Title: School Activities and Participation of Children with Cerebral Palsy

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Student's Declaration

- This work has not previously been accepted in substance for any degree and is notconcurrently submitted in candidature for any degree.

- This dissertation is being submitted in partial fulfillment of the requirements for the degree of MSc in Rehabilitation Science.

- This dissertation is the result of my own independent work/investigation, except where otherwise stated. Other sources are acknowledged by giving explicit references. A Bibliography is appended.

- I confirm that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinaryactions of authority.

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Thesis Supervisor's Statement

As the supervisor of Tahmina Akter MSc Thesis work, I certify that I consider her thesis"**School Activities and Participation of Children with Cerebral Palsy**" to be suitable for examination.

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List of Abbreviations or Symbols

BHPI: Bangladesh Health Profession's Institute

BMRC: Bangladesh Medical Research Council

CNS: Central Nervous System

CP: Cerebral Palsy

CRP: Centre for the Rehabilitation of the Paralysed

IRB: Institutional Review Board

ICF-CY: International Classification of Functioning, Disability and Health Core Sets of Children and Youth

SPSS: Statistical Package for the Social Sciences

WMTS: William & Marie Taylor School

WHO: World Health Organization

ATNR: Asymmetric Tonic Neck Reflex

Abstract

Background: Cerebral palsy (CP) is a neurological disorder resulting from abnormal brain development or damage, causing impaired movement and muscle coordination. Affecting 2 to 3 per 1,000 live births worldwide, CP varies in severity and type, including spastic, dyskinetic, and ataxic forms.

Objective: This study aims to determine the level of school activities and participation of children with CP, examining socio-demographic characteristics, abilities in learning, general tasks, communication, community life, and mobility, and the association between these factors and school participation.

Method: A cross-sectional study design was employed.

Results: Among 56 participants, 41.1% were boys, and 58.9% were girls. Age distribution was 39% (4-10 years), 15% (11-15 years), and 2% (16-18 years), with a mean age of 9.45 years. CP types were 62.5% diplegic, 26.8% hemiplegic, 5.4% dyskinetic, and 5.4% quadriplegic. GMFCS levels were 46.4% (level 3), 37.5% (level 1), and 16.1% (level 2). Parental education showed mothers generally had higher education levels. Sibling distribution was 44.6% (one sibling), 28.6% (none), and 26.8% (two or more). Functionally, 71.4% had mild learning problems, 80.4% had no issues with general tasks, 85.7% had no communication issues, 62.5% had mild mobility problems, and 100% had no issues with community life. Spearman's rank correlation found no significant association between socio-demographic factors and participation, but significant associations with CP type ($p = .002$) and GMFCS level ($p = .005$).

Conclusion: This study underscores significant disparities in school activities and participation among children with CP, influenced by CP type and GMFCS levels. It highlights the need for personalized interventions despite the small sample size and reliance on parent-reported data

Key words: Cerebral Palsy, Activities and Participation, School.

CHAPTER-I: INTRODUCTION

1.1 Background:

Cerebral palsy (CP) is a neurological condition that appears early in childhood, affecting movement and muscle coordination due to anomalous brain growth or brain damage. This condition can greatly hinder children's ability to perform daily activities, particularly in a school background. Engaging in the classroom is crucial for developing cognitive, social, and motor skills, which in turn affect the overall well-being and future opportunities for kids with CP (Bax et al., 2005; Rosenbaum et al., 2007). Cerebral palsy (CP) is a neurological condition that impairs movement and coordination due to brain damage occurring during early development. It is the most common motor disability in children, impacting approximately 3.3 per 1,000 live births worldwide (Oskoui et al., 2013). Cerebral palsy (CP) encompasses a series of lifelong impairments in mobility and posture, which hinder daily activities. These impairments are linked to unprogressive abnormalities in brain development that occur early, either during pregnancy, childbirth, or shortly after birth. The harshness of Cerebral palsy varies significantly, from minor to severe cases, and it affects approximately 2 to 3 out of every 1,000 live births globally, according to Rosenbaum et al. (2007). CP, acknowledged as the predominant motor disability during childhood, was initially described by William Little in the 1840s (Sankar & Mundkur, 2005). It is characterized by a diverse array of early-onset motor and postural disorders stemming from non-progressive brain disturbances (Rosenbaum et al., 2007). Epidemiological studies indicate that the prevalence of CP varies widely across different regions. The prevalence of cerebral palsy varies widely, with estimates ranging from 1.5 to over 4 cases per 1,000 live births or kids within exact age groups (Arneson et al., 2009). In the United States, it is appraised to affect 3 to 4 children per 1,000 (Christensen et al., 2014), a figure consistent with rates observed in other industrialized countries (Hustad et al., 2010). Conversely, in rising countries, prevalence rates show greater variability, ranging from 2 to 10 cases per thousend live births (Durkin

et al., 2016). While the overall frequency of cerebral palsy remains consistent, studies indicate a higher occurrence among males compared to females, with a sex proportion ranging from 1.3 to 1.4 males per female (Himmelmann & Uvebrant, 2014). Male preterm infants, in particular, exhibit a greater susceptibility to CP, often presenting with additional neurological sequelae (Johnson & Hagberg, 2007). This trend of higher CP incidence in males, especially among preterm births, has been consistently observed across various populations (Tatavarti et al., 2018). The occurrence of cerebral palsy differs across regions, with estimates ranging from 3 per 1,000 live births in India (Vyas et al., 2013) to 1.22 per 1,000 live births in specific areas of Pakistan (Ahmad et al., 2017). This variability highlights the varying prevalence rates of cerebral palsy observed in different geographical areas. In Bangladesh, a study conducted across the population revealed a prevalence rate of 3.4 cases per 1,000 children (Khandaker et al., 2015). This statistic underscores the frequency of cerebral palsy among the pediatric population in the region. CP includes a spectrum of motor impairments and is frequently connected to sensory, perceptual, cognitive, communication, and behavioral disturbances, in addition to subsequent musculoskeletal issues (Rosenbaum et al., 2007). Cerebral palsy is categorized based on topographic and deficiency of the neuromuscular system with spastic CP being the most prevalent, comprising 70-75% of cases. Other types include dyskinetic and ataxic CP, each exhibiting unique patterns of motor impairment (Sankar & Mundkur, 2005). Cerebral palsy manifests in various types, each with distinct characteristics: Spastic Cerebral Palsy: Predominant: Affects around 80% of individuals with CP, characterized by stiff muscles leading to jerky movements, such as: Hemiplegia: Affects one side of the body, often causing delays in speech but usually with normal intelligence. Diplegia: Mainly involves stiffness in the legs, with less impact on arms and face, typically with normal intelligence. Quadriplegia: The most severe form involves stiffness in all limbs and a weak neck, frequently accompanied by intellectual and developmental disabilities. Dyskinetic Cerebral Palsy: Marked by slow, uncontrollable movements, particularly in the hands, feet, arms, or legs, sometimes accompanied by overactive facial muscles but usually without intellectual issues. Ataxic Cerebral Palsy: Affects balance and coordination, this type of CP, which is the least common, results in

unsteady walking and challenges with precise movements like writing or buttoning shirts. Hypotonic Cerebral Palsy: Characterized by low muscle tone, leading to challenges in basic movements and maintaining posture, less common compared to other types. Mixed Cerebral Palsy: Combines symptoms from multiple types. A permanent movement disorder caused by brain development issues or brain damage, affecting muscle tone, motor skills, and possibly other functions like vision, hearing, speech, and cognition. The disorder's severity varies, and it is categorized into types like spastic, dyskinetic, ataxic, and mixed based on motor function Characteristics (Bax et al., 2005; Rosenbaum et al., 2007). According to CP Guidance (n.d.), the Gross Motor Function Classification System (GMFCS) is employed to assess and classify individuals according to their gross motor skills, facilitating a better understanding and management of cerebral palsy. This system is particularly useful in assessing how a child's motor function impacts their school activities and participation. The GMFCS levels span from one to five, with Level one indicating the mildest severity and Level five indicating the greatest profound severity. Here is a brief overview of how each GMFCS level may relate to school activities and participation. GMFCS Level I: Children can walk without limitations. They are likely to fully engage in school activities, including those requiring physical movement. Children classified as GMFCS Level II can walk with some restrictions. They may need some assistance on uneven surfaces, inclines, or in crowded areas, potentially affecting participation in certain school activities. Children classified as GMFCS Level III walk with the assistance of handheld mobility aids. They may need modifications or support to participate in school activities, especially those involving movement. GMFCS Level IV: Self-mobility is limited; children may use manual wheelchairs. Participation in school activities will likely require significant accommodations and assistive devices. GMFCS Level V: Children rely on manual wheelchairs for transportation. They will need extensive support and adaptations for school participation, as they have severe limitations in voluntary movement control. School activities involves various tasks and responsibilities that children perform as part of their education, including classroom learning, homework, physical education, and social interactions with peers and teachers (Law et al., 2006). In this study, participation refers to how children with CP engage in

school activities, including the extent and quality of their involvement, which indicates how well they are integrated into the school environment and their ability to utilize educational opportunities (Imms, 2008). Communication: The ability to convey and understand data. Effective communication is crucial for learning, social interactions, and group activities participation (Bedell & Dumas, 2004). Refers to the ability to move and navigate different environments. For children with CP, this ranges from independent walking to needing assistance with movement, covering aspects like walking, running, using mobility aids, and transitioning between different positions (Palisano et al., 2008). The International Classification of Functioning, Disability, and Health (ICF), established by the World Health Organization (WHO), provides a comprehensive framework for assessing the functional abilities and limitations of children with cerebral palsy (CP) (WHO, 2001).The ICF Core Sets designed for cerebral palsy provide standardized methods for assessing activity limitations and participation restrictions across various age groups (Schiariti et al., 2015). Children with CP frequently encounter limitations in their daily activities, including those in the school setting, due to their motor impairments (Rosenbaum et al., 2007). Participation in school activities is vital for their social, emotional, and academic growth. However, kids with CP may struggle to fully involve in these events, potentially leading to social isolation, lowered self-esteem, and decreased academic performance (Novak et al., 2013). Cerebral palsy can profoundly affect how children engage in activities, especially within the school environment. Enabling these children to actively participate in school activities can positively influence their social, emotional, and academic progress. Contribution in school activities by kids with cerebral palsy (CP) is essential in inclusive education and can be adequately evaluated using the ICF-CY version. This outline systematically organizes and elucidates information concerning functioning and disability, emphasizing the importance of engagement across various domains including knowledge, communication, movement, social connections, and civic involvement. The ICF-CY framework assists educators and therapists in recognizing and addressing the challenges that children with CP might encounter in school activities. By using this framework, schools can develop individualized education plans (IEPs) that focus on enhancing participation in school activities, adapting the

environment, and providing appropriate support services (World Health Organization, 2007). Kids with CP can engage in a wide range of school activities, including academic clubs, arts, and sports. Schools can enhance their participation by utilizing adaptive equipment and technology. For instance, a child with CP might use a communication device for debates or a power wheelchair to navigate the school environment and interact with peers (Palisano et al., 2008). This study aims to evaluate how kids with CP participate in school tasks that are structured around the ICF-CY framework are integral to this approach. It examines dimensions such as learning, communication, mobility, and social interaction to identify factors that affect participation and the challenges these children encounter in school settings. Findings from this research will inform targeted interventions aimed at enhancing educational experiences and outcomes for children with CP (Rosenbaum & Stewart, 2004).

1.2 Justification of the Study:

Cerebral palsy comprises persistent movement impairments that typically manifest in early childhood. Engagement in school activities and participation are crucial for the holistic development of kids with cerebral palsy, but they frequently face obstacles that restrict their complete involvement (Rosenbaum et al., 2007). Kids with cerebral palsy frequently face challenges in participating in school activities due to physical and cognitive limitations. Therefore, it's crucial to offer adequate support and adjustments to allow these children to fully participate in their school environment. Research indicates that interventions like physical therapy, occupational therapy, and assistive technology can greatly enhance the activities and participation of children with cerebral palsy at school (Novak et al., 2013). These interventions prove to be effective in improving motor role, communication abilities, and social interactions with peers, thereby enhancing their overall quality of life. The article "Determinants of school activity performance in children with cerebral palsy: A multidimensional approach using the ICF-CY as a framework" explores the various factors that influence school activity performance in kids with cerebral palsy. The authors emphasize the importance of addressing these factors to enhance school performance and improve the overall well-being and quality of life of children with cerebral palsy. The article offers insights and recommendations for healthcare professionals and educators who work with these children in school settings (Huang, C.Y., et al., 2013). School participation is a critical outcome for kids with cerebral palsy and is closely linked to their well-being and overall life satisfaction. Existing research underscores the difficulties handled by these children in school, including physical, social, and communication obstacles. However, there is limited research that systematically uses the ICF-CY framework to classify and analyze these challenges comprehensively. By filling this gap, the study aims to provide actionable data that can lead to targeted interventions (King et al., 2003; Novak et al., 2013). By exploring various dimensions of participation and activities using the ICF-CY framework, this study aims to provide a comprehensive understanding that can inform better educational practices and policies. Research on the levels of school

activities and participation among children with cerebral palsy (CP) holds significant importance for several reasons: It helps in comprehending the educational requirements of these children, who encounter distinct challenges impacting their ability to participate in school activities.By identifying these challenges, educators and policymakers can develop tailored interventions and support systems to enhance educational experiences and outcomes for these children (Palisano et al., 2008). Promoting Inclusive Education: Inclusive education is about ensuring all children, regardless of their physical abilities, have access to quality education. This research provides insights into how children with CP can be better included in mainstream educational settings, fostering a more inclusive and equitable educational environment (UNESCO, 2020). Improving Quality of Life: School involvement goes beyond academic success; it encompasses social inclusion, self-confidence, and overall well-being. Identifying the factors influencing school participation can aid in creating holistic programs that cater to the diverse needs of children with CP, enhancing their social integration and overall quality of life (Law et al., 2006). Providing Evidence-Based Interventions: Evidence from this research can guide the development of targeted interventions that address specific barriers to participation. For example, interventions might concentrate on enhancing mobility, communication abilities, or cognitive support, customized to report the specific desires of kids with CP as highlighted in the research (Imms, 2008). Adding to Global Knowledge: Study on the involvement of kids with CP in school activities is limited, particularly in regions such as Bangladesh. This study contributes to the global knowledge pool by offering data that can be compared with studies from around the world, contributing to a more comprehensive understanding of CP and its implications for education (Bax et al., 2005). There has been no recent study in Bangladesh examining the school activities and participation of kids with cerebral palsy (CP) in the past five years. There is also a disbelief regarding the specific levels of school engagement among children with CP across different socio-demographic contexts, especially in developing nations like Bangladesh. Utilizing well-structured tools to assess current and future functioning could optimize time and resources effectively. The International Classification of Functioning, Disability and

Health Core Sets of Children and Youth with CP offer a comprehensive functional profile, enabling parents and kids with CP to better understand their capabilities in addition challenges. This awareness could empower them to enhance their participation in mainstream society. Therefore, the focus is on investigating the school activity and participation levels of children with CP in Bangladesh using the ICF-CY with Cerebral Palsy

1.3 Research question:

What are the levels of the School activities and participation of children with cerebral palsy?

