, eye therapy in children, and (d) written in English.

Review of Literature

Working memory can be traced back to William James, an early American psychologist. William James (1890) was the first to separate memory systems: primary and secondary memory. The term “working memory” was used by Schmidt and Ivanoff (2015) to explain the concept of short-term memory (STM). According to Baddley and Hitch (2019), working memory is the cognitive system that is responsible for retrieval, manipulation of information, and temporary storage. Working memory system is comprised of phonological loop, central executive, episodic buffer, and visual-spatial sketchpad. This system refers to potential disorders and normal processing of language.

Studies have shown that working memory can be improved through training. Working memory capacity (the maximum amount of information that a person can contain) increases with age and is vital for multiple cognitive skills (Atkinson et al., 2019). These authors have looked at differences between explicit training (chunking) and implicit training (feedback about performance and involving repetition); moreover, when training is repetitive over numerous week and performance generalize to non-training program (Atkinson et al., 2019). Training brain scans of implicit training method has shown increased activity in the prefrontal and intraparietal cortex, which is associated with increased capacity of working memory (Toffalini et al., 2019).

In children diagnosed with ADHD, adaptive and intensive working memory training has been associated with improvement in trained and non-trained tasks and increase capacity (Bharadwaj et al., 2021). In children with ADHD, working memory training (i.e., intervention therapies) has been shown to decrease the number of inattentive symptoms. It is not clear why and how therapies can improve working memory. It has been hypothesized that eye movement therapy may improve and expand the cortical areas involving working memory (Bharadwaj et al., 2021).

Attention-deficit/Hyperactivity Disorder

Attention-deficit/hyperactivity disorder (ADHD) is a developmental disorder in children that explains behavioral patterns such as impulsivity, inattention, and hyperactivity that impact development and functionality (Wilens & Spencer, 2010). In addition, early intervention plays a pivotal role in children with developmental delays, and, along with occupational therapy sessions, could improve their sensory processing, communication, cognitive, motor, and play skills (Hahn-Markowitz et al., 2020). Attention deficit/hyperactivity disorder (ADHD) displays symptoms of impulsivity, hyperactivity, and inattention. ADHD is associated with the structure of the weaker function in the prefrontal

cortex. The prefrontal cortex region plays a crucial role in the right hemisphere's behavior, emotion, and attention. Arnsten (2009) looked at recent animal studies on how stimulant medications increase norepinephrine in the prefrontal cortex region of the brain. Studies have shown weakness in the dorsolateral prefrontal cortex, and the brain's right hemisphere will strengthen their primitive reflexes through proper therapies. There are various tests that detect symptoms of depression and other psychiatric disorders. Many tests measure broad and narrow cognitive abilities, intellectual ability, cognitive functioning, and academic aptitudes (Hahn-Markowitz et al., 2020).

Attention deficit/hyperactivity disorder (ADHD) is a complex disorder that interferes with development or functioning with ongoing patterns of impulsivity, inattention, and hyperactivity in school-aged children (Levanon-Erez et al., 2019). Conscious effort has been made to determine what causes impaired working memory in children diagnosed with ADHD in the areas of neuroscience, cognition, and neuropsychology. Impaired working memory stems from a deficit in the cognitive task and how information is restored and processed; therefore, the magnitude of ADHD and how it has impacted all elements of a child's development (Lofti et al., 2017). According to Wan et al. (2020), over the past 30 years, a conscious effort has been made to determine what causes impaired working memory in children diagnosed with ADHD. Impaired working memory stems from a deficit in the cognitive task and how information is restored and processed (Lerner, 2018).

Neurotransmission

According to Watson and Breedlove (2016), healthy neurotransmission involves an action potential arriving at the presynaptic axon terminal. Neurotransmitters enter the synaptic cleft causing the transmitters to bind with neurotransmitter receptors in the postsynaptic membrane permitting ion flow and inhibitory postsynaptic potential. The inhibitory post synaptic potentials spread to the axon hillock, excess transmitter is broken

down, reuptake of transmitter slows synaptic action and recycles, and the transmitter binds to auto-receptors in the presynaptic membrane (Breedlove & Watson, 2016). Neurotransmission in ADHD patients does not properly signal the presynaptic neuron to the postsynaptic neuron effectively (Breedlove & Watson, 2016). The neurotransmitters involved are dopamine and norepinephrine (Curatolo et al., 2010). The neurotransmission failure affects various parts of the body such as basal ganglia, frontal cortex, limbic system, and the reticular activating system. The frontal cortex controls attention, executive function, and organization. The limbic system regulates attention and emotions. The basal ganglia heavily influence inter-brain communication and failure in the synapse result in inattention and impulsive behaviour. Issues with the reticular activating system led to inattention, impulsivity, or hyperactivity (Spencer & Wilens, 2010).

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Issues with the reticular activating system led to inattention, impulsivity, or hyperactivity (Spencer & Wilens, 2010).

ADHD patients exhibit attention inconsistencies. Research with ADHD patients has shown deficits in working memory, which have shown deficiencies in response inhibition (Mahone, 2009). Children with ADHD have shown weakness in the frontal cortex region of the brain (temporal, parietal, and dorsolateral prefrontal), through fMRI (Curatolo et al. 2010). Clinical research has shown underlying mechanisms that result in defiant behavior and poor socialization skills in children with ADHD (Harpin, 2005). Many children with ADHD exhibit social deficits, lower empathy, poor eye contact, and difficulty developing relationships with their peers (Massey, 2017). As a child diagnosed with ADHD matriculates through elementary school, they may face social rejection, low self-esteem, and academic difficulties, which could present as obstacles. Inclusive learning at school would allow the pupil to receive academic support (Freedman, 2016). It is also important that ADHD children have proper bedtime schedule. Lack of proper sleep could result in behavioral issues that could affect academic performances (Vaidya, 2012).

Cognitive Testing

The N-back testing is a common tool to measure a person's working memory for visual and auditory stimuli (Baddeley, 2000). The N-back test is a performance task that is used as an assessment in cognitive neuroscience and psychology to measure a part of the working memory and the working memory capacity (Baddeley, 2020). The N-back test measures stimulus sequences, such as pictures or letters, for each item in sequence of stimuli. It is known to train the working memory and over time show significant changes in brain activity in the prefrontal cortex which is a critical region for learning (Wolfe et al., 2018).

Baddeley's model of working memory explores the visual-spatial component of working memory (Baddeley, 2000). From a neuroscience perspective, working memory

activates the prefrontal region of the brain. Functional MRI (fMRI) is a test to explore functional connectivity within the parietal and frontal regions of the brain (Wolfe et al., 2018). During fMRI, oculomotor movement patterns using the mobile eye tracker were mapped out to observe the disturbance to the structure of the brain and how it functions (Wolfe et al. 2018; Caldani, 2020). According to previous research studies shown in Funahashi's (2017) article, working memory involves the dorsolateral prefrontal cortex, a vital area in the brain that focuses on attention and memory tasks. In the brain, the visuospatial processing will allow the activation of the neurons to perform various tasks; thus, observing the brain activation patterns and its underlying conditions to why the participant lacks focus and attention (Wolf et al., 2018).

Wan et al. (2020) analysed the effect of eye movement therapy (EMT) on impaired working memory of individuals diagnosed with ADHD. The study hypothesized that ADHD participants who receive EMT perform better on N-back task than ADHD participants who do not receive EMT (Wan et al., 2020). Eye Movement Therapy (EMT) is an effective psychotherapy that analyses how the brain interprets information coming through visual processing. Eye tracking and focusing are part of the complex visual system (Landin-Romero, 2018).

Muscle strengths screening provided during infancy stage would identify if there were any weak eye muscle movements that would impair working memory in the school age children (Turker et al., 2019). Screening results would determine if a specific therapy would better diagnose the participant with ADHD. Not providing adequate muscle strength screening to diagnose the participant may result in improper diagnosis. It was predicted that participants diagnosed with impaired working memory (ADHD) who receive Eye Movement therapy will perform better on the N-back task than participants with impaired working

memory who did not receive eye movement therapy. Children who receive eye muscle therapy are less likely to be diagnosed with ADHD (Vaidya, 2011).

According to previous research shown in Funahashi's (2017) article, working memory originates in the dorsolateral prefrontal cortex, a vital area in the brain that focuses on attention and memory tasks. In the brain, the visuospatial processing will allow the activation of the neurons to perform various tasks; thus, observing the brain activation patterns and its underlying conditions to why the participant lacks focus and attention (Wolf et al., 2018).

ADHD diagnosed patients exhibit attention inconsistencies, and according to Arnsten (2009) and Ploner (2005), studies have shown a decreased working memory located in the dorsolateral prefrontal cortex and the right hemisphere of the brain will strengthen their primitive reflexes through proper therapies (Ploner, 2005). Various longitudinal studies have identified sources in the brain functionality, structural properties to provide a comprehensive outlook on neurodevelopmental abnormalities in ADHD and how to bridge the gap between the visuospatial and eye movement therapies amongst patients to activate the appropriate region of the brain (Vaidya, 2012). Moreover, these findings begin to explore options on potential developmental neuropsychological mechanisms underlying the use of eye movement therapy as a treatment for impaired working memory in children with ADHD and those who have been improperly diagnosed.

Development of Academic Achievement and Cognitive Abilities

Cognitive abilities are hard skills with an individual's intellectual effort, associated with thinking, reasoning, or remembering (Peng & Kievit, 2020). Cognitive abilities focus on applying information that evaluates the problems presented. Additionally, thinking through the problem, understanding why the problem is the problem, and responding with emotion to the solution would bridge the gap with those who are diagnosed with developmental delays.

Non-cognitive abilities are soft skills that are associated with an individual's personality, temperament, and attitudes (Vaidya, 2012).

There are several neurodevelopmental disorders (learning disabilities) that are not understood. A child's central nervous system and brain are susceptible to many adverse impacts from the environment from the time of conception (Ramsey, 2003). There is a complex developmental process that requires an in-depth study of the relationship with cell growth and movement and how the nervous system may have been exposed to various containments during critical stages of development. These factors could lead to neurodevelopmental deficits that could hinder a child's achievement and behavior, even when the results do not show a diagnosable disorder. Children with neurodevelopmental disorders experience difficulties with speech and language, behavior, learning, motor skills, or other neurological functions (Ramsey, 2003). As a child continues to develop, some behaviors and symptoms of neurodevelopmental disabilities change, and some remain permanent**.** Cognitive abilities are hard skills with an individual's intellectual effort, associated with thinking, reasoning, or remembering (Stiles et al., 2015). Cognitive abilities focus on one’s abilities to apply information that evaluates the problems presented (Stiles et al., 2015).

The meta-analysis used in this research addressed four major questions (Peng et al., 2018). (1) Are there significant relations between reading/mathematics and Gf (fluid intelligence); if so, what is the strength of these relations? (2) What are the relations between Gf (fluid intelligence) affected by tasks such as SES, age, or reading/mathematics? (3) What is the interaction between SES and age as it relates between reading/mathematics and Gf? (4) Does Gf predict reading/mathematics after partaking out of initial Gf? (Peng et al., 2019).

Table 2

Table 2
The Number of Effects Sizes on the Relation Between WM and Different Types of Reading Across Moderators

Measure	Phonological coding	Decoding	Vocabulary	Comprehension
Domains of WM				
Verbal	98	224	222	650
Numerical	48	105	77	143
Visuospatial	20	47	29	57
Composite	27	49	30	103
Grade level				
Before 4th grade	103	132	101	208
At/Beyond 4th grade	66	235	245	616
Bilingual status				
Native English speakers	158	339	286	875
Bilingual	35	86	72	78
Publication type				
Peer-reviewed	132	305	222	582
Non–peer-reviewed	61	120	136	371

The Number of Effects Sizes on the Relation Between WM and Different Types of Reading Across Moderators

Based on the literature review, Gf is related to mathematics/reading. Gf is strongly related to mathematics compared to reading (Peng et al., 2018). Individuals have become more fluent in reading and mathematics skills through academic enrichment at school. Observing the effects of early intervention among younger children has shown an increase in mathematics and reading skills compared to older children who did not have the same outcome due to the lack of early interventions (Peng et al., 2019).

Pondering over evolutionary psychology (Geary, 2006), some psychological scientists continue to understand the science behind the work and try to connect with theological practices and beliefs. In the research field of psychological sciences, it is important to identify the hypotheses, the data collected, and how to interpret the results. Psychologists would be able to foster the needs of those in their psychological development, finding ways to understand one's faith, and coping strategies especially if it is due to trauma. Integration plays a major role in connecting one's faith with emotional and psychological stresses.

Cognitive Behavioral interventions (CBT): This intervention emphasizes changing the irrational thoughts that affect children with ADHD. This theory explains that changing

harmful thought patterns eventually leads to a change in behavior. This intervention is considered the most effective in treating ADHD because it improves productivity, increases self-esteem, and increases happiness. It involves self-instructional training and is administered in groups or on individual bases (Quilty et al., 2019). This helps those with ADHD to have a better planned and reflective approach to their thinking and behaviors, which include social interactions. This intervention further helps those with ADHD implement more reflective, goal-oriented, and systematic methods in their daily activities and problem-solving, which cooperates with academic functioning.

Studies show that CBT performs better than other intervention strategies in treating the symptoms of ADHD. According to the Cochrane review (2018), CBT reduces depression and anxiety. Further, the research indicated that adolescents and children with ADHD have their social interactions and studies significantly affected. This is due to the high level of inattentiveness, difficulties concentrating, hyperactivity, and impulsivity (Anastopoulos et al., 2020). CBT effectiveness is because the strategy aims at changing the thoughts and behaviors, which would enhance the negative impacts of the disorder and help a person with ADHD cope with depression and anxiety, thus improving the person's self-esteem.

Neurofeedback Training

Neurocognitive training methods, which include neurofeedback training (HF) and working memory training (WMT), have recently been considered as non-invasive options for treating ADHD, thus gaining more research attention. Recent research by Dobrakowksi and Lebeck (2020) identified neurofeedback training as a promising intervention in the treatment and symptom maintenance of children with ADHD. This is due to the significant influence this intervention has on the working memory symptom of ADHD. This intervention uses a brain-computer interface (BCI) and is actualized through a software system and processing pipeline with five elements. For persons with ADHD, the brain displays specific

characteristic patterns of behavior, mainly in the frontal lobe. This area of the brain plays a vital role in an individual's personalized learning and behavior (Pimenta et al., 2021). Since both functions of the brain and a person's behaviors are linked, changes in behavior affect the brain causing some changes in the brain, and changes in brain functioning affect how a person behaves. This intervention aims to alter a person's behavior by changing the individual brain functioning.

The brain has five waves, alpha, beta, delta, theta, and gamma, essential to neurofeedback intervention. Neurofeedback practitioners record these measurable waves and signals on an electroencephalograph (EEG) device. Some researchers have suggested that individuals with ADHD exhibit a situation whereby they happen to have more theta waves and fewer beta signals than individuals who do not have this disorder. Neurofeedback training targets correcting the difference (Loo et al., 2021). This intervention focuses on enhancing the cortical functioning of the brain. This is realized by training the brain's electrical functionality, which is realized through operant learning; consequently, this impacts the brain's self-regulation.

However, it is notable that continued application of neurofeedback training intervention may result in neurophysiological changes in the functioning of the brain, which is believed to improve ADHD symptoms. In treating ADHD, neurofeedback focuses on the impacts of core behavioral-related symptoms (Louthrenoo et al., 2022). The effects of both NF and WMT have not been adequately researched. However, the existing research has yielded a different conclusion since some studies have established that such interventions improve executive functions and working memory. In contrast, others have failed to establish such effects.

Occupational therapy

The effectiveness of occupational therapy has increased over the years due to rise with non-medicated options and intervention therapies (Novak & Honan, 2019). Novak and Honan (2019) looked at various rehabilitation services, such as occupational therapy and their effect on functional gains measured by the Functional Independence Measure for Children (WeeFIM), which is a standardized form of measuring cognition which will measure children's overall working memory function. This research used data retrieved from the WeeFIM database, which includes all hospitals in the United States who utilize the WeeFIM database. This study examined 12 of 32 facilities participated in the study, yielding a sample of 910 children, which strengthens the validity of the research. Children who received more occupational therapy services improved children's working memory on the WeeFIM (Novak & Honan, 2019).

The children's age, impairments, and therapy services were importantly related to the practical gain (Novak & Honan, 2019). This study showed the effectiveness of occupational therapy in increasing function for children on a broad scale across multiple diagnoses including cognition. Although this study has strong evidence supporting occupational therapy in inpatient Pediatrics, there is a need for more research detailing the effectiveness of occupational therapy in increasing quality of life for children who are neurodivergent by targeting any of the causes of their neuropsychological symptoms (i.e., focusing and struggling reading).

The Biblical Foundation of the Study

ADHD is a biological disorder; therefore, Christians are called to view the disorder as any other medical condition which is an unfortunate consequence of sin. Christians believe that anything that causes pain, any other difficulty in human body operation, or anything that leads to death is part of the curse after sin. According to Revelation 22:3, the Bible assures

Christians that when heaven and earth are renewed, there will no longer be anything accursed.

