



## Comparison between Mild and Moderate Cerebral Palsy Children in Context of Learning Skills

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### ORIGINAL ARTICLE



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### ABSTRACT

The empirical investigation has been carried out on 40 mild and 40 moderate cerebral palsy children to make a comparison between them in terms of their learning skills namely communication, vocational, social interaction and community orientation skills respectively. It was hypothesized that the mild and moderate groups of cerebral palsy children will differ significantly from one another in terms of learning skills namely (i) communication skill, (ii) social interaction skill, (iii) community orientation skill and (iv) vocational / occupational skill respectively. For the purpose, Seguin Form Board, MDPS were administered on the children respondents to measure intelligence and learning skills respectively. Besides these, a PDS was used to seek the necessary information about the respondents. The obtained data were treated using t-test. The results uphold the hypotheses. It was found that mild cerebral palsy group of children excelled over moderate group in terms of learning skills under investigation. It was concluded that moderate cerebral palsy group of children were found having poor learning skills namely communication, vocational, social, interaction and community orientation skills as compared to their mild group of cerebral palsy children.

### KEY WORDS

Mild, Moderate, Children, Learning Skills.

### INTRODUCTION

Cerebral Palsy (CP) is a neurological disorder that affects movement, muscle tone, and motor skills, resulting from brain damage or abnormal brain development, often before or during birth. The

condition encompasses a range of severity, from mild to severe, and affects each child differently. CP is primarily categorized based on the type of motor impairment, which can include spastic, dyskinetic, ataxic, or mixed types. In addition to physical challenges, children with cerebral palsy can also experience difficulties with learning and cognition, which vary significantly across individuals and depend on the severity of their condition.

When considering the impact of cerebral palsy on children's learning skills, it is important to recognize the differences between the mild and moderate forms of the disorder. These categories, while not universally standardized, are typically defined by the degree to which the motor and cognitive impairments interfere with daily functioning and development. The mild group often experiences relatively less severe motor impairment, which may not be immediately obvious to others, and generally has a better prognosis for achieving educational milestones. On the other hand, children in the moderate group experience more noticeable motor difficulties and may require more substantial support in both academic and social settings. Despite these differences, both groups can show a wide range of learning capabilities, often dependent on the presence of additional cognitive, sensory, or communication challenges.

Learning in children with CP is influenced by multiple factors, including the severity of motor impairment, the presence of co-occurring intellectual disabilities, and the availability of early intervention. Mild and moderate cerebral palsy children may have different educational experiences due to these variables, which influence their ability to engage with academic content. Cognitive function, speech and language development, social skills, and executive functioning abilities are key aspects of a child's learning ability, and they are often affected by the degree of physical and neurological impairment associated with CP.

In the case of mild cerebral palsy, children may experience only slight limitations in motor control, with some able to walk independently, hold a pencil, or perform tasks with minimal support. Cognitive development in these children is typically within the average range, although they may face challenges in fine motor coordination, which can impact their ability to perform tasks like writing, typing, or manipulating objects. Social-emotional learning may also be slightly delayed or hindered due to difficulties in motor coordination or speech production. However, with appropriate support, children with mild cerebral palsy can often engage effectively in a standard educational curriculum and can achieve academic success comparable to their peers.

Moderate cerebral palsy, by contrast, may involve more significant motor impairments, such as difficulty with balance, coordination, and ambulation, which can affect daily tasks such as dressing, eating, or writing. Children in this category may require assistive devices like walkers or wheelchairs, and they may face greater challenges in performing tasks that require fine motor control. Learning skills in these children can be affected by the additional strain of managing their physical needs, which can lead to fatigue, frustration, or distraction during school. Cognitive function can range from average to below average, depending on the extent of brain damage. Therefore, while these children may not experience intellectual disabilities, they may benefit from specialized teaching strategies, modifications to the learning environment, and individualized support plans to help them succeed academically.

In both groups, early diagnosis and intervention play a crucial role in promoting developmental progress. Therapy, including physical, occupational, and speech therapy, can significantly improve motor control and communication skills, which, in turn, enhances a child's ability to engage with learning activities. Moreover, educational strategies such as the use of technology, alternative communication methods, and tailored teaching techniques can help mitigate the effects of cerebral palsy on academic performance.

In conclusion, the learning skills of children with cerebral palsy differ based on the severity of the condition, with those in the mild and moderate categories facing distinct challenges. However, both groups can benefit from a comprehensive approach that integrates therapeutic intervention, educational support, and individualized learning strategies. Understanding the unique needs of these children and providing tailored support ensures that they can achieve their full potential in both academic and social domains.

