

Level of Participation and Its Associated Factors among Children & Adolescent with Spinal Cord Injury: An Analytical Cross-Sectional Study



By

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Statement of Authorship

Except where it is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis presented by me for any other degree or seminar. No other person's work has been used without due acknowledgement in the main text of the thesis. This thesis has not been submitted for the award of any other degree in any other tertiary institution. The ethical issue of the study has been strictly considered and protected. In case of dissemination of the findings of this project for future publication, the research supervisor will be highly concerned, and it will be duly acknowledged as an undergraduate thesis.

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Dedication

This dissertation is dedicated to my mother. She set aside her own career and ambitions to nurture my growth, guide my development, and secure a brighter future for me. Her countless sacrifices became the foundation upon which my education and personal growth were built.

This work is not only an academic achievement but also a reflection of her courage, love, and devotion. I offer this dissertation as a tribute to her enduring strength and the sacrifices she made so that I could stand where I am today.

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List of Abbreviations

BDT	Bangladeshi Taka
BHPI	Bangladesh Health Professions Institute
CASE	Child and Adolescent Scale of Environment
CASP	Child and Adolescent Scale of Participation
CBR	Community-Based Rehabilitation
CI	Confidence Interval
CRP	Centre for the Rehabilitation of the Paralysed
ICF	International Classification of Functioning, Disability and Health
IRB	Institutional Review Board
NTSCI	Non-Traumatic Spinal Cord Injury
QoL	Quality of Life
SCI	Spinal Cord Injury
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
TSCI	Traumatic Spinal Cord Injury
WHO	World Health Organization

Abstract

Background:

Spinal cord injury (SCI) is a life-altering condition that significantly affects physical functioning, psychosocial well-being, and participation in everyday life. Children and adolescents with SCI often experience substantial challenges in engaging in home, school, and community activities due to injury-related impairments, environmental barriers, and social factors such as bullying and limited accessibility. Understanding participation levels and the factors influencing participation among this population is essential for guiding effective rehabilitation and community reintegration strategies, particularly in low- and middle-income countries like Bangladesh, where evidence remains limited.

Aim:

To assess the level of participation and its associated factors among children and adolescents with spinal cord injury living in the community.

Methods:

An analytical cross-sectional quantitative study was conducted among 53 children and adolescents with spinal cord injury whose age was 5-17 years and completed inpatient rehabilitation from CRP, and were living in the community. Standardised questionnaires (CASP & CASE) were used to collect data on the level of participation across home, school, neighborhood & community, & its associated factors. The data were analyzed using the SPSS 20 version for descriptive and inferential analysis, including Mann–Whitney U tests and linear regression. Participants were selected using convenience sampling.

Results:

The mean age of participants was 13.68 ± 3.49 years, with the majority being male (60.4%) and residing in rural areas (60.4%). Participation was most limited in school, community, and home & community living activities, while home participation showed relatively better outcomes. A high proportion of participants reported significant environmental problems (60.4%) and experiences of bullying (58.5%). Children with paraplegia demonstrated significantly higher overall participation compared to those with tetraplegia ($P < 0.05$). Involvement in institution-based programs and absence of school dropout were significantly associated with higher participation across multiple domains ($P < 0.05$). Linear regression analysis revealed that paraplegia, participation in institutional programs, and continued school engagement were significant predictors of higher participation, whereas lack of institutional involvement was associated with greater environmental barriers.

Conclusion:

The findings indicate that children and adolescents with SCI in Bangladesh experience considerable participation restrictions, particularly in school and community settings, largely influenced by injury severity, school dropout, institutional involvement, and environmental barriers. Comprehensive, participation-focused rehabilitation approaches that integrate physical, educational, psychosocial, and environmental interventions are essential to enhance community inclusion and quality of life for this population.

Keywords:

Participation, Children and Adolescents, Spinal Cord Injury, Environmental Barriers,

CHAPTER I: INTRODUCTION

1.1 Background

Spinal cord injury (SCI) is a life-altering condition that results from damage to the spinal cord, leading to partial or complete loss of sensory and motor functions below the level of injury (World Health Organization, 2013). This condition results in lasting alterations to motor and sensory functions, impacting multiple areas of life, including physical health and psychosocial well-being (Boraiah & As, 2022). Typical complications associated with SCI include chronic pain, pressure sores, and bladder issues, all of which are linked to decreased levels of participation and social engagement in affected individuals (Dada & Ogunleye, 2022). The extent of injury can vary widely, with many patients facing high rates of mortality and morbidity; for instance, a study reported a mortality rate of 39.8% among SCI patients (Velho & Kharosekar, 2023).

Over the past few decades, the global prevalence of spinal cord injury (SCI) has risen significantly. In 2019, it was estimated that around 20.6 million people were living with SCI, with approximately 0.9 million new cases reported that same year. From 1990 to 2019, the prevalence of SCI surged by 81.5%, highlighting a growing concern (Trinka et al., 2023). Traumatic spinal cord injuries (TSCI) occur more frequently than non-traumatic cases (NTSCI), with TSCI rates ranging from 20 to 45 cases per million people. In contrast, NTSCI rates have remained steady at 25–35 cases per million since 2007 (Wang et al., 2024). Men are significantly more likely to experience SCI than women, and the risk increases with age, peaking between 15 and 19 years and remaining consistent until 85 years and older (Wang et al., 2024; Trinka et al., 2023). Additionally, there are notable geographical differences, as developing countries report higher TSCI rates compared to developed nations (Wang et al., 2024).

These trends emphasize the escalating healthcare challenges associated with SCI and highlight the urgent need for improved treatment and rehabilitation approaches to enhance outcomes for affected individuals (Wang et al., 2024).

The prevalence of spinal cord injury (SCI) in Bangladesh is a growing concern, with multiple studies highlighting an increasing trend. A recent cross-sectional study documented 3,035 individuals living with SCI, finding that nearly 59.6% of cases were traumatic, largely caused by falls (42.1%) and road traffic accidents (27%) (Uddin et al., 2023). Another study conducted at a rehabilitation center identified 2,184 cases, showing a strong male predominance (86.8%) and an average age of injury of 34.5 years (Rahman et al., 2017). The study also noted that paraplegia accounted for 52% of cases, while tetraplegia made up 42.6% (Rahman et al., 2017). Additionally, a systematic review revealed that the incidence of traumatic spinal cord injury in developing countries, including Bangladesh, averages around 22.55 cases per million people annually, with men under 30 years old being the most frequently affected group (Golestani et al., 2022). These findings underscore the urgent need for targeted interventions and improved healthcare strategies to address the rising burden of SCI in Bangladesh.

Person with spinal cord injury (SCI) encounter multifaceted challenges across various life domains, significantly impacting their quality of life. Emotional challenges, including persistent depressive disorders and fear of the future, are prevalent, often exacerbated by feelings of loss of dignity due to diminished self-care capabilities and social stigma (Mohammadi et al., 2022; Razak & Drani, 2022). Physical difficulties, such as mobility limitations and the need for assistance in daily activities, further hinder participation in social and community life (Khanzada et al., 2023). Environmental and financial barriers also play critical roles, as inadequate

facilities for disabled individuals and lack of financial support restrict access to necessary resources. Moreover, the absence of effective social support networks and comprehensive healthcare services complicates their reintegration into society (Hall et al., 2021) .

Children and adolescents with spinal cord injury (SCI) in Bangladesh face significant challenges in participating in home, school, and community activities due to various environmental, cultural, and psychological barriers. Environmental factors, such as inadequate accessibility and societal attitudes, severely limit their engagement in daily activities and social interactions (Mohan & Deb, 2023; Howlader et al., 2022). At home, these individuals often struggle with self-care tasks, which can lead to feelings of exclusion and decreased self-esteem (Alve et al., 2023). In educational settings, they encounter difficulties in completing tasks and lack adequate support, resulting in social isolation and bullying. Community reintegration is further hindered by a lack of awareness and understanding of their needs, emphasizing the necessity for inclusive policies and practices that promote accessibility and support for SCI individuals (Mohan & Deb, 2023; Alve et al., 2023; Howlader et al., 2022).

Occupational therapy services significantly enhance the participation of patients with spinal cord injury (SCI) by addressing various aspects of their rehabilitation and daily life integration. Tailored occupational therapy, which includes strategies for social reintegration and the use of assistive technology, has been shown to improve participation levels, as evidenced by significant gains in the Reintegration to Normal Living Index among patients receiving comprehensive therapy(Costi et al., 2023). Furthermore, promoting outdoor recreation and addressing environmental barriers can enhance well-being and social connections, thereby fostering a sense of

inclusion and identity among individuals with SCI (Ryan et al., 2023; Alve et al., 2023).

In terms of Bangladesh, studies indicate that individuals with SCI experience varied trajectories of occupational participation, often facing discouraging conditions that limit their daily performance and social inclusion. By focusing on daily life participation, occupational therapists can facilitate better community reintegration and overall well-being for individuals with SCI (Alve et al., 2023).

Therefore, this study will provide valuable insights into the participation patterns of children and adolescents with SCI, allowing therapists to design interventions that are better suited to enhancing engagement in everyday activities.

1.2 Justification of the study

Despite the growing body of literature on spinal cord injury (SCI) rehabilitation outcomes in Bangladesh, most existing research has been concentrated on adult populations, and there is no published research in Bangladesh evaluating the level of participation & its associated factors specifically among children and adolescents with SCI.

For children and adolescents with spinal cord injury (SCI), participation is not merely a reflection of physical functioning but also an indicator of psychosocial well-being, autonomy, and quality of life (Imms et al., 2017). Therefore, understanding the factors that influence participation levels among this population has immense scientific, clinical, and social importance, particularly within the occupational therapy domain.

However, in Bangladesh, occupational therapy practice is still emerging, and there is a lack of empirical data guiding intervention priorities for children with

neurological and musculoskeletal disabilities (Sayeed et al., 2023). This study will provide evidence-based insight into the participation profiles of children and adolescents with SCI, helping occupational therapists design interventions that go beyond physical rehabilitation to target social and environmental inclusion.

From a scientific perspective, this study will contribute valuable quantitative data to the limited body of research on pediatric SCI in Bangladesh.

From a policymaking standpoint, the research will offer evidence-based recommendations to improve accessibility, educational support, and community inclusion for children and adolescents with SCI.