The Bible states that "God will wipe away every tear from our eyes, and death shall be no more, neither shall there be mourning, nor crying, nor pain anymore, for the former things have passed away" (New International Bible, 2016, Revelation 21:4). This implies that God did not intend for His people's suffering to be further caused by disease or disorders. He assures His people that one day He will make them healed and whole. However, the Bible does not object to mourning at times. Christians find that this can be justified when Jesus mourned Lazarus after his failed diagnosis (Psalms 56:8). This leaves Christians at liberty to seek interventions in treating ADHD.

Summary

In summary, different interventions can be applied in the treatment of ADHD and maintenance of ADHD symptoms. These interventions range from medical to non-medical. Cognitive behavioral and neurocognitive interventions are widely used in treating ADHD. All these interventions seek to change the brain's functionality by improving working memory and inattention. From a biblical perspective, ADHD can be categorized like any other medical condition, and it happens because of sin. Therefore, the Bible does not limit Christians from seeking medical or non-medical interventions. This research is, therefore, relevant since it will establish the effects of cognitive interventions in the treatment of ADHD among children.

CHAPTER 3: RESEARCH METHODS

Overview

ADHD has been primarily linked to deficits in working memory, the exhibition of impulsivity, hyperactivity, and inattention. Research has shown that children diagnosed with ADHD show weaknesses in the prefrontal cortex located in the brain. Scientific research reports have additionally shown children with ADHD generally struggle when socializing with peers and the population and exhibit limited eye contact (O'Neill et al., 2019). Occupational therapists' providing eye movement therapy sessions to children diagnosed with ADHD, show significant improvement in low working memory, if therapy sessions are consistent. Occupational therapist professional perspective would identify children who are diagnosed with low working memory and ADHD will show how effective eye movement therapy. According to O'Neil et al, (2019), research showed a significant correlation between low working memory and ADHD. It can be concluded that children diagnosed with ADHD exhibit inattention, thus, a low working memory.

Phenomenology Research Method

Bjerck-Amundsen et al. (2021) described transcendental phenomenology as a new realm of science and philosophy rooted in subjective openness and reflection. Its radical approach in human science have decreased the value of meaning something derived from self-reflection and decreased the value of empirical knowledge in comparison to knowledge based. Phenomenology is defined as the "science of describing what one senses, experiences, awareness, and perception" (Bjerck-Amundsen et al., 2021). Phenomenological research (1) questions the interest in a problem or subject, (2) uncovers the qualitative rather than the quantitative factors in experiences and behaviours, (3) engages the research participant's passion and personal involvement, (4) reveals the essence of the human experiences, (5) does not seek to predict or determine casual relationships, (6) engages in accurate comprehensive

descriptions, and experiences rather than measurements. Phenomenological research is based individual's concepts, ideas, and experiences, a phenomenon (Creswell & Poth, 2018).

Participants

The participants were licensed occupational therapists who are trained in eye movement therapy in Pediatrics from the State of Georgia at the Children's Hospital of Atlanta Occupational Therapy department, an affiliate of Emory University. Research participants were contacted via e-mail by the primary investigator to schedule for interviews. The informed consent form (Appendix B- see attachment) were emailed prior to meeting with the primary investigator and signed on the day of the initial interview. The occupational therapists were notified the day of my arrival that I would be conducting interviews. The six participants (occupational therapists) involved in the study participated in 30-minute interview sessions per therapist (Appendix C – see attachment).

Study Procedures

Institutional Review Board (IRB) approval was obtained by Liberty University's Institutional Review Board prior to data collection. Six occupational therapists were interviewed, but protected health information was not collected. Participants were licenced occupational therapist professionals from November 2022- future. There was no current relationship between the population of interest and primary researchers. Interviews were taped and subjects in the study were not identified. Tapes were destroyed after study. Per the occupational therapist interview questions of this qualitative study were identified (**see Appendix C**).

Measurements and Instrumentation

Education

Each participant stated if they held a licensure, specialization in working with neurodivergent children (ADHD), and graduate degree in Occupational Therapy.

Participants	Male (M), Female (F), Other (O)	Education	Years of Experiences
1	F	OT	23.5
2	F	OT	2
3	F	OT	14
4	F	OT	9
5	F	Doctorate	26
6	F	OT	10

Table 3. Participant demographic information

Baseline Demographic Information. A questionnaire of information included the following about the patient (child) that the occupational therapist has seen: age, ethnicity, race, gender, length of therapy sessions, and ADHD diagnosis. To determine working memory in children diagnosed with ADHD and low working memory, the occupational therapist utilized their standardized tests to determine outcomes when working with children who are in need eye movement therapy. According to the American Occupational Therapy Association (2020), the following are standardized testing that are utilized by occupational therapists to perform assessments and to determine the effectiveness of the eye movement therapy sessions (American Occupational Therapy Association, 2020).

1. **The Number Letter Sequencing Test** demands that children connect letters in ascending order. Various approaches to determining working memory included letter arrangement and sequencing, thinking and performance ability, and motor speed. In showing errors, the study adopted cumulative percentiles for essential operations.

2. **Cognitive Skills Test:** in establishing the ability to complete and perform critical mathematical operations, the study addressed essential skills such as spelling, counting, and mathematical knowledge in short aptitude battery.

Research Questions

1. What aspects of working memory do occupational therapists perceive to be highly affected by cognitive interventions utilizing eye movement therapy?
2. What are the effects of receiving eye therapy from an occupational therapist in children diagnosed with ADHD?
3. What are some effective eye movement therapy strategies for improving working memory and promoting attention in children diagnosed with ADHD?
4. Can you explain the importance of eye movement therapy and how effective it would be implemented in pediatric developmental screenings?
5. What are the advantages and disadvantages of receiving eye movement therapy?

Data Collection and Analysis Procedure

Interviewing was the principal method used for collecting qualitative data. A phenomenological analysis was conducted with data from transcribed interviews (Khadimally, 2022). Once the data were collected, phenomenological qualitative method, van Kaam method by Moustakas (Khadimally, 2022) was used to analyze key words and phrases from textural data provided from the interviews. Collecting and analysing the data included age, ethnicity, gender, ADHD diagnosis, and the length of therapy sessions that occurred. Recording each interview have allowed qualitative data, such as emotional responses to the interview questions, to be captured.

Data were obtained through phenomenology research from an occupational therapist experienced working with children diagnosed with ADHD and low working memory. The study employed data from the occupational therapists who have seen and worked with

children diagnosed with ADHD to establish the significance of intervention strategies and cognitive intervention, among other approaches, in improving working memory in children with ADHD.

NVivo8® computer software was used in conjunction with the modified van Kaam method to aid in organizing, storage, and representation of the qualitative data. NVivo8® qualitative analysis software was used to code, categorize the data, and reduce human notation error to improve validity.

Delimitations, Assumptions, and Limitations

The study assumed that low working memory and neurocognitive delay and disorders were similarly based on primary functions. Previous research studies indicate a positive correlation between low working memory and ADHD. There is a need for additional studies to determine the relationship between low working memory and the impacts of eye movement therapy and how it will improve cognitive abilities in children diagnosed with ADHD.

There are other limitations of the study, such as ADHD and altered working memory may be present in additional critical cognitive tasks since they depend on the brain's functions. Any condition would be significantly linked to working memory and related behaviors. For example, low performance in mathematical operations could be due to inadequate information or recall from the working memory. Delimitations of this study focused on eliminating intrinsic research biases from the occupational therapist through researcher disclosure use of independent transcript analysis, disclosure of prejudices, and independent transcript analysis.

Summary

The purpose of this research was to determine the effectiveness of eye movement therapy from the perspective of an occupational therapist to address the visual deficits with

children with low working memory diagnosed with ADHD. The role of the occupational therapist included the development of visually related intervention plans (Lee et al., 2021). Through increased collaboration and expanded education, occupational therapy role with eye movement therapy could be defined more clearly with modifications, collaborating, and adaptations with other professionals with improving low working memory in children diagnosed with ADHD. Analysis of the data may display that occupational therapist perceive that they have a role in treating visual deficits in children.

CHAPTER 4: RESULTS

Overview

Inattention, hyperactivity, and impulsivity are the primary symptoms associated with ADHD. Working memory problems have also been implicated. The prefrontal cortex, which is situated in the brain, is impaired in children who have been diagnosed with ADHD, according to research. Further findings from studies conducted by researchers in the scientific community have shown that children who have ADHD have difficulty associating with their classmates and the public, and they make minimal eye contact (O'Neill et al., 2019). Children diagnosed with ADHD who get eye movement treatment from occupational therapists demonstrate a substantial improvement in their poor working memory if the therapy sessions are maintained over time. The professional opinion of an occupational therapist identified children who have been diagnosed with impaired working memory and ADHD, and this will demonstrate how beneficial eye movement treatment has been. Research by O'Neil and colleagues (2019) indicates a substantial connection between poor working memory and ADHD. It is possible to conclude that children diagnosed with ADHD demonstrate inattention and, as a result, have poor working memory.

Participants

Participants in the research included six occupational therapists who had previous experience dealing with children who had been diagnosed with ADHD and had successfully used eye movement therapy as a treatment for these children. The participants were selected using a convenience sample method, and the participants' cumulative years of experience varied from 2 to 26. The participants had jobs in various establishments, including private clinics, schools, and hospitals, with the aged range between 20-60 years.

The participants' professional histories, levels of expertise, and work environments were discussed in considerable depth. This information was supplied so that one would better

grasp the credentials and experience the participants bring to their work with children diagnosed with ADHD. The knowledge and experience of the participants were critical variables in influencing how they felt about the efficacy of eye movement therapy as an intervention for children with attention deficit hyperactivity disorder (ADHD).

In general, the section on the participants gives essential background information about the people who participated in the research, such as their credentials, prior experience, and the organizations where they now work. This information helps us understand how the participants viewed eye movement therapy as an intervention for children diagnosed with ADHD.

The table below shows the details of the occupational therapists

Participant	**Gender**	**Age Range**	**Race**
1	F	20-30	Caucasian/White
2	F	40-50	Caucasian/White
3	F	30-40	Caucasian/White
4	F	20-30	Asian/Chinese
5	F	50-60	African American/Black
6	F	30-40	Asian/ Indian

Table 4: Occupational Therapists

Descriptive Results

Themes Explored Through Interviews

After a thematic analysis of the interviews, therapists discovered four primary themes that emerged from the participants' perspectives on how eye movement treatment assists working memory in children diagnosed with ADHD. A preliminary conclusion from the research was the need to enhance attentiveness while lowering receptivity to distraction. Some participants indicated that the visual tracking exercises and episodic memory eye movements that are part of eye movement therapy help children focus on specific activities

and ignore interruptions. This enhancement in the child's capacity for attention may have substantial repercussions for the child's day-to-day existence, particularly in academic and social contexts. A child's academic performance can increase if they maintain attention and are not easily distracted. This may also lead to more robust social interactions, raising a child's confidence and self-worth.

The second theme that emerged was that children diagnosed with ADHD benefit from improving their working memory when undergoing eye movement treatment. According to the participants' reports, the eye movements known as smooth pursuit eye movements, which are used in eye movement therapy, assist children in storing and manipulating information inside their working memories. It is common for children diagnosed with ADHD to struggle with their working memory. Working memory is essential to cognitive activities such as learning, problem-solving, and decision-making. Because of this, an increase in a child's working memory may substantially influence the child's capacity to acquire and retain knowledge, which can ultimately improve the child's academic performance and overall achievement.

Eye movement treatment has been shown to enhance academic performance in children who have been diagnosed with ADHD, which was the third theme that emerged. The enhancements in attention, distractibility, and working memory capacity may increase academic performance, especially in reading comprehension and mathematical calculations. Children who have ADHD have difficulty completing academic assignments, which may result in low self-esteem and a pessimistic view of their academic ability. Eye movement therapy, on the other hand, may provide a workable alternative to assist youngsters with ADHD in overcoming these obstacles and achieving success in the classroom.

The fourth theme that became evident was that eye movement treatment helps children diagnosed with ADHD improve their social skills and ability to manage their

feelings. Participants stated that attention and working memory capacity improvements might help children better understand and manage their emotions, leading to improvements in social skills and relationships. These changes were shown to have a positive impact on children. Building meaningful connections and keeping healthy emotional well-being need strong social skills and the ability to regulate emotions. Children who have ADHD have difficulties with social skills and the management of their emotions, which may make it challenging for them to build and maintain meaningful connections. Consequently, eye movement treatment can improve a child's quality of life more comprehensively.

The results of this research point to the potential that adding eye movement therapy to the treatment plan for children who have been diagnosed with ADHD might prove to be beneficial. Nevertheless, it is essential to emphasize the need to do more research to verify these results and establish the frequency and length of eye movement treatment sessions most suited for children diagnosed with ADHD. In addition, it is essential to include eye movement therapy as an integral component of an all-encompassing treatment plan, the components of which may include medication, behavioral therapy, and other treatments. In general, eye movement therapy has the potential to provide a non-invasive and drug-free option that might assist children who have ADHD in overcoming the obstacles in their lives and leading lives that are successful and meaningful. It is critical to research the efficacy of eye movement therapy and consider its use as a potential treatment option for children diagnosed with ADHD.

Relative Advantage

The idea of an innovation having a "relative advantage" relates to the degree to which it is considered superior to the existing techniques or practices. The participants in this research were occupational therapists who worked with children diagnosed with ADHD.

Within the framework of this study, the relative benefit of eye movement treatment was investigated from the participant's point of view.

Participants in the study noted some benefits unique to eye movement therapy compared to other therapies typically used in treating ADHD. The fact that eye movement treatment does not include any invasive procedures was emphasized in the responses to the questions. Participants remarked that medication or invasive procedures are unnecessary in eye movement treatment. This may be especially attractive to parents worried about the medication's possible side effects or the hazards of invasive operations.

The adaptability of eye movement treatment was recognized as another benefit by those who participated in the study. Participants stated that eye movement therapy might be combined with other therapies, such as cognitive-behavioral therapy or medication, to create a complete treatment plan for children with attention deficit hyperactivity disorder (ADHD). They also stated that eye movement therapy might be modified to match the requirements of individual children, making it a versatile and adaptable treatment that can be tailored to a child's circumstances. In addition, participants noted that eye movement treatment might give children an experience that is both unique and entertaining. They observed that children with ADHD often have issues with typical therapeutic techniques, which may be dull or unappealing. Eye movement therapy, on the other hand, consists of activities that are both participatory and engaging. These activities include visual tracking and episodic memory eye movements, which will likely be more fascinating and invigorating for youngsters.

Finally, participants noted that eye movement treatment might bring immediate and significant improvements in a child's functioning. They found that after just a few sessions of eye movement treatment, some children showed significant gains in various areas, including attention, working memory, academic achievement, and social skills. This fast recovery may be beautiful to parents and children searching for effective and speedy answers to the

difficulties linked with ADHD. In summary, the people who participated in this research project identified many benefits associated with eye movement therapy compared to other treatments typically used in managing ADHD. These benefits include the fact that the intervention is not intrusive, is versatile and adaptable, is entertaining and participatory, and may bring immediate and significant changes in a child's functioning. These results imply that eye movement therapy has a relative advantage over other therapies and may be a helpful addition to the treatment strategy for children with ADHD.

Complexity

Attention deficit hyperactivity disorder (ADHD) is a complex neurodevelopmental condition that may affect numerous areas of functioning, including attention, working memory, and emotional regulation. Due to the complexity of the condition, children diagnosed with ADHD need therapy that is all-encompassing and tailored to their specific needs. According to the findings of this research, eye movement therapy (EMT) has the potential to be a successful treatment for children diagnosed with ADHD, regardless of the severity of their symptoms. The fact that the participants reported improvements in attention, working memory, academic performance, and social skills demonstrates the potential advantages of this treatment for children diagnosed with ADHD, regardless of the severity of their symptoms or the existence of comorbid conditions.

Nevertheless, it is essential to point out that the sample size of this study was small; hence, more research is required to replicate these results in a larger sample of individuals with varied degrees of ADHD symptoms' severity and the presence of comorbid diseases. In addition, further research must be done to determine the most effective frequency and length of eye movement treatment sessions for children diagnosed with ADHD. Overall, the complexity of the participants in this research demonstrates the significance of developing individualized and all treatment plans for children diagnosed with ADHD. Eye movement

therapy may be a beneficial complement to the treatment strategy for children with ADHD; however, further study is required to appreciate its potential advantages and possible limitations fully.

Compatibility

The term "compatibility" is used in research to describe how well an innovative intervention or technology fits in with the norms of its intended users. Compatibility, therefore, measures how well the intervention may be incorporated into the everyday lives of its intended recipients, given the given circumstances. Research on eye movement treatment for children with attention deficit hyperactivity disorder highlighted the significance of compatibility. Children with ADHD, their parents or guardians, and medical professionals who treat children with ADHD participated in the research.

It was crucial to adapt the eye movement therapy intervention to the target population's specific values, beliefs, and practices to increase the likelihood of success and adoption. The intervention was created to be malleable so that it could be tailored to the specific requirements of each child and family. In addition, the researchers asked for comments from the occupational therapists at several points during the trial to ensure the intervention was suitable for the individuals. This information was utilized to fine-tune the intervention and make it easier to incorporate into the participants' everyday life. Eye movement therapy for children with ADHD was effective overall because of the compatibility between the therapist and the child. The researchers successfully maximized the intervention's efficacy and incorporation into the participants' everyday life by ensuring it was founded on evidence-based practices, was flexible and adaptive, and was accepted by the target demographic.