1.4 Study Objectives:

General Objectives: To determine the level of the of School Activities and Participationof children with cerebral palsy.

Specific Objectives:

- To explore the socio demographic characteristics of the participants.
- To identify their learning and applying knowledge. (ICF code - d120, d131, d133. d137, d140, d145, d150, d166, d170, d172, d175)
- To explore General tasks and demands. (ICF code - d210, d220, d230, d235)
- To identify their Communication (ICF code - d310, d310, d315, d330, d331, d335)
- To identify their community, social and civic life of children with cerebral palsy. (ICF code - d9.
- To find out their Mobility. (ICF code - d410, d412, d415, d440, d445, d450)
- To find out the association between important Socio-demographic characteristics and level of the school activities and participation of children with CP based on Modified ICF-CY Core Sets.

Conceptual Framework:

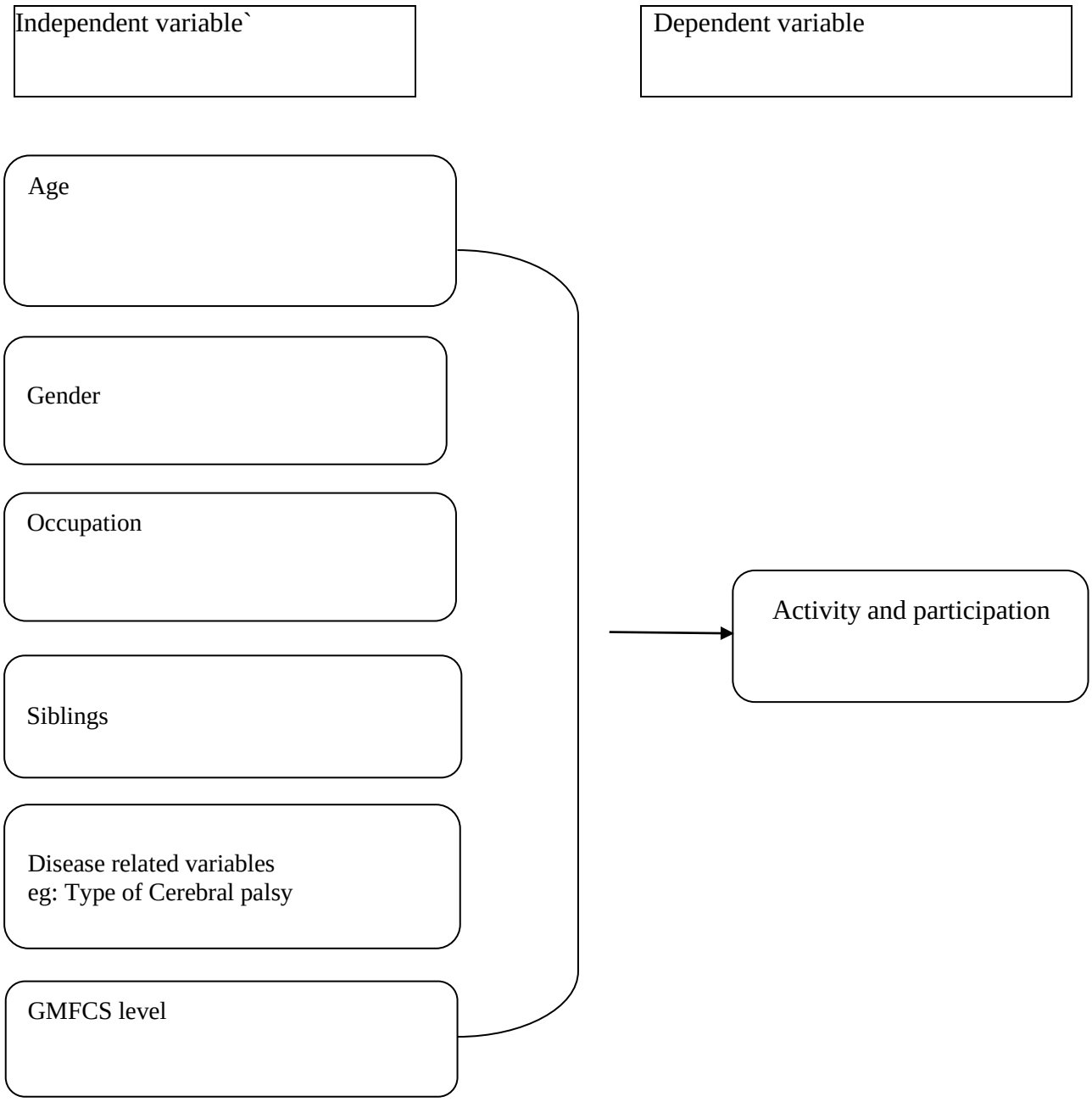

Figure 1: Conceptual Framework

1.6 Operational Definition

Cerebral Palsy

The disease known as cerebral palsy is characterized by long-term impacts on posture and mobility due to early abnormalities in brain development, often manifesting by age 2. These impairments result in limitations in activity and are considered static. According to the UN Convention on the Rights of the Child (UNCRC), individuals affected by cerebral palsy are those under 18 years of age.

Activity and participation

Activity and participation are fundamental concepts in understanding how individuals with disabilities engage in daily life. "Activity" refers to the implementation of specific tasks or actions by an individual, such as stepping, writing, or using a computer. "Participation," instead, encompasses the participation in life circumstances, including roles within the family, school, workplace, and community interactions.

ICF

Introduced in 2001 by the World Health Organization (WHO), the International Classification of Functioning, Disability, and Health (ICF) offering a useful framework to outline the functional capabilities and obstacles experienced by kids with cerebral palsy (CP) in their everyday lives

Core Sets

Core Sets are standardized lists of groupings within the International Classification of Functioning, Disability and Health (ICF) that signify the most relevant aspects of working and disability for specific health conditions or situations. They streamline assessments and descriptions of functioning, aiding in clinical practice, thesis, and policy progress to improve care and outcomes for individuals with disabilities or health conditions

Caregiver

The primary caregiver is typically a family member or a paid helper who assumes the primary responsibility for the daily care, well-being, and support of a child, sick, elderly, or disabled person

CHAPTER- II: LITERATURE REVIEW

Children with cerebral palsy (CP) diagnoses often encounter complications participating in school activities due to motor impairments, communication challenges, and related conditions. These issues significantly impact their ability to engage in learning, social interactions, and essential school tasks, which are vital for their overall development and quality of life (Rosenbaum et al., 2007). CP, a neurological condition affecting motor functions, presents unique challenges for children across various aspects of their lives, including their involvement in school. This literature review aims to explore existing research and perspectives on the experiences, outcomes, and interventions concerning school activities for kids with cerebral palsy. Several research have investigated the extent of school participation among kids with CP. Research by Raina et al. (2011) indicated that early interventions and specialized educational support contribute to increased school engagement and improved academic performance compared to children without such support. In a study led by Gaebler-Spira et al. (2017), it was found that kids with cerebral palsy participate in various activities across different work-related contexts. However, their participation is not consistently positive, with social attitudes and physical environmental factors identified as significant barriers. Parents of kids with CP play a crucial role in advocating for their educational needs. Research by King et al. (2010) underscored the importance of family-centered approaches in educational planning and support. Teachers are crucial in supporting the engagement of children with cerebral palsy in school activities. Studies by Novak, I., et al. (2013) emphasized the importance of teacher training and awareness regarding CP-related challenges. The literature review underscores the complex aspects of school activities and participation among kids diagnosed with cerebral palsy.

While challenges exist, early interventions, individualized support, inclusive practices, and family involvement can significantly impact the outcomes and experiences of these children. Future studies should prioritize creating interventions based on evidence to meet the specific requirements of kids with cerebral palsy, enhancing their inclusion and achievement in educational settings. Cerebral palsy (CP) impacts movement and posture, usually manifesting in infancy or early childhood as a result of brain injury (Bax et al., 2005). It is a complex syndrome characterized by lifelong motor disabilities that do not worsen over time (Himmelmann et al., 2011). Although the brain damage causing CP is permanent and cannot be reversed, early intervention can improve functional outcomes (O'Shea, 2008). Individuals with CP often experience various motor and sensory challenges, including difficulties with sensation, perception, cognition, communication, behavior, epilepsy, and musculoskeletal issues (Rosenbaum et al., 2007). These challenges can impact different aspects of a child's development, such as exploration, communication, learning, and independence achievement (Jones et al., 2007). The Surveillance of CP in Europe (SCPE) claims that criteria, CP encompasses enduring and non-advancing abnormalities of posture and movement that stem from lesions, damage, or dysfunction in the nerve system in the center during early life (Elkamil et al., 2011). The condition places substantial social, mental, and health challenges on impacted kids and their families, resulting in significant economic implications (Faria et al., 2011). CP is a lifelong condition that continues into adulthood (Mesterman et al., 2010). As kids with cerebral palsy (CP) mature from infancy to adulthood, the way the condition manifests, along with its secondary effects and functional consequences, may change over time (Rosenbaum et al., 2007)Cerebral palsy, affecting between 1.5 to 2.5 children per 1,000 live births, stands as the most prevalent chronic motor condition impacting childhood, as reported by Oskoui et al. in 2013. This statistic underscores the significant incidence rate of cerebral palsy among the pediatric population, highlighting its prominence as a major childhood motor disorder. Studies, including Arneson et al. (2009), have reported prevalence rates worldwide that vary from 1.5 to more than 4 per 1,000 live births or kids in particular age ranges. Research from the USA, as referenced by Braun et al.

(2016), indicated a relatively stable prevalence of spastic cerebral palsy over time, with discrepancies noted among cultural groups. While the prevalence decreased among non-Hispanic White populations, it increased among non-Hispanic Blacks. Data from national surveys like NSCH and NHIS, the National Health Interview Survey and the National Survey of Children's Health provide insights into the frequency of cerebral palsy. According to Maenner et al. (2016), the incidence rates of cerebral palsy vary from 2.6 to 2.9 per 1,000 live births, reflecting the significant prevalence of this motor condition among newborns. Additionally, Smithers-Sheedy et al. (2016) report that data from the Australian Cerebral Palsy Register indicate an average incidence rate of 2.1 per 1,000 live births. This rate is notably higher in cases of multiple births and among infants with very low birth weights, suggesting that these factors may contribute to an increased risk of developing cerebral palsy. The combined findings from these studies underscore the varying incidence rates of cerebral palsy across different populations and the heightened vulnerability of certain groups Despite the prevalence of cerebral palsy, several Research has indicated that there is a greater frequency in males as opposed to females, with ratios varying between 1.3 and 1.4:1. (Himmelmann & Uvebrant, 2014). Research has highlighted a significant male predominance in cases associated with preterm births, with up to 70% of affected children being male (Jarvis et al., 2005; Johnson & Hagberg, 2007). Additionally, studies like that of Reid et al. (2016) have highlighted a higher prevalence of cerebral palsy among male preterm infants, particularly in the 28 to 31 weeks gestational age group. Tatavarti et al. (2018) suggested that male infants may be more susceptible to cerebral palsy due to potential differences in resistance to hypoxia. Despite the global prevalence of cerebral palsy, access to rehabilitation services remains limited, with only a small fraction of affected children in developing countries receiving adequate support (Maloni et al., 2010). Recent research in Bangladesh has shed light on the prevalence and determinants of cerebral palsy among children. A pilot study conducted in Shahjadpur identified 859 children with severe physical impairment, of whom 48.5% were diagnosed with cerebral palsy (Khandaker et al., 2015).