1.3 Operational Definition

1.3.1 Spinal Cord Injury

The term spinal cord injury (SCI) refers to damage to the spinal cord resulting from trauma (e.g. from falls and road traffic injuries) or non-traumatic causes like tumors, degenerative and vascular conditions, infections, toxins or birth defects. (WHO,2024)

1.3.2 Participation

Participation is defined as “involvement in a life situation of people in the actual context in which they live.” (WHO,2022)

1.4 Aim

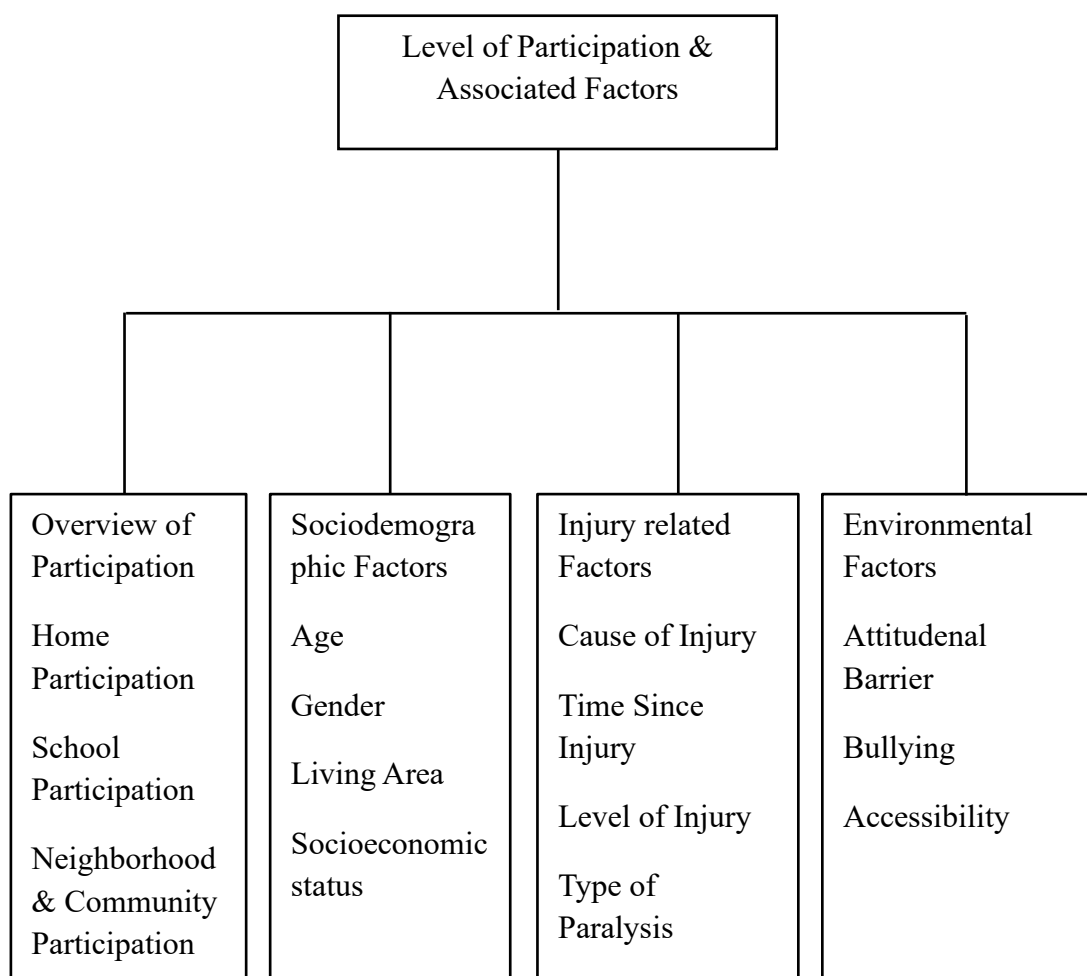
This study aims to assess the level of participation & it's associated factors among children and adolescents with spinal cord injury (SCI) across different life domains (home, school, and community) after completion of rehabilitation service from CRP.

CHAPTER II: LITERATURE REVIEW

This chapter covers information regarding the level of participation and its associated factors among children and adolescents with Spinal Cord Injury (SCI). In terms of participation, this chapter has information from the existing literature about overall participation status across different life domains(home, school & community). It also includes information about participation factors such as socio-demographic, injury related, environmental

Figure 2.1

Overview of the literature findings



2.1 Overview of Participation

Participation refers to an individual's involvement in life situations and is recognized as a key determinant of quality of life for children and adolescents with disabilities. Within the International Classification of Functioning, Disability and Health (ICF) framework, the World Health Organization defines participation as engagement in meaningful daily activities that contribute to personal development and social inclusion (WHO,2001). Several studies have explored participation outcomes in pediatric spinal cord injury (SCI), emphasizing both environmental and personal factors influencing engagement across home, school, and community settings.

For individuals living with disabilities, such as Spinal Cord Injury (SCI), participation is crucial as it offers opportunities for the fulfillment of basic human needs and acts as an important determinant of Quality of Life (QoL). (Halvorsen et al., 2021)

However, the presence of disability often leads to participation patterns that are less diverse, focused more within the home, and characterized by fewer social relationships and less active recreation. (Kelly et al., 2012)

Taking part in everyday occupations for children or youth with disabilities, as with typically developing children, is vital for a sense of belonging within their environment (McManus, Corcoran, & Perry, 2008). In addition, meaningful participation for children or youth with disabilities is particularly important for their learning, development, and motivation to achieve social inclusion, all of which can have a significant impact on a child's present and future quality of life (Bedell et al., 2009).

An observational study was conducted in Canada among 97 children and adolescents with SCI. Using the CASE and CASP scales, the study examined participation restrictions in relation to environmental accessibility and social support. The results highlighted that social support from peers and family members was the strongest predictor of higher participation levels. (Anderson et al., 2021)

For instance, a cross-sectional study was conducted in Italy involving 62 adolescents with SCI aged 10–18 years, using the Child and Adolescent Scale of Participation (CASP) to assess everyday participation. The study aimed to examine the association between injury severity and participation restrictions. Findings revealed that adolescents with higher-level injuries demonstrated significantly lower participation in community and recreational activities compared to peers with lower-level injuries. The authors identified a major gap in the availability of community-based inclusion programs tailored for pediatric SCI populations (D’Andrea et al., 2020)

Similarly, a mixed-methods longitudinal study was implemented across three pediatric rehabilitation centers in the United States with 85 participants aged 8–19 years with traumatic SCI. Using both the Child & Adolescent Scale of Participation (CASP) and Pediatric Quality of Life Inventory (PedsQL) measures, the study aimed to investigate participation trends over one year post-rehabilitation. Results indicated that while home participation improved within six months post-discharge, school and community participation remained substantially limited due to accessibility barriers. The study emphasized the need for ongoing community reintegration services and follow-up after inpatient rehabilitation. (Lohse et al. 2018)

2.2 Sociodemographic Factors

Sociodemographic variables such as age, gender, and living area significantly influence participation levels among children and adolescents with SCI. A cross-sectional analysis was carried out of 120 youths with mobility impairments, including 32 with SCI, in Norway using CASP to measure participation outcomes. The study reported that older adolescents (aged 15–18 years) had lower school and leisure participation compared to younger children, primarily due to academic demands and limited accessibility. Gender differences were also evident, with boys showing greater participation in outdoor physical activities and girls more involved in home-based social interactions (Halvorsen et al., 2021)

A comparative cross-sectional study in China involving 88 children with SCI aged 7–17 years explored the relationship between urban and rural residence and participation. The authors found that urban participants had higher participation scores in the school and community domains, attributed to better access to rehabilitation centers and assistive devices. However, they also reported that urban participants experienced higher rates of bullying and attitudinal stigma at school, which negatively influenced participation quality (Liang et al., 2019).

In a quantitative descriptive study from Australia, the participation was assessed using the CASP among 74 adolescents with physical disabilities, including 20 with SCI. The study identified socioeconomic status and parental education as significant predictors of participation. Children from higher-income families had greater access to adaptive sports and inclusive schooling, facilitating social participation. (Shields et al., 2017).

Overall, sociodemographic factors exert both direct and indirect effects on participation outcomes. Children from lower socioeconomic backgrounds and rural regions are disproportionately affected by environmental and systemic barriers, underscoring the need for targeted community-based interventions and inclusive policy reforms.

2.3 Injury-Related Factors

The severity, level, and duration of injury substantially determine functional ability and participation outcomes among children and adolescents with SCI. A systematic review consisting of 14 quantitative studies assessing participation outcomes in pediatric SCI populations revealed that higher-level injuries (particularly cervical lesions) were associated with significantly reduced mobility and self-care participation scores. Time since injury also correlated positively with participation, as individuals who were more than two years post-injury exhibited greater engagement in school and community life (Craig et al., 2015).

A cross-sectional study in the Netherlands examined 63 adolescents with SCI aged 12–18 years to explore the effects of injury completeness on participation outcomes using the CASP. Results demonstrated that adolescents with incomplete injuries reported significantly higher participation in leisure and peer interactions than those with complete injuries. The authors highlighted the need for individualized rehabilitation strategies to maximize participation based on injury type (Van Leeuwen et al., 2016).

In a more recent study, a retrospective cohort study involving 102 children with traumatic SCI in the United States. Using data extracted from pediatric rehabilitation databases, the researchers found that earlier rehabilitation onset and

longer rehabilitation duration were associated with improved participation outcomes, independent of injury level. Despite this, they noted a lack of standardization in measuring participation across different rehabilitation settings (McPherson et al., 2020).

Taken together, these findings indicate that both biological and rehabilitation-related factors influence participation. However, discrepancies in participation measurement tools and limited long-term follow-up data represent key gaps in existing literature.

2.4 Environmental Factors

A multinational cross-sectional study was conducted across Canada, Australia, and the United Kingdom with 150 children and adolescents with physical disabilities (42 with SCI) using the CASE scale. Results showed that accessible infrastructure and supportive school environments were significantly correlated with higher participation scores. The study underscored that transportation barriers and lack of assistive technology in schools were major barriers to full participation (Anaby et al., 2019).

In the United States, a mixed-methods study was conducted combining CASP assessments with focus group interviews among 76 adolescents with SCI. The authors aimed to identify the environmental facilitators of successful community reintegration. Key findings revealed that strong peer relationships and inclusive recreational programs were critical facilitators of participation, while social stigma and bullying were common barriers. The authors recommended school-based peer mentorship initiatives to enhance social inclusion (King et al., 2020)

A longitudinal cohort study was carried out following 54 adolescents with SCI over 18 months post-discharge from rehabilitation centers in Canada. Using repeated

CASE and CASP measures, the study demonstrated that participants with stable family support and inclusive school practices maintained higher participation levels over time. The researchers identified gaps in policy-driven accessibility improvements, particularly in rural regions where school infrastructure remains inaccessible (McDougall et al., 2022)

Collectively, these studies reaffirm that the environment plays an integral role in participation outcomes. Inadequate accessibility, negative attitudes, and lack of supportive networks remain the most persistent barriers to full inclusion of children and adolescents with SCI.

2.5 Key gaps in studies

- Most studies are conducted in high-income countries, with a lack of evidence from low- and middle-income settings.
- Community-based research remains underexplored, as existing researches are largely hospital and rehabilitation care-centered.
- Long-term, longitudinal evidence based researches are limited on how sociodemographic, injury-related, and environmental factors interact to influence participation over time.

CHAPTER III: METHODS

3.1 Study Question, Aim, Objectives

3.1.1 Study Question

What is the level of participation & it's associated factors among children and adolescents with Spinal Cord Injury?

3.1.2 Aim

To assess the level of participation and it's associated factors among children and adolescents with spinal cord injury living in the community.

3.1.3 Objectives

- To assess the level of activity participation (home, school, and community) among children and adolescents with Spinal Cord Injury.
- To find out the association between activity participation and sociodemographic information.
- To find out the sociodemographic information.