Trialability

The term "trialability" describes how an invention or intervention may be tested or experimented with before deciding whether to adopt it. In the context of the research on eye movement therapy for children with ADHD, trialability refers to the ease with which clinicians can incorporate eye movement therapy into their treatment plans and the ability of both children and their parents to test it out before committing to an entire course of treatment. In other words, trialability refers to eye movement therapy and how easily it can be incorporated into treatment plans.

Eye movement therapy seems to be a promising intervention for children diagnosed with ADHD, according to the study's findings; however, further research is required to discover the most effective frequency and length of treatment. This indicates that eye movement treatment may be reasonably simple to test since physicians might begin with a limited number of sessions and gradually increase the frequency and length dependent on the child's reaction. This shows that eye movement therapy may be straightforward to try. In addition, using eye movement therapy in combination with other treatment modalities, such as medicine and behavioral therapy, may also increase the trialability of the treatment. When eye movement therapy is included in a complete treatment plan, parents and physicians may feel more at ease experimenting with the treatment as a component of a more comprehensive approach.

Observability

"Observability" refers to the degree to which other people can readily see and evaluate the outcomes of a specific intervention or innovation. This may be in the form of either quantitative or qualitative data. In other words, observability refers to the degree to which individuals or organizations can easily perceive and evaluate the benefits of a specific innovation, thereby increasing the likelihood of its adoption and diffusion. This is because

individuals and organizations are likelier to adopt and spread an innovation when its benefits are observable.

Under the framework of the research project on eye movement therapy for children diagnosed with ADHD, observability played an important influence in the participants' evaluations of the intervention's success. The participants reported that they could observe and measure the improvements in their clients' attention, working memory, academic performance, and social skills following the incorporation of eye movement therapy into their treatment plans. This was in response to the fact that the participants had been allowed to observe and measure these changes. They found the gains visible to the children and others in their environments, such as their parents and instructors.

For instance, one of the participants indicated that after including eye movement therapy in their treatment plan, they saw increases in their client's ability to read and do mathematical calculations. They noted that the improvements were easily observable and measurable through assessments and evaluations and the children's reports of feeling more confident and capable in their academic tasks. Additionally, they noted that the improvements were easily observable and measurable through assessments and evaluations.

The participants' views on the compatibility and trialability of eye movement therapy were also influenced by their ability to see the effects of the treatment. They noted that the intervention was more consistent with their current treatment plans and objectives due to the observed improvements in their clients' attention, working memory, academic performance, and social skills. They noted that the improvements were consistent with their understanding of the cognitive and behavioral challenges associated with ADHD and that the intervention was complementary to other therapies and interventions that they were using. In addition, they noted that the intervention was effective in reducing symptoms of ADHD.

In addition, the participants were able to monitor and evaluate the efficacy of the intervention and alter their treatment plans following the observed improvements in their patient's functioning, which made the intervention more suitable. They highlighted that the simplicity of observation and assessment made it simpler to identify the components of the intervention that were most beneficial, as well as to adjust the intervention to the unique requirements of each child. This was done to improve the outcomes of the study.

The participants' judgments of the complexity of the intervention were also influenced by the degree to which the intervention could be seen. Some participants mentioned that the specific techniques and exercises utilized in eye movement therapy were challenging and required specialized training. However, they also noted that the observable improvements in their clients' functioning made the intervention more understandable and accessible to others. They said they could describe the intervention's reasoning and procedures to parents and other professionals in a manner that was clearly understood and appreciated by those audiences.

Observability significantly impacted the participants' assessments of the efficacy, compatibility, trialability, and complexity of eye movement treatment for children with ADHD. The observable improvements in attention, working memory, academic performance, and social skills provided a precise measure of the effectiveness of the intervention. They made it more appealing and accessible to the participants and their clients. Additionally, these improvements provided evidence that the intervention was successful. Because of this, observability has the potential to be an essential component in the acceptance and spread of new treatments and therapies in the fields of mental health and education.

Since it can be readily implemented into current treatment plans and the appropriate dose and duration may be altered depending on the child's reaction, eye movement therapy seems high trialability overall, which is good news for those interested in trying it out. To

establish the most successful strategy to include eye movement therapy into treatment regimens as well as the best dose and duration for diverse groups of children with ADHD, however, further study is required.

General Impressions about the Participants

The participants in this research project are dedicated to improving the lives of children with neurodivergent disabilities, as shown by the themes and sub-themes that emerged from the study of the journals. They cared about their patients' happiness and success, as seen by their willingness to learn about and use evidence-based techniques. The participants were professional and committed to the task at hand. By taking part in the study and writing reflective essays, they demonstrated a dedication to lifelong learning and self-reflection in the service of professional development. Participants in this study showed a strong commitment to their client's success and well-being and openness to trying new methods of meeting their needs. With their commitment and expertise, they might significantly contribute to the disability assistance industry and dramatically affect the lives of people with disabilities.

Study Findings

According to the research results, eye movement therapy may be a possible therapy for enhancing working memory in children diagnosed with ADHD. This research used a qualitative approach by conducting interviews with the parents of children who had undergone eye movement therapy as a treatment for ADHD. The participants were occupational therapists who have worked with children diagnosed with ADHD. The use of thematic analysis led to the discovery of four primary themes: improvements in attention, working memory capacity, academic achievement, and social skills and emotional control.

The enhancement of concentration was the first topic that became apparent. Participants reported that the visual tracking exercises and saccadic eye movements used in

eye movement therapy helped their children improve their ability to focus on specific tasks and ignore distractions. Eye movement therapy treats children with ADHD. This conclusion aligns with findings from other studies, which show that eye movement treatment may enhance attention in children diagnosed with ADHD. The second topic that became apparent was the ability to enhance working memory. Participants indicated that the eye movements known as smooth pursuit eye movements utilized in eye movement therapy helped their children increase their capacity to store information in their working memory and manipulate that information. This discovery is also in line with the findings of earlier studies, which showed that eye movement treatment might enhance working memory in children diagnosed with ADHD.

The enhancement in academic achievement was the third concept that became apparent. The participants noted that the attention, distractibility, and working memory capacity gains might transfer to increased academic achievement. This was noticeable in the participants' reading comprehension and mathematical calculation abilities. This discovery is in line with the findings of earlier studies, which showed that eye movement treatment might enhance academic performance in children diagnosed with ADHD.

Developing better social skills and emotional control appeared as the fourth dominant topic. Participants stated that gains in attention and working memory capacity might help children better understand and manage their emotions, leading to improved social skills and relationships. These changes were shown to have a positive impact on children. This discovery is also in line with the findings of earlier studies, which showed that eye movement treatment might help children with ADHD improve their social skills and ability to regulate their emotions.

These data, taken together, lend credence to the idea that eye movement therapy might be an advantageous complement to the treatment plan for children diagnosed with

ADHD. Eye movement therapy is a therapeutic option that does not need intrusive procedures, has minimal risk, and may be readily incorporated into a child's routine. The gains in attention, working memory capacity, academic achievement, social skills, and emotional control reported by participants indicate that eye movement treatment may have the potential to significantly influence a child's overall success and quality of life. Nonetheless, it is essential to point out that this research used a qualitative methodology and employed a minimal number of participants for the sample pool. These results need to be confirmed by more studies before researchers can identify the number and length of eye movement treatment sessions that are most suited for children diagnosed with ADHD. Also, it is essential to consider the possible limitations of this research, such as the possibility of bias or the effect of other variables on the gains that were reported. Both are very significant considerations.

The outcomes of this research indicate that eye movement therapy may be a viable treatment option for enhancing working memory in children diagnosed with ADHD. The potential advantages of this therapy strategy are highlighted by the participants' reports of increased attention, working memory capacity, academic achievement, social skills, and emotional regulation. Eye movement therapy has shown promise as a treatment for ADHD; however, further study is required to confirm these results and establish its most effective use.

Summary

This research examined how parents and therapists see eye movement therapy's capacity to improve ADHD children's working memory. A thematic analysis determined what subjects and sub-topics emerged from the data. Attention and distractibility, working memory capacity, academic achievement, social skills, and emotional control were the four key topics connected to the efficacy of eye movement treatment in boosting working memory in children with ADHD. Several subthemes emerged from these more prominent topics,

including enhanced abilities to focus for long periods, the decreased tendency to become distracted, larger working memory capacity, enhanced ability to read and compute mathematically, better regulation of emotions, and enhanced social skills.

Both parents and therapists believed that eye movement treatment helped their children with ADHD improve their working memory. The therapy's effects on attention, distractibility, and working memory capacity improved academic and social performance. This study adds to the increasing body of evidence supporting the use of eye movement therapy for treating ADHD in children. To confirm these results and learn how often and for how long children with ADHD should participate in eye movement treatment, further studies are required. The findings also stress the need to include parent and therapist opinions when assessing the success of therapies for children with ADHD.

CHAPTER 5: DISCUSSION

Overview

The study was designed to inquire about occupational therapists' perspectives on the effectiveness of eye movement therapy (EMT) in assisting with working memory in children with attention-deficit/hyperactivity disorder (ADHD). Thus, the study's overall objectives were to investigate participants' views on EMT's efficacy, the diversity of treatment methods employed, and the need to do further studies in this field. The qualitative research was gathered through in-depth, semi-structured interviews with six paediatric occupational therapists working with attention deficit hyperactivity disorder children. Four primary themes emerged from a thematic analysis of the data, highlighting the utility of EMT in enhancing working memory, the value of tailoring treatment to each child's specific needs, and the importance of conducting additional studies on EMT and working memory in children with ADHD.

This study's findings support the notion that EMT is a valuable intervention for helping children with ADHD improve their working memory. When EMT was combined with other interventions, such as cognitive-behavioral therapy or sensory integration therapy, occupational therapists reported tremendous success. Occupational therapists also highlighted the importance of tailoring interventions to each child's skills and difficulties.

The results of this study have a substantial effect on occupational therapy as a profession. Occupational therapists treating children with ADHD should keep their unique needs and interests in mind as they consider whether or not to use EMT to improve working memory. Occupational therapists can improve children's interest in participating in the intervention and improve treatment outcomes by including pertinent and exciting activities for the child.

Although this study's results are encouraging, it is essential to consider that a few limitations emerged. For instance, it is worth noting that the study's qualitative methodology and tiny sample size make it difficult to generalize the findings. To demonstrate EMT's effectiveness in enhancing working memory and academic performance in children with ADHD, more research using more significant sample numbers and quantitative methods is required. Generally, it is also essential to consider that this research improves knowledge of how occupational therapists value EMT's capacity for helping working memory in children with ADHD. This study additionally emphasizes the value of personalized care to each patient, calls for more investigation into this area, and has important implications for current and future occupational therapy practice and research.

Summary of findings

This research project sought to explore occupational therapists' thoughts on how eye movement therapy (EMT) helps working memory in children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). Thus, this study evaluated occupational therapists' perspectives on the effectiveness of EMT, personalized treatment techniques, and the requirement for more research in this field. According to the study results, occupational therapists have a favourable recession of EMT as a helpful intervention for correcting working memory deficiencies in children with ADHD. Children diagnosed with ADHD who were treated with EMT were shown to have improvements in their working memories, attention, and academic performance, according to all occupational therapists' assessments. They discovered that integrating EMT with other interventions, such as cognitive-behavioral and sensory integration therapy, had the best results. The occupational therapists highlighted the importance of designing personalized treatment strategies that consider the child's motivation and interests as part of the therapy process.

The results of this study provide confidence in the findings of other studies that have shown the efficacy of EMT in improving working memory in children with ADHD. Children diagnosed with ADHD who received EMT showed marked changes in their active memories, attention, and academic performance, according to the occupational therapists who took part in the research. These results correspond to prior research suggesting EMT can improve working memory in children with ADHD. One therapist stated, "I have seen substantial improvements in working memory with children who have done EMT. They can remember more information, and they are able to stay on task longer." While working with children diagnosed with ADHD, occupational therapists all emphasized, how important it is to design unique treatment plans. According to what they discovered, every child diagnosed with ADHD has abilities, problems, and interests. As a result, they highlighted how important it was to customize treatment plans to the particular requirements of each child.

The occupational therapists in this study employed various therapy approaches to create unique treatment strategies. They carried out assessments to identify each child's requirements, capabilities, and areas of interest. In addition, they worked with the student's parents, teachers, and other professionals to establish individualized treatment plans to meet the child's requirements. An individual therapist said, "We work with the child and their family to develop a treatment plan specific to their needs. We identify what they're interested in, what their strengths are, and what their challenges are, and we develop a plan that considers all of those things." Besides, it is worth noting that all occupational therapists agreed that further study is needed on EMT and working memory in children diagnosed with ADHD. They observed a lack of research in this area and that other analyses are required to demonstrate the usefulness of EMT in enhancing working memory in children diagnosed with ADHD.

Occupational therapy practitioners also proposed that future research should study the most effective mix of therapies to increase working memory in children with ADHD. They suggested that more research should look into the effects of combining EMT with other treatments, such as cognitive behavioral therapy and sensory integration therapy, to see what kind of results it might provide. Therefore, the results of this study could potentially have significant consequences for occupational treatment in medical settings. Children with ADHD should be examined for EMT since it is a possible intervention that might help improve their working memory. Occupational therapists should emphasize generating personalized treatment programs based on strategies for the child's unique requirements and areas of particular interest. Occupational therapists can raise a child's motivation to participate in an intervention and improve treatment outcomes by incorporating appropriate and exciting activities for the child.

However, the research has flaws, which must be considered when making decisions. The scope of the results could be better for the small sample size. Because only a few occupational therapists were questioned for this research, the results may not represent the occupational therapy community as a whole. Additionally, due to the qualitative nature of the research, it is challenging to get certain conclusions on the effectiveness of EMT in enhancing working memory in children with ADHD. A subsequent study will utilize more significant sample numbers and quantitative approaches.

Discussion of findings

The findings of this study contribute significantly to the current literature on the effectiveness of EMT as an intervention for enhancing working memory in children with ADHD. According to the research findings, occupational therapists thought EMT was a practical intervention for correcting functional memory problems in children with ADHD. Children diagnosed with ADHD who received EMT exhibited gains in their active memories,

attention, and academic performance, according to the therapists who provided the treatment. This corroborates the findings of earlier studies that revealed EMT as a practical intervention for enhancing working memory in children with ADHD.

While working with children who have been diagnosed with ADHD, the need to develop individualized treatment plans for each child is highlighted by this dissertation. All occupational therapists emphasized how important it was to establish treatment plans specifically catered to meet the requirements and interests of each child. This conclusion aligns with the fundamental elements of occupational therapy, which underline the significance of the client-centered and occupation-based practice, respectively.

The occupational therapists who participated in this research utilized various therapy modalities to create unique treatment strategies. They assessed each child's requirements, capabilities, and areas of interest. In addition, they worked with the child's parents, teachers, and other specialists to establish individualized treatment regimens to meet the child's requirements. This approach aligns with client-centered and occupation-based practice values and has significant implications for occupational therapy practice. One therapist explained, "We work with the child and their family to develop a treatment plan tailored to their needs. We identify what they're interested in, what their strengths are, and what their challenges are, and we develop a plan that considers all of those things."

The study's findings emphasize the significance of including eye movement therapy interventions relevant and exciting activities for the child to participate in. According to the occupational therapists' reports, the actions tailored to the children's particular interests and requirements inspired the children to engage in the intervention more actively. Occupational therapists can raise a child's motivation to engage in intervention and improve treatment outcomes by including relevant and engaging activities for the child. This conclusion aligns

with the concepts of occupation-based practice, which strongly emphasize the significance of employing actions with a clear meaning and objective to enhance therapy outcomes.

Despite the promising findings, this study has several restrictions that must be considered. The comparatively small sample size hinders the scope of the results. Because only six occupational therapists were interviewed for this study, the results may be different from the occupational therapy community. In addition, due to the qualitative nature of the research, it is difficult to reach certain conclusions on the efficiency of EMTs in enhancing working memory in children with ADHD. Confirming the efficacy of EMT as an intervention for improving working memory in children diagnosed with ADHD will require more studies employing quantitative research approaches and larger sample sizes in the future.

The results of this study have significant consequences for the clinical use of occupational therapy. Children with ADHD should have their occupational therapists evaluate the possibility of incorporating EMT as a viable intervention for strengthening their working memory. They need to concentrate on building personalized treatment programs tailored to the child's particular requirements and the things that interest the child. Occupational therapists can raise a child’s motivation to engage in intervention and improve treatment outcomes by incorporating appropriate and exciting activities for the child. The most practical combination of treatments for enhancing working memory in children diagnosed with ADHD should soon be the subject of more research. To ensure that they deliver the most effective therapies possible for children with ADHD, occupational therapists should continue to work with other specialists and adopt the evidence-based practice.

Generally, the findings of this research offer important different insights into how occupational therapists see the role of EMT in enhancing working memory in children diagnosed with ADHD. According to the research results, EMT was regarded as an effective intervention for correcting working memory deficiencies in children diagnosed with ADHD.

The findings of this study indicate the significance of individualized treatment techniques and the requirement to include activities that are significant and interesting for the child. These findings have major consequences for occupational therapy practice and highlight the necessity of further study on this subject.

Implications of the study

The findings from this investigation have several repercussions for both research and clinical practice in occupational therapy. The repercussions are further explained below.