## Review of Literature

Davis and Thompson<sup>1</sup> (2018) examined the cognitive and motor development of children with cerebral palsy and how these aspects influence their learning abilities. The review discusses the impact of motor impairments on cognitive processing and academic achievement, with a focus on the differences between mild and moderate CP. It highlights that early interventions, such as physical and occupational therapy, are essential for improving both cognitive and motor outcomes in children with CP. Roberts and Carlson<sup>7</sup> (2020) reviewed research on how motor impairments affect academic performance in children with cerebral palsy. The authors focus on the distinction between mild and moderate CP, finding that while children with mild CP often experience only slight academic challenges, those with moderate CP require more significant adaptations in their learning environment to succeed academically. The review also explores the role of assistive technologies and accommodations. Lewis and Hall<sup>4</sup> (2017) played a critical role in enhancing the cognitive development of children with cerebral palsy, especially in those with moderate impairments. This review analyzes studies on how physical, occupational, and speech therapies contribute to improving learning outcomes in children with CP. The review finds that targeted interventions during the early years can have long-lasting benefits on academic and social skills. Thomson and Hayes<sup>9</sup> (2016) explored the relationship between motor function and learning outcomes in children with mild cerebral palsy. It emphasizes that while children with mild CP may exhibit some motor difficulties, their cognitive abilities are generally within the normal range. The review identifies strategies to support these children in academic settings, including modifications to teaching methods and the use of assistive devices. Wilson and Harris<sup>11</sup> (2019) reported that children with moderate cerebral palsy often face significant challenges in educational settings due to more pronounced motor impairments. This review discusses various inclusive educational strategies that can help children with moderate CP succeed academically. It highlights the importance of individualized education plans (IEPs), classroom accommodations, and the use of assistive technology to enhance learning for these children. Gray and Johnston<sup>3</sup> (2015) examined how speech and language development is affected in children with cerebral palsy and how these issues impact learning. It highlights the differences in language development between children with mild and moderate CP, emphasizing that speech therapy can significantly enhance communication skills, thereby improving academic performance. The article also discusses the role of alternative communication methods in supporting these children's learning. White and Fisher<sup>10</sup> (2021) reviewed focuses on the social and emotional challenges faced by children with cerebral palsy, particularly in educational contexts. It compares the social-emotional development of children with mild and moderate CP, finding that while children with mild CP typically develop social skills on par with their peers, children with moderate CP may struggle with peer interactions due to physical limitations. The review emphasizes the need for social skills training and peer support programs in schools. Gordon and Miller<sup>2</sup> (2018) reported that assistive technology plays a significant role in facilitating learning for children with cerebral palsy. This review covers the types of assistive technologies available for children with mild and moderate CP, including communication devices, adaptive keyboards, and specialized software. It finds that assistive technology can significantly improve academic performance by enabling better communication and increasing independence in learning tasks. Patterson and Shaw<sup>6</sup> (2017) reviewed literature on the effects of cerebral palsy on executive functions such as planning, organization, attention, and memory. The study finds that children with moderate CP, in particular, may experience difficulties with executive functioning, which can hinder their academic performance. The review suggests that individualized support focusing on cognitive strategies and behavior management can help improve learning outcomes. Martin and Forbes<sup>5</sup> (2016) reviewed highlighted the importance of collaboration between parents and teachers in addressing the learning challenges of children with cerebral palsy. It discusses how parents and teachers perceive the learning difficulties of children with mild and moderate CP, emphasizing the need for mutual understanding and tailored interventions. The review also notes the importance of family involvement in educational planning and support. Taylor and Bright<sup>8</sup> (2019) reported that peer support is crucial in promoting social and academic inclusion for children with cerebral palsy. This review explores how children with mild and moderate CP

benefit from peer support networks in school settings. It finds that positive peer relationships can improve both social integration and academic outcomes, with children with mild CP often adapting more easily to peer interactions than those with moderate CP.

These reviews highlight the diverse factors that influence learning outcomes in children with cerebral palsy, with a particular focus on the differences between mild and moderate forms of the disorder. The literature emphasizes the importance of early intervention, individualized educational strategies, assistive technologies, and social-emotional support in fostering positive learning experiences for children with CP.

## Objective

The present study intends to make a comparison between mild and moderate groups of cerebral palsy children in terms of learning skills

## Hypothesis

The mild and moderate groups of cerebral palsy children will differ significantly from one another in terms of learning skills namely (i) communication skill, (ii) social interaction skill, (iii) community orientation skill and (iv) vocational / occupational skill respectively

## Method of Study

### Sample

80 Cerebral Palsy Children were selected through purposive sampling out of which, 40 children were mild CP children and 40 were moderate CP children. Their age ranges between 7 to 12 yrs. The CP children were selected from N.G.O. working for children in Patna.