Another study using the Key Informant Method estimated the prevalence of cerebral palsy to be up to 3.7 per 1000 adolescents in Bangladesh (Murthy et al., 2014). Research in Bangladesh has also highlighted that male children are four times more likely to have cerebral palsy compared to females (Hai et al., 2016). The incidence of cerebral palsy in Bangladesh underscores gaps in understanding the condition, particularly in epidemiological research, interventions, and service utilization (Tatla et al., 2013). While the exact cause remains unclear, Cerebral palsy can occur during the prenatal, natal, or postnatal stages and is caused by a variety of risk factors, as noted by Hankins et al. (2003). Significant risk factors associated with the development of cerebral palsy include congenital malformations, perinatal stroke, multiple gestations, infections occurring during the fetal and neonatal periods, birth asphyxia, preterm delivery, untreated maternal hypothyroidism, and thrombophilia, as identified by Hai et al. (2016). In the context of Bangladesh, it is observed that prenatal instances of cerebral palsy constitute between 70% and 80% of all cases. These prenatal cases often have unclear etiology and are frequently associated with delivery complications, further highlighting the complex interplay of factors contributing to the prevalence of cerebral palsy in the region such as suffocation, potentially leading to permanent brain damage and athetoid cerebral palsy, often associated with blood disorders like rhesus incompatibility (Hai et al., 2016). Ten to twenty percent of cerebral palsy cases are affected by neonatal risk factors, which include trauma, low birth weight with intrauterine growth retardation, cerebral hemorrhage, and delivery before 32 weeks of gestation (Chen et al., 2013). Low birth weight and premature delivery are significant contributors, with higher risk observed as gestational age and birth weight decrease, affecting incidence rates between 10% to 18% in newborns weighting between 500 and 999 grams (Msall, 2004). Infants with perinatal complications in Bangladesh have been found to be thirty-four times more probable to develop cerebral palsy compared to those without such issues (Hai et al., 2016). Additionally, post-term pregnancies at 42 weeks or later are associated with increased cerebral palsy risk (Moster et al., 2010).

Pathological changes leading to neural damage and impaired connectivity are common in cerebral palsy cases, with approximately 10% to 15% attributed to birth-related factors such as prolonged labor, birth asphyxia, delayed crying after birth, or forceps delivery (Bangash et al., 2014). Postnatal causes, including toxic exposure, infectious diseases like meningitis or encephalitis, traumatic incidents such as

drowning, and coagulation disorders resulting in cerebral infarction, particularly contribute to the hemiplegic form of cerebral palsy, accounting for 12% to 21% of cases (Kulak et al., 2014). Children face an increased risk of developing cerebral palsy due to several factors including brain hemorrhage, conditions that cause shock, infections affecting the central nervous system, oxygen deprivation or reduced blood flow to the brain, maternal infections like chorioamnionitis, physical trauma, poisoning, premature birth, and seizures. While cerebral palsy is not typically inherited directly, certain genetic disorders can result in early brain damage that may lead to the condition. Furthermore, ongoing research is identifying genetic factors linked to conditions similar to cerebral palsy (Stephens & Vohr, 2009). Cerebral palsy is categorized into four primary types: spastic, dyskinetic (including athetoid and dystonia), ataxic, and mixed forms. Spastic cerebral palsy, which makes up 70%-75% of cases, is characterized by heightened muscle tone. This leads to symptoms such as muscle weakness, stiffness (hypertonia), exaggerated reflexes (hyperreflexia), rhythmic muscle contractions (clonus), and a positive Babinski sign, indicating involvement of the pyramidal tract (MacLennan et al., 2001). Dyskinetic cerebral palsy involves additional pyramidal involvement, manifesting as rigidity, chorea, choreoathetosis, athetoid, and dystonic movements, often associated with birth asphyxia. Spastic ataxia, a subtype of cerebral palsy, disrupts balance and coordination, often leading to shaky and unsteady movements in affected children. Dyskinesia, another subtype, manifests as involuntary movements, which typically worsen during attempts at voluntary movement, presenting with a combination of motor symptoms.

Cerebral palsy is classified topographically into monoplegia, hemiplegia, diplegia, and quadriplegia, with monoplegia and triplegia being rare. Diplegia is the most common type, comprising 30%-40% of cases in most studies, followed by hemiplegia at 20%-30%, and quadriplegia at 10%-15%. A study of one thousand CP cases in India found that spastic quadriplegia made up 61% of cases, while diplegia accounted for 22% (Singhi et al., 2002). Quadriplegic cerebral palsy, the most severe form, affects all four limbs, with greater severity in the upper limbs and trunk than in the lower limbs, often associated with acute hypoxic intrapartum asphyxia, though other causes can also contribute (MacLennan, 1999). This subtype typically results in limited voluntary movement, vasomotor changes in the extremities, pseudobulbar signs such as swallowing difficulties and recurrent aspiration, optic atrophy, seizures, and severely impaired intellectual abilities. Hemiplegic cerebral palsy involves paralysis on one side of the body, with the upper limb more severely affected than the lower limb. It is seen in about 56% of term infants and 17% of preterm infants, with a multifactorial pathogenesis. Common impairments include difficulty with voluntary movements, especially in hand functions like thumb pincer grasp, wrist extension, and forearm supination. Lower limb impairments include issues with dorsiflexion, foot inversion, increased flexor tone, and a hemiparetic posture. Persistent palm grasp and sensory abnormalities in the affected limbs are also frequently observed (Menkes, 2006). Spastic diplegia, frequently linked with premature birth and low birth weight, involves more pronounced impairments in the lower limbs than the upper limbs. Many premature infants diagnosed with spastic diplegia typically show signs of cystic periventricular leukomalacia (PVL) on neuroimaging, the most prevalent ischemic brain injury in premature babies (Wu & Colford, 2000). This condition often presents with reduced ability to raise the feet upward (dorsiflexion), heightened muscle tone in the ankles, and, in severe instances, bending of the hips, knees, and elbows. Spasms in the adductor muscles of the lower limbs may lead to crossing of the legs (scissoring) when the infant is held upright (Sankar & Mundkur, 2005). Early diagnosis is crucial for detecting developmental issues.

Early diagnosis of cerebral palsy involves identifying risk factors, conducting regular developmental screenings for high-risk infants, and performing comprehensive neurological examinations. This systematic approach includes assessing maternal, obstetric, and perinatal history, evaluating developmental milestones, and conducting thorough neurological exams in various positions (lying down, face down, sitting, standing, walking) (Sanger et al., 2003). Typically, cerebral palsy is not diagnosed in infants under 6 months, except in severe cases. Different types of CP develop gradually, with initial signs such as delays in developmental milestones and abnormal muscle tone. By ages 2-3, many children may transition from low muscle tone to spasticity or dystonia. Initial pointers may encompass hand preference emerging within the first year, persistent abnormal reflexes, delayed development of protective and postural reflexes, asymmetrical movements, and heightened responses to reflexes. Primitive reflexes such as the Moro, Tonic labyrinthine, and Asymmetric Tonic Neck Reflex (ATNR) typically resolve by around 6 months of age (Ellison et al., 1985). Drooling is a prevalent issue among children with cerebral palsy, greatly affecting their daily activities and overall well-being (Bell et al., 2010). Physical examination and medical history evaluation are integral components of diagnosing CP, involving the assessment of developmental milestones and any associated issues. Diagnostic tests such as CT scans, MRIs, and ultrasounds are utilized to identify the underlying causes of CP (Leonard et al., 2011). While CP cannot be cured, early intervention can pointedly improve quality of life and functional abilities, thereby reducing secondary complications (Shamsoddini et al., 2014). Cerebral Palsy is a lifetime condition that presents diverse challenges as individuals progress through different life stages, from infancy to adulthood (Mesterman et al., 2010; Rosenbaum et al., 2007). Understanding their functional abilities and challenges is crucial for enhancing overall working, quality of life, and educational conclusions. The term "functioning" pertains to the daily activities that individuals with CP are capable of performing and is a core element of the World Health Organization's International Classification of Functioning, Disability, and Health (ICF) framework (Bickenbach et al., 2012; WHO, 2001)

The ICF framework comprises elements like body functions and structures, activities and participation, personal factors, and environmental factors, offering a comprehensive perspective on functioning and disability (WHO, 2001).The pediatric version, ICF-CY, is tailored to address the distinct features of rising children and the impact of their environments (WHO, 2001). ICF Core Sets, comprising a subset of ICF categories relevant to specific health conditions, aid in standardizing the assessment of functioning and disability. These Core Sets facilitate interdisciplinary assessments, teamwork, and intervention planning (Grill et al., 2012).

The creation of ICF Core Sets for children and youth with cerebral palsy seeks to pinpoint the most relevant functional categories for this group, covering various CP types and functional levels.These Core Sets serve as valuable tools for understanding the needs, assessing the functioning, and planning interventions for individuals with CP across different settings.

The purpose of the ICF Core Sets for children and youth with cerebral palsy is to pinpoint the most relevant ICF categories that represent the functional profile of this group. This includes individuals from birth to 18 years old and covers all types and functional levels of cerebral palsy (Schiariti et al., 2014). While there is considerable research on cerebral palsy, There is a shortage of in-depth studies examining the distinct levels of engagement in school activities among kids with cerebral palsy, particularly using the ICF-CY outline. This gap includes understanding how socio-demographic factors influence participation levels and identifying specific barriers in different domains like learning, communication, and mobility (King et al., 2003; Novak et al., 2013). This thesis addresses the gap by providing detailed insights into the levels of participation across different school activities using ICF-CY codes (World Health Organization, 2007).

Examining the relationship between socio-demographic characteristics and participation levels (Beckung et al., 2008). This research is vital for improving our understanding of the obstacles and supports affecting school participation in children with cerebral palsy (King et al., 2003). It can inform educators, policymakers, and therapists about necessary interventions to improve school participation for these children (Novak et al., 2013). Improving participation in school activities can result in better educational achievements and an enhanced standard of living for kids with CP (Rosenbaum et al., 2007). Previous research underscores the difficulties kids with CP encounter in school environments, for example physical, social, and communication barriers. Nevertheless, there is a scarcity of studies employing the ICF-CY framework to thoroughly categorize and examine these challenges. This study aims to bridge that gap, offering actionable data that can inform targeted interventions (King et al., 2003; Novak et al., 2013). The study aims to assess the extent of school activities and participation among kids with cerebral palsy using the International Classification of Functioning, Disability and Health Core Sets of Children and Youth framework, and to recognize the socio-demographic factors that affect these levels. The objectives include Charting participation levels in learning, general tasks, communication, mobility, and social life (World Health Organization, 2007). Providing recommendations for enhancing participation based on the findings (Rosenbaum et al., 2007).

CHAPTER- III METHODOLOGY

3.1 Study design:

For the thesis, the researcher has decided to employ a cross-sectional study design. This type of study is primarily utilized to ascertain prevalence, which represents the number of cases within a population at a specific at a certain moment. All measurements in a cross-sectional research are taken from each individual in one certain moment or within a short timeframe. This approach allows for data collection to occur concurrently or within a brief period. Researchers can utilize cross-sectional studies to analyze correlations between various variables and to ascertain the frequency and distribution of specific conditions or traits within a community. These studies offer a comprehensive snapshot of the group being studied at a specific point in time, enabling an in-depth understanding of the relationships between different factors and the prevalence of particular characteristics within the population. They offer valuable insights into the present state of affairs within the studied people, facilitating the identification of patterns and associations relevant to the research objectives. They are efficient, cost-effective, and useful for generating hypotheses for further research (Kesmodel,2018). This study design enabled the investigator to portray a comprehensive overview of school activities and partaking among kids with CP at a specific moment. Therefore, the cross-sectional study was deemed the most suitable approach to achieve the study's aims and objectives.

3.2 Study population:

The study was target all children diagnosed with cerebral palsy who were enrolled at WMTS. The target population includes both boys and girls, aged between 4 to 18 years, who had varying levels of gross motor function as classified by the Gross Motor Function Classification System (GMFCS) levels I to III.

3.3 Study area:

The study was conducted at the William and Mary Taylor School (WMTS) located within a Rehabilitation Center (CRP). The setting was an urban educational environment specifically designed to support children with disabilities, including cerebral palsy. This setting is ideal for studying the school activities and participation levels of children with CP due to its specialized facilities and trained staff. This school offers an energetic and dynamic environment that provides to the educational and rehabilitative needs of its students.

3.4 Study period: The study duration was 2 years, with data collection was 3 months from January to March.

3.5 Sample size:

The original planned sample size was 80 children diagnosed with cerebral palsy enrolled at WMTS. However, exclusion of some participants (those above 18 years old or absent during data collection), the final sample size was 56. This finite sampling frame ensures that the study remains manageable and focused.

3.6 Inclusion and Exclusion Criteria:

3.6.1 Inclusion Criteria:

- The children with cerebral palsy got admitted at WMTS.
- Age between 4 to 18
- Primary caregiver of the participant.
- Both boy and girl participants.
- Children with cerebral palsy who have a gross motor function classification system level of I to III.
- Children with cerebral palsy who are able to follow simple instructions and communicate their needs.
- Children with cerebral palsy who have no cognitive impairments.

3.6.2 Exclusion Criteria:

- Children with cerebral palsy who have uncontrolled seizures or other emergency
- Children with CP who were gone under any kinds of surgery
- Children who have other neurological or orthopedic conditions such as, Down syndrome, joubert syndrome, Amputee patient etc.

3.7 Sampling technique:

The study involved a total of 56 kids with CP from WMTS, selected based on their obtainability and meeting the inclusion criteria at the time of data collection from January to March. I had collected samples of 56 children among 80 children. It was not possible for me to collect samples from the rested 24 children due to two reasons. One is some students were above 18 years and the rested students were absent during my data collecting periods. So the sampling frame is 56 students and drop out 24 students.

3.8 Data collection/measurement tools / materials:

ICF CY questionnaire,

Sociodemographic questionnaire.

Pen. pencil, clip board.