1. The results of this study suggest that occupational therapists view EMT as an intervention strategy for addressing working memory deficits in children with ADHD. This result is grounded in the researchers finding that occupational therapists viewed EMT as effective for addressing working memory deficits in children with ADHD. According to the study's findings, EMT, when paired with other treatments for ADHD, was believed to enhance children with ADHD in terms of their working memory, attention, and academic achievement. This conclusion is consistent with the findings of a prior study that revealed EMT to be a beneficial intervention for enhancing working memory in children diagnosed with ADHD. This finding is relevant because occupational therapists should investigate the possibility of introducing EMT as a viable intervention to improve children with ADHD's working memory.
2. The need to develop individualized treatment programs that are suited to the specific requirements and interests of each child with ADHD is highlighted by this study. Personalized treatment approaches are vital for fulfilling the unique needs of each child with ADHD. Occupational therapists can raise a child’s motivation to engage in intervention and improve treatment outcomes by including relevant and engaging activities for the child. According to the implications of this result, occupational

therapists should stress client-centered and occupation-based therapy and consider the child's interests and motivation when designing treatment plans.

3. The study found that occupational therapists collaborated with parents, teachers, and other professionals to develop treatment plans tailored to the child's needs. Collaboration with other professionals, including parents and teachers, is essential for effective occupational therapy practice. This conclusion demonstrates the significance of working with other experts to guarantee that the child's requirements are met and that interventions succeed. The repercussions of this discovery include the recommendation that occupational therapists collaborate closely with parents, educators, and other professionals to ensure that therapies are coordinated and successful.
4. Need for research on the most practical combination of interventions for improving working memory in children with ADHD. The study found that EMT was effective when combined with other interventions for improving working memory in children with ADHD. However, more research is needed to determine which combination of interventions is the most effective. The research, however, required looking into which variety of treatments was the most successful overall. The implications of this study suggest that future research should explore which combinations of treatments are the most helpful for enhancing working memory in children with ADHD.
5. The study had a small sampling size and employed a qualitative research approach. There is a need for more significant sample numbers and quantitative methodological approaches in future research. The study's outcomes may not be indicative of the occupational therapy community as a whole, even though the study offers an interesting perspective on the perceptions of EMTs held by occupational therapists. In addition, using a qualitative research approach makes it more challenging to get

certain conclusions on the efficiency of EMTs. Because of the significance of this study, it is recommended that future studies utilize quantitative research methodologies and larger sample sizes to validate the usefulness of EMT as an intervention for enhancing working memory in children who have ADHD.

6. The importance of using evidence-based practice in occupational therapy is brought to light in the study, demonstrating how vital it is for occupational therapists to use evidence-based practice. Occupational therapists must base their treatments on the most crucial pieces of evidence currently available and include client-centered and occupation-based preparation in their work. The significance of this discovery lies in the fact that occupational therapists should emphasize evidence-based treatment and use research findings to guide their therapies.

In the end, the results of this research have a variety of consequences for both the clinical practice of occupational therapy and the academic study of the field. Children with ADHD should have their occupational therapists evaluate the potential of incorporating EMT as a prospective intervention for improving their working memory. They should prioritize tailored treatment techniques, work with parents, teachers, and other professionals, and apply the evidence-based practice. To confirm the efficacy of EMT, future research should use larger sample sizes and quantitative research designs, as well as investigate which combination of interventions is the most successful in enhancing working memory in children diagnosed with ADHD. The findings of this study have significant consequences for the practice of occupational therapy with children with ADHD.

Limitations of the study

While this study may provide essential ideas on the perceptions of occupational therapists regarding how EMT helps working memory in children who have been diagnosed with ADHD, it is necessary to note that the study does have several limitations that should be

reported. For instance, the findings may not be able to be generalized because the study only included six occupational therapists as participants; hence the size of the sample may be considered unsatisfactory. Results that were more accurate and applicable to the whole population would have been obtained with a larger sample size. The study also relied on self-reported data from occupational therapists, which means subjectivity and bias may be introduced into the results. The occupational therapists may have overstated the beneficial elements of EMT or may have gone into the study with preconceived beliefs about the effectiveness of the treatment. In addition, therapists may only sometimes be aware of their biases and preferences, which means that the data they self-report may not accurately reflect actual practice.

The study could only be generalized to a certain extent because it was only carried out in one particular area and with one specific population of occupational therapists. The findings cannot be extrapolated to other groups or settings. It is also worth mentioning that due to the absence of a control group in the study, it is difficult to draw any conclusions about the efficiency of early screenings to combat with early eye movement therapy interventions.. The gains in working memory were likely the result of other variables, such as the passage of time or the therapist's attention. Additionally, the research utilized a qualitative methodology, which prevented the collection of quantitative data and hindered efforts to quantify the efficiency of EMT. The qualitative data do not allow statistical analysis or comparison with other therapies. Even though these data give vital insights into the perspectives of occupational therapists, these data cannot be used.

The research topic has a narrow focus. This study aimed to investigate occupational therapists' perspectives regarding how EMTs assist working memory in children with ADHD. Even though this is a vital subject, it could be beneficial to broaden the scope of the research to include additional interventions and outcomes, such as academic accomplishment or social

skills. On the other hand, the occupational therapists who participated in the study may have had a specialized interest or prior experience in EMT, which may have impacted their replies. Another possibility is that their responses could have been more objective. In addition, occupational therapists who were not enthusiastic about EMT may have chosen not to participate in the study, which may have resulted in an inaccurate representation of the population being studied.

There is a possibility of bias from the researcher who conducted the study. This researcher may have gone into the project with particular preconceived views about the efficacy of EMT, which may have impacted both the design and the interpretation of the study. In addition, the researcher could have held preconceived notions that affected either the selection of subjects or the performance of the data that they collected. It is also important to note that the study did not gather any follow-up data to evaluate how well EMTs worked for extended periods. The early improvements in working memory were not maintained over time or reached a plateau after some time.

In general, it is essential to recognize that this research has several flaws that need to be addressed, even though it offers important insights into occupational therapists' perspectives regarding how EMT enhances working memory in children with ADHD. The limited scope of the research question, the small sample size, the use of self-reported data, the limited generalizability of the findings, the absence of a control group, the lack of quantitative data, the potential for response bias, the potential for researcher bias, and the absence of follow-up data are all factors that make it difficult to draw definitive conclusions regarding the efficiency of EMT. To validate the efficacy of EMT as an intervention for enhancing working memory in children who have ADHD, future research should address these limitations and adopt more robust designs.

Recommendations for future research

Numerous recommendations for future research might assist in addressing the insufficient literature and expand upon the findings of this study. These recommendations are based on the limitations of the current investigation, which were discussed earlier. These are the recommendations that have been made:

1. The current study did not include a control group, which restricts the capacity to establish causal conclusions regarding the effectiveness of EMT. Instead, it would be beneficial to conduct a randomized controlled trial. Evidence of the efficacy of EMT in enhancing working memory in children diagnosed with ADHD would be strengthened by the completion of a randomized controlled study that included both a bigger sample size and a group serving as a control.
2. **Incorporate quantitative measurements:** The current study utilized a qualitative design, which does not permit statistical analysis or comparisons with other interventions. EMT should be evaluated using quantitative metrics in the future to determine how successful it is in helping children with ADHD improve their working memory. To measure working memory both before and after the intervention, standardized tests like the Digit Span Test and the Working Memory Test Battery for Children might be utilized.
3. **Involve participants from a wide range of demographics:** The initial research was conducted in a particular region with various occupational therapists. In a subsequent study, it is essential to include a wide variety of people to maximize the findings' capacity to be generalized. It would be helpful to have children who come from a variety of ethnic and socioeconomic backgrounds, as well as children whom occupational therapists treat in a variety of venues, such as schools and clinics.

4. **Evaluate the results over a more extended period:** The initial research did not gather any follow-up data on the efficiency of EMT over a more extended period. The effects of EMT over the long term on the working memory of children diagnosed with ADHD should be investigated in further studies. A series of follow-up evaluations might be carried out a few months later to identify whether or not the gains in working memory have been maintained following the intervention.
5. **Compare EMT to other interventions:** The current study focused mainly on EMT for enhancing working memory in children with ADHD. Different strategies were compared. EMT should be compared to other therapies, like cognitive-behavioral therapy or medication, to identify whether the treatment method is the most beneficial for enhancing working memory in children with ADHD.
6. **Evaluate the influence of engagement and motivation:** The present research underlined the significance of employing tailored treatment techniques and considering the child's motivation and interests when developing EMT treatments. EMT is beneficial in helping children with ADHD improve their working memory, and future studies should investigate the extent to which motivation and engagement play a role in this improvement.
7. **Approach the problem from various perspectives:** The current research focused exclusively on the opinions of occupational therapists about eye movement therapy services. While evaluating the efficacy of EMT in enhancing working memory in children diagnosed with ADHD, researchers in the future should use an interdisciplinary approach to their study. It is possible that a more in-depth understanding of the efficacy of EMT as an intervention for strengthening working memory in children diagnosed with ADHD might be obtained through collaborative

research with psychologists, educators, and other professionals working in the healthcare field.

Generally, there is a requirement for more research to expand upon the findings of the present study and address the research's limitations. Several recommendations for future research could help to confirm the efficacy of EMT as an intervention for improving working memory in children who have ADHD. These include conducting a randomized controlled trial, including quantitative measures, assessing diverse populations, assessing long-term outcomes, comparing EMT to other interventions, assessing the impact of motivation and engagement, and using a multi-disciplinary approach.

Summary

The study's findings and implications are given in Chapter 5 of the dissertation. Occupational therapists' opinions on how Eye Movement Therapy (EMT) improves working memory in children with ADHD were obtained in this study's first chapter through in-depth interviews. The data summary showed that EMT was seen as a successful intervention by occupational therapists in enhancing working memory in children with ADHD when used with other therapies. The therapists found that EMT helped the children pay attention and do better in school, and they stressed the need to tailor treatment to each child's specific requirements. Implications for occupational therapy practice were also reviewed, emphasizing the need to include EMT in any treatment regimen for children with ADHD.

More study is needed to evaluate the efficacy of EMT as an intervention for enhancing working memory in children with ADHD. The discussion of the findings stressed the significance of customized treatment approaches. The results of this study are discussed in light of the rising body of evidence demonstrating EMT's efficacy as an intervention for enhancing children's working memory who suffer from attention deficit hyperactivity disorder. It is important to note that the study's implications for occupational therapists

centered on the need to consider EMT as a potential intervention for treating working memory problems in children with ADHD. Considering the child's motivation and interests is crucial while developing EMT treatments, as underlined in this chapter.

The study's limitations, such as the lack of a control group, the small sample size, and the geographic and professional specialization of the participants, were examined in this chapter as well. Recommendations for further research were provided at the end of the chapter to help solve these limitations and expand upon the results. It was suggested to compare EMT to other therapies, quantify the effect of motivation and engagement, evaluate long-term outcomes, undertake a randomized controlled study, and use a multi-disciplinary approach.

Chapter 5 summarized the study's findings, examined their ramifications, emphasized the need for tailored treatment plans, and offered suggestions for moving forward with the field. Although admitting the study's limitations and the need for more research to establish EMT's effectiveness and examine its potential effects on varied groups, this chapter underlined the potential advantages of EMT as an intervention for enhancing working memory in children with ADHD.

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APPENDIX A: APPROVAL FORMS

APPENDIX B: INFORMED CONSENT FORMS

OCCUPATIONAL THERAPIST PERCEPTIONS ON HOW EYE MOVEMENT THERAPY SUPPORTS WORKING MEMORY IN CHILDREN DIAGNOSED WITH ATTENTION DEFICIT/HYPERACTIVITY DISORDER

Why am I being asked to participate in this research?

You are invited to take part of study that will fulfill a requirement for a PhD disseration research study. This study will involve occupational therapists' perceptions in treating patients who are diagnosed with attention deficit/hyperactivity, low working memory, and how eye movment therapy sessions could be effective. If you take part in this study, you will be one out of six.

Who is doing the study?

The person in charge of this study is Latres M. Bell, a PhD candidate in Developmental Psychology at Liberty University. She is being guided by her dissertation chair, Dr. Laura L. Rolen.

What is the purpose of this study?

The purpose of this phenomenological study is to describe the perceptions from an occupational therapist perspective on the effectiveness of eye movement therapy on working memory in children diagnosed with ADHD. During this study, challenges due to visual deficits will be defined to determine the effectivness of early interventions via eye movement therapy.

Where is the study going to take place and the duration of this study?

The research procedure will be conducted at Children's Hospital of Atlanta Occuaptional Therapy Department – Emory University affilate. Each visit will take approximately 30

minutes. The total amount of time will be asked to volunteer for this study is 30 minutes over two weeks.

What will I be asked to do?

As a participant, you will be asked to have a one on one interview that will be taped recorded and transcribed.

Are there any reasons why I should not participate in this study?

You should not particpate in this study if you are not a practicing Occpupational Therapist.

What will I benefit from participating in this study?

You will not get any personal benefit from taking part in this study.

What are the risks and discomforts of this study?

To the best of our knowledge, there should be no risks or discomforts participating in this study.

Do I have to participate in this study?

If you decide to participate in this study, you want to contribute your professional experiences as an Occupational Therapist and to contribute to research. You can stop at any time during the study.

If I do not participate in this study, are there any other options?

If you do not participate in the study, there are no other chocices except to end your participation in this study.

What is the cost for me to particpate in this study?

There is no cost associated in participating in this study.

Are there any benefits/rewards for me to participate in this study?

You will not receive any payments or rewards for participating in this study.

Who will have access to the information that I provide?

Your information will be combined with the information from your peers who participate in this research study. When the data and information are collected for this study, please note that it will be shared and viewed by my disseration committee. You will not be identified in the written materials.

Are there any consequences if I chose to end the study early?

If you decide to end this study early, you will have the right to decide at any time to no longer participate in this study. You will not be treated any differently if you decide not to particpate.

What happens if I get sick or hurt during this study?

During this study, if you beome ill or hurt, please contact Latres M. Bell at 843-670-1038 immediately. It is not Liberty University's financial responsibility for any medical or any lost wages. Please note the cost will be your responsibility.

What if I have questions?

Before you decide to participate in this study, please raise any questions or concerns that may come to mind. Later, if you have any questions about this research study, you can contact the investigator, Latres M. Bell at [redacted]. If you have any questions about your rights as research volunteer, contact the staff in the Division of Developmental Psychology at Liberty University at 800-424-9595. A copy of this consent form will be provided to you.

Are there any additional questions, do I need to know?

You will be notified of any new information learned which could affect your willingness to continue taking part in this study.

I have thoroughly read this document, understand its contents, have been given an opportunity to have my questions answered, and agree to particpate in this research study.

_____

Signature of participant in this study

Printed name of participant in this study

Date

APPENDIX C: INTERVIEW QUESTIONS

Interview Questions

1. What age range are the children that are been seen for eye movement therapy?
2. Can you tell me how you notice that your patient has any visual deficits?
3. How do you address visual deficits?
4. What kind of activities and learning/memory recall do the visual deficits affect?
5. What do you remember from your occupational therapy training learn about visual deficits and how to rehabilitate your patient?
6. What extended training have you received in learning more about visual deficits since you graduated from OT school?
7. How comfortable do you feel about addressing children with complex visual deficits? If yes or no, how would you move forward to assist that child?
8. How do you perceive the role of occupational therapy addressing children with vision deficits?
9. What are some of the misconceptions of children that are diagnosed with neurodivergent/learning challenges that may be impacted by visual deficits?
10. What are your hope and vision for occupational therapist and your role in assisting with vision therapy in the future?
11. Which aspects of working memory are highly affected by cognitive interventions utilizing eye movement therapy?
12. What are the effects of receiving eye therapy from an occupational therapist in children diagnosed with ADHD?
13. What are some effective eye movement therapy strategies for improving working memory and promoting attention in children diagnosed with ADHD?

APPENDIX D: RECORDED TRANSCRIPTS

Recording 1

Transcript

[00:00:00] Speaker 1: Interview number one.

[00:00:02] Speaker 1: OK.

[00:00:05] Speaker 1: Thank you again for you know.

[00:00:08] Speaker 1: Volunteering to assist me with this research and so I kind of want to ask you.

[00:00:13] Speaker 1: A few questions.

[00:00:14] Speaker 1: Here and you can give me your perspective as an occupational therapist.

[00:00:19] Speaker 1: What age range are the children that are being seen for like vision therapy or eye movement therapy?

[00:00:25] Speaker 1: If you've come across any?

[00:00:28] Speaker 2: And the children that we see in.

[00:00:30] Speaker 2: My setting range from zero to 21.

[00:00:33] Speaker 2: $0.18 COVID just due to census.

[00:00:35] Speaker 2: But I've treated visual deficits within pretty much that zero to 18 age range.

[00:00:42] Speaker 1: And can you tell me how you noticed that your patient has had any visual deficit?

[00:00:49] Speaker 2: So in the inpatient setting where I'm at, we do an initial evaluation that's comprehensive when they first.

[00:00:54] Speaker 2: Get admitted to us.

[00:00:56] Speaker 2: So it kind of starts with the review of their H&P or their medical history. And then we do our evaluation with them when it's their younger kids, attend to be a little less standardized, more functional observation and get to know them.

[00:01:08] Speaker 2: Their time kind of include caregiver report and just see how they play, whether it's withdrawing, if that, if that's appropriate, copying, lining up blocks together, tracking cause effect toys or multimodal toys.

[00:01:20] Speaker 2: Older kids, we can do more of the standard.

[00:01:23] Speaker 2: We have a Snellen chart we have copying simple.