3.2 Study Design

3.2.1 Method

The researcher followed a quantitative method for this study. Quantitative research is defined as a systematic process of collecting and analyzing numerical data to identify patterns, test relationships among variables, and generalize findings to larger populations (Creswell & Creswell, 2018). In this study, the researcher collected data in numerical form, which were then analyzed using statistical tests to measure

participation levels and identify environmental problems. Therefore, a quantitative research method was the most appropriate approach for this study.

3.2.2 Approach

In this study, the researcher used an analytical cross-sectional design. The study included children and adolescents with spinal cord injury who had finished their rehabilitation at Centre for the Rehabilitation of the Paralysed (CRP) and were living in the community. An analytical cross-sectional study was chosen because the research focused on a specific group within the population, & data were collected from the participants at a single point in time. (Wang & Cheng,2020)

3.3 Study Setting & Period

3.3.1 Study Setting

The participants' data were collected from the community.

3.3.2 Study Period

The study was conducted between June 2025 to December 2025 & the data collection period was from August 2025 to September 2025.

3.4 Study Participants

3.4.1 Study Population

Children and Adolescents with Spinal Cord Injury who completed their inpatient service from CRP & live in the community.

3.4.2 Sampling Techniques

Convenience sampling was used to conduct this study. In convenience sampling, participants are selected based on their availability and willingness to take part (Wang

& Cheng, 2020). The student researcher selected convenience sampling because the study had some inclusion and exclusion criteria, and data were collected based on participants' availability and their willingness. Therefore, convenience sampling was the most suitable sampling technique to select the participants for this study.

3.4.3 Inclusion Criteria

- Children and adolescents aged (5–17)
- Diagnosed with SCI (both traumatic & non-traumatic)
- Must have completed an inpatient rehabilitation service at CRP
- Minimum of 3 months post-discharge from CRP

3.4.4 Exclusion Criteria

- Individuals with severe cognitive & perceptual impairments
- Individuals who are not able to communicate

3.4.5 Sample Size

The sample size was calculated by using the formula,

$$n = \frac{z^2 pq}{d^2}$$

Here, n = Sample size

z = the standard normal deviation, usually set at 1.96, which corresponds 95% Confidence Interval (CI)

p = 0.50, due to the prevalence of person with Spinal Cord Injury (SCI) has not been studied in Bangladesh

$$q = 1 - p = (1 - 0.50) = 0.50$$

d = 0.05; degree of accuracy, usually set at 0.05

Then, z = 1.96, p = 0.50, q = 0.50 and d = 0.05

So according to the equation,

$$\begin{aligned} n &= \frac{z^2 \times pq}{d^2} \\ &= \frac{(1.96)^2 \times 0.50 \times 0.50}{(0.05)^2} \\ &= \frac{3.8416 \times 0.50 \times 0.50}{0.0025} \\ &= \frac{0.9604}{0.0025} \\ &= 384 \end{aligned}$$

Therefore, the total sample size is 384.

Although the calculated sample size was 384, it was not achievable due to limitations in the available population. From 2015 to 2024, only 162 children and adolescents completed SCI rehabilitation at CRP, which defined the maximum sampling frame.

Among them, 84 met the inclusion criteria. The number was further reduced due to non-response factors, including death (2), refusal (4), no response (6), and unreachable contacts (19). Therefore, the final sample size of 53 was determined by the limited eligible population and loss to follow-up, rather than the researcher's choice.

3.5 Ethical Consideration

Ethics was maintained by following the guidelines of the Declaration of Helsinki, stated by the World Medical Association (WMA) for medical research involving human subjects (World Medical Association, 2022).

3.5.1 Ethical Clearance

The Institutional Review Board (IRB) approved ethical clearance through the Department of Occupational Therapy, Bangladesh Health Professions Institute, under the reference number CRP-BHPI/IRB/07/2025/1094

3.5.2 Informed Consent

The researcher explained the study's purpose, aims, and objectives to the participants over the phone using an information sheet. Additionally explaining participation, declining, and withdrawal options, the researcher gave participants time to ask any questions regarding the research and their participation in the research. After that those who agreed to take part gave their verbal consent for the data to be collected.

3.5.3 Unequal Relationship

The student researcher did not have any unequal or powerful relationship with the participants.

3.5.4 Risk and beneficence

The participants did not have any risk and did not get any benefit from this research.

3.5.5 Confidentiality

The information provided by the participants will remain confidential. Their name and identity were not disclosed to anyone except for the supervisor and it was stated on the information sheet.

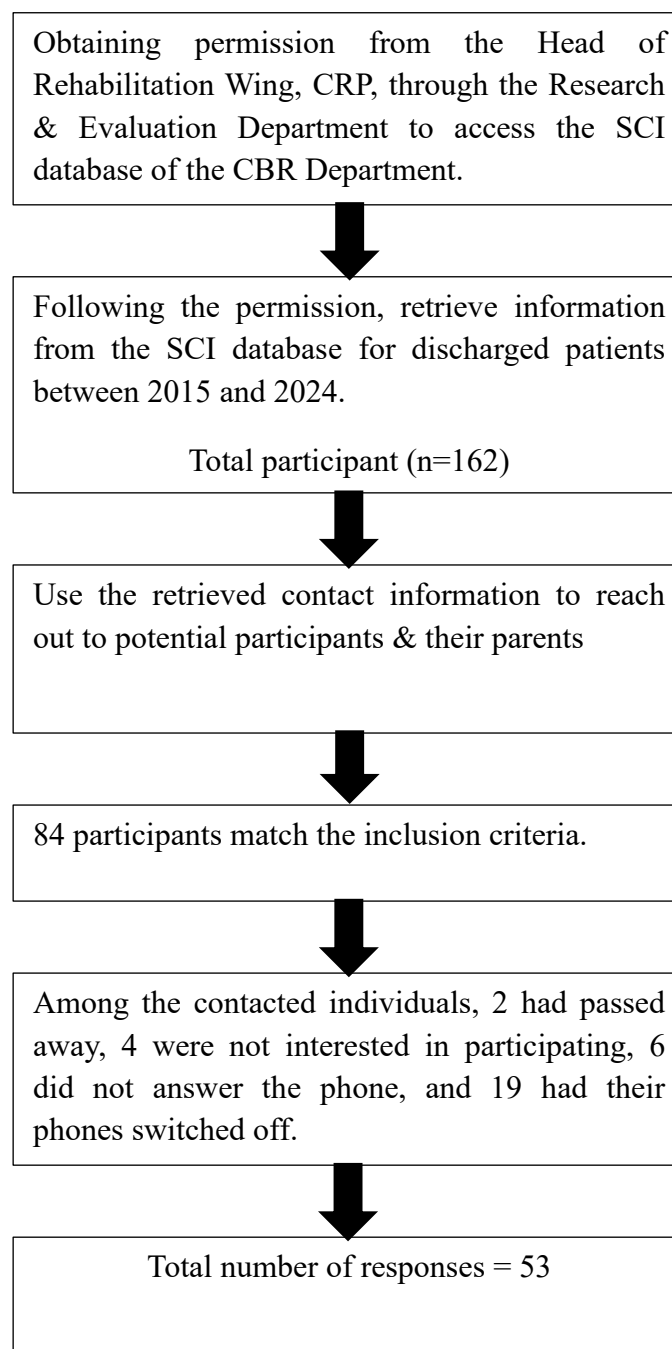
3.6 Data Collection Process

3.6.1 Participant Recruitment Process

An overview of the participant recruitment process is shown in Figure 3.1.

Figure 3.1

Overview of the participant's recruitment process



3.6.2 Data Collection Method

The researcher used a telephone survey to collect data because all the participants lived in communities in different regions, making face-to-face interviews difficult. Telephone surveys also offer wide geographical coverage, allow direct communication, and are more cost-effective than face-to-face interviews (Szolnoki & Hoffmann, 2013).

3.6.3 Data collection instruments

1. A self-administered semi-structured questionnaire was developed based on collecting socio-demographic information from the respondents (see details in Appendix F).

2. Child & Adolescent Scale of Participation (CASP):

The Child and Adolescent Scale of Participation (CASP) developed by Bedell (2009) was used in this study to measure the level of participation among children and adolescents with spinal cord injury (SCI). The CASP is a parent- or self-report questionnaire designed to assess a child's involvement in daily life activities across home, school, and community settings. It evaluates how much the child participates in age-expected activities compared to peers without disabilities.

The CASP consists of 20 items, grouped into four main domains: (1) Home Participation, (2) School Participation, (3) Community Participation, and (4) Home and Community Living Activities. Each item is rated on a 4-point scale: (1) Age expected, (2) Somewhat limited, (3) Very limited, and (4) Unable to participate. There is also an option "Not applicable" when an item does not apply to the child's situation. Higher scores represent better levels of participation.

For this study, the CASP questionnaire underwent forward and backward translation to ensure cultural and linguistic accuracy, maintaining recommended translation standards (Gudmundsson, 2009). After backward translation, most items across the four domains remained conceptually consistent with the original scale. A few items required minor adjustments due to differences in wording, synonyms, and contextual interpretation, especially in school and community participation items. However, no major changes in meaning were identified, and the overall structure of the CASP remained aligned with the original version. (See details in Appendix – F).

3. The Child and Adolescent Scale of Environment (CASE) :

The Child and Adolescent Scale of Environment (CASE) developed by Bedell (2004) was used in this study to assess environmental barriers and supports that influence the participation of children and adolescents with spinal cord injury (SCI). The CASE is a parent- or self-report questionnaire that evaluates how features of the physical, social, and attitudinal environment affect the child's ability to participate in everyday life at home, school, and in the community.

The CASE consists of 18 items grouped into four key domains: (1) Physical and Structural Environment, (2) Attitudes and Support of Family and Friends, (3) Attitudes and Support of Teachers and Community Members, and (4) Assistive Devices, Services, and Supplies. Each item is rated on a 3-point scale: (1) No problem, (2) Little problem, (3) Big problem, with an additional "Not applicable" option when an item does not apply to the child. Higher scores indicate greater environmental problems or barriers that may limit participation.

To ensure cultural and linguistic appropriateness for the Bangladeshi context, the CASE questionnaire underwent a forward and backward translation process following

established translation guidelines (Gudmundsson, 2009). After backward translation, most items across all four domains remained consistent with the original instrument. A few items required minor grammatical adjustments and refinement of synonyms to better reflect local environmental conditions and social interactions. However, none of the items showed major changes in meaning, and the integrity of the original scale was preserved.

3.6.4 Field Test

The student researcher, with the help of the supervisor and an expert in formal Bengali writing, translated the questionnaire into Bengali, which is the native language of Bangladesh. To identify potential problems with the questionnaire, it was pretested among five respondents who were similar to the study population but outside the study area. After pretesting, the questionnaire was finalized with the necessary corrections for the study.

3.7 Data Management and Analysis

- The data were analysed using the Statistical Package for Social Science (SPSS) version 20.
- Descriptive statistics were presented using simple frequency distribution, including mean, standard deviation, and percentage.
- Inferential statistical tests such as Mann–Whitney U Test, Spearman’s rank correlation, and Linear Regression were used to identify associations between variables.
- The statistically significant difference was set at a 95 % confidence interval (CI).

