



Learning Skills in Cerebral Palsy Children

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ABSTRACT

It was intended to compare mild (N = 30) and moderate (N = 30) cerebral palsy children in terms of their learning skills (motor, self-help, functional academic, recreational and leisure time activities skills). It was hypothesized that Mild and moderate groups of cerebral palsy children will differ significantly from one another in terms of learning skills: (i) motor skill, (ii) self-help skill, (iii) function academic skill and (iv) recreational and leisure time activities skills. For data collection, the respondents were administered Seguin Form Board and MD PS to measure intelligence and learning skills. The obtained data were treated using t-ratio. The hypothesis were confirmed. It was found that mild group of cerebral palsy children excelled over moderate group of cerebral palsy children in terms of learning skills (Motor, self-help, functional academic, recreational and leisure time activities skills). It was concluded that learning skills among cerebral palsy children are the function of their severity of problems.

KEY WORDS

Learning Skills, Cerebral Palsy Children.

INTRODUCTION

Cerebral palsy (CP) is a group of neurological disorders that affect movement and muscle coordination, arising from brain damage or abnormal brain development, typically occurring during or shortly after birth. CP is categorized into different types based on the nature of the motor impairment: spastic, dyskinetic, ataxic, and mixed forms. The severity of the disorder varies from individual to individual, with some children experiencing mild impairments, while others experience moderate to severe forms of the condition. For children with mild and moderate

cerebral palsy, the challenge is not only physical but also cognitive, which affects their learning abilities and academic performance.

Children with cerebral palsy may exhibit a wide spectrum of learning capabilities. While the primary difficulty in CP involves motor impairments, secondary cognitive, sensory, and perceptual challenges often arise, making the learning process more complex. Learning skills, including attention, memory, problem-solving, and language development, can be hindered by these secondary conditions. Mild cerebral palsy generally refers to those individuals who exhibit minimal motor impairments, with some remaining able to walk and perform daily activities independently. In contrast, moderate cerebral palsy refers to children who experience more significant physical limitations, requiring assistive devices or support in daily tasks, yet still maintain some degree of independence. Despite these variations in physical abilities, children with both mild and moderate CP are often capable of benefiting from appropriate educational strategies that cater to their specific needs.

The learning process for children with cerebral palsy is multifaceted, involving not only the physical capabilities of the child but also their emotional, psychological, and sensory responses to the environment. These children may face difficulties with fine and gross motor skills, sensory processing, and attention, which can directly impact their ability to participate in typical classroom activities. Furthermore, these challenges often intersect with other developmental issues such as speech and language delays, hearing and vision problems, and the need for individualized educational programs.

Research indicates that children with cerebral palsy, regardless of severity, have the potential to learn and develop academic skills if given appropriate intervention. However, the presence of learning disabilities and other challenges necessitates a tailored approach to their education. Strategies such as speech therapy, occupational therapy, physical therapy, and specialized teaching techniques are integral in fostering an environment where children with CP can thrive. For instance, modifying classroom materials, using assistive technologies, and providing additional time for tasks can enable children with CP to better access the curriculum and engage in learning. Furthermore, understanding the neurodevelopment aspects of CP is crucial in designing interventions that not only address the physical needs but also support cognitive development.

The investigation into the learning skills of children with mild and moderate cerebral palsy is significant for several reasons. First, it provides valuable insights into the academic capabilities and limitations of these children, contributing to the development of evidence-based practices in special education. Second, this research can help identify the various factors that impact learning outcomes, including the role of physical impairments, cognitive functioning, and environmental factors. Additionally, examining the specific learning difficulties faced by children with cerebral palsy can inform educators and caregivers on how best to support these children's learning, ensuring they receive equal educational opportunities.

Although cerebral palsy is primarily a physical disorder, the educational needs of children with CP are just as crucial as those of their peers without disabilities. By fostering an inclusive educational environment that accommodates the diverse learning needs of children with CP, society can work toward providing these children with the tools they need to succeed academically, socially, and emotionally. The goal of this investigation is to explore how various learning skills manifest in children with mild and moderate CP, offering a clearer understanding of their strengths and challenges, and providing recommendations for improved educational strategies. The research ultimately aims to enhance the quality of life and learning outcomes for children living with cerebral palsy.

In the following sections, this investigation will delve into the various learning challenges faced by children with mild and moderate cerebral palsy, the impact of these challenges on their educational development, and the strategies that can be implemented to support their learning.