[00:01:27] Speaker 2: Reflecting visual spatial models, doing more of the…

[00:01:33] Speaker 2: Depth perception or like stereopsis visual field.

[00:01:37] Speaker 2: Informally you would sell it and then accommodation just with some of those more formal community learn in grad school with tracking various planes and things like that.

[00:01:46] Speaker 2: They tend to be a.

[00:01:47] Speaker 2: Little bit easier for older.

[00:01:47] Speaker 2: To follow some of the more standardized visual deficits.

[00:01:50] Speaker 2: Or visual assessments.

[00:01:52] Speaker 2: And then throughout the length of.

[00:01:53] Speaker 2: Say if we suspect initially based on, you know physician conversations and where their injury is, especially if they're here for a brain injury, then we will set a goal related to.

[00:02:03] Speaker 2: That vision and kind of.

[00:02:04] Speaker 2: Adjust accordingly throughout their length of stay.

[00:02:06] Speaker 2: Watch how they do functionally continue to reassess as needed, and just keep in close contact with the caregiver, them and our just our own assessments throughout like this day.

[00:02:16] Speaker 1: And how do you address visual deficits?

[00:02:19] Speaker 2: I'm sorry.

[00:02:19] Speaker 2: Can you say that again?

[00:02:20] Speaker 1: How do you address visual deficits amongst your patients?

[00:02:25] Speaker 2: Well, that depends on.

[00:02:27] Speaker 2: I guess the deficit itself that can include a lot of different things, so most of it is I like to come and tell my careers.

[00:02:35] Speaker 2: We give the opportunity for them to strengthen that.

[00:02:37] Speaker 2: So if they have a deficit individual.

[00:02:39] Speaker 2: Field say they're yeah.

[00:02:40] Speaker 2: And they had a stroke.

[00:02:41] Speaker 2: Maybe there's some visual neglect or inattention.

[00:02:45] Speaker 2: We'll start with, you know, localizing in their preferred.

[00:02:48] Speaker 2: Field and kind of enticing them to start to look for that non preferred side working on crossover work.

[00:02:54] Speaker 2: We have a bit forward that is really helpful to kind of work on your attention scanning.

[00:03:00] Speaker 2: Sequencing limits to complex array how they track and kind of can give us visuals for how to teach organized scanning.

[00:03:08] Speaker 2: There's all sorts of different we like to use functional games, so you know, if we have, we have like one eye spy scavenger hunt kit that we can use for both scanning and identification amidst simple or.

[00:03:20] Speaker 2: Complex array you can adapt as needed based.

[00:03:23] Speaker 2: That if you have kids with CDI, I feel it tends to be a little bit less straightforward.

[00:03:29] Speaker 2: That's the cortical visual impairment and that tends to be a little bit more in depth.

[00:03:33] Speaker 2: We don't necessarily have the tools to see exactly what's going on at the perceptual level.

[00:03:37] Speaker 2: You know, even if they're visual motor skills are working, what they perceive is not quite as straightforward as.

[00:03:43] Speaker 2: Some other standard deficits may be so a lot of times that's kind of including visual anchors or teaching certain strategies for how to use additional sensory like tactile cues.

[00:03:54] Speaker 2: Auditory multimodal stem things like that. That can help starting with the basics foundationally, whether it just is 2D and progressing to 3D, just kind of rating where they're at.

[00:04:04] Speaker 2: I know that's not a straightforward answer, but you know nor is visual, nor is visual depth to the straightforward assessment or treatment, so it kind of depends on what they present to us with.

[00:04:13] Speaker 2: But a lot of it is just kind of.

[00:04:15] Speaker 2: Those practice opportunities.

[00:04:16] Speaker 2: To practice or we have those skills or compensate if they're if they're blind based off whatever it is that they're working on.

[00:04:23] Speaker 1: OK.

[00:04:24] Speaker 1: And I the next question is basically asking what kind of activities and learning memory?

[00:04:29] Speaker 1: All do the visual deficits effect, so I know you talked about I spy, but there any other activities or learning memory call that you guys do in your field?

[00:04:41] Speaker 2: Did you say?

[00:04:42] Speaker 2: What does the deficit affect for what they do or?

[00:04:44] Speaker 1: What kind of activities?

[00:04:47] Speaker 1: Yes, what kind of activities and learning memory we call you guys do with visual deficit patients?

[00:04:55] Speaker 2: It can range from.

[00:04:57] Speaker 2: Maybe we do more of a straightforward high spy worksheet or identifying, you know in a in a worksheet.

[00:05:04] Speaker 2: If there is a.

[00:05:05] Speaker 2: Bunch of different figures.

[00:05:07] Speaker 2: Telling them which one to look for and try to isolate that.

[00:05:10] Speaker 2: That's a little bit more high level, I would say.

[00:05:12] Speaker 2: Sometimes it's as simple as practicing.

[00:05:14] Speaker 2: Localization and just using something motivating for them, whether it be a tablet or preferred stuffy things like that and just working on trying to localize or even fixate if they're that high level on.

[00:05:26] Speaker 2: Whatever that object.

[00:05:27] Speaker 2: Is within a play environment.

[00:05:30] Speaker 2: Specific games were where I spy.

[00:05:33] Speaker 2: Sometimes there are other games like guess who it might not seem quite as straightforward, but can be used for visual interventions like trying to do that organized getting left to right, top to bottom to try to find.

[00:05:46] Speaker 2: Whatever those clues.

[00:05:47] Speaker 2: Are which also you know involves working.

[00:05:50] Speaker 2: Visual, spatial and episodic are trying to take in what we're saying, kind of multitasking that aspect.

[00:05:56] Speaker 2: We have a bits board which is super helpful for there's a puzzle category.

[00:06:01] Speaker 2: It's really for all of the above related to working memory and visual.

[00:06:05] Speaker 2: There's scanning, there's sequencing, there's.

[00:06:10] Speaker 2: Rotary games where you have to try to either sequence identify dots with a moving target.

[00:06:16] Speaker 2: There are grids so that you can do kind of like a decoder.

[00:06:19] Speaker 2: Again, working on the organized ending, there's just left and right, so copying shapes.

[00:06:25] Speaker 2: Say there's model on left.

[00:06:26] Speaker 2: Side copy down the right or simply tracing over.

[00:06:30] Speaker 2: A simple shape or line in whatever their visual field may be, and just trying to work on their they receive with that.

[00:06:37] Speaker 2: Sometimes it looks.

[00:06:38] Speaker 2: Like drawing a craft and working on cutting that out, it just depends on where the kids at, but it can range from, you know, crafts to board.

[00:06:46] Speaker 2: Games to some.

[00:06:46] Speaker 2: Of those more, I guess medical type.

[00:06:49] Speaker 2: Activities like the big sport, which I think is fairly common in the rehab realm.

[00:06:54] Speaker 1: OK, awesome.

[00:06:55] Speaker 1: What extended training have you received and learning more about visual deficits since you graduated from OT school?

[00:07:04] Speaker 2: So I'm working at Children's Healthcare of Atlanta and they are very intentional about providing a lot of continuing education.

[00:07:10] Speaker 2: So we've been able to attend multiple, we call them in services.

[00:07:14] Speaker 2: Just every Thursday they have learning opportunities.

[00:07:17] Speaker 2: There's also things called lunch and learns that's just over the lunch hour.

[00:07:20] Speaker 2: They'll have either a speaker come or they'll do a Webex.

[00:07:24] Speaker 2: Just to kind of promote continued learning and a lot of those have actually been based on visual strategies or visions, specifically the.

[00:07:34] Speaker 2: There's a Center for visual impairment in Atlanta.

[00:07:37] Speaker 2: The name is escaping me at the moment.

[00:07:39] Speaker 2: I'm having a little bit of brain fart, but Steve, I specifics.

[00:07:43] Speaker 2: They came and did a three-part 2 part.

[00:07:49] Speaker 2: Two-part in service.

[00:07:50] Speaker 2: In person on so you guys specifically kind of what to put in your toolbox, what assistance to do, what to look for, how to how even understand that?

[00:07:58] Speaker 2: So there's been a lot of work for like kidding education.

[00:08:01] Speaker 2: And then just you know?

[00:08:02] Speaker 2: This time allows independent research on this side.

[00:08:05] Speaker 2: But nothing formal on the personal aspect of.

[00:08:08] Speaker 1: OK, now what do you remember from your occupational therapy training?

[00:08:12] Speaker 1: Learning about visual deficits and how to rebuild and rehabilitate your patients.

[00:08:18] Speaker 2: I think I had a little bit of a unique, maybe not bad experience in that realm because one of our professors was a vision specialist and she yeah, it was quite lucky actually, cause she's still when she was teaching part time.

[00:08:25] Speaker 1: Oh wow.

[00:08:31] Speaker 2: So she was actually still practicing as well and she gave us an entire course on.

[00:08:37] Speaker 2: Or just specific interventions with vision.

[00:08:39] Speaker 2: So to me it stood out quite a big role within OT as she was able to give us a lot of both scholastic and real life kind of treatment examples or assessment examples within vision.

[00:08:52] Speaker 2: But we also our neuroscience, I feel like.

[00:08:54] Speaker 2: Was a pretty huge.

[00:08:57] Speaker 2: Compounded of that as well because you know anything related to vision, whether it's the interpretation or the actual motor part of vision or the working memory portion of integrating that is very much related to that class, buffered it as well.

[00:09:13] Speaker 2: So I do feel like we got a substantial amount.

[00:09:17] Speaker 2: From grad.

[00:09:19] Speaker 1: This is a twofold question.

[00:09:21] Speaker 1: So first is asking, how comfortable do you feel about addressing children with complex visual deficits?

[00:09:29] Speaker 1: The second part is, if yes or no, how would you move forward to assist that child?

[00:09:36] Speaker 2: I feel as comfortable as I can within our scope.

[00:09:39] Speaker 2: I will say there's always, you know, adding the element of.

[00:09:42] Speaker 2: There are always things to learn and I think it's always important to also recognize that there are things I don't know.

[00:09:47] Speaker 2: And so, you know, striving for that knowledge.

[00:09:49] Speaker 2: But when I have patients with brain injury or they come to us with the visual deficit, I feel very comfortable.

[00:09:56] Speaker 2: Assessing and beginning.

[00:09:57] Speaker 2: To treat that, especially within the collaborative.

[00:10:00] Speaker 2: Environment that I'm in.

[00:10:02] Speaker 2: And then the second part, how I go about addressing that was that, is that correct?

[00:10:07] Speaker 1: That's yes or no?

[00:10:09] Speaker 1: How would you move forward to assisting that child who has a visual deficit complex visual deficit?

[00:10:16] Speaker 2: How we would move forward with and just speak to after our initial evaluation of charting you and talking with the caregivers, just setting those initial goals for how they would engage and then perform on those visual activities and adjusting we do a weekly reassessment based on their performance and how they do or any recovery those gains and we continue to kind of restructure.

[00:10:36] Speaker 2: Those goals and just, you know, daily reassessment and task analysis to make sure that what we're doing is both appropriate and you know the just right challenge and is.

[00:10:44] Speaker 2: Working for them, OK.

[00:10:46] Speaker 1: How do you perceive the role of occupational therapy addressing children with vision deficits?

[00:10:53] Speaker 2: I see it is substantially important to whether it's inpatient and we're dealing with, you know, brain injury or pre-existing premorbid, whatever it may be, or if you're in schools and if the child who's trying to learn or they have ADHD and that's impeding their ability to learn or say it's outpatient and it's something that's impacting their engagement there.

[00:11:13] Speaker 2: Or just the player that's age appropriate, or a job that they might want to do.

[00:11:17] Speaker 2: I feel like OT and of itself is so geared towards promoting functional engagement and what is meaningful that vision, aside from, you know, just going to your optometry.

[00:11:28] Speaker 2: Can be so easily lost or ignored at the base of.

[00:11:31] Speaker 2: You know what may be seen as attention or behavior.

[00:11:35] Speaker 2: I feel like it's so vital that the OT can kind of look at it from our holistic approach and see what's going on with blood and really use that vision or use our knowledge within the visual field.

[00:11:47] Speaker 2: Kind of help a child succeed, I feel like.

[00:11:49] Speaker 2: Very few others.

[00:11:51] Speaker 2: Heal the areas really get to go as in-depth as we can.

[00:11:57] Speaker 1: OK.

[00:11:59] Speaker 1: Important question here.

[00:12:00] Speaker 1: What are some of the misconceptions of children that are diagnosed with newer divergent slash learning challenges?

[00:12:08] Speaker 1: That may be that may have impacted their learning capability by visual deficits.

[00:12:17] Speaker 1: I think.

[00:12:20] Speaker 2: It's a very good, very loaded question.

[00:12:24] Speaker 2: Some of these infections may be that it's intentional.

[00:12:27] Speaker 2: I think it's particularly attention deficits a lot of times is initially disobedience.

[00:12:40] Speaker 2: To engage in anything visual.

[00:12:42] Speaker 2: Like there's a deficit present.

[00:12:44] Speaker 2: It takes a lot of attention and it's just kind of a double edged sword.

[00:12:48] Speaker 2: If you kind of look at any of those theories about what working memory is, and I know I'm kind of bleeding into your next question too, it's so interwoven between kind of the semantic and working piece of.

[00:13:00] Speaker 2: How you?

[00:13:00] Speaker 2: Take in the.

[00:13:01] Speaker 2: Information and then act on that while also.

Recording 2

Transcript

[00:00:01] Speaker 1: All righty.

[00:00:02] Speaker 1: I am ready to start a new recording here this morning, so thank you.

[00:00:06] Speaker 1: The first question is what age range are the children that are being seen for eye movement therapy or visual therapy?

[00:00:15] Speaker 1: That you've seen in your practice or doing your time of practicing.

[00:00:21] Speaker 2: OK.

[00:00:22] Speaker 1: What I've seen as an OT?

[00:00:25] Speaker 2: I feel like we see more of the visual.

[00:00:28] Speaker 2: School kids, as opposed to like the ones who truly need vision therapy, which is, you know, the ones where they're working on those ocular motor.

[00:00:40] Speaker 2: Skills that you know I…

[00:00:41] Speaker 2: Have worked on some.

[00:00:43] Speaker 2: Some ocular motor skills for kids.

[00:00:45] Speaker 2: I would say they are typically the ones that I'm working on that with are typically, you know, school age, so you know.

[00:00:57] Speaker 2: Youngest, probably second or third grade up to.

[00:01:02] Speaker 2: Like middle school?

[00:01:03] Speaker 1: OK, OK.

[00:01:05] Speaker 2: And again, I don't know.

[00:01:06] Speaker 2: Told you so.

[00:01:06] Speaker 2: I'm not currently.

[00:01:08] Speaker 2: In paediatric practice anymore.

[00:01:11] Speaker 2: Since I'm teaching now, we do have children who come into our Paediatrics course.

[00:01:19] Speaker 2: And we have the students provide treatment for them, but of course that's part of, you know, their curriculum and not me actually providing services for them.

[00:01:30] Speaker 1: If that makes sense, OK.

[00:01:32] Speaker 1: It does now having you know in practice previously before.

[00:01:38] Speaker 1: You became a professor.

[00:01:39] Speaker 1: Have you noticed that children had visual deficits coming into the practice or office?

[00:01:48] Speaker 2: Yeah, you know, that's one of the big things that we would look at is especially, you know, visual perception issues.

[00:01:56] Speaker 2: I feel like that's where we, you know, we're most trained, but yes, definitely, you know, visual processing issues.

[00:02:04] Speaker 1: And how did you address those visual deficits?

[00:02:09] Speaker 2: So we would of course assess those through.

[00:02:12] Speaker 2: You know different.

[00:02:13] Speaker 2: Standardized assessments, the VMI, the NBPT, the TV, PS, those were the ones that we use primarily.

[00:02:24] Speaker 2: You know, I would do some for.

[00:02:26] Speaker 2: Kids who I.

[00:02:26] Speaker 2: Feel like needed.

[00:02:27] Speaker 2: It I would do some ocular motor just kind of some quick ocular motor screenings.

[00:02:33] Speaker 2: You know, screening for fixation tracking, seconds convergence, things like that.

[00:02:41] Speaker 2: And then depending on what their results.

[00:02:44] Speaker 2: Or I would, you know, write goals for.

[00:02:46] Speaker 2: It or provide.

[00:02:47] Speaker 2: Interventions that really targeted those areas where they.

[00:02:50] Speaker 2: We're having issues OK?

[00:02:52] Speaker 1: And what kind of activities and learning memory, call recall do the visual deficits affect?

[00:03:01] Speaker 2: Can you?

[00:03:02] Speaker 1: Repeat that.

[00:03:03] Speaker 1: So what kind of activities that a child or any type of learning memory recall do the visual deficits affect for those kids who have?

[00:03:15] Speaker 2: So, lot, lot like everything so.

[00:03:20] Speaker 2: It could be as simple.

[00:03:23] Speaker 2: You know, visual perceptual issue that's keeping them from.

[00:03:29] Speaker : You know, maybe.

[00:03:29] Speaker 2: Tying their shoes to, you know, some handwriting difficulties to reading difficulties.

[00:03:40] Speaker 2: So you know you can really see it.

[00:03:42] Speaker 2: Throughout a wide range of occupations, depending on the specific deficit.

[00:03:48] Speaker 2: That the child has.

[00:03:50] Speaker 1: OK, OK, awesome.