3.8 Quality Control and Quality Assurance

Quality control was maintained through field testing questionnaires and regular checking of collected data. Quality assurance was ensured by following standardized protocols, ethical guidelines, and established procedures for translation and administration of questionnaires.

CHAPTER IV: RESULTS

A cross-sectional study was conducted to assess the level of participation and the factors associated with participation among children and adolescents living with spinal cord injury (SCI) in the community. This chapter presents the findings of the study using tables and figures, providing a clear overview of the respondents' socio-demographic characteristics, the current participation levels of children and adolescents with SCI across home, school, and community settings, and the factors associated with participation level.

4.1 Sociodemographic Characteristics

Table 4.1

Distribution of sociodemographic characteristics of the respondents

Variable	Category	n=53	Percentage (%)
Gender	Male	32	60.4
	Female	21	39.6
Age	5-9	8	15.2
	10-13	11	20.8
	14-17	34	64.2
	Mean age = 13.68 years, SD= (± 3.485), Minimum=5 years, Maximum=17 years		
Number of family members	1-4 Persons	19	35.9
	5-10 Persons	34	64.1
Living area	Rural	32	60.4
	Urban	07	13.2
	Semi Urban	14	26.4

Family Monthly Income	1-20000	36	67.9
	>20000	17	32.1
	Mean = 19198.11BDT. SD= (± 11113.202), Minimum=1500BDT, Maximum=50000 BDT		
Involved in any institution based program	Yes	25	47.2
	No	28	52.8
History of School dropout	Yes	27	50.9
	No	26	49.1
Current Level of Education	Primary	10	40
	Secondary	15	60
Primary Caregiver	Mother	40	75.5
	Father	13	24.5

Table 4.1 presents an overview of the sociodemographic characteristics of the 53 respondents included in the study. Of the total participants, 60.4% (n=32) were male, while 39.6% (n=21) were female. The age of the respondents ranged from 5 to 17 years, with a mean age of 13.68 years (SD ± 3.485) and a median age of 15 years. Most participants (64.2%, n=34) were between 14 and 17 years of age. Regarding family structure, 64.1% (n=34) of the respondents reported having 5–10 family members, whereas 35.9% (n=19) lived in smaller families of 1–4 members. Concerning residential location, the majority of the participants resided in rural areas (60.4%, n=32), while 26.4% (n=14) lived in semi-urban areas, and 13.2% (n=7) were from urban settings. With respect to family income, 67.9% (n=36) reported a monthly family income between 1–20,000 BDT, while 32.1% (n=17) had an income of more than 20,000 BDT. Participation in institutional programs was nearly evenly

distributed, with 47.2% (n=25) involved in such programs and 52.8% (n=28) not participating. A similar pattern was observed for school dropout history, where 50.9% (n=27) had experienced school dropout, compared to 49.1% (n=26) who had not. Among respondents currently enrolled in education, 60% (n=15) were at the secondary level, while 40% (n=10) were pursuing primary education.

4.2 Injury-Related Characteristics

Table 4.2

Distribution of respondents' responses regarding their injury

Variable	Category	n=53	Percentage (%)
Time Since Injury	1-2 years	21	39.6
	3-5 years	23	43.4
	6-9 years	7	13.2
	Mean = 3 years, SD= (± 1.721), Minimum=1 years, Maximum=9 years		
Cause of Injury	Traumatic	42	77.4
	Non- Traumatic	12	22.6
Type of Paralysis	Tetraplegic	13	24.5
	Paraplegic	40	75.5
Level of injury	Cervical	14	26.4
	Thoracic	31	58.5
	Lumbar	8	15.1

Table 4.2 presents the distribution of injury-related characteristics among the 53 children and adolescents with spinal cord injury (SCI) included in the study. Regarding the time since injury, 43.4% (n=23) of participants had been living with SCI for 3–5 years, while 39.6% (n=21) were injured within the past 1–2 years. A

smaller proportion (13.2%, n=7) had sustained the injury 6–9 years prior. The mean duration since injury was 3 years (SD ± 1.721). The majority of respondents experienced traumatic causes of injury (77.4%, n=42), whereas 22.6% (n=12) sustained non-traumatic injuries. In terms of paralysis type, 75.5% (n=40) were living with paraplegia, while 24.5% (n=13) had tetraplegia. Considering the neurological level of injury, more than half of the participants had thoracic-level injuries (58.5%, n=31). Additionally, 26.4% (n=14) had cervical injuries, and 15.1% (n=8) had injuries at the lumbar level.

4.3 Victimization by Bullying

Table 4.3

Victimization by Bullying among Respondents

Variable	Category	Response	
		N	Percent of Cases (N=53)
Types of bullying	Never victimized by bullying	22	41.5%
	Victimized by verbal bullying	30	96.8%
	Victimized by physical bullying	9	29.0%
	Victimized by social bullying	23	74.2%
	Victimized by cyberbullying	4	12.9%

Table 4.3 presents the distribution of victimization by bullying among the respondents (N = 53). Among the participants, 41.5% reported that they had never been victimized by bullying. However, a large proportion experienced different types of bullying. The majority (96.8%) reported verbal bullying, followed by social bullying (74.2%). Additionally, 29.0% of respondents experienced physical bullying, while 12.9% reported being victims of cyberbullying.

4.4 Level of participation among the respondents

Table 4.4

Level of participation among the respondents

Subscale	Level of Participation							Mean $\pm$ SD
	Age Expected % (n)	Mildly Limited% (n)	Somewhat Limited % (n)	Limited% (n)	Very Limited % (n)	Extremely Limited	Unable% (n)	
Home Participation	3.8(2)	1.9(1)	7.5(4)	35.8 (19)	32.1 (17)	18.9(10)	0(0)	3.53 $\pm$ 1.17
Neighborhood & Community Participation	7.5(4)	0(0)	0(0)	20.8(11)	30.2(16)	39.6(21)	1.9(1)	3.08 $\pm$ 1.38
School Participation	1.9(1)	9.4(5)	1.9(1)	13.2(7)	13.2(7)	11.3(6)	1.9(1)	3.71 $\pm$ 1.58
Home & Community Living Activities	0(0)	1.9(1)	(3.8)2	26.4(14)	20.8(11)	39.6(21)	7.5(4)	2.85 $\pm$ 1.13

Table 4.4 presents the level of participation among respondents across four subscales. For home participation, the majority of respondents 35.8% (n=19), reported limited participation with a mean score of 3.53 ± 1.17 . Only a small proportion performed at the age-expected level 3.8% (n=2). For neighborhood and community participation, a large proportion of respondents' participation level was very limited 30.2% (n=16), or extremely limited 39.6% (n=21), reporting a mean of (1.21 ± 0.88) . For School Participation, a relatively mixed pattern emerged. Most respondents demonstrated some degree of limitation, 13.2%, (n=7) reported limited, 13.2%, (n=7) reported very limited, and 11.3%, (n=6) reported extremely limited participation. Mild limitations were also notable at 9.4% (n=5), with a mean score of 3.71 ± 1.58 . In Home and Community Living Activities, respondents showed the highest level of limitation. A substantial proportion were extremely limited 39.6% (n=21), followed by very limited 20.8% (n=11), and limited 26.4% (n=14). The mean score of 2.85 ± 1.13 reflects significant challenges in performing daily living and community-based tasks.

4.5 Level of environmental problems among the respondents

Figure 4.1

Level of perceived environmental problems among the respondents

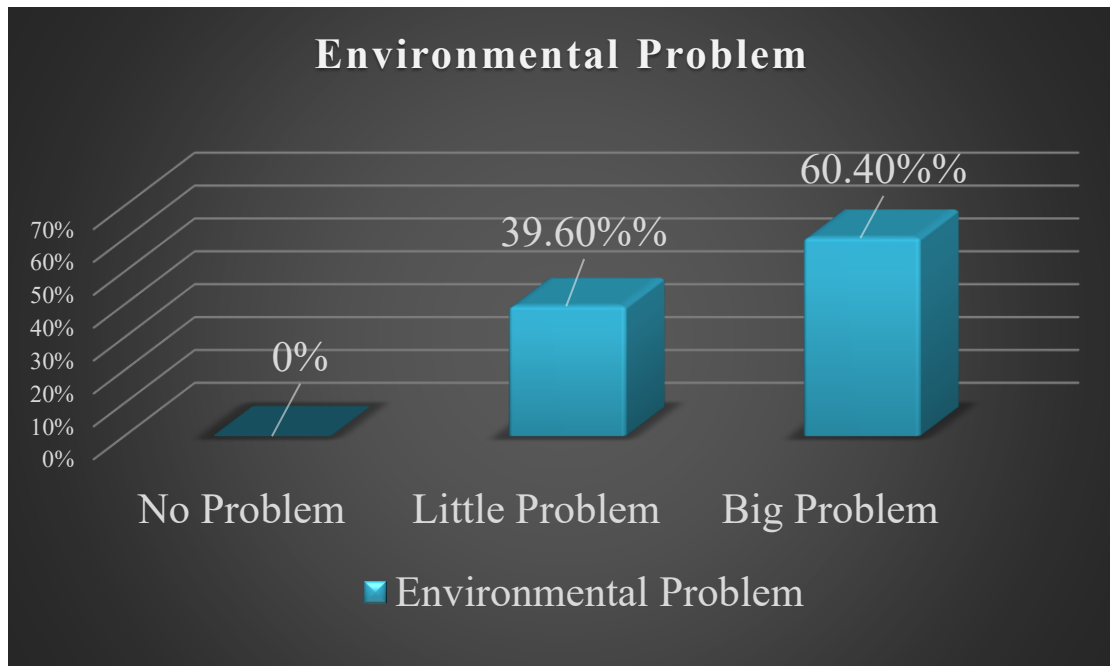


Figure 4.1 illustrates the extent of environmental barriers faced by the respondents. The results indicate that 0%,(n=0) none of the participants reported having “no problem” suggesting that every participant encountered at least some degree of environmental difficulty. The majority of respondents, 60.4% (n = 32), reported facing big problem with factors related to the child, family, physical & social environment that support or hinder participation. However, a notable proportion of respondents, 39.6% (n = 21), reported facing little problem with factors related to the child, family, physical & social environment that support or hinder participation.

4.6 Group differences analysis with CASP scores(Mann Whitney U Test)

Table 4.6

Group differences analysis with CASP overall participation scores

Variable	Overall Participation				
		n(frequency)	Mean Rank	Z	P value
Gender	Male	32	28.66	-.964	0.335
	Female	21	24.48		
Cause of injury	Traumatic	41	26.02	-.851	0.395
	Non-Traumatic	12	30.33		
Type of paralysis	Tetraplegic	13	18.19	-2.369	0.018
	Paraplegic	40	29.86		
Number of family member	≤4 member	19	31.53	-1.596	0.110
	>4 member	34	24.47		
Family monthly income	≤20000	36	26.94	-.038	0.970
	>20000	17	27.12		
Involved in any Institution	Yes	25	32.42	-2.416	0.016
	No	28	22.16		
Level of Education	Primary	10	13.80	-.444	0.657
	Secondary	15	12.47		
Any History of School Dropout	Yes	27	22.37	-2.226	0.026
	No	26	31.81		
Victimized by Bullying	Yes	31	26.15	-.479	0.632
	No	12	28.20		

Note: Perform Mann Whitney U Test

Table 4.6 represents the results of the Mann–Whitney U test, where a significant difference was observed for type of paralysis. Participants with tetraplegia had significantly lower home participation scores (Mean Rank = 18.19) compared to those with paraplegia (Mean Rank = 29.86, $P = 0.018$). Additionally, participants involved in any institution scored significantly higher (Mean Rank = 32.42) than those not involved (Mean Rank = 22.16, $P = 0.016$). History of school dropout also showed a significant difference, with those reporting school dropout having lower scores (Mean

Rank = 22.37) compared to those without such a history (Mean Rank = 31.81, $P = 0.026$).