3.9 Data collection:

Data were gathered via in-person interviews. At first researcher visit study area and had taken permission from the principle of WMTS of CRP at Savar for collecting data then responsible physiotherapist as well as researcher taken informed consent from the children and caregiver by face to face interview. During interview the area was cum and quite, thus environment help us to transfer information with less time and more accurately. Children from William and Mary Taylor School were selected and matched for participation in the thesis. Data was gathered using a standardized questionnaire written in Bangla, employing simple language to ensure that all participants could easily understand the questionnaire. Participants who were unable to read the questionnaire and consent form had them explained by the data collector. After obtaining written consent, the researcher commenced data collection using tools such as questionnaire papers, pens, pencils, and files. Once the data collection was complete, the researcher thanked all participants for willingly participating in the study before concluding the session

3.10 Linguistic validation of the questionnaire

Linguistic validation of a questionnaire involves a crucial process where an instrument or patient questionnaire is translated by multiple translators simultaneously. These translations are then compared and reconciled with the original source document. This process ensures that the translated version accurately conveys the same meaning in the target language as it does in the source language. Linguistic validation not only guarantees equivalence in meaning but also preserves the construct validity of the instrument items across different cultures. The researcher chose experienced professional translators who are native speakers and experts in the relevant field of study.

Firstly, an experienced professional translates the original questionnaire from English to Bangla then another expert professional translates the Bangla questionnaire into English without seeing the original questionnaire this process was called forward translation. Another expert concise the two Bangla questionnaires into one questionnaire (called reconciliation). Back translation refers to the process of translating a questionnaire back into its original language (English) from its initially resolved forward form. This stage is crucial as it ensures that the forward translation is accurate and free from errors, mistranslations, or confusions that may have occurred during the initial translation process. The final phase includes testing the questionnaire through interviews with parents and children with cerebral palsy (CP).

3.11 Data management and analysis:

The Statistical Package for the Social Sciences (SPSS) version 26 was employed to analyze all of the data subsequent to its coding and input into a computer system, facilitating comprehensive evaluation and statistical examination of the collected information. Data was analyzed by descriptive statistics and correlation with SPSS software version 26 and also using software package of excel. Variables were tabulated, label and values were given orderly in the spread sheet then data were tabulated in the spread sheet. The data were analyzed utilizing descriptive statistics, including measures such as frequency distributions, mean values, and standard deviations, which provided a comprehensive overview and detailed examination of the dataset's characteristics. The relationship between ordinal data of dependent and independent variables was assessed using bivariate analysis, specifically the Chi-Square (χ^2) test and Spearman's rank correlation test. The Chi-Square (χ^2) test was employed to detect any associations between variables. Used for categorical data (such as gender, marital status). Spearman's Rank correlation is a technique which can be used to summarize the relationship between two variables. It is used for ordinal (such as Types of education) and continuous data. P-values below 0.05 were considered statistically significant, indicating findings that were unlikely to have occurred by chance alone. Figures and tables were effectively employed as visual aids to present the data, enhancing clarity and facilitating a more accessible interpretation of the results, with cross-tabulation against various factors in the International classification of functioning Core Sets Children and Youth with Cerebral Palsy (school activity and participation). Results were displayed using percentages (%). The collected data was illustrated with tables, bar charts.

3.12 Quality control and quality assurance:

A pilot study was done according to the questionnaire. A trial study was directed to enhance the reliability of the data collection instrument. This also allowed the author to practice administering the instrument and address any potential errors in the process. Mothers or other caregivers of children with cerebral palsy from the pediatric department of CRP-Savar, who were not involved in the core study, were recruited as participants. Specifically, five mothers of children old four to eight with cerebral palsy were selected to undergo testing of the questionnaire. During this pilot, it was found that several questions, specifically D-166, D-170, and D-172, were repeated, accounting for about 88.89% similarity with our cultural context and perspectives.

3.13 Ethical consideration:

"A research proposal was submitted to the Institutional Review Board (IRB) of BHPI for approval and subsequently received the board's endorsement. Before starting data collection, permission was obtained from the M.Sc. in Rehabilitation Science program's course coordinator at BHPI, CRP, to ensure participant safety. Formal approval for data collection was also acquired from the Principal of William and Marie Taylor School (WMTS), CRP. Data collection was completed within the specified timeframe.

The researcher adhered to the ethical principles outlined in The Belmont Report, created by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research in April 1979. This report identifies three key ethical principles: (1) respect for persons, emphasizing individual autonomy and the protection of those with diminished autonomy; (2) beneficence, which involves maximizing benefits and minimizing potential harm to participants; and (3) justice, which pertains to the fair distribution of the benefits and burdens of research. Additionally, the study followed guidelines from the World Health Organization (WHO) and the Bangladesh Medical and Research Council (BMRC).

All participants received a written consent form, which was also explained to them verbally. The researcher clarified their role in the study and obtained written consent, including signatures, from all participants, ensuring they understood the consent form and that their participation was voluntary. Participants were assured of the confidentiality of their information, and it was emphasized that the study posed no harm to them. Although there might not be direct benefits to the participants, the findings could benefit future similar cases. Participation was voluntary, with no penalties or loss of benefits for refusal or withdrawal at any time. Collected data was anonymized to maintain confidentiality and prevent embarrassment. Participants were informed they could contact the study supervisor with any questions about the research and their rights. To ensure no harm, the researcher highlighted the voluntary nature of participation and the right to withdraw without penalties. Data was anonymized to maintain confidentiality, and the study was designed to avoid any physical or psychological risks to the participants."

CHAPTER-IV: RESULTS

4.1:Sociodemographic information

4.1.1. Gender distribution of the participants:

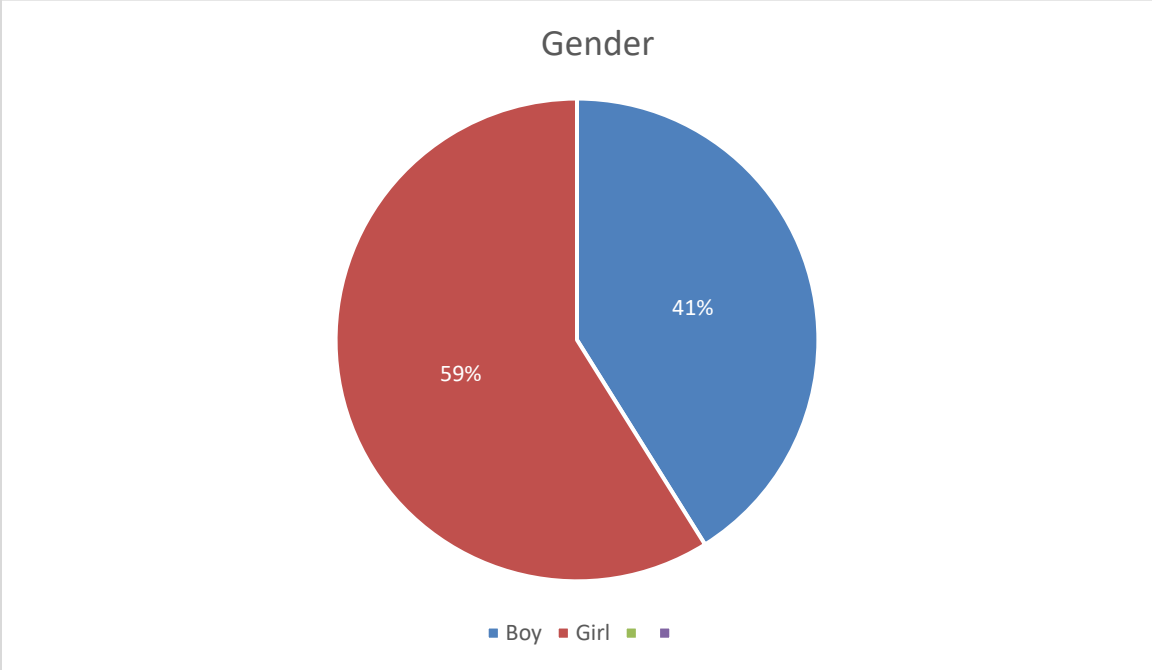

Figure 2: Gender distribution of the participants.

Among 56 participants boy were 41.1%(n=23) and girl were 58.9%(n=33). Here girl participants were higher than boy (Figure 2).

4.1.2. Age of the Participants:

Age distribution of the participant

Age group	Frequency	Percentage	Mean (SD)
4-10 years	69.6	39%	9.45(3.173) years
11-15 years	26.8	15%	
16-18 years	3.6	2%	

Table–1: Age of the participants

Among 56 participants, higher number of participants was 39%(n=69.6) were age range 4-10 years and the number was 15% (n=26.8) were in age range of 11-15 years and least number was 2%(n=3.6) were age range 16-18 years. However, the mean (SD) of the participants was 9.45(3.173) years.

4.1.3. Types of cerebral palsy:

Types of cerebral palsy	Frequency	Percent	Mean (SD)
Hemiplegic	15	26.8%	1.89(.731)
Diplegic	35	62.5%	
Dyskinetic	3	5.4%	
Quadriplegic	3	5.4%	

Table–2: Types of cerebral palsy

Here out of 56 participants maximum CP, 62.5% (n=35) were diplegic then 26.8% (n=15) were hemiplegic, 5.4% (n=3) were dyskinetic and finally 5.4% (n=3) were quadriplegic.

4.1.3. GMFCS Level:

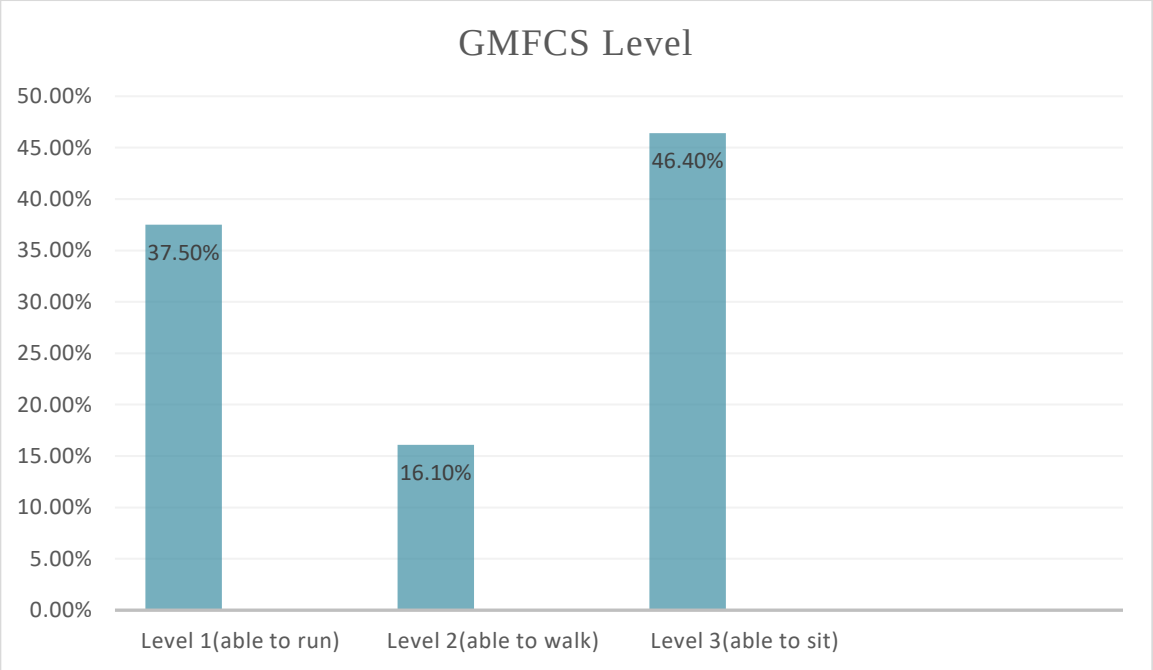

Figure 3: GMFCS Level

Here out of 56 participants, Maximum 46.4%(n=26) were GMFCS level 3 then 37.5%(n=21) were GMFCS level 1, 16.1%(n=9) were GMFCS level 2,

4.1.4. Mother education & Father educations

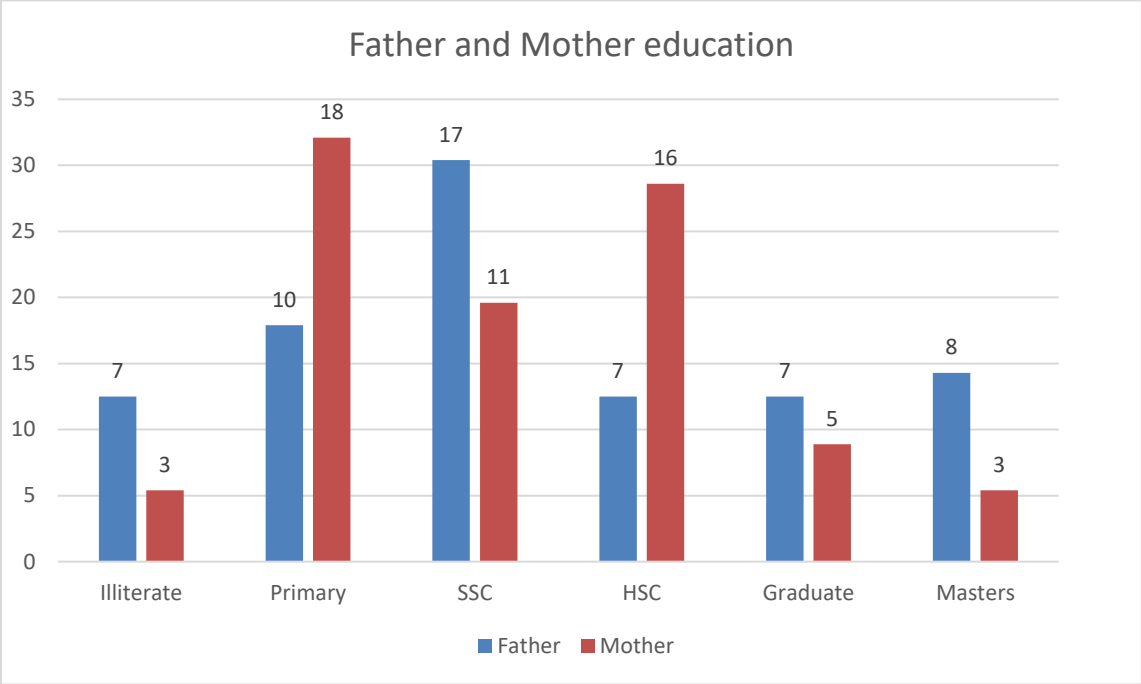

Figure 4: Mother educations and Father educations

Among 56 participants, In primary stage mothers's educations rate were 32.1%(n=18) and fathers's educations rate were 17.9%(n=10). Here Mothers's educations rate were higher than fathers's educations rate. In SSC stage mothers's educations rate were 19.6%(n=11) and fathers's educations rate were 30.4%(n=17). In HSC stage mothers's educations rate were 28.6%(n=16) and fathers's educations rate were 12.5%(n=7). In Graduate stage mothers's educations rate were 8.9%(n=5) and fathers's educations rate were 12.5%(n=7). In Masters stage mothers's educations rate were 5.4%(n=3) and fathers's educations rate were 14.3%(n=8). The rate of Illeterate mothers's were 5.4%(n=3) and the rate of fathers's were 12.5%(n=7). (Figure 4).