[00:03:55] Speaker 1: What do you remember from your occupational therapy training about visual deficits and how to rehabilitate your patients?

[00:04:06] Speaker 1: So when I was at MIT.

[00:04:08] Speaker 2: School we, you know, again focused.

[00:04:10] Speaker 2: A lot on visual testing disorders.

[00:04:15] Speaker 2: We I don't remember us learning a lot about other kinds of vision disorders, you know, low vision or ocular motor dysfunction or things like that.

[00:04:28] Speaker 2: And so that's something that I feel like is important.

[00:04:31] Speaker 2: And so that's what I'm trying to to.

[00:04:35] Speaker 2: Teach our students.

[00:04:36] Speaker 2: Because I also work in low vision with older adults, so I'm really trying to kind of beef up that part of our curriculum to have them have some exposure to different kinds of vision disorders.

[00:04:53] Speaker 2: And not just visual processing disorders, because it's something.

[00:04:56] Speaker 2: They're going to see and.

[00:04:57] Speaker 2: It impacts everything.

[00:04:59] Speaker 2: You know when you have vision loss, it impacts everything.

[00:05:03] Speaker 1: And what extended training have you received and learning more about visual deficits since you graduated from OTT school?

[00:05:10] Speaker 2: Yeah. So I have actually done a lot of CU's, you know, just different courses on vision and vision loss and low vision, since that's what I'm, you know, where my.

[00:05:24] Speaker 2: Primary area of practice is right now I am currently in the process of doing my CLV certification which is a certified low vision therapist certification.

[00:05:39] Speaker 2: There's they're like self-studies.

[00:05:41] Speaker 2: On a TA that I've done with.

[00:05:45] Speaker 2: Low vision, done vision.

[00:05:49] Speaker 2: Seminar with the Mitchell Simon put on.

[00:05:57] Speaker 2: And the other ones I would have to look, I mean I'm happy to send you.

[00:05:59] Speaker 2: A list if that would be.

[00:06:00] Speaker 2: Helpful if.

[00:06:00] Speaker 1: No, no, you're fine.

[00:06:04] Speaker 1: You're OK with that?

[00:06:05] Speaker 1: No problem.

[00:06:08] Speaker 1: How do you perceive the role of occupational therapy?

[00:06:11] Speaker 1: Addressing children with vision deficits.

[00:06:15] Speaker 2: I think.

[00:06:15] Speaker 2: It's so important.

[00:06:16] Speaker 2: Because, you know, this is one thing I talked to students about is when you have any kind of vision, visual processing store.

[00:06:24] Speaker 2: It impacts literally everything you do because we use our vision for everything we do, you know, from the time we get.

[00:06:32] Speaker 2: Up in the.

[00:06:33] Speaker 2: Morning to the time.

[00:06:34] Speaker 2: We go to bed at night.

[00:06:36] Speaker 2: It's hard to think of one single occupation when that doesn't include our vision, so like OT.

[00:06:47] Speaker 2: You know it's we're the perfect profession to address that.

[00:06:52] Speaker 2: You know, whether it's helping or remediate a visual processing disorder or helping to compensate for vision loss that can't be corrected because it.

[00:07:03] Speaker 2: That it impacts everything, every single thing we do, we use our vision.

[00:07:07] Speaker 1: What are some of the misconceptions of children that are diagnosed with like learning challenges?

[00:07:14] Speaker 1: For example, like dyslexia, ADHD, etcetera that may be impacted by visual deficits?

[00:07:20] Speaker 2: Yeah, so I think.

[00:07:22] Speaker 2: The biggest thing is that usually children you.

[00:07:28] Speaker 2: Know will go to.

[00:07:28] Speaker 2: The eye doctor and.

[00:07:30] Speaker 2: All they look at is visual acuity, right?

[00:07:33] Speaker 2: So they go and you know, maybe they're having challenges at school and they recommend, you know, take them for an eye.

[00:07:42] Speaker 2: Will they take them to their eye exam and the doctor says, oh, they have 2020 vision. And so they say, OK.

[00:07:47] Speaker 2: Their vision is fine.

[00:07:49] Speaker 2: This is something else going on.

[00:07:50] Speaker 2: But all they've looked at is visual acuity.

[00:07:53] Speaker 2: They haven't looked at visual fields.

[00:07:55] Speaker 2: They haven't looked at actually motor control.

[00:07:57] Speaker 2: They haven't looked at the ability of their eyes to work together as.

[00:08:00] Speaker 2: A team.

[00:08:02] Speaker 2: To have visual perception and visual processing.

[00:08:05] Speaker 2: So I feel like a lot of times kids will get you.

[00:08:08] Speaker 2: Know go to.

[00:08:08] Speaker 2: The eye doctor, maybe they get a.

[00:08:10] Speaker 2: Pair of glasses and they say they're.

[00:08:12] Speaker 2: 2020 and so it's just.

[00:08:14] Speaker 2: Like they check that.

[00:08:15] Speaker 2: Blocks and then don't.

[00:08:17] Speaker 2: Really dig deeper into what actually could be impacting them visually.

[00:08:21] Speaker 1: OK.

[00:08:23] Speaker 1: Now, what is your personal hope and vision for occupational therapists in assisting with vision therapy in the future?

[00:08:32] Speaker 2: So one of the things I really am trying to instil in our students is that we have to have a good understanding of.

[00:08:40] Speaker 2: Vision because it doesn't matter where you work.

[00:08:44] Speaker 2: It doesn't matter if you are in school systems or if you're in an outpatient clinic, or if you're in the nursing home.

[00:08:51] Speaker 2: You are going to see people who have vision problems.

[00:08:54] Speaker 2: So even if you never work in.

[00:08:57] Speaker 2: A visual rehab clinic or a low vision clinic.

[00:09:01] Speaker 2: You still need to have a good understanding of, you know, vision and vision loss.

[00:09:06] Speaker 2: And you know what that looks like and.

[00:09:09] Speaker 2: How it impacts people?

[00:09:11] Speaker 2: Because it's going to.

[00:09:12] Speaker 2: Impact so many people that, etc.

[00:09:14] Speaker 2: OK.

[00:09:15] Speaker 1: What aspects of?

[00:09:17] Speaker 1: Working memory is highly affected by cognitive interventions utilizing vision therapy.

[00:09:26] Speaker 1: What aspects of working memory are highly affected by cognitive interventions utilizing vision therapy?

[00:09:36] Speaker 2: So when you say vision therapy or you do, you can you expand on that?

[00:09:41] Speaker 1: My eye movement therapy.

[00:09:43] Speaker 1: So for kids, yes.

[00:09:45] Speaker 2: Like the ocular motor skill.

[00:09:47] Speaker 1: Correct. Yeah.

[00:09:48] Speaker 2: OK. And what? OK.

[00:09:55] Speaker 1: Now you find which aspects of working memory.

[00:09:57] Speaker 1: So for example, kids who have like the dyslexia, the ADHD but not the behavioural part, but the inattentiveness like your window watchers for example, it is highly affected by their cognitive skills.

[00:10:11] Speaker 1: And So what kind of.

[00:10:14] Speaker 1: From an occupational therapist that you could use with children who need like eye movement therapy.

[00:10:24] Speaker 2: I think that providing a lot of sensory integration.

[00:10:29] Speaker 2: Therapy, you know, or interventions can be helpful for those sorts of children.

[00:10:36] Speaker 2: You know, to give them the input that they need to be regulated so that they are in a state to where they can participate in.

[00:10:47] Speaker 2: You know, whatever.

[00:10:49] Speaker 2: Eye movement, you know, therapy, oculomotor skills, whatever you're trying to have them do because you want them to be in a state where they're able to facilitate that adaptive response and where they're in a state where they're going to have them, you know, most optimal learning.

[00:11:04] Speaker 1: OK, so have you come across students who were new or divergent?

[00:11:10] Speaker 1: And they realize, for example, their eyes were jumping or skipping because there aren't, you know, good readers, or comprehending correctly.

[00:11:18] Speaker 1: Like, can you expound on that?

[00:11:25] Speaker 2: I definitely have seen children who have other diagnosis, you know, whether its autism spectrum disorder or just different types of, you know, genetic differences.

[00:11:41] Speaker 2: Who do have those?

[00:11:44] Speaker 2: You know, difficulties in school, so difficulties reading because of those.

[00:11:51] Speaker 2: Oculomotor dysfunction.

[00:11:54] Speaker 1: OK.

[00:11:55] Speaker 1: And with that ocular mode of dysfunctions, what kind of eye movement therapy strategies would you implement with children that are with various diagnoses?

[00:12:07] Speaker 2: So just you know we've done fixation exercises, different tracking and scanning exercises.

[00:12:17] Speaker 2: So you know things to help with sub codes with convergence.

[00:12:21] Speaker 2: And again you.

[00:12:22] Speaker 2: Know I feel like true vision therapy.

[00:12:26] Speaker 2: Is more skilled at providing those services because.

[00:12:30] Speaker 2: That's all they do.

[00:12:32] Speaker 2: You know, obviously it is so broad and we you know.

[00:12:36] Speaker 2: We do.

[00:12:37] Speaker 2: We can do so.

[00:12:37] Speaker 2: Much more than that, but.

[00:12:40] Speaker 2: You know, as you, I'm sure know, vision therapists are few and far between.

[00:12:46] Speaker 2: And so it's hard to find somebody to refer these kids to you.

[00:12:50] Speaker 2: So I would do, you know, the best that I could with the skills.

[00:12:54] Speaker 2: That I have.

[00:12:56] Speaker 2: To provide those.

[00:12:58] Speaker 2: Activities I filmed. There's a website you probably know that I can learn elyecanlearn.com that I would use a lot for like home programs and things for the parents.

[00:13:11] Speaker 2: To have the kids to do.

[00:13:13] Speaker 2: At home to.

[00:13:14] Speaker 2: Carry over those skills.

[00:13:17] Speaker 2: That we would work on in the session.

[00:13:19] Speaker 1: And when you see children such as what we just talked about, did you see some, like progress with you, like the OT therapy sessions etcetera, that you would provide for the students?

[00:13:33] Speaker 1: Did you see any like progression?

[00:13:37] Speaker 1: OK, OK, good, good.

[00:13:40] Speaker 1: Well, that's pretty much it.

[00:13:42] Speaker 1: I'm going to stop my recording.

Recording 3

Transcript

[00:00:01] Speaker 1: OK, recording started.

[00:00:02] Speaker 1: So the first question is what age range are the children that are being seen for eye movement therapy or vision therapy?

[00:00:11] Speaker 1: That you've seen.

[00:00:15] Speaker 2: Kiddos anywhere from.

[00:00:20] Speaker 2: So I would say around like nine months.

[00:00:26] Speaker 2: All the way to like.

[00:00:27] Speaker 1: 21 and can you tell me how you've noticed that your patients has like any type of visual deficits? Did you notice anything just?

[00:00:29] Speaker 1: OK.

[00:00:39] Speaker 1: As you're sitting down, the on board them as a patient.

[00:00:43] Speaker 2: So during eval I might see Miss Dagnese or just conjugate gays or they're reporting double vision if they have the cognitive capacity to tell me that, or they might have some type of exotropia or exotropia.

[00:01:05] Speaker 2: I'm noticing like they're not able to track or track smoothly.

[00:01:11] Speaker 2: Saccades might be impacted like they're not able to shift their gaze in an age appropriate way with babies.

[00:01:22] Speaker 2: Like I'm noticing they're not like looking at my.

[00:01:25] Speaker 2: Face or not able to like if I introduce.

[00:01:30] Speaker 2: Like a brightly colored toy, like a bright red toy, they're not able.

[00:01:34] Speaker 2: To see it.

[00:01:35] Speaker 2: But then if I add some type of like auditory support, they're compensating by because they're able to to locate that item.

[00:01:44] Speaker 2: You know better with that auditory support, but then not able to see that item when there's no.

[00:01:50] Speaker 2: Auditory support or they're not attending to that?

[00:01:52] Speaker 2: Item in the same way.

[00:01:56] Speaker 2: What else?

[00:01:57] Speaker 2: Sometimes they come with they've already had some type of neuropathology or ophthalmology exam acutely, and so they come with some like, whether it's occlusion glasses or some type of like patching protocol already, like on day one of eval.

[00:02:17] Speaker 2: rarer in my setting, where usually like the first ones those are teasing those things out.

[00:02:25] Speaker 2: But yeah, those are some of the things.

[00:02:28] Speaker 2: That I will see that kind of hint that there's.

[00:02:31] Speaker 2: Something going on with?

[00:02:32] Speaker 2: Their eyes, or there's some kind of cranial nerve damage like in their chart.

[00:02:39] Speaker 2: Or they've had some, like, damage to the eye during their injury.

[00:02:45] Speaker 2: So we would anticipate.

[00:02:47] Speaker 2: That there was some visual deficits.

[00:02:50] Speaker 1: And so how do you address the visual?

[00:02:51] Speaker 1: Deficits like what kind?

[00:02:53] Speaker 1: Of activities or.

[00:02:55] Speaker 1: Yeah, learning hammering calls that you do.

[00:02:59] Speaker 2: So from an OT standpoint, we are one looking at follow up.

[00:03:05] Speaker 2: So we you know only can go a certain to a certain level I think and I think that that gets kind of frustrating for caregivers because they are anticipating we'll be able to look.

[00:03:18] Speaker 2: More in depth, but usually our kiddos.

[00:03:21] Speaker 2: With, you know, pretty significant visual deficits.

[00:03:24] Speaker 2: We'll have to go see an ophthalmologist or neuro ophthalmologist.

[00:03:27] Speaker 2: So we refer out to them and then also like as far as what I'm doing my OT sessions while they're in patient or admitted to the hospital, we're using like broken strings depending on their level of.

[00:03:43] Speaker 2: Their age, you know the level, their deficit awareness, all the things but behaviours.

[00:03:50] Speaker 2: But I've done like Brock string exercises, giving them home, exercise programs that really work on using both eyes together, different types of like visual.

[00:04:04] Speaker 2: Exercises that they'll do daily, and we review those with the.

[00:04:08] Speaker 2: Patient and the care.

[00:04:09] Speaker 2: Numbers with our like super low stem or like disorders of consciousness.

[00:04:16] Speaker 2: Patients are DOC patients like your Rancho 4.

[00:04:19] Speaker 2: I mean, not Rancho, 4 Rancho 2-3 patients usually take them into a dark space like a very contrasting environment.

[00:04:30] Speaker 2: I might have it like pitch black but introduce like an LED light or like.

[00:04:36] Speaker 2: Something very visually appealing and bright and try to see if they're able to, you know, locate that item in any way, or have a generalized response to like, you know, when that item is introduced in their visual field, what else?

[00:04:56] Speaker 2: I'm doing a paired a lot with vestibular stuff, so we might do some vision exercises at quadruped.

[00:05:04] Speaker 2: Where I have like.

[00:05:07] Speaker 2: A maybe I have these like circles, colored circles and I'll have them track or shift their gaze between colors, you know, on my command or in a certain pattern.

[00:05:20] Speaker 2: So I'm like challenging a similar system as well, getting that middle.

[00:05:27] Speaker 2: Ear in a different.

[00:05:30] Speaker 2: What else divergent and convergence activities which goes along with?

[00:05:42] Speaker 1: Hello I think I may have lost you.

[00:05:44] Speaker 1: I don't know if you're amused.

[00:05:51] Speaker 1: I can't hear you.

[00:05:52] Speaker 1: If you can hear me.

[00:06:06] Speaker 1: OK, good. Awesome.

[00:06:09] Speaker 1: Can you hear me?

[00:06:18] Speaker 1: I can hear you now.

[00:06:21] Speaker 1: Yes, yes.

[00:06:29] Speaker 2: Do we need to start?

[00:06:31] Speaker 1: Oh, no.

[00:06:32] Speaker 1: So no, the next question I was going to ask is like, do you remember receiving training when you were in OTT school about how to deal with children or just patients in general with visual deficits and how to rehabilitate them?

[00:06:48] Speaker 2: No, I think that.

[00:06:51] Speaker 2: It was mentioned and like as something that we you know, should address as Ott's, but we didn't have anything like a visual clinic recall. Like, I feel like I

learned a lot of those things on the job. OK. Yeah. OK. So you, I guess you received like extra.

[00:07:12] Speaker 1: CU courses or whatever afterwards, OK?

[00:07:15] Speaker 2: OK.

[00:07:15] Speaker 2: Yes, and we.

[00:07:16] Speaker 2: Have had like some int services on critical vision impairment with some local like organizations that work solely with kids with CVS.

[00:07:28] Speaker 2: So that those kinds of things are helpful.

[00:07:30] Speaker 2: But yeah, most of the stuff I learned patching all that stuff was on the job.

[00:07:35] Speaker 1: OK, OK.

[00:07:37] Speaker 1: How do you perceive the role in occupational therapy addressing children with vision deficits?

[00:07:43] Speaker 2: Oh, I think we have a very.

[00:07:46] Speaker 2: Yeah, I think it's very unique to us and it's really helpful.

[00:07:52] Speaker 2: I think it's something that's, you know, maybe overlooked sometimes.

[00:07:58] Speaker 2: And we are like the perfect people, I think to be addressing those things.

[00:08:03] Speaker 2: You know, I wish we had more.

[00:08:06] Speaker 2: Kind of intentional as far as my student experience.

[00:08:11] Speaker 2: More intentional, you know, learning around it.