Table 4.7

Group differences analysis with CASP home participation scores

Variable	Home Participation				
		n	Mean Rank	Z	P value
Gender	Male	32	28.20	-.703	0.482
	Female	21	25.17		
Cause of injury	Traumatic	41	25.74	-1.098	0.272
	Non-Traumatic	12	31.29		
Type of paralysis	Tetraplegic	13	19.31	-2.075	0.038
	Paraplegic	40	29.50		
Number of family member	≤4 member	19	31.13	-1.461	0.144
	>4 member	34	24.69		
Family monthly income	≤20000	36	27.94	-.650	0.516
	>20000	17	25.00		
Involved in any Institution	Yes	25	32.62	-2.512	0.012
	No	28	21.98		
Level of Education	Primary	10	13.70	-.392	0.695
	Secondary	15	12.53		
Any History of School Dropout	Yes	27	22.35	-2.241	0.025
	No	26	31.83		
Victimized by Bullying	Yes	31	25.60	-.788	0.431
	No	22	28.98		

Note: Perform Mann Whitney U Test

Table 4.7 represents the results of the Mann–Whitney U test, where a significant difference was observed for type of paralysis. Participants with tetraplegia had significantly lower home participation scores (Mean Rank = 19.31) compared to those with paraplegia (Mean Rank = 29.50, $P = 0.038$). Additionally, participants involved in any institution scored significantly higher (Mean Rank = 32.62) than those not

involved (Mean Rank = 21.98, $P = 0.012$). History of school dropout also showed a significant difference, with those reporting school dropout having lower scores (Mean Rank = 22.35) compared to those without such a history (Mean Rank = 31.83, $P = 0.025$).

Table 4.8

Group differences analysis with CASP home & community living activities scores

Variable	Home & Community Living Activities				
		n	Mean Rank	Z	P value
Gender	Male	32	27.17	-.100	0.920
	Female	21	26.74		
Cause of injury	Traumatic	41	25.63	-1.195	0.232
	Non-Traumatic	12	31.67		
Type of paralysis	Tetraplegic	13	18.62	-2.263	0.024
	Paraplegic	40	29.73		
Number of family member	≤4 member	19	31.50	-1.592	0.111
	>4 member	34	24.49		
Family monthly income	≤20000	36	26.35	-.450	0.653
	>20000	17	28.38		
Involved in any Institution	Yes	25	33.04	-2.702	0.007
	No	28	21.61		
Level of Education	Primary	10	12.35	-.363	0.716
	Secondary	15	13.43		
Any History of School Dropout	Yes	27	22.35	-2.242	0.025
	No	26	31.83		
Victimized by Bullying	Yes	31	27.23	-.127	0.899
	No	22	26.68		

Note: Perform Mann Whitney U Test

Table 4.8 represents the results of the Mann–Whitney U test, where a significant difference was observed for type of paralysis. Participants with tetraplegia had significantly lower home participation scores (Mean Rank = 18.62) compared to those

with paraplegia (Mean Rank = 29.73, $P = 0.024$). Additionally, participants involved in any institution scored significantly higher (Mean Rank = 33.04) than those not involved (Mean Rank = 21.61, $P = 0.007$). History of school dropout also showed a significant difference, with those reporting school dropout having lower scores (Mean Rank = 22.35) compared to those without such a history (Mean Rank = 31.83, $P = 0.025$).

Table 4.9

Group differences analysis with CASE environmental problems scores

Variable	Environmental Problems				
		n	Mean Rank	U	P value
Gender	Male	32	27.20	329.500	0.906
	Female	21	26.69		
Cause of injury	Traumatic	41	29.13	158.500	0.063
	Non-Traumatic	12	19.71		
Type of paralysis	Tetraplegic	13	29.54	227.000	0.495
	Paraplegic	40	26.18		
Number of family member	≤4 member	19	24.08	267.500	0.303
	>4 member	34	28.63		
Family monthly income	≤20000	36	28.51	251.500	0.299
	>20000	17	23.79		
Involved in any Institution	Yes	25	21.76	219.000	0.020
	No	28	31.68		
Level of Education	Primary	10	13.35	71.500	0.846
	Secondary	15	12.77		
Any History of School Dropout	Yes	27	30.98	244.000	0.057
	No	26	22.88		
Victimized by Bullying	Yes	31	28.65	290.000	.357
	No	22	24.68		

Note: Perform Mann Whitney U Test

Table 4.9 represents the results of the Mann–Whitney U test, where individuals who were not involved in an institution-based program scored significantly higher on environmental problems (Mean Rank = 31.68) than participants who were involved (Mean Rank = 21.76, $P = 0.012$) & the difference was statistically significant ($P = .009$).

4.7 Correlation matrix among the age, time Since Injury, monthly income, home participation, neighborhood & community participation, school participation, home & community living activities, overall Participation & environmental barriers.

Table 4.10

Spearman Correlation Matrix

	1	2	3	4	5	6	7	8	9
1. Age	1								
2. Time Since Injury	.043	1							
3. Monthly Income	-.003	-.266	1						
4. Home Participation	-.104	.011	-.132	1					
5. Neighborhood & Community Participation	-.256	.111	.138	.671**	1				
6. School Participation	-.293*	.160	.065	.470**	.449**	1			
7. Home & Community Living Activities	-.030	.108	.147	.659**	.681**	.549**	1		
8. Overall Participation	-.130	.126	.011	.823**	.787**	.623**	.809**	1	
9. Environmental Barriers	.163	.036	-.265	-.534**	-.558**	-.462**	-.524**	-.458**	1

Note: **p<0.01, *p<0.05. 1= Age, 2=Time Since Injury, 3= Monthly Income, 4= Home Participation, 5= Neighborhood & Community Participation, 6= School Participation, 7= Home & Community Living Activities, 8= Overall Participation, 9= Environmental Barriers.

Table 4.10 shows Spearman correlation among the age, time Since Injury, monthly income, home participation, neighborhood & community participation, school participation, home & community living activities, overall Participation & environmental barriers. The result indicates a weak negative correlation between age and school participation, which was statistically significant ($r = -.293$, $P < 0.05$), indicating that older participants tended to have lower school participation. In contrast, environmental barriers have significant negative correlations with all participation domains including home participation ($r = -.534$, $P < .01$), neighborhood and community participation ($r = -.558$, $P < .01$), school participation ($r = -.462$, $P < .01$), home and community living activities ($r = -.524$, $P < .01$), and overall participation ($r = -.458$, $P < .01$), meaning higher barriers are associated with lower participation.

4.8 Linear regression

Table 4.11

Linear regression analysis of Overall participation: Type of paralysis, Involved in institution-based program, and History of School dropout

Overall participation					
Predictors		Unadjusted		Adjusted	
		B (95% CI)	P value	B (95% CI)	P value
Type of paralysis	Tetraplegia	Reference			
	Paraplegia	6.451(1.006-11.896)	.021	.284 (-.448-1.106)	.439
Involved in any institution-based program	No	Reference			
	Yes	12.245(2.970-21.519)	.011	-.764 (-2.070-.543)	.246
History of school dropout	Yes	Reference			
	No	5.700 (1.028-10.372)	.018	-0.64 (-1.377 -1.249)	.922

Note- Unstandardized Coefficients (B), Confidence Interval (CI)

Table 4.11 presents the results of the linear regression analysis examining factors associated with overall participation. The findings indicate that paraplegic participants scored, on average, 6.45 points higher on overall participation compared to individuals with tetraplegia, and this association was statistically significant ($P = .021$). Additionally, participants who were involved in an institution-based program had 12.245 points higher participation scores than those who were not involved, which was also statistically significant ($P = .011$). Furthermore, participants without a history of school dropout demonstrated 5.7-point higher participation scores compared to those who had dropped out of school, and this association was statistically significant ($P = .018$).

Table 4.12

Linear regression analysis of Home participation: Type of paralysis, Involved in institution-based program, and History of School dropout

Home participation					
Predictors		Unadjusted		Adjusted	
		B (95% CI)	P value	B (95% CI)	P value
Type of paralysis	Tetraplegia	Reference			
	Paraplegia	5.609(.766-10.451)	.024	.359 (-.424-1.142)	.362
Involved in any institution-based program	No	Reference			
	Yes	10.256(1.964-18.548)	.016	-.424 (-1.822-.973)	.545
History of school dropout	Yes	Reference			
	No	4.588 (.399-8.777)	.005	-0.64 (-1.400 -1.410)	.994

Note- Unstandardized Coefficients (B), Confidence Interval (CI)

Table 4.12 presents the results of the linear regression analysis examining factors associated with home participation. The findings indicate that paraplegic participants scored, on average, 5.609 points higher on home participation compared to individuals with tetraplegia, and this association was statistically significant ($P = .024$). Additionally, participants who were involved in an institution-based program had 10.256 points higher scores on home participation than those who were not involved, which was also statistically significant ($P = .016$). Furthermore, participants without a history of school dropout demonstrated 4.588-point higher scores on home participation compared to those who had dropped out of school, and this association was statistically significant ($P = .032$).

Table 4.13

Linear regression analysis of Home & community living activities: Type of paralysis, Involved in institution-based program, and History of School dropout

Home & community living activities					
Predictors		Unadjusted		Adjusted	
		B (95% CI)	P value	B (95% CI)	P value
Type of paralysis	Tetraplegia	Reference			
	Paraplegia	7.024(.901-13.148)	.025	.380 (-.367-1.128)	.311
Involved in any institution-based program	No	Reference			
	Yes	14.236(3.892-24.579)	.008	-.880 (-2.213-.454)	.191
History of school dropout	Yes	Reference			
	No	5.826 (.536-11.116)	.032	-.429 (-1.770-911)	.523

Note- Unstandardized Coefficients (B), Confidence Interval (CI)

Table 4.13 presents the results of the linear regression analysis examining factors associated with home and community living activities. The findings indicate that paraplegic participants scored, on average, 7.024 points higher on home and community living activities compared to individuals with tetraplegia, and this association was statistically significant ($P = .025$). Additionally, participants who were involved in an institution-based program had 14.236 points higher scores on home and community living activities than those who were not involved, which was also statistically significant ($P = .008$). Furthermore, participants without a history of school dropout demonstrated 5.826-point higher scores on home and community living activities compared to those who had dropped out of school, and this association was statistically significant ($P = .032$).