Review of Literature

Swain et al.⁹ (2015) examined the cognitive development of children with cerebral palsy (CP), highlighting the impact of motor impairments on learning. The researchers found that while motor difficulties are central to CP, cognitive challenges, such as attention, memory, and processing speed, can also be present. This research suggests that children with CP may experience slower cognitive development, which impacts their ability to learn in traditional educational settings. The findings support the need for early interventions to address cognitive delays alongside physical therapy. Wilson et al.¹⁰ (2017) investigated speech and language development in children with mild cerebral palsy. Their findings indicated that while motor difficulties were minimal, many children with mild CP exhibited speech delays, which in turn affected their ability to engage in classroom activities. This study highlights the importance of speech therapy and early language interventions to improve communication skills and, consequently, academic performance. Zhang et al.¹¹ (2016) explored the use of assistive technologies for children with CP in educational settings. The authors found that tools such as speech-to-text software, communication boards, and modified keyboards significantly enhanced learning experiences. The research stresses the need for personalized assistive technology to support children with mild to moderate CP in acquiring literacy and numeracy skills. Houwen et al.⁶ (2014) focused on the relationship between physical therapy and academic achievement in children with cerebral palsy. Their study found that children who received regular physical therapy had improved motor skills, which positively impacted their overall ability to engage with educational content. The research emphasizes the importance of integrated therapies that combine physical, occupational, and educational interventions to enhance learning outcomes. Levitt et al.⁷ (2018) investigated sensory processing issues in children with CP, focusing on how difficulties in processing sensory information (e.g., visual, auditory, or tactile stimuli) can interfere with learning. The research reveals that children with CP, particularly those with moderate severity, face challenges in concentrating and completing tasks due to sensory overload or under-sensitivity. These findings point to the necessity of creating sensory-friendly learning environments. Blasco et al.² (2017) conducted a study examining executive functioning (planning, organizing, and problem-solving) in children with cerebral palsy. They found that children with moderate CP exhibited deficits in executive functions, which directly impacted their learning abilities in academic settings. The research calls for targeted interventions to help children with CP develop stronger executive functioning skills, which are essential for academic success. Cioni et al.³ (2014) followed children with mild to moderate cerebral palsy over several years to track their cognitive and academic progress. The findings suggested that children with CP may have lower academic performance compared to their peers without disabilities, even if they do not exhibit significant cognitive impairments. The study emphasized the importance of early intervention and individualized educational programs to enhance long-term academic outcomes. Aylward et al.¹ (2019) focused on the social and emotional development of children with mild cerebral palsy. The study indicated that, while children with mild CP generally had more success in social integration, they faced challenges related to self-esteem and peer relationships, which could affect their engagement in learning activities. The research suggests that emotional and social support in educational settings is essential for improving academic outcomes. Gorman et al.⁵ (2015) explored the influence of family and caregiver involvement in the academic performance of children with cerebral palsy. The researchers concluded that a strong support system, including parental advocacy and collaboration with educators, plays a crucial role in enhancing learning outcomes for children with CP. The study advocates for increased awareness and resources for families to better support their child's educational journey. Rahman et al.⁸ (2016) investigated the role of neuroplasticity in learning among children with mild cerebral palsy. The study concluded that the brain's ability to adapt and reorganize itself after injury can significantly impact learning, even in children with cerebral palsy. The research highlights the potential for therapeutic interventions, such as cognitive rehabilitation and motor training, to enhance the learning skills of children with CP. Gass et al.⁴ (2020) focused on classroom modifications and their effect on learning outcomes for children with moderate cerebral palsy. The study found that changes such as physical space adaptations, the use of visual aids, and personalized teaching methods greatly improved engagement

and academic success. The research advocates for inclusive educational practices that accommodate the specific needs of children with CP.

These literature reviews cover a wide range of factors influencing the learning skills of children with mild and moderate cerebral palsy, including cognitive development, therapy, assistive technologies, family involvement, and classroom adaptations. Each review contributes valuable insights that can guide further research and inform educational strategies aimed at improving the learning outcomes for children with cerebral palsy.

Objectives

It was intended to compare mild and moderate groups of cerebral palsy children in terms of (i) motor, (ii) self help, (iii) functional academic and (iv) recreational leisure time activities skills respectively.

Hypothesis

Mild and moderate groups of cerebral palsy children differ significantly from one another in terms of learning skill : (i) motor skill, (ii) self-help skill, (iii) function academic skill and (iv) recreational and leisure time activities skill.

Method of Study

Sample

60 Cerebral Palsy Children were selected through incidental-cum-purposive sampling. Out of which, 30 children were mild CP children and 30 moderate CP children. Their ages range between 6 to 12 yrs. The CP children were selected from NGO meant for child care.

Design

Between group design was used.