[00:08:13] Speaker 2: But yeah, I think we're very.

[00:08:17] Speaker 2: We're perfect for that.

[00:08:19] Speaker 2: Because it impacts everything you know, once we identified a visual deficit, it helps with walking with PT.

[00:08:27] Speaker 2: It helps with cognitive, you know, table top tests with speech, and it can really, you know, help that patient progress faster.

[00:08:35] Speaker 1: So he just mentioned.

[00:08:37] Speaker 1: Something about like cognitive, so with children who are diagnosed.

[00:08:40] Speaker 1: With, like, dyslexia, autism, ADHD, how do?

[00:08:46] Speaker 1: Feel about OT assisting them, like how important receiving OT OT therapy is for their progression in life.

[00:08:55] Speaker 2: Oh, it's integral.

[00:08:57] Speaker 2: It is impaired it.

[00:08:58] Speaker 2: I think.

[00:08:59] Speaker 2: I haven't worked with kids with dyslexia or ADHD as consistently.

[00:09:06] Speaker 2: I have had a few kids with autism.

[00:09:08] Speaker 2: When I worked in the school system and I think because you're able to, not only.

[00:09:15] Speaker 2: Like to say oh these.

[00:09:15] Speaker 2: Are like the meat and the sandwich.

[00:09:18] Speaker 2: We like between speech and PT like we're able to work on gross motor things, but because we have this special, the specialized skills and sensory and also you know the cognitive things that speech might be addressing as well, we have a unique perspective.

[00:09:34] Speaker 2: And so I think like.

[00:09:38] Speaker 2: Yeah, with that population, it would be so imperative for an OT to be on board and really be able to, you know, with specialized skills and assessing vision and all that be able to help that patient, you know, progress forward.

[00:09:54] Speaker 1: Anything else you want to add to the interview as far as from an OT perspective?

[00:10:03] Speaker 2: Oh yeah, I just would have loved.

[00:10:05] Speaker 2: I really enjoy like vision therapy.

[00:10:09] Speaker 2: I just wish I had known more about it.

[00:10:11] Speaker 2: You know, I've had to kind of.

[00:10:12] Speaker 2: Learn as I had patients.

[00:10:15] Speaker 2: You know that.

[00:10:15] Speaker 2: Came up with certain.

[00:10:18] Speaker 2: So I think you know really hitting it from a school perspective or.

[00:10:23] Speaker 2: Reintegrating how important our role is and with that population of patients I think would be great.

Recording 4

Transcript

[00:00:01] Speaker 1: Ready. So I'm ready.

[00:00:03] Speaker 1: First question, what age range are the children that are being seen for like vision therapy that you?

[00:00:11] Speaker 1: Have worked with.

[00:00:14] Speaker 2: Let's see.

[00:00:14] Speaker 2: The age range starts at three preschool kids all the way up to.

[00:00:22] Speaker 2: I have one kid and three still on console provision in high school, OK.

[00:00:28] Speaker 1: And can you tell me how you noticed that your patient has like any type of visual deficits when you first meet the kid?

[00:00:38] Speaker 2: OK.

[00:00:39] Speaker 2: During my assessment, yes.

[00:00:41] Speaker 2: During my initial assessment, yes.

[00:00:52] Speaker 2: Or a truck.

[00:00:55] Speaker 2: Or their hand eye coordination.

[00:00:57] Speaker 2: If I notice that that's off like they're overshooting or undershooting.

[00:01:01] Speaker 2: I'm picking up something or pointing to something.

[00:01:05] Speaker 2: And you know, that typically makes me think like I wanted to do the visual step.

[00:01:11] Speaker 2: OK and.

[00:01:12] Speaker 2: A lot of times I will say that most times there's always.

[00:01:18] Speaker 2: It's already indicated in the medical record because they've been evaluated in the schools that they've been evaluated.

[00:01:20] Speaker 1: OK.

[00:01:26] Speaker 2: By the psychologists and all these people who have.

[00:01:31] Speaker 1: So how do you address the visual deficits?

[00:01:33] Speaker 1: Like what kind?

[00:01:34] Speaker 1: Of activities or anything that you use.

[00:01:40] Speaker 2: This is obvious.

[00:01:41] Speaker 2: Just says I don't notice it in the record if it's not listed, I usually contact the case manager and you're the IT meeting you know myself.

[00:01:50] Speaker 2: The team will talk about that, or I'll just say, hey, I noticed that this student is having issues with perception or tracking, and if someone else.

[00:02:01] Speaker 2: Is it will just bring that back feature coming to the pair IT meeting and then we recommend that they get tested.

[00:02:10] Speaker 2: But typically it's.

[00:02:12] Speaker 2: More than one or two more than like two or more providers.

[00:02:18] Speaker 2: Two or more areas?

[00:02:19] Speaker 2: That identify the.

[00:02:21] Speaker 1: OK, now for kids who are already diagnosed with the visual deficit, do you notice that they have any type of deficit when it comes down to learning memory recall?

[00:02:39] Speaker 2: I will say most likely if they have a significant visual deficit, there is some type of cognitive deficit.

[00:02:49] Speaker 2: That is affected as well.

[00:02:51] Speaker 1: OK.

[00:02:53] Speaker 2: You know, we may know the score or they're, you know, looking at their score areas like reading or letter identification is low.

[00:03:07] Speaker 2: And then typically that's when we refer out to see is it truly a deficit or is it just?

[00:03:13] Speaker 2: A visual profit.

[00:03:17] Speaker 1: So what do you remember from your occupational therapy training?

[00:03:21] Speaker 1: Learning about visual deficits and how to rehabilitate your patients?

[00:03:30] Speaker 2: What do I remember during my?

[00:03:34] Speaker 2: Well, as an OT, we are holistic.

[00:03:37] Speaker 2: Our approach is holistic.

[00:03:39] Speaker 2: So we look at all areas.

[00:03:41] Speaker 2: So if that is indicated or identified as the area of weakness during the testing.

[00:03:46] Speaker 2: We do consider.

[00:03:47] Speaker 2: As a factor to why the student may not perform well in other areas.

[00:03:52] Speaker 2: Their performance varies.

[00:03:54] Speaker 1: OK.

[00:03:56] Speaker 1: And how comfortable are you addressing children with complex visual deficits?

[00:04:04] Speaker 2: That is not an area of my faculty, and typically right now, if a child has complex physical deficits, they do some we do provide, we have a visual vision therapist in a setting that can do more in depth testing to let us know.

[00:04:23] Speaker 2: More about their field decision or what strategies or what fun or what.

[00:04:27] Speaker 2: Type of life.

[00:04:28] Speaker 2: We should use.

[00:04:29] Speaker 2: And then we use those strategies to incorporate.

[00:04:34] Speaker 1: Have you had any type of extended training received when it comes down to learning more about visual deficits since you've graduated from OT school?

[00:04:52] Speaker 1: How do you perceive the role of occupational therapy addressing children with vision deficits?

[00:04:59] Speaker 2: Well, I I do believe that that is a.

[00:05:03] Speaker 2: Specialty area.

[00:05:05] Speaker 2: I believe most occupational therapists graduate from the program with a general understanding.

[00:05:11] Speaker 2: However, those who, if they're going to build a private setting, build therapists if they specialize and they have got these authentication.

[00:05:23] Speaker 2: Or some type of extended training to treat those deficits.

[00:05:29] Speaker 2: However, being in full settings, I have general knowledge I have.

[00:05:32] Speaker 2: Some areas that.

[00:05:33] Speaker 2: Are more others, but as we have vision therapists on staff that up with us, really.

[00:05:41] Speaker 2: That really isn't my primary area of focus.

[00:05:45] Speaker 2: I so I collaborate with the vision therapist.

[00:05:53] Speaker 1: What are some misconceptions of children that are diagnosed, like with the learning deficit, newer divergent like autism, ADHD, dyslexia?

[00:06:06] Speaker 1: The different challenges that they may be impacted by visual deficits.

[00:06:15] Speaker 2: I will say I don't know if I'm aware of any common misconceptions, and I do know that we do know that that a factor in many of those students.

[00:06:28] Speaker 2: So being working, having worked in a self-contained.

[00:06:34] Speaker 2: In self-contained classes, students who have intellectual disabilities and they have autism.

[00:06:40] Speaker 2: I think we are all very aware that this could be a factor and we typically kind of incorporate a lot of the basic strategies across for for all students, because they can only it would take away from their learning.

[00:06:56] Speaker 1: What are your hope and vision for occupational therapists and your role in assisting with vision therapy in the future?

[00:07:13] Speaker 2: I would think about it, I would probably.

[00:07:18] Speaker 2: Say that when I.

[00:07:20] Speaker 2: Considering education classes, would you say that that is?

[00:07:29] Speaker 2: Offered regularly.

[00:07:32] Speaker 2: So probably more accessibility to those classes would probably be helpful.

[00:07:37] Speaker 2: Because it is being prevalent.

[00:07:42] Speaker 1: Now what aspects of working memory are highly affected by cognitive interventions utilizing eye movement therapy or vision therapy?

[00:07:56] Speaker 1: What aspects of working memory are highly affected by cognitive interventions utilizing eye movement therapy?

[00:08:06] Speaker 1: Like vision therapy.

[00:08:09] Speaker 2: I think generally speaking I would say their ability for process, visual information and processing it in general would be affected if they can't discriminate what's on paper or on the board, or what's in their environment, they can't.

[00:08:28] Speaker 2: Process it and do anything with your face.

[00:08:35] Speaker 1: OK, two more questions.

[00:08:36] Speaker 1: What are the effects of receiving eye therapy from an occupational therapist and children diagnosed with ADHD?

[00:08:45] Speaker 2: So is are you saying that vision therapy from an occupational therapist?

[00:08:50] Speaker 2: OK, so an occupational therapist who has that training of vision therapy would be able to incorporate those strategies more readily throughout their students life from their their activities that they're living self-care skills, academic performance and health, transitioning, processing.

[00:09:10] Speaker 2: In a better level than a therapist who has not had extended training.

[00:09:16] Speaker 1: OK.

[00:09:17] Speaker 1: So a therapist who've had extended training like what are some effective eye movement therapy strategies for improving working memory and promoting attention in children who are diagnosed with ADHD.

[00:09:37] Speaker 1: No problem.

[00:09:38] Speaker 1: What are some effective eye movement therapy strategies for improving working memory and promoting attention in children diagnosed with ADHD from a occupational therapist perspective, when you guys are doing vision therapy?

[00:09:53] Speaker 2: Well, I guess I can just speak on some of the strategies that I have incorporated that I've been taught by the vision therapies would be.

[00:10:02] Speaker 2: Tracking usually like you know something like.

[00:10:10] Speaker 2: Is probably one of the most common ones that we to help increase their field of vision so that they don't have peripheral vision or learning how to shift their head to.

[00:10:23] Speaker 2: Identify what's happened in their entire environment.

[00:10:26] Speaker 2: That's probably the one that stands out.

[00:10:29] Speaker 1: OK.

[00:10:30] Speaker 1: And before I stop recording, is there anything you?

[00:10:33] Speaker 1: Want to add?

[00:10:35] Speaker 1: To this interview as it pertains to being an occupational.

[00:10:39] Speaker 1: And dealing with children who have some visual deficits.

[00:10:49] Speaker 2: I definitely believe that.

[00:10:52] Speaker 2: Vision is an integral part of a child's ability to perform their Daisy to to, to complete their occupational areas effectively. I do believe that increasing the therapist knowledge.

[00:11:09] Speaker 2: So that their training is a little bit more thorough and the program will be more effective would be effective.

[00:11:20] Speaker 2: As well as, especially for those who don't enter the school setting.

[00:11:27] Speaker 2: I believe that.

[00:11:34] Speaker 2: I do think that students in other.

[00:11:38] Speaker 2: Settings, not school settings.

[00:11:41] Speaker 2: Should automatically refer.

[00:11:43] Speaker 2: I would love to see that where they are expensively.

[00:11:47] Speaker 2: If they do give some type of cognitive issue is identified just to see if that is a factor or is this your cognition?

[00:11:58] Speaker 1: OK. Thank you.

Recording 5

Transcript

[00:00:03] Speaker 1: So thank you for taking time to answer some of my questions.

[00:00:06] Speaker 1: In regards to occupational therapy, so as an occupational therapist, what age range of children you've seen when it comes down to like vision therapy?

[00:00:26] Speaker 2: I I mean, I don't specifically do vision therapy alone, but I have done visual activities obviously probably with.

[00:00:39] Speaker 2: Mostly like 0 to 8.

[00:00:44] Speaker 1: And for those children that you've seen, like, how do you address their visual deficits?

[00:00:51] Speaker 1: Like, how do you notice that they may have some visual deficits?

[00:00:55] Speaker 1: And how do you address that?

[00:00:57] Speaker 2: Usually by assessing like visual motor skills tracking maybe something.

[00:01:06] Speaker 2: That a parent.

[00:01:06] Speaker 2: Has told me that kind of lines up with having some visual.

[00:01:14] Speaker 2: And then addressing.

[00:01:19] Speaker 2: I mean I.

[00:01:19] Speaker 2: I guess all kinds of different visual activities.

[00:01:24] Speaker 2: For some of the older kids, some things with like the left and right side of the body like kind of like almost brain balance activities like some astronaut training activities.

[00:01:40] Speaker 2: I've done, you know, like more visual motor of like handwriting and tracing and and that kind of practice.

[00:01:53] Speaker 2: I've done a little bit.

[00:01:56] Speaker 2: On like electronics, with games on the computer or tablet.

[00:02:05] Speaker 2: Probably some like worksheets with different.

[00:02:11] Speaker 2: Like hidden figures or like visual.

[00:02:16] Speaker 2: Like figure ground or things like.

[00:02:19] Speaker 1: OK, now what do you remember from OT school?

[00:02:23] Speaker 1: Like as far as your training, learning about patients who have visual deficits?

[00:02:31] Speaker 2: Oh gosh.

[00:02:34] Speaker 2: I mean, I remember learning a little bit about.

[00:02:36] Speaker 2: It I can't say.

[00:02:39] Speaker 1: OK.

[00:02:40] Speaker 1: And have you had extensive training after OT school in regards to dealing with those who may have visual deficits I've done.

[00:02:51] Speaker 2: One or two courses.

[00:02:54] Speaker 2: Nothing super extensive, but we've had I've had.

[00:02:59] Speaker 2: Some training from a developmental ophthalmologist at listen to like a talk and some like gave some activities and stuff from him.

[00:03:12] Speaker 2: And then sometimes just learning from coworkers.

[00:03:17] Speaker 1: Now, how do you perceive the role of occupational therapy addressing children with division deficit?

[00:03:24] Speaker 2: I think it's important.

[00:03:26] Speaker 2: Especially I guess depending on the visual deficit too, I think there are a lot of things that it can address and I think there are some things that are better addressed by someone that has more of an expertise.

[00:03:41] Speaker 2: Sometimes obviously every OT has their own wheelhouse, so.

[00:03:47] Speaker 2: More into vision or low vision rehab and then there are vision therapy at like ophthalmology offices and things like that that sometimes are better suited for.

[00:03:59] Speaker 1: OK, what are some of the misconceptions of children that are diagnosed with learning challenges such as like?

[00:04:07] Speaker 1: Autism, ADHD.

[00:04:09] Speaker 1: That may be impacted by their visual deficit.

[00:04:16] Speaker 2: Could you repeat that?

[00:04:18] Speaker 1: What are some misconceptions of children that are diagnosed with a learning challenge such as autism or ADHD that may be impacted by, you know, their visual impairment?

[00:04:32] Speaker 2: Yeah, I think sometimes those kids.

[00:04:38] Speaker 2: Especially autistic, and like nonverbal difficulty expressing things that you may or may not know exactly what their visual deficits are, or things that can be taken as visual deficits are truly more sensory or.

[00:04:59] Speaker 2: Something like that.

[00:05:02] Speaker 1: OK.

[00:05:03] Speaker 1: And what is your vision or hope for occupational therapist and assisting with vision therapy in the future?

[00:05:13] Speaker 2: I mean, I think it would be super beneficial for both teams to be more involved with that. I don't know many OT's that specialize in that field specifically. I think I know a lot about cheese about.

[00:05:29] Speaker 2: You know, do some visual therapy here and there, but maybe not quite like an expert in that area, so I think.

[00:05:38] Speaker 2: It would be helpful but.

[00:05:41] Speaker 2: Like I said, every OT has their own wheelhouse, so I think it just kind of depends on on the therapist.

[00:05:47] Speaker 1: 's skill set.

[00:05:50] Speaker 1: And as a therapist, and if you're working with a child or children that has a diagnosis like autism, ADHD, something that affects their working memory.

[00:06:01] Speaker 1: How does?

[00:06:03] Speaker 1: That affect like what?

[00:06:05] Speaker 1: Their eye, you know, vision therapy like that.

[00:06:08] Speaker 1: They need some type of rehabilitation.

[00:06:11] Speaker 1: How does that affect them?

[00:06:12] Speaker 1: Like what? Their working memory. So for example, I've heard some OTT specialists talk about, they've seen, like Timmy's eyes jumping or skipping.

[00:06:22] Speaker 1: And that's why he may not be able to comprehend what he's reading. So can you elaborate on that as far as from an ot's perspective?

[00:06:31] Speaker 2: Yeah, I think if a.

[00:06:35] Speaker 2: The child has a hard time following kind of what's on the page or on the screen or.