Table 4.14

Linear regression assessing the association between involvement in the institution-based program and environmental barriers

Predictor	Environmental Barriers		
Involvement in an institution-based program	B Unstandardized Coefficients	95%CI	P value
Yes		Reference	
No	5.197	1.374-9.020	.009

Table 4.14 shows the linear regression analysis, indicating that individuals who were not involved in an institution-based program had environmental barrier scores 5.197 points higher than participants who were involved, & the association was statistically significant ($P = .009$).

CHAPTER V: DISCUSSION

This study examined participation levels and related factors among children and adolescents with spinal cord injury (SCI) living in community settings in Bangladesh using the CASP and CASE tools. The findings showed major participation limitations across all domains, especially in school, community, and neighborhood activities, indicating significant daily life challenges.

Most participants reported very limited participation, particularly outside the home. This pattern is consistent with findings from developed countries, where adolescents with SCI also experience reduced participation due to environmental and social barriers (D'Andrea et al., 2020; Lohse et al., 2018). Similar to earlier studies, participation tended to decline with age, as older adolescents faced mobility challenges, academic pressure, and peer exclusion (Halvorsen et al., 2021; King et al., 2020).

However, participation restrictions in Bangladesh were more severe than those reported in high-income countries. Limited infrastructure, poor access to follow-up rehabilitation, low income, and rural living conditions further reduced opportunities for participation. While family and peer support were important facilitators in Canada (Anderson et al., 2021), such support was often unavailable in the current context due to socioeconomic constraints.

No significant differences in participation were found based on gender or income level. This contrasts with findings by Shields et al. (2017) and Halvorsen et al. (2021), possibly because most participants belonged to similar low-income households and shared comparable social restrictions.

Age showed a significant negative relationship with participation, with older adolescents participating less than younger children. This aligns with previous studies indicating increased social and environmental barriers during adolescence (Halvorsen et al., 2021; King et al., 2006). High school dropout rates further reduced social and community engagement, supporting earlier findings by McDougall et al. (2012).

Injury-related factors also influenced participation. Participants with paraplegia had higher participation levels than those with tetraplegia, consistent with earlier evidence linking higher-level injuries to greater dependency (Van Leeuwen et al., 2016; Craig et al., 2015). Longer injury duration was associated with better participation, suggesting gradual adaptation over time (McPherson et al., 2020).

Children involved in institution-based rehabilitation programs showed better participation outcomes, supporting findings from Lohse et al. (2018). In Bangladesh, services at institutions such as CRP appear to partially compensate for the lack of community-based rehabilitation, though post-discharge follow-up remains limited.

Environmental barriers were a major concern, with most participants reporting serious problems related to transportation, school accessibility, and negative attitudes. These findings are consistent with Anaby et al. (2019) and Shields et al. (2012). Participants not engaged in institutional programs reported greater environmental difficulties.

Bullying was reported by more than half of the participants, a higher rate than in previous studies (McDougall et al., 2022; King et al., 2020). This likely reflects persistent stigma and low disability awareness in Bangladesh and may contribute to school dropout and social withdrawal.

Overall, participation was strongly influenced by school engagement, injury severity, institutional involvement, and environmental conditions, supporting international findings that participation is shaped by both personal and contextual factors (Anderson et al., 2021; D'Andrea et al., 2020). However, unlike studies from high-income countries that emphasize psychosocial adaptation, this study highlights structural and systemic barriers as the primary challenges.

From an occupational therapy perspective, the findings emphasize the need for community-based, participation-focused interventions, including environmental modification, advocacy, and school reintegration, in line with the ICF framework (Imms et al., 2017; Law, 2002; WHO, 2001).

In conclusion, while participation challenges among children and adolescents with SCI are globally recognized, this study shows that such challenges are more severe and persistent in Bangladesh due to economic, infrastructural, and cultural factors. As the first empirical study in this context, it provides important evidence to guide occupational therapy practice, rehabilitation planning, and inclusive policy development for pediatric SCI populations.

CHAPTER VI: CONCLUSION

6.1 Strengths and Limitations

6.1.1 Strength

- The data collection from participants and the data entry process was non-biased.
- The researcher could have a wide geographical variation of participants, as it was a telephone survey.
- The study utilized validated international measures, CASP and CASE, ensuring methodological rigor and comparability with global studies.
- By incorporating sociodemographic, injury-related, and environmental variables, the study provided a multidimensional understanding of participation.
- Results support the ICF framework, showing participation is shaped by personal, injury-related, and environmental factors.

6.1.2 Limitations

- The study is a telephone survey, which has some limitations, such as
 - lack of visual materials that made it difficult to build a rapport with the respondent
 - Inability to access invalid telephone numbers
 - Some participants did not pick up the calls despite three attempts made
- Children and adolescents with SCI who did not receive rehabilitation services were not included in the study, which may limit the generalizability of the findings to all individuals with SCI living in the community

6.2 Practice Implication

6.2.1 Recommendation for Future Research

- Qualitative methods can be conducted in the future, as interviews can help capture lived experiences and cultural influences.
- Future research should also include psychosocial factors like emotional well-being and family support, as these factors may influence participation and adjustment among children and adolescents with SCI.
- Future studies should use long-term or follow-up study designs like longitudinal or cohort designs to assess how participation, social involvement, and emotional well-being change over time after injury.

6.3 Conclusion

This study highlights that participation among children and adolescents with SCI in Bangladesh is significantly restricted, particularly in community and educational settings, due to the interplay of injury severity, environmental barriers, and social stigma. Institutional involvement and ongoing rehabilitation were found to enhance participation outcomes, underscoring the need for sustained rehabilitation and inclusive community programs. The results reaffirm the occupational therapy principle that participation is both the goal and measure of successful rehabilitation (Imms et al., 2017; Law, 2002). In line with the ICF framework (WHO, 2001), this research demonstrates that improving participation requires addressing not only physical impairments but also environmental and societal barriers. By providing context-specific evidence, this study makes a pioneering contribution to the field of rehabilitation in Bangladesh. It emphasizes the urgent need for participation-focused occupational therapy practice, expansion of community-based rehabilitation, and policy-level interventions to ensure that children and adolescents with SCI can engage meaningfully in education, family life, and society. Ultimately, the findings advocate for a shift in rehabilitation philosophy from restoring physical ability to promoting holistic participation and inclusion, empowering children and adolescents with SCI to lead purposeful, fulfilling lives as active members of their communities.

LIST OF REFERENCE

- Alve, Y. A., Begum, S., Yousuf, M., Ikiugu, M. N., & Bontje, P. (2024). Inclusivity in Occupational Participation: Life Stories of Bangladeshi With Spinal Cord Injury. *OTJR: Occupational Therapy Journal of Research*, 44(2), 205–217.
<https://doi.org/10.1177/15394492231206994>
- Anaby, D., Hand, C., Bradley, L., DiRezze, B., Forhan, M., DiGiacomo, A., & Law, M. (2013). The effect of the environment on participation of children and youth with disabilities: A scoping review. *Disability and Rehabilitation*, 35(19), 1589–1598.
- Anderson, C. J., Krajci, K. A., Vogel, L. C., & Betz, R. R. (2004). Adolescents with spinal cord injuries: Independent living, social integration, and life satisfaction. *Spinal Cord*, 42(2), 91–98.
- Bedell, G. (2009). Developing a follow-up survey focused on participation of children and youth with acquired brain injuries after discharge from inpatient rehabilitation. *NeuroRehabilitation*, 24(3), 203–211.
- Bedell, G., & Coster, W. (2008). Measuring participation of school-age children with traumatic brain injuries: Development of the Child and Adolescent Scale of Participation (CASP). *Developmental Neurorehabilitation*, 11(4), 249–261.
- Boraiah, D. V., & As, D. S. K. (2022). Spinal cord injury. *International Journal of Orthopaedics Sciences*, 8(1), 472–474.
<https://doi.org/10.22271/ortho.2022.v8.i1g.3057>
- Costi, S., Pellegrini, M., Braglia, L., Cavuto, S., & Fugazzaro, S. (2024). Occupational therapy improves social participation of complex patients discharged from hospital: Results of a powered randomized controlled trial.

Disability and Rehabilitation, 46(11), 2223–2233.

<https://doi.org/10.1080/09638288.2023.2218653>

Craig, A., Tran, Y., Middleton, J., & Costa, M. (2015). Psychological morbidity and spinal cord injury: A systematic review. *Spinal Cord*, 53(10), 772–784.

Dada, O., & Ogunleye, A. (2022). Severity and Complications of Injury, Levels of Activity and Participation in Individuals with Spinal Cord Injury. *Indonesian Journal of Disability Studies*, 9(1), 37–48.

<https://doi.org/10.21776/ub.ijds.2022.009.02.03>

Ding, W., Hu, S., Wang, P., Kang, H., Peng, R., Dong, Y., & Li, F. (2022). Spinal Cord Injury: The Global Incidence, Prevalence, and Disability From the Global Burden of Disease Study 2019. *Spine*, 47(21), 1532. Guryev, S. O., Kushnir, V. A., Iskra, N. I., & Kushnir, H. P. (2023). Spinal cord injury as a component of polytrauma in road accident victims. *PAIN, JOINTS, SPINE*, 13(3), Article 3.

<https://doi.org/10.22141/pjs.13.3.2023.383>

Hall, A. G., Karabukayeva, A., Rainey, C., Kelly, R. J., Patterson, J., Wade, J., & Feldman, S. S. (2021). Perspectives on life following a traumatic spinal cord injury. *Disability and Health Journal*, 14(3), 101067.

<https://doi.org/10.1016/j.dhjo.2021.101067>

Halvorsen, A., Algood, C., & Imms, C. (2021). Participation among children with disabilities: Environmental and personal factors associated with outcomes. *Child: Care, Health and Development*, 47(5), 662–674.

Howlader, R., Pipasa, F. A., & Islam, M. R. (2022). Influence of Environmental Barrier on Participation Among Persons with Spinal Cord Injury in Bangladesh. *European Journal of Clinical and Biomedical Sciences*, 8(2), Article 2.