### Design

The two conditions of independent variables were mild and moderate level of cerebral palsy children groups. So, between group design was used here.

### Tools used

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

## Results

**Table 01:** Mean, SD and 't'-ratio of Mild and Moderate CP Children on Communication Skill

Group	N	Mean	SD	t-Value	df	p
Mild CP Children	40	22.46	2.94	5.81	78	<.01
Moderate CP Children	40	18.42	3.15			

The results presented in table-01 revealed that mean score of mild CP children (Mean = 22.46) is higher than the mean score of moderate CP children (Mean = 18.42) on communication skill. As the obtained t-ratio ( $t = 5.81$ ;  $df = 78$ ;  $p < .01$ ) is significant beyond .01 level. Both mild and moderate CP children differed significantly on the measure of communication skill. Children with mild cerebral palsy (CP) typically have less severe motor and neurological impairments, allowing better control over speech-related muscles and cognitive functioning. This enables clearer articulation, improved language processing, and more effective communication. In contrast, moderate CP often involves greater motor and sometimes cognitive limitations, which can interfere with speech clarity, language development, and expressive abilities, leading to reduced communication skill.

**Table 02:** Mean, SD and 't'-ratio of Mild and Moderate CP Children on Social Interaction Skill.

Group	N	Mean	SD	t-Value	df	p
Mild CP Children	40	15.49	2.85	7.13	78	<.01
Moderate CP Children	40	11.07	2.79			

The obtained results depicted in table-02 shows that mean score of CP children (Mean = 15.49) is higher than the mean score (Mean = 11.07) of moderate CP children on social interaction skill. Both mild and moderate CP children differed significantly on social interaction skill as the obtained t-ratio ( $t = 7.13$ ;  $df = 78$ ;  $p < .01$ ) is significant beyond .01 level. Children with mild cerebral palsy typically have fewer physical and cognitive limitations, which allows them greater mobility, clearer speech, and better control over facial expressions and gestures key components of effective social interaction. They can participate more actively in peer activities, communicate more easily, and respond better in social settings. In contrast, moderate cerebral palsy often imposes more significant motor and communication challenges, making social engagement more difficult and less frequent.

**Table 03:** Mean, SD and 't'-ratio of Mild and Moderate CP Children on Community Orientation Skill

Group	N	Mean	SD	t-Value	df	p
Mild CP Children	40	15.81	2.75	6.28	78	<.01
Moderate CP Children	40	11.79	2.96			

The obtained results of table-03 revealed that mean score (Mean = 15.81) of mild CP children is higher than the mean score (Mean = 11.79) of moderate CP children on community orientation skill. The obtained t-ratio ( $t = 6.28$ ;  $df = 78$ ;  $p < .01$ ) is significant beyond .01 level, which shows that both mild and moderate CP children differed significantly on the measure of community orientation skill. Children with mild cerebral palsy typically have better motor control, cognitive functioning, and communication abilities than those with moderate cerebral palsy, allowing them to interact more effectively within their communities. Their greater independence enables participation in social, educational and recreational activities, fostering stronger community orientation skill. In contrast, moderate cerebral palsy often imposes more severe physical and functional limitations, reducing opportunities for social engagement and community involvement.

**Table 04:** Mean, SD and 't'-ratio of Mild and Moderate CP Children on the measure of vocational Skill

Group	N	Mean	SD	t-Value	df	p
Mild CP Children	40	15.16	2.92	6.11	78	<.01
Moderate CP Children	40	11.25	2.83			

It is obvious from table-04 that mean score (Mean = 15.16) of mild CP children is higher than the mean score (Mean = 11.25) of moderate CP children on the measure of vocational skill. The t-ratio ( $t = 6.11$ ;  $df = 78$ ;  $p < .01$ ) is significant which shows that mild and moderate CP children differed significantly on vocational skill. Children with mild cerebral palsy typically have better motor control, cognitive functioning, and physical independence than those with moderate cerebral palsy, allowing them to perform vocational tasks more effectively. Their relatively greater mobility and coordination enable participation in skill-building activities, while improved communication and learning abilities support vocational training. In contrast, moderate cerebral palsy often presents more severe physical and cognitive limitations, which can hinder the acquisition and performance of vocational skills.

## CONCLUSION

- (i) Mild cerebral palsy children excel over modernity cerebral palsy children in terms of communication skill.
- (ii) Mild cerebral palsy children excel over modernity cerebral palsy children in terms of social internal skill.
- (iii) Mild cerebral palsy children excel over modernity cerebral palsy children in terms of community orientation skill.
- (iv) Mild cerebral palsy children excel over modernity cerebral palsy children in terms of vocational skill.

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