Tools used

- i. A Personal Data Sheet prepared by the researcher himself was used for collection of necessary information's about the respondents.
- ii. Seguin Form Board was used to measure Intelligence.
- iii. Madras Developmental Programming System (MDPS) by Jayachandran & Vimla was used to measure learning skills.

Results

Table 01: Comparison between Mild and Moderate CP Children on Motor Skill

Group	N	Mean	SD	t	df	p
Mild CP Children	30	25.69	1.96	10.92	58	<.01
Moderate CP Children	30	20.45	1.77			

The obtained results displayed in table-01 revealed that the mean scores of mild CP children is higher (Mean = 25.69) than the mean scores of moderate CP children (Mean = 20.45), respectively, on motor skill. The mean difference is significant beyond ($t = 10.92$; $df = 58$; $p < .01$). .01 level. Thus, mild and moderate CP children differed significantly on the measure of motor skill. Mild cerebral palsy children excel over moderate cerebral palsy children in motor skill because they experience less severe neurological impairment, resulting in better muscle coordination, balance, and control. Their motor functions are more preserved, allowing for smoother movements and greater physical independence. In contrast, moderate cerebral palsy involves more significant motor dysfunctions, such as muscle stiffness, spasticity, or poor posture control, which restrict the development and execution of fine and gross motor skill.

Table 02: Comparison between Mild and Moderate CP Children on Self-help Skill

Group	N	Mean	SD	t	df	p
Mild CP Children	30	55.79	1.79	12.96	58	<.01
Moderate CP Children	30	49.96	1.84			

The above table-02 shows that the mean scores of mild children is much higher (Mean = 55.79) than the moderate CP children (Mean = 49.96) on self-help skill. The obtained t-ratio ($t = 12.96$; $df = 58$; $p < .01$) is significant beyond .01 level. Thus, mild and moderate CP children differed significantly on the measure of self-help skill. Children with mild cerebral palsy excel over those with moderate cerebral palsy in self-help skill because they experience fewer motor impairments, allowing greater independence in daily tasks like dressing, feeding, and grooming. Their better muscle control and coordination enable them to learn and perform these skills with minimal assistance. In contrast, moderate cerebral palsy involves more significant physical limitations, making it harder to develop and carry out routine self-care activities independently.

Table 03: Comparison between Mild and Moderate CP Children on Functional Academic Skill

Group	N	Mean	SD	t	df	p
Mild CP Children	30	67.27	1.90	9.64	58	<.01
Moderate CP Children	30	62.93	1.72			

It is obvious from the above table-03 that mean scores of mild CP children is much higher (Mean = 67.27) than the mean scores of moderate CP children (Mean = 62.93) on functional academic skill. As t-ratio is significant ($t = 9.64$; $df = 58$; $p < .01$), both mild and moderate CP children differed significantly on the measure of functional academic skill. Children with mild cerebral palsy excel over those with moderate cerebral palsy in functional academic skill because they typically experience fewer physical and cognitive impairments. This allows them to participate more fully in classroom activities, comprehend instructions, and complete academic tasks with greater ease. Their improved motor coordination, attention span, and communication abilities support learning and retention, while children with moderate cerebral palsy often face greater challenges that limit academic engagement and performance.

Table 04: Comparison between Mild and Moderate CP Children on Recreation and Leisure Time Activity Skill

Group	N	Mean	SD	t	df	p
Mild CP Children	30	16.54	1.88	8.04	58	<.01
Moderate CP Children	30	12.81	1.69			

The results presented in table-04 showed that mean scores of mild CP children (Mean = 16.54) is higher than mean scores of (Mean = 12.81) moderate CP children on leisure time activity skill. The obtained t-ratio is significant beyond .01 level ($t = 8.04$; $df = 58$; $p < .01$). Thus mild and moderate CP differed significantly on the measure of leisure time activities skill. Children with mild cerebral palsy generally have greater physical mobility, better motor coordination, and fewer cognitive limitations, which enable them to participate more actively in recreation and leisure activities. They can engage in games, sports, and social interactions with greater ease and independence. In contrast, moderate cerebral palsy often restricts movement, communication, and endurance, making it harder to participate in or enjoy such activities, thus limiting skill development in this area.

CONCLUSION

- (i) Mild cerebral palsy children excel in motor skill over moderate cerebral palsy children.
- (ii) Mild cerebral palsy children excel in self-help skill over moderate cerebral palsy children.
- (iii) Mild cerebral palsy children excel in functional academic skill over moderate cerebral palsy children.
- (iv) Mild cerebral palsy children excel in recreation and leisure time activity skill over moderate cerebral palsy children.

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