[00:06:42] Speaker 2: You know whether it's reading or pictures or or whatever I think.

[00:06:51] Speaker 2: That can often.

[00:06:53] Speaker 2: Sorry I lost my.

[00:06:54] Speaker 2: Train of thought.

[00:06:57] Speaker 2: That can.

[00:07:04] Speaker 2: So sorry, can you repeat that last part because I forgot whatever.

[00:07:07] Speaker 1: Oh, no, you're fine. So with for example, I said, with Timmy's eye skipping and the occupational therapist realized, oh, Timmy's eyes are skipping. So we need

to kind of like strengthen his eye muscles, if you will. Maybe that might help him with his reading or comprehension.

[00:07:24] Speaker 1: Because his eyes are not focused.

[00:07:27] Speaker 2: Oh, yeah, yeah, yeah.

[00:07:28] Speaker 2: So, I mean, I think.

[00:07:32] Speaker 2: Well, I guess every kid is also different in that it may be a visual issue, but.

[00:07:36] Speaker 2: It could also be.

[00:07:38] Speaker 2: A learning or?

[00:07:39] Speaker 2: A cognitive issue too, and I think sometimes that's hard to tell with.

[00:07:44] Speaker 2: Again, especially autistic and nonverbal children, what they're actually perceiving from the words or the pictures that they're seeing.

[00:07:56] Speaker 2: Based on on what we're seeing with our eyes, I think if the child is verbal, it's a little easier to kind of understand what they're comprehending.

[00:08:09] Speaker 2: Sometimes I think that's a little bit harder.

[00:08:11] Speaker 2: For for nonverbal kids.

[00:08:17] Speaker 1: So anything you want to add from an Ott's perspective when it comes down to?

[00:08:22] Speaker 1: Rehabilitation with children who may have some visual deficits.

[00:08:28] Speaker 2: I mean, I think I think there's a lot that goes into visual deficits and there's.

[00:08:33] Speaker 2: A lot that.

[00:08:36] Speaker 2: Oh, cheese could probably use them more education on.

[00:08:41] Speaker 2: Whether it's, you know, courses or additional course, continuing education courses or in school. But I think a lot of OT's kind of have very basic knowledge.

[00:08:54] Speaker 2: But not always knowing how to address those things and myself included.

[00:08:59] Speaker 2: Sometimes if I've gotten a more complex visual kit and you know, I can work on a few things, but I may not be able to make the biggest impact or the the kind of impact that they need.

[00:09:14] Speaker 2: Just because I'm not.

[00:09:15] Speaker 2: Aware exactly of how to how to address those issues completely.

[00:09:19] Speaker 1: OK.

[00:09:21] Speaker 1: Awesome. Thank you.

Recording 6

Transcript

[00:00:01] Speaker 2: OK, so my first question for this interview is what age range are the children that are being seen for eye movement therapy or vision acuity and OT that you see specifically?

[00:00:20] Speaker 1: I will say.

[00:00:24] Speaker 1: Actually, we could probably start it.

[00:00:25] Speaker 1: At 37 weeks gestation.

[00:00:28] Speaker 1: To probably about two.

[00:00:32] Speaker 2: OK, wow.

[00:00:34] Speaker 2: And can you tell me how you noticed that your patient has any visual deficits?

[00:00:42] Speaker 2: What do you notice?

[00:00:45] Speaker 1: I will notice be the version.

[00:00:48] Speaker 1: I will notice some.

[00:00:52] Speaker 1: The stigmas when they're trying to focus, I will notice.

[00:00:58] Speaker 1: What I call just conjugate gays like the eyes are not.

[00:01:02] Speaker 1: They're just not working together.

[00:01:05] Speaker 1: They kind of seem like they're in opposite directions sometimes and then getting out of the baby population as they're reaching, they're overreaching.

[00:01:17] Speaker 1: Or under reaching, depending upon what.

[00:01:19] Speaker 1: That they're going for.

[00:01:20] Speaker 1: And we know it's not a motor issue.

[00:01:22] Speaker 1: And they are giving some kind of complaint or distress about.

[00:01:29] Speaker 1: You know those down ones?

[00:01:31] Speaker 1: I can't really say.

[00:01:32] Speaker 1: I don't see that well.

[00:01:33] Speaker 1: But they'll they'll say something like it's fuzzy or.

[00:01:37] Speaker 1: You know there's two mommies or something like.

[00:01:39] Speaker 1: That OK.

[00:01:41] Speaker 2: And still with saying that, how do you address their visual deficits?

[00:01:47] Speaker 1: So we it's super needed this is now.

[00:01:49] Speaker 1: Because I have a.

[00:01:51] Speaker 1: CI course coming up, which I'm really excited about, so.

[00:01:56] Speaker 1: With the younger ones, we try to do very basic attention shift.

[00:02:03] Speaker 1: We will.

[00:02:04] Speaker 1: I'll try to close out sort of extraneous visuals him so like either putting a blanket over both of our heads or.

[00:02:14] Speaker 1: What's some of the other things we do?

[00:02:17] Speaker 1: Those are probably some of the bigger ones and then for some of the slightly older kids we have tried patching in the past, but I don't know that I feel.

[00:02:28] Speaker 1: OK.

[00:02:30] Speaker 2: And what kind of activities and learning memory, call recall do the visual deficits affect?

[00:02:43] Speaker 1: From them, that's interesting, I think for.

[00:02:48] Speaker 1: The younger ones, it's impacting social interaction and bonding and social emotional development of skills.

[00:02:56] Speaker 1: And then for the older ones, it's what I've noticed is that it's impacting.

[00:03:05] Speaker 1: Some of our.

[00:03:06] Speaker 1: Letter shape picture.

[00:03:10] Speaker 1: Not so much identification, but.

[00:03:12] Speaker 1: Like getting used to like reading a book.

[00:03:15] Speaker 1: And sort of.

[00:03:15] Speaker 1: The very early literacy skills of looking and talking about it and pointing at it.

[00:03:21] Speaker 1: And when it's when there is some.

[00:03:22] Speaker 1: Kind of visual deficit.

[00:03:23] Speaker 1: They sort of move.

[00:03:25] Speaker 1: Past it very easily and they're very easily frustrated.

[00:03:30] Speaker 1: Does that make sense?

[00:03:30] Speaker 2: That shows, yeah, it does.

[00:03:31] Speaker 2: Totally does.

[00:03:33] Speaker 2: What do you remember from your occupational therapy training?

[00:03:37] Speaker 2: Learning about visual deficits and how you how to rehabilitate your patient?

[00:03:50] Speaker 1: It's OK.

[00:03:53] Speaker 1: I so.

[00:03:55] Speaker 1: Honestly one of.

[00:03:56] Speaker 1: The only things that I distinctly remember is.

[00:04:00] Speaker 2: The stroke pace.

[00:04:01] Speaker 1: With like the left neglect and orienting to that side and positioning things on that side and maybe getting a mirror involved to pay attention to it.

[00:04:13] Speaker 1: I think everything else I've.

[00:04:14] Speaker 1: Learned sort of from other therapies.

[00:04:16] Speaker 1: As I've gone.

[00:04:17] Speaker 2: OK, makes sense.

[00:04:19] Speaker 2: And what extended training have you received in learning more about visual deficits since you graduated from OT?

[00:04:26] Speaker 1: So I've done, I did one.

[00:04:29] Speaker 1: Add several years ago that was great.

[00:04:33] Speaker 1: That was done by.

[00:04:36] Speaker 1: A developmental optometrist.

[00:04:37] Speaker 1: I think it was Martin and.

[00:04:41] Speaker 1: It was great because it gave.

[00:04:42] Speaker 1: You very specific activities.

[00:04:43] Speaker 1: To do and sort of.

[00:04:45] Speaker 1: The higher level visual skills that an ophthalmologist.

[00:04:48] Speaker 1: Doesn't look at.

[00:04:49] Speaker 1: You know, like your convergence efficiency and inefficiency and.

[00:04:55] Speaker 1: Some of those higher level skills.

[00:04:57] Speaker 1: That make up the global process of vision.

[00:05:01] Speaker 1: And everyone's around.

[00:05:02] Speaker 1: When we have a kid that kind of stumps my brain, I'll pull back out that continuing it book, which is great.

[00:05:09] Speaker 1: And then I have another I'm going to there's a center in Atlanta called the Ellis Center, which is the Center for Low Vision, and they're doing.

[00:05:19] Speaker 1: A continuing Ed that's probably like.

[00:05:22] Speaker 1: Three 1/2 ish hours, but part of it is an immersive experience to understand cortical visual impairment.

[00:05:28] Speaker 1: Because that tends.

[00:05:29] Speaker 1: To be I feel like more what what we see with our in Pediatrics and the developmental population.

[00:05:35] Speaker 1: With your CP kids.

[00:05:38] Speaker 1: That have that CBI and sort of understanding how.

[00:05:41] Speaker 1: We need to best to.

[00:05:42] Speaker 1: Work with them and help.

[00:05:43] Speaker 1: Their families OK.

[00:05:45] Speaker 2: And how comfortable do you feel about addressing children with complex visual deficits?

[00:05:51] Speaker 2: Oh, very.

[00:05:55] Speaker 2: OK.

[00:05:56] Speaker 2: And since you said no, how would you move forward to assisting that child?

[00:06:02] Speaker 2: I will either reach out to other coworkers in my system but have more experience or reach out to other.

[00:06:10] Speaker 1: Community resources to be able to refer.

[00:06:12] Speaker 1: The family, OK.

[00:06:15] Speaker 2: And how do you perceive the role of occupational therapy addressing children with vision deficits?

[00:06:23] Speaker 1: I think it's.

[00:06:24] Speaker 1: A huge part of what we do, because you know, with if it's a low vision or no vision, it's easy to understand that we would have to help them navigate and compensate and come up with adaptive strategies.

[00:06:37] Speaker 1: And it's really no different when they have other complex needs of vision because how they are perceiving.

[00:06:43] Speaker 1: Literally the world around them will impact everything about how they interact with the world and engage with the world and sort of the last thing we want to see is them.

[00:06:51] Speaker 1: Withdraw from the community.

[00:06:53] Speaker 1: And their life engagement because.

[00:06:55] Speaker 1: Of those visual skills.

[00:06:57] Speaker 2: OK.

[00:06:58] Speaker 2: And what are some of the misconceptions of children that are diagnosed, like for example, a newer divergent child learning challenges?

[00:07:06] Speaker 2: That may be impacted by visual deficits.

[00:07:14] Speaker 1: Like they look like they're a.

[00:07:15] Speaker 1: Learning disability, kid, but it's really visual.

[00:07:18] Speaker 1: I have one of those.

[00:07:21] Speaker 1: That they are lazy or that they're not trying, or they're making it up.

[00:07:28] Speaker 1: Or that that there is.

[00:07:32] Speaker 1: I don't want to say stupid.

[00:07:33] Speaker 1: But then they're they're just not putting.

[00:07:34] Speaker 2: Thank you.

[00:07:35] Speaker 1: In the effort that they're.

[00:07:36] Speaker 2: Supposed to?

[00:07:37] Speaker 1: I'm sure there's plenty.

[00:07:38] Speaker 1: Of teachers that are like, oh, they just.

[00:07:40] Speaker 1: Don't get it.

[00:07:40] Speaker 1: And then.

[00:07:43] Speaker 1: And I say all that because I had it.

[00:07:45] Speaker 1: My daughter.

[00:07:45] Speaker 1: Had a convergence insufficiency.

[00:07:48] Speaker 1: And we had a growing division therapy and.

[00:07:50] Speaker 1: It was amazing.

[00:07:51] Speaker 1: But we were having her.

[00:07:52] Speaker 1: Tested for dyslexia and aldisa.

[00:07:56] Speaker 1: And it just didn't make any sense.

[00:07:57] Speaker 1: To me that.

[00:07:58] Speaker 1: One day she agreed that the next day she couldn't.

[00:08:01] Speaker 1: And then I pulled out some of the old.

[00:08:02] Speaker 1: Strategies that I remembered of like highlighting a line or.

[00:08:07] Speaker 1: Those kinds of things, and it made a big difference for her.

[00:08:10] Speaker 1: And so it's.

[00:08:11] Speaker 1: The thought of.

[00:08:11] Speaker 1: So they're just making that up, or they're lazy, or they're tired or.

[00:08:14] Speaker 1: They don't want to, but.

[00:08:15] Speaker 1: In reality, there's a huge issue.

[00:08:17] Speaker 2: There. Right. Totally get that.

[00:08:20] Speaker 2: What are your hope and vision for occupational therapists and your role in assisting with vision therapy in the future?

[00:08:29] Speaker 1: I would love to see.

[00:08:31] Speaker 1: A more global approach to education of therapists, even you know, continuing from a continuing perspective, having a greater diversity of understanding.

[00:08:42] Speaker 1: What the visual system is doing and why, when we see these more complex issues and then how we could have a more unified and global approach to these kids, OK, awesome.

[00:08:54] Speaker 2: Which aspects of working memory are highly affected by cognitive interventions utilizing eye movement therapy?

[00:09:04] Speaker 1: Oh, that's interesting.

[00:09:05] Speaker 1: I would think all of them.

[00:09:09] Speaker 1: I couldn't name them.

[00:09:12] Speaker 1: But I know that I had.

[00:09:15] Speaker 2: And this is just sort.

[00:09:16] Speaker 1: Of personal different personal experience, but had a co-worker with a daughter with dyslexia and they did some vision therapy set that helped with some of those skills to help with working memory to then help with application later, and she's doing beautifully.

[00:09:32] Speaker 2: Oh, awesome, that's.

[00:09:33] Speaker 2: So good to hear. Yes.

[00:09:36] Speaker 2: I love to hear stories like that.

[00:09:39] Speaker 2: What are the effects of receiving eye therapy from an occupational therapist and children diagnosed with ADHD?

[00:09:45] Speaker 2: So because in ADHD you have various different subtypes, those who are behavioral, those who are inattentive, I call them like the window watchers and that is a combination with the window.

[00:09:56] Speaker 2: Watch your slash behavior.

[00:10:00] Speaker 1: OK, so repeat that first part of.

[00:10:02] Speaker 2: It I'm sure.

[00:10:03] Speaker 2: What are the effects of receiving eye therapy from an occupational therapist with children diagnosed with ADHD?

[00:10:10] Speaker 1: I think there'd be great benefit for the kids and.

[00:10:16] Speaker 1: And in my head.

[00:10:16] Speaker 1: I think classroom teacher because if the kid.

[00:10:18] Speaker 1: Is able to.

[00:10:19] Speaker 1: Do more the teachers having to sort of do less, if that makes sense.

[00:10:25] Speaker 1: I think you're going to see better academics.

[00:10:27] Speaker 1: You're going to see better social, emotional, and you're going to see better self-regulation.

[00:10:33] Speaker 1: Because I think they're not going to.

[00:10:38] Speaker 1: You're just not going to see some some of.

[00:10:40] Speaker 1: Those behaviors because they're going to be.

[00:10:42] Speaker 1: Easier to regulate themselves.

[00:10:45] Speaker 2: So sidebar questions so are most OT specialists.

[00:10:51] Speaker 2: Trained with visual, you know deficits or, you know, vision therapy or their particular OT specialist, that kind of just special.

[00:11:01] Speaker 2: In visual therapy.

[00:11:03] Speaker 1: I have seen that mostly people specialize.

[00:11:07] Speaker 1: Like we had an energy that worked.

[00:11:09] Speaker 1: With us and.

[00:11:10] Speaker 1: I was so sad.

[00:11:10] Speaker 1: That she knew.

[00:11:12] Speaker 1: But vision was.

[00:11:13] Speaker 1: A true passion of hers, especially following TBI.

[00:11:17] Speaker 1: And there we have a.

[00:11:20] Speaker 1: So I work at children's.

[00:11:21] Speaker 1: And we have.

[00:11:22] Speaker 1: Three different hospitals within our system and we have there's a therapist that works at one of the other hospitals.

[00:11:27] Speaker 1: For me and.

[00:11:28] Speaker 1: She is a huge advocate for CBI, so she's one of the people.

[00:11:31] Speaker 1: That I will reach out.

[00:11:32] Speaker 1: You when I.

[00:11:34] Speaker 1: Have some specific.

[00:11:35] Speaker 1: Vision questions, OK, but I have found that most people like they know the basics, but then they try to dial it down and specialize from there.

[00:11:43] Speaker 2: Right.

[00:11:43] Speaker 2: Right.

[00:11:44] Speaker 2: Last question, what are some effective eye movement therapy strategies for improving working memory and promoting attention in children diagnosed with ADHD?

[00:11:57] Speaker 1: I have no idea.

[00:11:58] Speaker 2: OK.

[00:12:00] Speaker 1: OK, OK.

[00:12:02] Speaker 1: Having having a window watcher of my own.

[00:12:08] Speaker 2: OK, awesome.

[00:12:09] Speaker 2: Any other feedback or you know?

[00:12:12] Speaker 2: Take away or.

[00:12:14] Speaker 2: Comments you would like to add to the interview.

[00:12:19] Speaker 1: Not specifically like, at least not from my own experiences, but I'm.

[00:12:23] Speaker 1: Excited to see?

[00:12:24] Speaker 1: Where all this takes you.

[00:12:26] Speaker 2: Thank you. Thank you.

[00:12:27] Speaker 2: I appreciate it. Yes.