4.1.4.: Siblings

Siblings	Frequency	Percentage	Mean (SD)
No sibling	16	28.6	.98(751)
Single sibling	25	44.6	
Two or more siblings	15	26.8	

Table- 3: Siblings

Among 56 participants, Single sibling was 44.6%(n=25), no sibling was 28.6%(n=16) and two or more siblings were 26.8%(n=15). Here single sibling's participants were higher than others (Table 1).

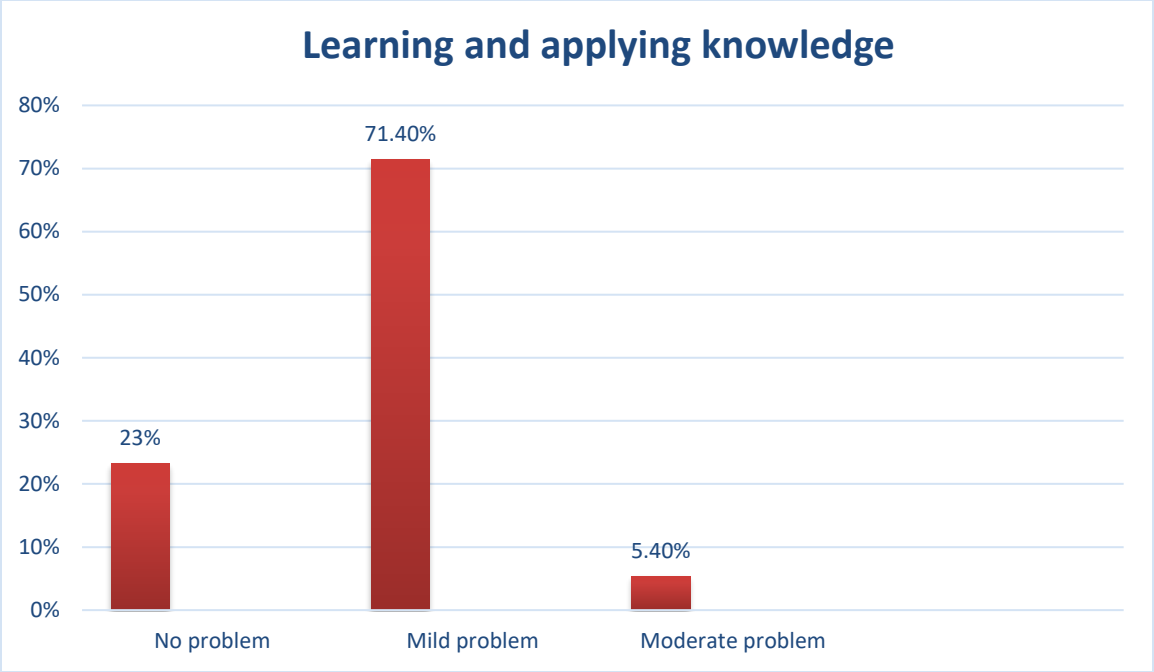

Figure 5: Learning and applying knowledge

71.4% of participants hade mild problem and 23.2% of participants hade no problem in learning and applying knowledge and and then only 5.4% of participant hade moderate problem in learning and applying knowledge.

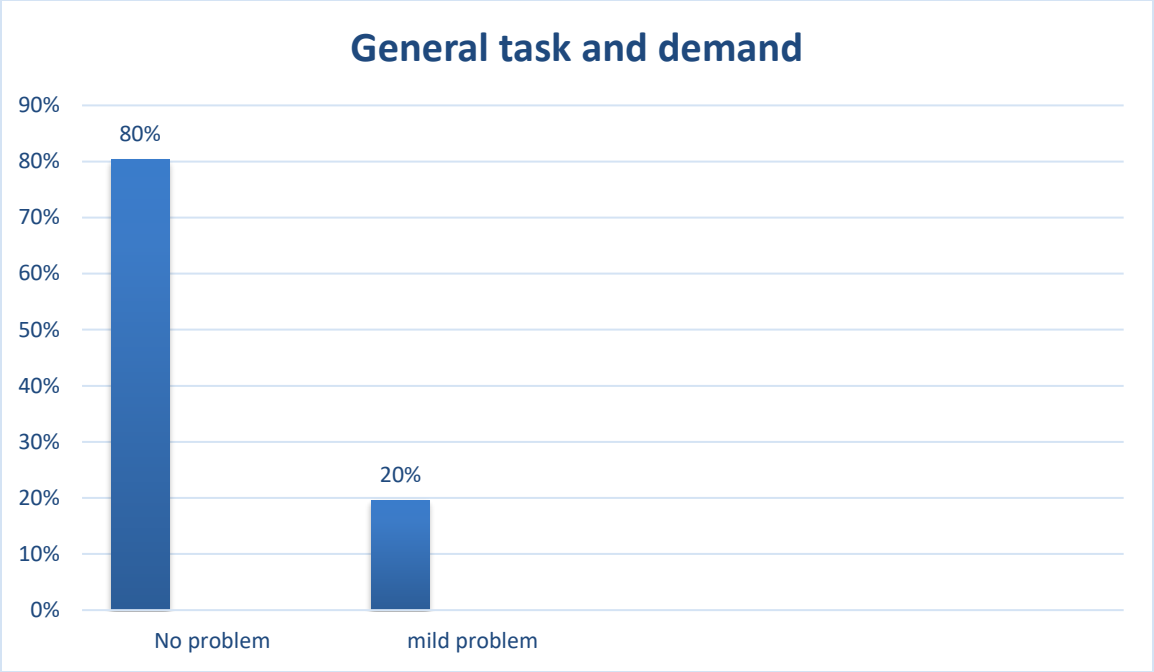

Figure 6: General task and demand

80.4% of participant hade no problem in general task and demand and only 19.6% of participant hade mild problem.

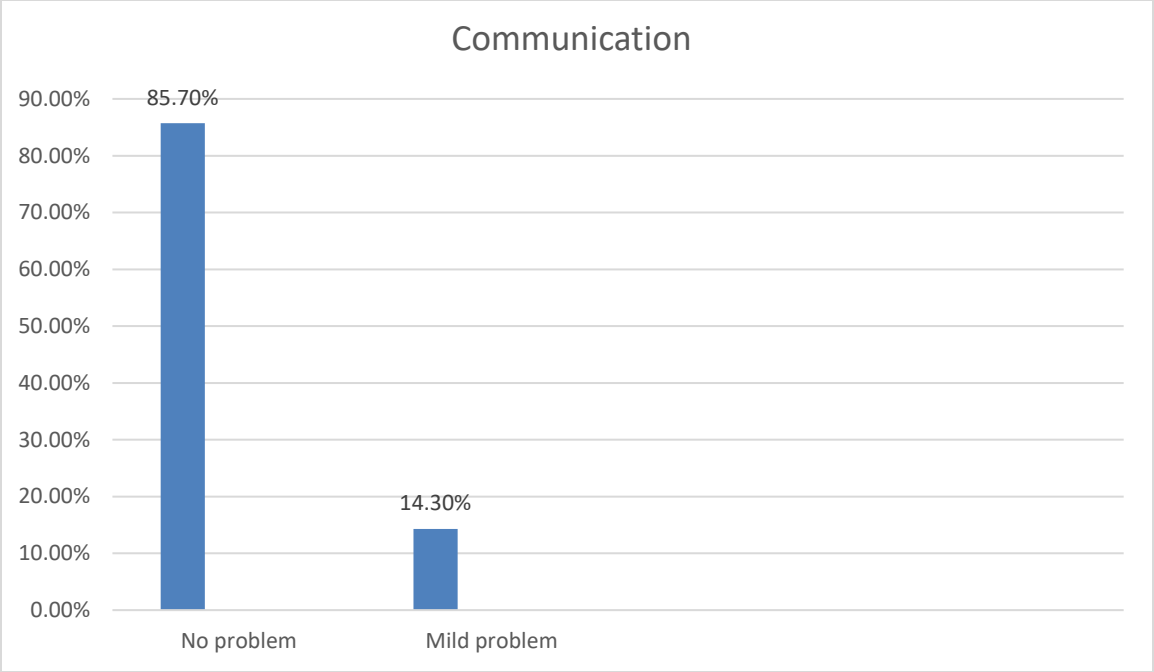

Figure 7: Communication

85.7%of participant hade no problem in Communication and only 14.3% of participant have mild problem.

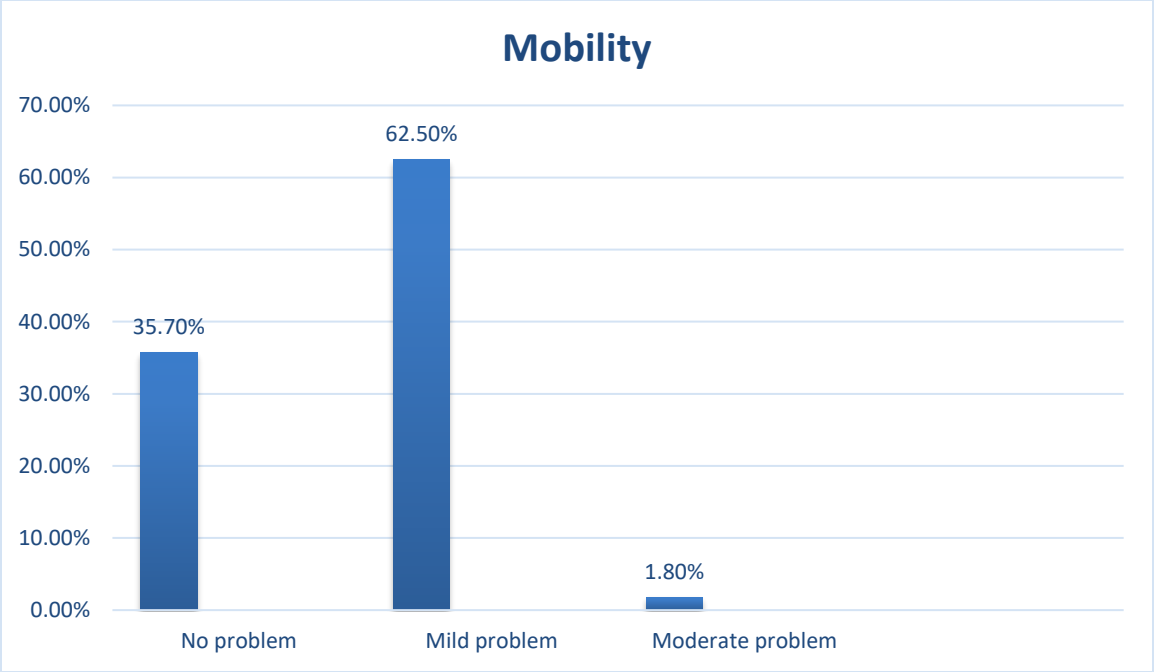

Figure 8: Mobility

62.5% of participant had mild problem , 35.7% of participant had no problem in Mobility , and only1.8% of participant had moderate problem .