<https://doi.org/10.11648/j.ejcb.20220802.12>

- Imms, C., Adair, B., Keen, D., Ullenhag, A., Rosenbaum, P., & Granlund, M. (2017). 'Participation': A systematic review of language, definitions, and constructs used in intervention research with children with disabilities. *Developmental Medicine & Child Neurology*, 59(1), 17–25.
- Khanzada, F. J., Daud, A. Z. C. C. D. C., Masuri, M. G., Rahim, M. Z. A., Poot, E. F. M., & Ranabhat, M. K. (2023). Participation in Daily Activities and Quality of Life among Individuals with Paraplegic Spinal Cord Injury in Pakistan. *Environment-Behaviour Proceedings Journal*, 8(25), Article 25.
<https://doi.org/10.21834/e-bpj.v8i25.4865>
- Lu, Y., Shang, Z., Zhang, W., Pang, M., Hu, X., Dai, Y., Shen, R., Wu, Y., Liu, C., Luo, T., Wang, X., Liu, B., Zhang, L., & Rong, L. (2024). Global incidence and characteristics of spinal cord injury since 2000–2021: A systematic review and meta-analysis. *BMC Medicine*, 22(1), 285. <https://doi.org/10.1186/s12916-024-03514-9>
- McDougall, J., DeWit, D. J., King, G., Miller, L. T., & Killip, S. (2012). High school-aged youth's attitudes toward their peers with disabilities: The role of school and student-level variables. *International Journal of Disability, Development and Education*, 59(3), 249–264.
- McManus, V., Corcoran, P., & Perry, I. (2008). Participation in everyday activities and quality of life in pre-teenage children living with cerebral palsy in South West Ireland. *BMC Pediatrics*, 8(50), 1–10.
- Mohammadi, F., Oshvandi, K., Bijani, M., Borzou, S. R., khodaveisi, M., & Masoumi, S. Z. (2022). Perception of facing life's challenges in patients with spinal cord injury in Iran: A qualitative study. *BMC Psychology*, 10(1), 202.
<https://doi.org/10.1186/s40359-022-00909-2>

- Mohan, M., & Deb, R. (2023). Barriers and Facilitators during Community Reintegration of People with Spinal Cord Injury: A Qualitative Study. *Journal of Caring Sciences*, 13(1), Article 1. <https://doi.org/10.34172/jcs.2024.31955>
- Post, M. W. M., & van Leeuwen, C. M. (2012). Psychosocial issues in spinal cord injury: A review. *Spinal Cord*, 50(5), 382–389.
- Raghavendra, P., Olsson, C., Sampson, J., McInerney, R., & Connell, T. (2012). School participation and social networks of children with complex communication needs: A descriptive study. *Child: Care, Health and Development*, 38(1), 44–52.
- Razak, N. A. I. A., & Drani, S. (2022). Challenges Faced by Spinal Cord Injury (SCI) Patients: A Study of SCI Patients at A Public Hospital in Penang. *Asian Social Work Journal*, 7(6), Article 6. <https://doi.org/10.47405/aswj.v7i6.237>
- Ryan, S. J., Bolten, E., Abolhosn, N., Adams, J., & Bocianski, H. (2024). “It Doesn’t Die Within You”: Outdoor Recreation Participation Following Spinal Cord Injury. *OTJR*:
- Shields, N., Synnot, A. J., & Barr, M. (2012). Perceived barriers and facilitators to participation in physical activity for children with disability: A qualitative study. *BMC Pediatrics*, 12(1), 119.
- Uddin, T., Islam, M. T., Hossain, M., Hossain, M. S., Salek, A. K. M., Islam, M. J., Haque, S., Rahim, H. R., Hossain, Md. S., Hassanuzzaman, Md., Islam, M., Khan, M. U. H., Ahmed, S., Mahmud, K., Hasan, Md. R., Tasnim, A., & Haque, M. A. (2023). Demographic and Clinical Characteristics of Persons With Spinal Cord Injury in Bangladesh: Database for the International Spinal Cord Injury Community Survey 2023. *Neurotrauma Reports*, 4(1), 598–604. <https://doi.org/10.1089/neur.2023.0040>

Velho, V. L., Skhandeshwaran, P., & Kharosekar, H. (2023). Traumatic Spinal Cord Injuries: An Institutional Experience. *Journal of Spinal Surgery*, 10(2), 54.

https://doi.org/10.4103/joss.joss_2_23

World Health Organization. (2013). International perspectives on spinal cord injury. Geneva: WHO

APPENDICES

Appendix A: IRB Approval Letter



বাংলাদেশ হেলথ প্রফেশন ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref: CRP-BHPI/IRB/07/2025/1094 Date: 21.07.2025

To
 Md Farhan Shahriyar
 4th Year, B.Sc. in Occupational Therapy
 Session: 2020-21, Student ID: 122200420
 BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal Level of Participation among Children & Adolescents with Spinal Cord Injury: A Cross-Sectional Study by ethics committee.

Dear Md Farhan Shahriyar,
 Congratulations.
 The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above mentioned dissertation, with yourself, as the principal investigator and Md. Saddam Hossain, Assistant Professor, Department of Occupational Therapy, Bangladesh Health Professions Institute (BHPI), CRP as thesis supervisor. The Following documents have been reviewed and approved:

SL No.	Name of the Documents
1	Research Proposal
2	The Child and Adolescent Scale of Participation (CASP) (English & Bangla)
3	The Child and Adolescent Scale of Environment (CASE) (English & Bangla)
4	Information sheet & consent form

The purpose of the study is to determine to find out the level of participation among child and adolescent with spinal cord injury. The study involves use of The Child & Adolescent Scale of Participation (CASP) & The Child and Adolescent Scale of Environment (CASE) to find out the level of participation among child & adolescent with spinal cord injury that may take 15 to 20 minutes to fill in the questionnaire and there is no likelihood of any harm to the participants. There is no benefit to the participants. 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 17 June, 2025 at BHPI (50th 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, Project and Course Coordinator, MRS
 Member Secretary, Institutional Review Board (IRB)
 BHPI, CRP, Savar, Dhaka-1343, Bangladesh

বাংলাদেশ হেলথ প্রফেশন ইনস্টিটিউট, সবার, 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: nrcinal-bhpi@crp-bangladesh.org, Web: bhpi.edu.bd

Appendix B: Permission Letter for Data Collection

Date: 24/06/2025
 The Chairman
 Institutional Review Board (IRB)
 Bangladesh Health Professions Institute (BHPI)
 CRP-Savar, Dhaka-1343, Bangladesh

Subject: Application for review and ethical approval.

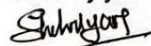
Sir,

With due respect I would like to draw your kind attention that I am a student of B.Sc. in Occupational Therapy at Bangladesh Health Professions Institute (BHPI) which is an academic institute of Centre for the Rehabilitation of the Paralysed (CRP), affiliated to Faculty of Medicine, University of Dhaka. I would like to conduct a thesis titled, **“Level of Participation among Child & Adolescent with Spinal Cord Injury: A Cross-Sectional Study”** with myself, as the principal investigator/author and Md. Saddam Hossain, Assistant Professor, Department of Occupational Therapy, Bangladesh Health Professions Institute (BHPI), CRP as my thesis supervisor. The purpose of the study is to identify the level of participation among child & adolescent with spinal cord injury.

The study involves the use of two Standard Questionnaires- (1) The Child & Adolescent Scale of Participation (CASP), & (2) The Child & Adolescent Scale of Environment (CASE) in the study that will take about 15-20 minutes. Other related information will be collected from the Sociodemographic Questionnaire. Data collectors will receive informed consents from all participants. Any data collected will be kept confidential.

Therefore, I look forward to having your approval for the thesis proposal and to start data collection. I also assure you that I will maintain all the requirements for study.

Sincerely yours,



Md Farhan Shahriyar
 4th Year B.Sc. in Occupational Therapy
 Session: 2020-2021, Student ID: 122200420

Recommendation from the thesis supervisor/concerned authority:



Md. Saddam Hossain
 Assistant Professor, Department of Occupational Therapy
 Bangladesh Health Professions Institute (BHPI),
 CRP, Savar, Dhaka-1343

Appendix C: Permission Letter for accessing data

Date:12/08/2025

To

Head of Rehabilitation wing

Centre for the Rehabilitation of the Paralysed (CRP)

Chapain, Savar, Dhaka-1343

Through: Research & Evaluation Department

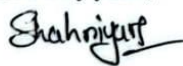
Subject: Application for access to discharged patient data from the CBR Department

Sir,

With due respect I would like to draw your kind attention that I am a student of 4th Year B.Sc. in Occupational Therapy at Bangladesh Health Professions Institute (BHPI) which is an academic institute of Centre for the Rehabilitation of the Paralysed (CRP), affiliated to Faculty of Medicine, University of Dhaka. According to my course curriculum, I have to conduct research, and my research title is "**Level of Participation among Children and Adolescents with Spinal Cord Injury: A Cross-Sectional Study**" with myself & Md. Saddam Hossain as my thesis supervisor. The purpose of my study is to find out the level of participation among children and adolescents with Spinal Cord Injury. To find out the participation level I am using **The Child and Adolescent Scale of Participation(CASP)** and **The Child and Adolescent Scale of Environment(CASE)**. In order to fulfill the objectives of this study, I need some information such as name, age, address, contact number, date of admission and discharge about the potential participants from SCI-database of CBR Department -CRP, Savar. I assure you that collected information that will be used solely for academic purpose and confidentiality will be maintain in accordance with ethical guideline. I am looking for your kind approval to get details on the initial list of potential participants from 2015 to 2024.

So, I therefore, pray and hope that you would be kind enough to grant me permission to access data for my study and oblige thereby.

Sincerely yours,



Md Farhan Shahriyar

4th Year, B.Sc. in Occupational Therapy

Session: 2020-21, Student ID: 122200420

Recommendation from the Head of the Department:



Prof. SK. Moniruzzaman

Professor & Head

Department of Occupational Therapy

Bangladesh Health Professions Institute(BHPI)

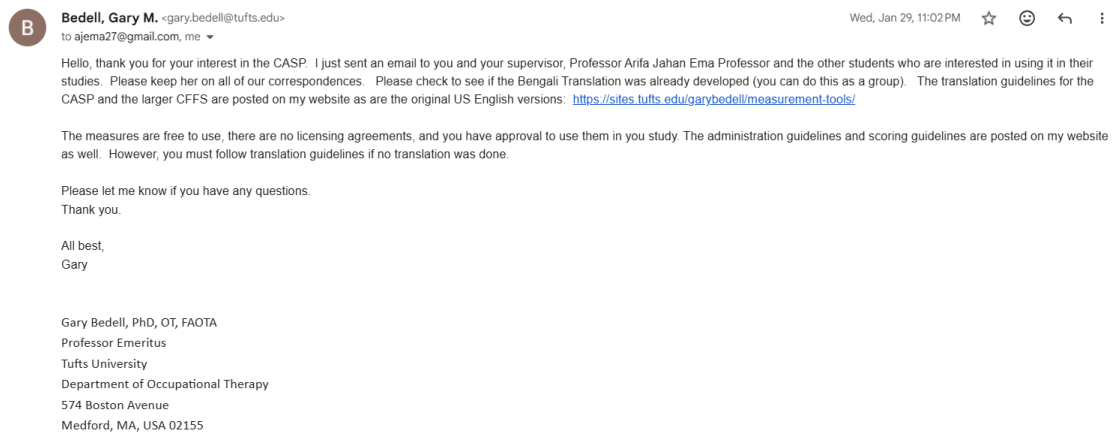
CRP, Savar, Dhaka-1343

"Forwarded to
R.D. Head
for his Approval"
Dec 14/2025

CBR Coordinator
Asst Farhan for
his study
Sajjan 14/8/25

Attachments: Copy of IRB Approval Letter & questionnaire.

Appendix C: Permission Letter for Scale



Appendix D: Information Sheet & Consent Form (English Version)

Information sheet

Research topic: Level of Participation Among Child and Adolescent with Spinal Cord Injury

Researcher: Md. Farhan Shahriyar, B.Sc. in Occupational Therapy (4th year),
Session: 2020-2021, Bangladesh Health Professions Institute.