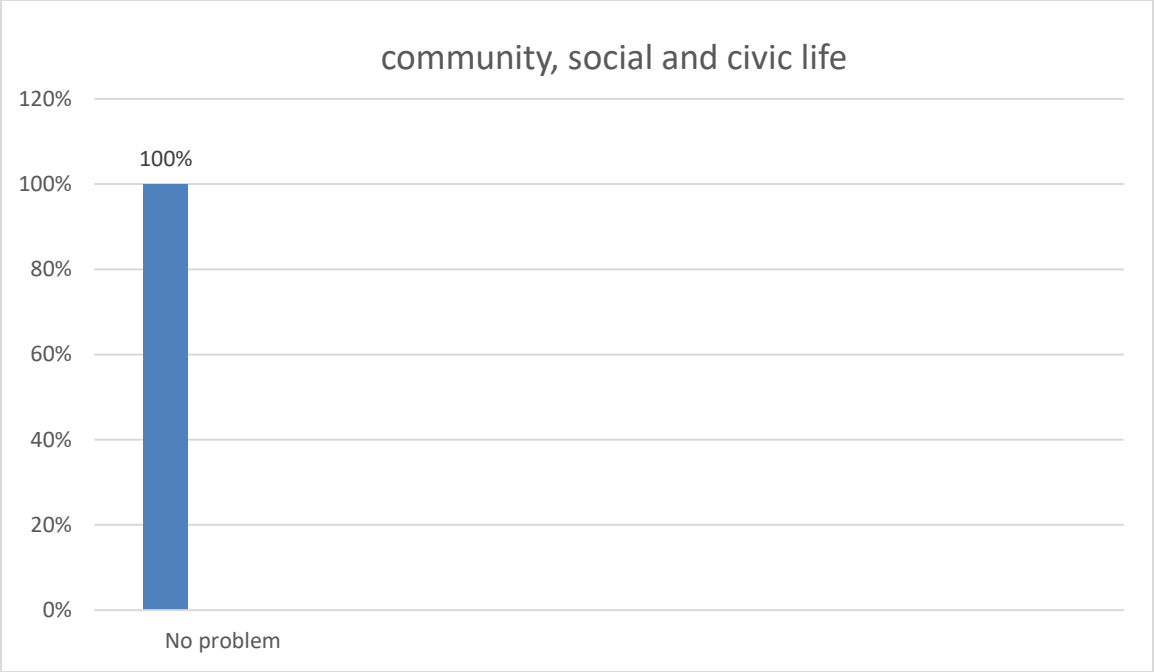

Figure 9: community, social and civic life

100%of participant have no problem in community, civic and social life.

Table 4: Correlation between Socio-demographic factors and School Activities and Participation level (Spearman‘s rs).

Variable	P- value	Spearman rank Value (rs)
Age	.540	-.084
Gender	.446	.104
Mother education	.840	.028
Father education	.991	-.002
Mother occupation	.662	.060
Father occupation	.987	.002
Siblings	.052	.261

Table 4: Association between sociodemographic factors and activities and participation

To find association between sociodemographic factors and activities and participation I use spearman's rank correlation. To do the test hypothesis was formulate as follows:

Ho=There was no association between sociodemographic factors and activities and participation

Ha= There was some association between sociodemographic factors and activities and participation.

Further, for this test significant value p value is taken < 0.05.

According to the obtained result, sociodemographic factors show the p- value >0.05 which did not show any significant association with activities and participation.

According to above hypothesis Ho cannot be rejected.

Table 5: Correlation between Types of cerebral palsy and School Activities and Participation level (Spearman's rs).

Variable	P-value	Spearman rank Value (rs)
Types of cerebral palsy	.002	.411

Table 5: Association between Types of cerebral palsy and School Activities and Participation .

To find association between types of cerebral palsy and activities and participation, use spearman's rank correlation. To do the test hypothesis was formulate as follows:

Ho=There is no association between types of cerebral palsy and activities and participation

Ha= There is some association between types of cerebral palsy and activities and participation.

Further, for this test significant value p value is taken < 0.05.

According to the obtained result, Types of cerebral palsy show the p- value <0.05 which was .002.Therefore, This factors show the significant association with activities and participation by rejecting null hypothesise.

According to above hypothesis, Ha can be accepted.

Types of CP and Activities and Participation: Strong positive correlation (r = 0.411). The type of cerebral palsy (CP) has a significant positive influence on activities and participation. This indicates that different types of CP are strongly associated with variations in levels of activities and participation. Specifically, certain types of CP might be linked to higher levels of engagement in activities and participation compared to others. Overall, the strong positive correlation between the types of CP and activities and participation suggests that the specific type of CP a person has is an important factor in determining their level of engagement in activities and participation. This implies that tailored interventions and support for individuals with different types of CP could be crucial in enhancing their participation in various activities.

Table 6: Correlation between GMFCS level and School Activities and Participation level (Spearman‘s rs).

Variable	p- value	Spearman rank Value (rs)
GMFCS Level	0.005	.367

Table 6: Association between GMFCS level and School Activities and Participation.

To find association between GMFCS (Gross motor classification system) level and activities and participation I used spearman’s rank correlation. To do the test hypothesis was formulate as follows:

Ho=There was no association between GMFCS level and activities and participation

Ha= There was some association between GMFCS level and activities and participation.

Further, for this test significant value p value is taken < 0.05.

According to the obtained result, Types of cerebral palsy show the p- value <0.05 which was .005. Therefore, This factors show the significant association with activities and participation by rejecting null hypothesize.

According to above hypothesis, Ha can be accepted.

GMFCS and Activities and Participation: Strong positive correlation (r = 0.367).

The Gross Motor Function Classification System (GMFCS) level has a significant positive influence on activities and participation.

This indicates that higher GMFCS levels are strongly associated with higher levels of engagement in activities and participation. Individuals with different GMFCS levels experience variations in their ability to participate in activities, with those having higher GMFCS levels likely being more active and engaged. Overall, the strong positive correlation between GMFCS levels and activities and participation suggests that the level of gross motor function is an important determinant of an individual's engagement in activities and participation. This underscores the importance of considering GMFCS levels when designing interventions and support strategies to enhance the participation of individuals in various activities.

CHAPTERV: DISCUSSION

The study aim is to determine the level of the of School Activities and Participation of children with cerebral palsy. The fundamental rationale of this study is rooted in the recognition that cerebral palsy (CP) significantly impacts the daily lives of children, particularly in school settings where participation and activities are critical for general development. This study wanted to explore and document the levels of school activities and participation of children with CP in WMTS, employing the International Classification of Functioning, Disability, and Health (ICF) Core Sets for Children and Youth. Given the critical role that school participation plays in the cognitive, social, and physical development of children, understanding the barriers and facilitators for children with CP is essential for developing effective interventions.

The study aimed to fill a notable gap in the existing literature by focusing on a population that had not been extensively studied within the Bangladeshi context. Previous research highlighted the importance of physical therapy, occupational therapy, and assistive technology in improving participation for children with CP (Novak et al., 2013), yet there was a rareness of data specifically from Bangladesh. By employing the ICF-CY framework, the study aimed to provide a comprehensive and systematic analysis of the factors influencing school activities and participation for children with CP, thus contributing to more targeted and effective support strategies.

The study's results align closely with the specific objectives outlined at the beginning of the research. These objectives included exploring socio-demographic characteristics, identifying learning and applying knowledge, general tasks and demands, communication, community, social and civic life, and mobility among children with CP. Find out the association between important Socio-demographic characteristics and level of the school activities and participation of children with CP based on Modified ICF-CY Core Sets.

Socio-Demographic Characteristics: The findings indicated, Here 56 children with CP were taken in which 33 were girls and boys were 23 so from this study found higher participation rate among girls compared to boys. Higher participation rates in girls, especially in activities promoting social interaction and community involvement, were also observed (Fauconnier et al., 2009). Among 56 children with cp, higher number of participants were age range 4-10 years. The mean (SD) of the participants was 9.45 years. Rosenbaum et al. (2007) highlight that the early school years are a critical period for children with CP. The age group of 4-10 years is often the focus of studies because interventions during this time can significantly impact the child's development and participation in activities. Another study Novak et al. (2013) conducted a systematic review and found that a significant number of interventions and studies targeted children with CP in the early childhood to school-age range, typically between 4 and 12 years old. This age group is crucial for interventions as children are developing foundational skills in mobility, communication, and social interactions. Study also highlights that in the primary and higher secondary stages, mothers have higher education rates than fathers, while fathers tend to have higher rates in the secondary and graduate stages. Blackburn et al. (2010) discussed how parental education levels correlate with the outcomes of children with disabilities. Their research indicates that mothers with higher education are more likely to engage in practices that support the development and education of their children with disabilities, reflecting the importance of maternal education in managing CP. This trend reflects broader patterns observed in the literature, where maternal education significantly influences child health and development outcomes, particularly in managing chronic conditions like CP. Khandker (1996) found that while both parents' education levels affect child outcomes, the mother's education often has a more direct impact on children's health and educational attainment. However, the father's education still plays a critical role, particularly in contexts where fathers have higher educational attainment and better economic opportunities. The observed sibling distribution among children with CP in this study, where single sibling participants were more prevalent.

Studies indicate that families of children with disabilities, including CP, often have fewer children, likely due to the increased care demands and associated stress. These findings are crucial for understanding family planning and support dynamics in families with children with CP, emphasizing the need for tailored support systems that consider family size and structure. Seligman, M., & Darling, R. B. (2007) in their work on families with children who have CP, reported that parents often face high levels of stress and resource allocation challenges, leading them to opt for smaller family sizes. This is consistent with the higher proportion of single siblings in families with children with CP. Eker, L., & Tüzün, E. H. (2004) explored the perspectives of parents of children with CP regarding family size. They found that many parents opted to have fewer children to manage the care and attention required for their child with CP more effectively, which supports the higher rate of single siblings observed in this study.

The distribution of CP types in my study, with a majority of diplegic CP followed by hemiplegic, dyskinetic, and quadriplegic types, is well-supported by existing literature. This study consistently shows that spastic diplegia is the most common form of CP, with hemiplegia being the next most prevalent type. Less common types, such as dyskinetic and quadriplegic CP, are also represented but in smaller proportions. These findings highlight the importance of targeted interventions and support for the most common CP types, aligning with my study's observations. Oskoui et al. (2013) performed a meta-analysis on the prevalence and types of CP. They reported that spastic diplegia was the most frequent type, representing the majority of cases, followed by spastic hemiplegia. Dyskinetic and quadriplegic CP were less common, consistent with my findings. Novak et al. (2012) conducted a comprehensive review of the prevalence of different types of CP. They found that spastic diplegia was the most common form of CP, accounting for a significant proportion of cases. Hemiplegia was the next most common type, followed by less common forms such as dyskinetic and quadriplegic CP. The distribution of GMFCS levels in my study, with a higher proportion (26)of children had GMFCS Level 3, 21 children had GMFCS Level 1, and 9 of children had GMFCS Level 2, reflects the variability in motor function among children with CP.

This distribution is consistent with findings from other studies, which demonstrate significant variability in the functional abilities of children with CP, often with substantial representation across these GMFCS levels.

These findings highlight the importance of personalized interventions to address the diverse needs of children with CP across different levels of motor function. Himmelmann et al. (2005) reported on the distribution of GMFCS levels in a population-based study of children with CP. Their results showed that GMFCS levels 1, 2, and 3 were the most common, with substantial proportions at each level, consistent with my findings

Learning and Applying Knowledge: Most participants (71.4%) had mild or no problems in learning and applying knowledge. Only 5.4% reported moderate difficulties,. which indicates that cognitive challenges in children with CP are often manageable with proper support. Studies have shown that with tailored educational interventions, many children with CP can achieve academic success. This emphasizes the importance of individualized educational strategies and the use of assistive technologies to support cognitive and learning development in children with CP. Odding et al. (2006) reported that with appropriate cognitive and learning supports, children with CP can perform well academically. Their review emphasized the importance of individualized education plans and the role of assistive technologies in facilitating learning.

General Tasks and Demands: The majority (80.4%) had no problems with general tasks and demands. A small proportion (19.6%) experienced mild issues, indicating that children with CP can manage daily tasks when given adequate support. Rosenbaum et al. (2007) highlight that children with CP often develop strategies to compensate for their motor impairments, enabling them to perform daily activities with varying degrees of independence. With appropriate interventions and support, many can manage general tasks effectively.

Novak et al. (2013) conducted a systematic review and found that therapies such as physical therapy, occupational therapy, and the use of assistive devices significantly improve the ability of children with CP to perform daily tasks.

These interventions help enhance motor skills, making it easier for children to manage general tasks and demands.

Communication: 85.7% had no communication problems. 14.3% reported mild difficulties A high percentage of participants reported no problems, highlighting the potential effectiveness of communication aids and interventions in this area.

Community, Social, and Civic Life: All participants reported no problems, suggesting that the school environment in WMTS might be supportive of social integration for children with CP.

Mobility: 62.5% had mild mobility issues. 35.7% had no problems. Only 1.8% faced moderate mobility challenges The results showed a varied distribution, with a significant number of participants having mild mobility issues, indicating the need for targeted physical interventions.

The correlation analyses further reinforced these findings, showing significant associations between the type of CP, GMFCS level, and school activities and participation. Spearman's rank correlation showed no significant associations between sociodemographic factors with activities and participation.

From the study, several primary conclusions can be drawn:

Socio-Demographic Factors: The Spearman's rank correlation coefficients indicate that there is no significant association between the socio-demographic factors (age, gender, mother's education, father's education, mother's occupation, father's occupation) and the school activities and participation levels of children with cerebral palsy, as all p-values are greater than 0.05. These socio-demographic factors do not significantly influence how children with cerebral palsy engage in school activities and participate. The only exception is the variable 'siblings,' which has a p-value close to the threshold of significance ($p = 0.052$), suggesting a potential trend that may warrant further investigation.

This suggests that socio-demographic characteristics do not play a major role in influencing the participation levels of children with CP.

Type of Cerebral Palsy: The p-value for the association between types of cerebral palsy and school activities and participation is 0.002. This result is significant, indicating that the type of cerebral palsy a child has is associated with their level of activity and participation in school. This could mean that certain types of CP may present more challenges in the school environment, affecting participation and activity levels.Children with different types of CP experience varying levels of difficulty in school participation, indicating the need for condition-specific interventions.

GMFCS Level: The p-value for the association between GMFCS level and school activities and participation is 0.005. This significant result suggests that the GMFCS level, which measures the severity of mobility impairment, is associated with school activities and participation. Children with higher GMFCS levels, indicating more severe motor impairments and greater mobility limitations, may face more challenges in participating in school activities. Research by Furtado, et al. (2015) highlighted mobility demonstrated a strong association with school participation among children and youths with cerebral palsy (CP), accounting for more than 50% of its variability. The findings indicated that children and adolescents with GMFCS level I CP had higher school participation scores compared to those with levels II and III CP. Additionally, there were significant differences between levels II and III, with level III participants having notably lower participation scores. Another study Schenker et al. (2005) found that children with GMFCS level II CP in regular or special classes had higher school participation scores than those at level III. Furthermore, their research highlighted that performance in physical school tasks was a stronger predictor of school participation than cognitive-behavioral tasks. The literature consistently shows a positive relationship between motor skills and greater participation in leisure, community, and physical activities for children and adolescents with disabilities. Learning and Applying Knowledge: Most children with CP have mild or no problems in learning and applying knowledge when provided with appropriate support, highlighting the importance of educational aids and inclusive teaching methods.

Communication: Effective communication support can significantly enhance the participation of children with CP in school activities, as indicated by the high percentage of children reporting no communication problems.

Mobility: Mobility remains a critical area where many children with CP face challenges, underscoring the need for physical therapy and assistive devices.

community and Social Participation: The positive results in community, social, and civic life participation suggest that schools in WMTS may be providing a supportive environment for the social integration of children with CP.

The findings of this study extend global scientific understanding by highlighting the importance of context-specific interventions. While previous studies (King et al., 2003; Novak et al., 2013) have shown the benefits of various therapies for children with CP, this study highlights that these benefits can be realized in diverse cultural and educational contexts, such as Bangladesh. The use of the ICF-CY framework provides a structured approach that can be replicated in other settings to systematically evaluate and address the needs of children with CP.

This study extends collective knowledge by providing experimental evidence from a previously under-researched context. The significant associations found between types of CP, GMFCS levels, and school participation levels offer new insights into how these factors interact. The findings suggest that interventions need to be tailored not only to the specific type of CP but also to the severity of the condition, as classified by the GMFCS. These results encourage the global scientific community to consider the variability of CP and the necessity of individualized approaches. The significant associations between specific types of CP and participation levels indicate that a one-size-fits-all approach is insufficient. Instead, interventions should be personalized, taking into account the unique challenges faced by each child.

For children with CP, especially in resource-limited settings like WMTS, these findings emphasize the importance of targeted interventions.

By recognizing the specific needs related to different types of CP and mobility levels, healthcare providers and educators can develop more effective strategies that enhance participation and overall quality of life.

This approach can lead to better educational outcomes, social integration, and long-term health benefits.

This study has some limitations. First of all, The most serious limitation of this study is the relatively small sample size, with only 56 participants. This small sample may not capture the full variability of experiences among children with cerebral palsy (CP) in Bangladesh. Consequently, the findings may not be representative of the broader population of children with CP, limiting the generalizability of the results. A larger sample size would provide more robust and reliable data, increasing the confidence in the study's conclusions. With a small sample, the study might have missed some significant variations and patterns. Secondly, The study was conducted in a specific geographic and cultural context, focusing on children with CP in Bangladesh. Cultural factors, educational systems, and healthcare practices unique to this region may influence the findings, potentially limiting their applicability to other settings. While the study provides valuable insights for the Bangladeshi context, the results may not be directly transferable to other countries with different socio-cultural and healthcare environments. Future studies should consider similar research in diverse settings to validate and compare the findings. Thirdly, the study relied heavily on self-reported measures from parents and caregivers regarding the children's participation in school activities and their functional abilities. Self-reported data can be subjective and may introduce bias or inaccuracies. Impact is self-reporting can lead to over- or under-estimation of the children's actual capabilities and participation levels. The accuracy of the data might be compromised by parents' perceptions or desire to present their child in a positive light. Objective measures and assessments by healthcare professionals would provide a more accurate evaluation. Variability in Intervention Implementation: The study did not control for the inconsistency in the implementation and availability of interventions such as physical therapy, occupational therapy, and assistive technology across different participants.

Impact: Variations in access to and quality of interventions could significantly influence the study outcomes. Without controlling for these factors, it is challenging to attribute differences in school participation only to the severity of CP or other measured variables.

Standardizing the interventions across the study population would help isolate the effects of CP on school participation.

By acknowledging and discussing these limitations, the study provides a transparent view of its findings and lays the groundwork for future research to address these challenges and build upon the current knowledge. These limitations suggest carefulness in interpreting the results. The small sample size may not capture the full variability of experiences among children with CP. Cultural factors specific to WMTS may also influence the findings, meaning that similar studies in different contexts might yield different results. Despite these constraints, the study offers valuable insights that can guide future research and interventions. Given these limitations, the data should be viewed as suggestive rather than conclusive. The significant associations found between Types of cerebral palsy, GMFCS Level and participation levels highlight important areas for further investigation. Subsequent studies should strive to incorporate larger and more varied samples to enhance the validity of these findings and investigate supplementary factors that could impact participation.

CHAPTER–VI: CONCLUSION AND RECOMMENDATION

In summary, this study has provided invaluable insights into the school activities and participation levels of children with cerebral palsy (CP) in WMTS, Bangladesh. By employing the International Classification of Functioning, Disability, and Health for Children and Youth (ICF-CY) framework, the research offers a comprehensive understanding of how these children engage in educational environments and the factors that influence their participation and activity levels. This in-depth analysis highlights the challenges and opportunities present within the school setting, contributing to a broader understanding of the needs and experiences of kids with CP in this region. The results underscore considerable differences in participation across areas like mobility, communication, and learning, which are influenced by factors such as the type of cerebral palsy (CP) and the level of the Gross Motor Function Classification System (GMFCS). Notably, socio-demographic variables did not show any correlation with participation, emphasizing the necessity for personalized interventions that address the unique needs of kids with CP. The study's strengths lie in its systematic application of the ICF-CY framework, providing a comprehensive approach to assessing the multifaceted aspects of participation among children with CP. By identifying areas of strength and challenge within the school environment, this research contributes to a deeper understanding of how educational settings can better support the inclusion and development of children with CP.

However, it is important to recognize several limitations. The small sample size and dependence on parent-reported data may restrict the generalizability of the results. Future studies should aim to overcome these limitations by using larger and more diverse samples, incorporating objective measures of participation, and utilizing longitudinal designs to observe developmental changes over time.

Recommendations:

Longitudinal Studies: Future studies should implement longitudinal designs to track the educational progress and social integration of kids with CP over time. This approach will offer insights into the stability of participation levels, the impact of growth and development on functional abilities, and the effectiveness of interventions across different developmental stages.

Comparative Studies Across Regions: Extend the study to diverse geographic and cultural contexts within Bangladesh and beyond. Comparative studies can elucidate how local factors such as healthcare infrastructure, educational policies, and cultural attitudes toward disability influence school participation outcomes among children with CP.

Effectiveness of Interventions: Conduct rigorous evaluations of specific interventions aimed at improving school participation, such as physical therapy, occupational therapy, assistive technologies, and inclusive education practices. Use randomized controlled trials or quasi-experimental designs to establish causal relationships and determine best practices.

Family and Community Dynamics: Investigate the role of family dynamics, caregiver support, and community resources in facilitating or hindering school participation among children with CP. Examine how factors like parental education, socioeconomic status, and parental involvement in educational decisions impact outcomes.

Technological Innovations: Explore the utilization of cutting-edge technology, such as augmented reality, virtual reality, telemedicine, and mobile health applications, in enhancing access to educational and therapeutic resources for kids with CP. Assess the feasibility, acceptability, and usefulness of these technologies in improving participation and overall quality of life.

Well-being and Life Quality: Integrate measures of quality of life, subjective well-being, and psychosocial adjustment into future research. Understand how participation in school activities influences overall well-being and life satisfaction among children with CP and their families.

Policy and Practice Implications: Translate research findings into actionable policy recommendations aimed at fostering inclusive educational environments and improving support systems for children with CP. Advocate for policy changes that enhance accessibility, equity, and opportunities for participation in mainstream educational settings.

Collaborative Research Initiatives: Encourage interdisciplinary partnerships among researchers, healthcare professionals, educators, policymakers, and community stakeholders to tackle the multifaceted challenges experienced by kids with CP Collaborative efforts can lead to holistic approaches that integrate medical, educational, and social supports for improved outcomes.

By addressing these research priorities, future studies can build upon the current knowledge base, refine intervention strategies, and ultimately enhance the educational experiences and results for kids with cerebral palsy worldwide

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APPENDIX:

Consent Form

Assalamu Alaikum, I am Tahmina Akter, M.Sc. in Rehabilitation Science student, BHPI, CRP, Savar, Dhaka-1343. I am asking you to participate in a research study. This form is designed to give you information about this study. I want to describe this study to you and answer any of your questions. My thesis title is "School Activities and Participation of Children with Cerebral Palsy". The purpose of the study is to determine the level of the School Activities and Participation of children with cerebral palsy. This will take approximately 20 - 30 minutes. During the interview period if you fell any emotional disturbance, social and economic risk and any other discomfort physical risk please tell me, I will stop the interview immediately. I am committed that the study will not harmful or risk for you. There is no payment for taking part in the study. All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous. Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during interview. If you have any query about the study or your right as a participant, you may contact with me or my supervisor Muhammad Millat Hossain, Associate Professor, Course & Project Coordinator, Regional Inter-professional Master's program in Rehabilitation Scienc BHPI, CRP, Savar, Dhaka. Do you have any questions before I start?

So may I have your consent to proceed with the interview?

YES ☐ NO ☐

Signature of the Investigator & Date: ……...

Signature of the Participant & Date: …….

Research- Questionnair

School Activities and Participation of Children with Cerebral Palsy

(No. of theparticipants .)

Name of the participant:

Age:

Interview Date:

Phone Number:

Address:

Types of cp:

G.M.F.C.S Level:

Part 1: Sociodemographic questionnaire

In the following question tick the approprite answer of the question.

No.	Questions	Answer
1.	Gender	❑ Boy ❑ Girl
2.	Mather's education	❑ Illiterate ❑ Primary ❑ SSC ❑ HSC ❑ Graduate

		❑ Masters ❑ P.H.D
3.	Father's education	❑ Illiterate ❑ Primary ❑ SSC ❑ HSC ❑ Graduate ❑ Masters ❑ P.H.D
4.	Mother's occupation	❑ Housewife ❑ Service ❑ Business ❑ Farmer ❑ Others
5.	Father's occupation	❑ Work in abroad ❑ Service ❑ Business ❑ Unemployed ❑ Labour ❑ Others
6.	No. of siblings	…….

Part-2, Medical-related information

7.	Type of delivery	❑ Normal delivery ❑ C-section

8.	If delivery is normal then how long it takes time?	……..
9.	Gestitional period of the delivery.	❑ Pre-term ❑ Term ❑ Post-term
12.	Did your child crying immediately after birth?	❑ Yes ❑ No
	If no then after how long did your child cried?	……

Part-3, School Activities and Participation of Children with Cerebral Palsy

d1. LEARNING AND APPLYING KNOWLEDGE		
d120	Does_____have any problems mouthing, touching, or tasting things?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem

		4. Complete problem 8. Not specified 9. Not applicable
d131	Does_____have any problems playing with things?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d133	Does_____have any problems using words, phrases or sentences?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d137	Does_____have any problems with concepts such as amount, length, the same or different?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8.Not specified 9. Not applicable
d140	Does_____have any problems learning to read?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem

		8. Not specified 9. Not applicable
d145	Does_____have any problems learning to write?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d150	Does___have any problems learning to calculate?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d166	Does_____have any problems reading?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d170	Does_____have any problems writing?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified

		9. Not applicable
d172	Does_____have any problems calculating?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d175	Does_____have any problems with solving problems?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d2. GENERAL TASKS AND DEMANDS		
d210	Does_____have any problems performing a single task or responding to a single command?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d220	Does_____have any problems performing multiple tasks or responding to a command with multiple components?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem

		8. Not specified 9. Not applicable
d230	Does_____have any problems following the requirements of a daily routine?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d235	Does_____have any problems being consistent in behaviour from day to day?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d3. COMMUNICATION		
d310	Does_____have any problems understanding what others say?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d315	Does_____have any problems understanding the meaning of gestures or pictures?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem

		8. Not specified 9. Not applicable
d330	Does____have any problems speaking?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d331	Does_____have any problems making different vocal sounds?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d335	Does_____have any problems gestures, pictures or drawings to communicate?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d4. MOBILITY		
d410	Does_____have any problems sitting up or getting to stand?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem

		8. Not specified 9. Not applicable
d412	Does_____have any problems with uncontrolled movements of arms or legs?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d415	Does_____have any problems remaining seated or standing when it is required by a task?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d440	Does_____have any problems using hands, fingers and thumb?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d445	Does_____have any problems using hands and arms?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified

		9. Not applicable
d450	Does_____have any problems walking?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable
d9.COMMUNITY, SOCIAL AND CIVIC LIFE		
d9.COMMUNITY, SOCIAL AND CIVIC LIFE	Does_____have any problems have engaging in activities in school, neighborhood or community?	0. No problem 1. Mild problem 2. Moderate problem 3. Severe problem 4. Complete problem 8. Not specified 9. Not applicable

Scoring Options for Individual Skills

1st qualifier extent of problem

0-No problem	(0-4%)
1-Mild problem	(5-25%)
2-Moderate problem	(25-49%)
3-Severe problem	(50-95%)
4-Complete problem	(96-100%)
8-Not specified	
9-Not applicable	

সম্মতি পত্র

আসসালামু আলাইকুম, আমি তাহমিনা আক্তার, পার্ট ২ মাস্টার্স অফ রিহাবিলিটেশন সায়েন্স এর ছাত্রী, বিএইচপিআই, সিআরপি, সাভার, ঢাকা-১৩৪৩। আমার গবেষণের শিরোনাম হল "সেরিব্রাল পালসি সহ শিশুদের স্কুল কার্যক্রম এবং অংশগ্রহণ"। অধ্যয়নের উদ্দেশ্য হল সেরিব্রাল পলসিতে আক্রান্ত শিশুদের স্কুলের কার্যক্রম এবং অংশগ্রহণের মাত্রা নির্ধারণ করা। আমি আপনার শিশুকে এবং আপনাকে এই সম্পর্কে কিছু প্রশ্ন করতে চাই। এটি প্রায় ২০ - ৩০ মিনিট সময় নেবে। সাক্ষাৎকারের সময় আপনি যদি কোনো মানসিক অশান্তি, সামাজিক ও অর্থনৈতিক ঝুঁকি এবং অন্য কোনো অস্বস্তিকর শারীরিক ঝুঁকিতে পড়েন তাহলে অনুগ্রহ করে আমাকে বলুন, আমি অবিলম্বে সাক্ষাৎকার বন্ধ করে দেব। আমি প্রতিশ্রুতিবদ্ধ যে অধ্যয়ন আপনার জন্য ক্ষতিকর বা ঝুঁকিপূর্ণ হবে না। অধ্যয়নে অংশ নেওয়ার জন্য কোনও অর্থপ্রদান নেই। আপনার দ্বারা প্রদত্ত সমস্ত তথ্য গোপনীয় হিসাবে বিবেচিত হবে এবং কোনও প্রতিবেদন বা প্রকাশের ক্ষেত্রে এটি নিশ্চিত করা হবে যে তথ্যের উৎস প্রকাশিত হবে না। এই অধ্যয়নে আপনার অংশগ্রহণ স্বেচ্ছায় এবং আপনি এই অধ্যয়ন চলাকালীন যেকোনো সময় কোনো নেতিবাচক পরিণতি ছাড়াই নিজেকে প্রত্যাহার করতে পারেন। সাক্ষাৎকারের সময় আপনি পছন্দ করেন না বা উত্তর দিতে চান না এমন একটি নির্দিষ্ট প্রশ্নের উত্তর না দেওয়ার অধিকারও আপনার রয়েছে। অধ্যয়ন বা অংশগ্রহণকারী হিসাবে আপনার অধিকার সম্পর্কে আপনার কোন প্রশ্ন থাকলে, আপনি আমার সাথে যোগাযোগ করতে পারেন অথবা আমার সুপারভাইজার মুহাম্মদ মিল্লাত হোসেন, সহযোগী অধ্যাপক, কোর্স ও প্রকল্প সমন্বয়কারী, রিহ্যাবিলিটেশন সায়েন্স বিএইচপিআই, সিআরপি, সাভার ঢাকায়ে যোগাযোগ করতে পারেন। আমি সাক্ষাৎ শুরু করার আগে আপনার কোন প্রশ্ন আছে? আপনি সম্মতি থাকলে আমি কি সাক্ষাৎ আরম্ব করতে পারি?

হ্যাঁ ☐ না ☐

তদন্তকারীর স্বাক্ষর এবং তারিখ: .....

অংশগ্রহণকারীর স্বাক্ষর এবং তারিখ: .....

গবেষণার- প্রশ্নপত্র

সেরিব্রাল পালসি আক্রান্ত শিশুদের স্কুলের কার্যক্রম এবং অংশগ্রহণ (অংশগ্রহণকারীদের ক্রম .....)

নাম:

বয়স:

সাক্ষাৎকারের তারিখ:

ফোন নম্বর:

ঠিকানা:

সেরিব্রাল পালসি ধরনঃ

জি এম এফ সি এস লেভেলঃ

সসিওডেমগ্রাফিক প্রশ্নাবলী

নিচের প্রশ্নের উপযুক্ত উত্তরে টিক দিন।

ক্রমিক নং	প্রশ্নবলী	উত্তর
১।	শিশুর লিঙ্গ	❑ ছেলে ❑ মেয়ে
২।	মায়ের শিক্ষাগত যোগ্যতা	❑ নিরক্ষর ❑ প্রাথমিক ❑ এসএসসি ❑ এইচএসসি ❑ স্নাতক ❑ মাস্টার্স ❑ পি এইস ডি
৩।	বাবার শিক্ষাগত যোগ্যতা	❑ নিরক্ষর ❑ প্রাথমিক ❑ এসএসসি ❑ এইচএসসি ❑ স্নাতক

		❑ মাস্টার্স ❑ পি এইস ডি
.৪।	মায়ের পেশা	❑ গৃহিণী ❑ চাকরি ❑ ব্যবসা ❑ কৃষিকাজ ❑ অন্যান্য
.৫।	বাবার পেশা	❑ প্রবাসী ❑ চাকরি ❑ ব্যবসা ❑ কৃষিকাজ ❑ বেকার ❑ অন্যান্য
.৬।	ভাইবোনের সংখ্যা	.....

পার্ট-2, চিকিৎসা সংক্রান্ত তথ্য

ক্রমিক নং	প্রশ্নবলী	উত্তর
৭।	ডেলিভারি ধরন	❑ নরমাল ডেলিভারি ❑ সি-সেকশন
৮।	ডেলিভারি নরমাল ভাবে হতে কতক্ষণ সময় লেগেছে?	.....
৯।	আপনার শিশু কখন জন্ম গ্রহন করে?	❑ সময়ের পূর্বে ❑ সময় মত ❑ সময়ের পরে

১০।	আপনার শিশু কি জন্ম গ্রহন করার সাথে সাথে কি কান্না করেছিল?	❑ হ্যাঁ ❑ না
১১।	যদি হ্যাঁ হয়, তাহলে কতক্ষণ পরে কান্না করেছিল?	.....

Part-3, সেরিব্রাল পালসি আক্রান্ত শিশুদের স্কুলের কার্যক্রম এবং অংশগ্রহণ

D-1. শিক্ষা এবং জ্ঞানের প্রয়োগ

d120. উচ্চস্বরে উচ্চারণ, স্পর্শ, বা কোন কিছুর সাধ নিতে কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d131. জিনিস নিএ খেলতে কোন সমস্যা আছে কিনা ?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d133. শব্দ, শব্দাংশ বা বাক্য ব্যাবহারে কোন সমস্যা আছে কিনা ?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা,	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d137. পরিমান, দৈর্ঘ্য, একই বা ভিন্ন জিনিস সম্পর্কে কোন ধারণা আছে কিনা?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা,	2. মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d140. পড়তে শেখার ক্ষেত্রে কোন সমস্যা আছে কিনা?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা,	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d145. লিখতে শেখার ক্ষেত্রে তার কোন সমস্যা আছে কিনা ?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d150. গননা করতে শিখতে কোন সমস্যা আছে কিনা ?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d166. পড়তে কোন সমস্যা আছে কি?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা,	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d170. লিখতে কোন সমস্যা আছে কি?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা,	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d172. গননা করতে কোন সমস্যা আছে কি?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d175. সমস্যা সমাধান করতে কোন সমস্যা আছে কি?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা,	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

D-2.সাধারণ কাজ এবং চাহিদা

d210. একটিমাত্র কাজ করতে বা একটিমাত্র নির্দেশনায়ে সাড়া দিতে কোন সমস্যা আছে কি?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d220. একাধিক কাজ সমাধান করতে বা একাধিক নির্দেশ পালন করতে কোন সমস্যা আছে কি ?

0.কোন সমস্যা নাই,	1.হালকা সমস্যা,	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d230. দৈনন্দিন রুটিন এর প্রয়োজনীয়তা অনুসরণ করতে কোন সমস্যা আছে কি?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d235. নিয়মিত সামঞ্জস্যপূর্ণ আচরণের ক্ষেত্রে কোন সমস্যা আছে কি ?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

D-3. যোগাযোগ

d310. অন্যরা যা বলে তা বুজতে কোন সমস্যা আছে কি ?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d315. অঙ্গভংগি বা ছবির অর্থ বুঝতে কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d330. কথা বলতে কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d331. বিভিন্ন শব্দ করতে কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d335. অঙ্গভংগি, ছবি বা অঙ্কন এর মাধ্যমে যোগাযোগ করতে কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d4. গতিশীলতা

d410. বসা থেকে উঠতে বা দাঁড়াতে কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d412. হাত বা পায়ের অনিয়ন্ত্রিত নাড়াচাড়ার কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d415. কোন কাজ করার প্রয়োজন হলে বসে থাকা বা দাঁড়িয়ে থাকতে কোন সমস্যা আছে কি?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d440. হাত, আঙ্গুল এবং বৃদ্ধাআংগুল ব্যাবহারে কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা,	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d445. হাত এবং বাহু ব্যাবহারে কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা,	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

d450. হাঁটতে কোন সমস্যা আছে?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

D-9. সাম্প্রদায়, সামাজিক এবং নাগরিক জীবন

স্কুল, পাড়া বা সম্প্রদায় এর কার্যকলাপে জড়িত থাকার কোন সমস্যা আছে কি?

0.কোন সমস্যা নাই,	1. সামান্য সমস্যা	2.মাঝারি সমস্যা	3.তীব্র সমস্যা
4.সম্পূর্ণ সমস্যা	8.নির্দিষ্ট না,	9.প্রযোজ্য নয়।	

ব্যক্তিগত দক্ষতার জন্য স্করিং অপশন

১ম কোয়ালিফায়ার -সমস্যার পরিমাণ	
০: কোন সমস্যা নেই	(০-৪%)
১: সামান্য সমস্যা	(৫-২৫%)
২: মাঝারি সমস্যা	(২৫-৪৯%)
৩: তীব্র সমস্যা	(৫০-৯৫%)

৪: সম্পূর্ণ সমস্যা	(৯৬-১০০%)
৮: নির্দিষ্ট করা নেই	
৯: প্রযোজ্য নয়	

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref: CRP-BHPI IRB.10.2023.740 Date: 15/10/2023

To

Tahmina Akter

M.Sc in Rehabilitation Science

Session: 2021-2022

Student ID: 181210141

BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal "School Activities and Participation of Children with Cerebral Palsy" by ethics committee.

Dear Tahmina Akter,

Congratulations.

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned thesis, with yourself, as the principal investigator.

The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Research Proposal
2	Questionnaire (English & / Bengali version)
3	Information sheet & consent form.

The purpose of the study is to determine the level of the School Activities and Participation of children with cerebral palsy. The study involves use of a Semi structured questionnaire and a measurement tool to identify the level of the School Activities and Participation of children with cerebral palsy. That may take approximately 20 to 30 minutes for participants to complete / to answer in the questionnaire and there is no physical or psychological harm to the participants.

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ। ফোন: +৮৮ ০২ ২২৪৪৪৫৪৬৪-৫, +৮৮ ০২ ২২৪৪৪১৪০৪, মোবাইল: +৮৮ ০১৭৩০ ০৫৯৬৪৭
CRP-Chapain, Savar, Dhaka-1343, Bangladesh. Tel: +88 02 224445464-5, +88 02 224441404, Mobile: +88 01730059647
E-mail : principal.bhpi@crp-bangladesh.org, Web: bhpi.edu.bd

BANGLADESH HEALTH PROFESSIONS INSTITUTE

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref: CRP-BHPI/IRB/10/2023/740

Date: 13/10/2023

The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 8.30 AM on 8th April, 2023 at BHPI (35th IRB Meeting).

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Muhammad Millat Hossain
Associate Professor, Course & Project Coordinator
Member Secretary
Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ। ফোন: +৮৮ ০২ ২২৪৪৪৫৪৬৪-৫, +৮৮ ০২ ২২৪৪৪১৪০৪, মোবাইল: +৮৮ ০১৭৩০ ০৫৯৬৪৭
CRP-Chapain, Savar, Dhaka-1343, Bangladesh. Tel: +88 02 224445464-5, +88 02 224441404, Mobile: +88 01730059647
E-mail : principal-bhpi@crp-bangladesh.org. Web: bhpi.edu.bd

Permission Letter

4th November, 2023
To,
The principle
William & Marie Taylor School
Centre for the Rehabilitation of the Paralyzed,
Chapain, Savar, Dhaka-1343
Subject: Seeking permission for data collection to conduct research Project.

Sir,

With due respect and humble submission to state that I am Tahmina Akter, Student of Part II M.Sc. in Rehabilitation Science (MRS) Program at Bangladesh Health Professions Institute (BHPI). As per course curriculum I shall have to complete a thesis. In this respect, my thesis title is "School Activities and Participation of children with Cerebral Palsy". In this thesis, my participants will be those who are diagnosed as cerebral palsy. I believe William & Marie Taylor School in CRP Savar is the best place to collect data from participants. I want to collect data for my research project from your school. So, I need permission for data collection. I would like to assure that anything of the study will not be harmful for the participants.

I, therefore, pray and hope that you would be kind enough to grant my application and give the permission for data collection and oblige thereby.

Yours faithfully

Tahmina

Tahmina Akter
MRS, Part II
DU Registration No: 843
Bangladesh Health Professions Institute (BHPI)

Recommended & Forwarded
11/11/2023

Permitted for Data Collection from WMTS.
21-1-24