Place of Research: The study will be conducted in the community settings

Part-1 Information sheet:

Introduction

I am Md. Farhan Shahriyar, a 4th-year B.Sc. student in Occupational Therapy (session 2020-2021) at the Bangladesh Health Professions Institute (BHPI), affiliated with the Faculty of Medicine at Dhaka University. As part of my study requirements at BHPI, I must complete a research project. This project will be conducted under the supervision of Md. Saddam Hossain, Assistant Professor, Department of Occupational Therapy. The aim of this research project is to collect and analyze data relevant to the research topic, which will be thoroughly presented to you through this participant information sheet. Your participation in this research is entirely voluntary, and having a clear understanding of the research topic will help you make an informed decision. There is no need to commit to participation immediately. You are encouraged to discuss your decision with your relatives or guardians. If you have any questions or need further clarification after reading the information sheet, please feel free to ask.

Research Background and Objectives

This research aims to identify the level of participation & its associated factors among children and adolescents with Spinal Cord Injury. Your participation in this study will provide valuable insights into the health and occupational status of this population. Your involvement is entirely voluntary and greatly appreciated.

Let's know about the topic related to participation in this research work

Before signing the consent form from you, the details of managing the research project will be presented to you in detail through this participation note. If you want to participate in this study, you will have to agree to participate in the study. If you ensure the participation, a copy of your consent will be given. After a representative of collection data till by the researcher will call you. At any given time taken from you by a question paper information will be collected. Your participation in this research project is optional. If you do not agree then you do not have to participate. Despite your consent, you can withdraw your participation at any time without giving any explanation to the researcher.

The benefits and risks of participation

You will not get any benefit directly to participate in this research project. Participation in this study can lead to many difficulties in your daily work. However, we are hopeful that the benefits direct from the results of this research will remove the disadvantages.

Don't worry about the questions that may know about your identity, it's a request.

To minimize the risk of identifying individuals, patient names and addresses will not be included in the data analysis software.

Confidentialities of information

By signing this agreement, you grant the research team permission to study this project and use your personal information. Any data collected that could identify you will be kept confidential. Your information will be represented symbolically, and only the researcher and supervisor will have direct access to it. Symbolically identified data will be used for data analysis. Physical information will be stored in a locked drawer, while electronic data will be stored on the BHPI Occupational Therapy department's computers and the researcher's personal laptop. The findings from this research are expected to be published and presented at various forums. However, in any publication or presentation, your identity will remain confidential unless you provide explicit consent.

Information about promotional result

The result of this study anticipated to be published in various social media, websites, conference, discussion, and reviewed journals.

Participant's fees

There is no stimulus and remuneration for participation in this study.

Source of funding to manage research

The cost of this research will be spent solely by researchers own funds. This study will be done in a particular area and no money come from external source.

Information about withdrawal from participation

Despite your consent, you can withdraw your participation at any time without giving any explanation to the researcher.

Complaints

If there is any complaint regarding the conduct of this research, contact with the Association of Ethics. This proposal will be reviewed by Institutional Review Board

(IBR), Bangladesh Health Professions Institute (BHPI), CRP, Savar, Dhaka-1343, Bangladesh, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the IRB, contact Bangladesh Health Professions Institute (BHPI), CRP, Savar, Dhaka- 1343, Bangladesh.

Contact Information : If you have questions at any time about this study, or you experience adverse effects because of participating in this study, you may contact the student researcher. If you have questions regarding your rights as a research participant, or if problems arise that you do not feel you can discuss with the student researcher, please contact the supervisor.

Researcher-

Md Farhan Shahriyar

4th Year, BSc. In Occupational Therapy

Session: 2020-21

Bangladesh Health Professions Institute (BHPI)

CRP, Chapain, Savar, Dhaka-1343

Mobile: 01722638949

E-mail: shahriyarmdfarhan@gmail.com

Supervisor-

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BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)

Department of Occupational Therapy

CRP-Chapain, Savar, Dhaka-1343, Tel: 02-7745464-5, 7741404, Fax: 02-7745069

Consent form

(Please read out to the participant)

Assalamualaikum. I am (Md. Farhan Shahriyar), 4th Year B.Sc. in Occupational Therapy student, at Bangladesh Health Professions Institute (BHPI), affiliated to the University of Dhaka. To fulfill the requirement of a B.Sc. in Occupational therapy degree I have to do a research project. My research title is “(Level of Participation Among Child and Adolescent with Spinal Cord Injury)” The purpose of this research is to find out the “Level of Participation and it’s Associated Factors among Children and Adolescent with Spinal Cord Injury”. This will take approximately 20– 30 minutes. I am committed that the study will not harmful or risky 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 confidential. 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 during the interview.

If you have any queries about the study, you may contact with me (Md. Farhan Shahriyar) or my supervisor (Md Saddam Hossain).

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

YES

☐

NO

☐

Signature & Date of Participant

Signature & Date of Researcher

.....

.....

WITHDRAWAL FORM

Research Title: Level of Participation and it's Associated Factors among Children and Adolescents with Spinal Cord Injury

Student researcher: Md Farhan Shahriyar, 4th year B.Sc. In Occupational Therapy, Bangladesh Health Professions Institute (BHPI).

I _____, confirm that I wish to withdraw all my data from the study before the data analysis has been completed and that none of my data will be included in the study.

Reason for withdrawing consent (optional):

Name of participant _____

Signature of participant/ Thumbprint _____ Date _____

Appendix E: Information sheet and consent form (Bengali Version)

অংশগ্রহণকারীদের তথ্য এবং সম্মতি পত্র

গবেষণার বিষয়: মেরুদণ্ডে আঘাতপ্রাপ্ত শিশু ও কিশোর-কিশোরীদের বিভিন্ন জীবনক্ষেত্রে অংশগ্রহণের স্তরের মূল্যায়ন

গবেষক: মোঃ ফারহান শাহরিয়ার, বি.এসসি. ইন অকুপেশনাল থেরাপি (৪র্থ বছর), সেশন: ২০২০-২০২১, বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট।

গবেষণার স্থান: অধ্যয়নটি কমিউনিটি এবং হাসপাতালের সেটিংসে পরিচালিত হবে

পর্ব-১ তথ্যপত্র

আমি মোঃ ফারহান শাহরিয়ার, বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বিএইচপিআই), সিআরপির শিক্ষা প্রতিষ্ঠান, অনুপেশনাল থেরাপি বিভাগের অধ্যয়নরত ৪র্থ বর্ষের একজন ছাত্র। বিএইচপিআই থেকে অকুপেশনাল থেরাপিতে বি.এসসি সম্পন্ন করার জন্য একটি গবেষণা প্রকল্প পরিচালনা করা আবশ্যিক। এই অংশগ্রহণকারীর ব্যাখ্যামূলক বিবৃতির মাধ্যমে গবেষকের উদ্দেশ্য, তথ্য সংগ্রহের প্রক্রিয়া, এবং গবেষণাটির সাথে সংশ্লিষ্ট বিষয় কিভাবে রক্ষিত হবে সে বিষয়গুলি বিস্তারিতভাবে উপস্থাপন করা হবে। আপনি যদি এই

গবেষণায় অংশগ্রহণ করতে আগ্রহী হন, তাহলে গবেষণার বিষয় সম্পর্কে পরিষ্কার ধারণা লাভ করা আপনার সিদ্ধান্ত গ্রহণ করতে সহজতর হবে। অংশগ্রহণকারীর ব্যাখ্যামূলক বিবৃতি পড়ার পর যদি বিষয়বস্তু বোঝার ক্ষেত্রে কোনও সমস্যা হয় বা আপনার কিছু জানার প্রয়োজন হয়, তাহলে আপনি নির্দিষ্ট প্রশ্ন করতে পারেন।

গবেষণার প্রেক্ষাপট এবং উদ্দেশ্য

আপনাকে এই গবেষণায় অংশগ্রহণের জন্য আমন্ত্রণ জানানো হচ্ছে কারণ, বাংলাদেশে বর্তমানে মেরুদণ্ডে আঘাতপ্রাপ্ত শিশু ও কিশোর-কিশোরীদের বিভিন্ন জীবনক্ষেত্রে অংশগ্রহণের স্তরের মূল্যায়ন নিয়ে কোনো গবেষণা নেই। এই গবেষণার লক্ষ্য তাদের সামগ্রিক স্বাস্থ্য এবং দৈনন্দিন জীবনের ক্রিয়াকলাপগুলির অবস্থান তদন্ত করা। এই গবেষণায় আপনার অংশগ্রহণ এই জনসংখ্যার স্বাস্থ্য এবং পেশাগত অবস্থা সম্পর্কে মূল্যবান দৃষ্টি প্রদান করবে। আপনার সম্পৃক্ততা সম্পূর্ণরূপে স্বেচ্ছাসেবী এবং ব্যাপকভাবে প্রশংসনীয়।

এই গবেষণা কর্মটিতে অংশগ্রহণের সাথে সম্পর্কিত বিষয় সম্পর্কে জানা যাক

আপনার থেকে অনুমতি পত্রে স্বাক্ষর নেবার আগে, এই অংশগ্রহণকারী তথ্যপত্রের মাধ্যমে গবেষণা প্রকল্পটির পরিচালনা করার তথ্যসমূহ বিস্তারিত ভাবে আপনার কাছে উপস্থাপনা করা হবে। আপনি যদি এই অধ্যয়নে

অংশগ্রহণ করতে চান, তাহলে আপনাকে অধ্যয়নে অংশগ্রহণের জন্য সম্মতিপত্রে স্বাক্ষর করতে হবে। আপনি যদি স্বাক্ষর জ্ঞান সম্পন্ন না হন বা অন্য কোনো কারণে স্বাক্ষর প্রদানে ব্যর্থ হন, সে ক্ষেত্রে আপনার কাছ থেকে একজন স্বাক্ষরী উপস্থিতিতে বৃদ্ধাঙ্গুলির ছাপ সম্মতিপত্রে নেওয়া হবে। আপনি যদি অংশগ্রহণ নিশ্চিত করেন, আপনার সম্মতির একটি অনুলিপি দেওয়া হবে। পরবর্তীতে গবেষক গঠিত তথ্য-উপাত্ত নিয়ে একটি দলের প্রতিনিধি আপনার কাছে যাবে। আপনার কাছ থেকে চেয়ে নেওয়া যে কোনো একটি নির্দিষ্ট সময়ে আপনার কাছ থেকে প্রশ্নপত্রের মাধ্যমে তথ্য সংগ্রহ করা হবে। এই গবেষণা প্রকল্পে আপনার অংশগ্রহণ ঐচ্ছিক। আপনি যদি রাজি না হন তবে আপনাকে অংশগ্রহণ করতে হবে না। আপনার সম্মতি সত্ত্বেও, আপনি গবেষককে কোনো ব্যাখ্যা না দিয়ে যেকোনো সময় আপনার অংশগ্রহণ প্রত্যাহার করতে পারেন।

অংশগ্রহণের সুবিধা এবং ঝুঁকিগুলো কি

এই গবেষণা প্রকল্পে অংশগ্রহণ করার জন্য আপনি সরাসরি কোনো সুবিধা পাবেন না। এই গবেষণায় অংশগ্রহণের ফলে আপনার দৈনন্দিন কাজে কিছু বা অনেক অসুবিধা হতে পারে। যাইহোক, আমরা আশাবাদী যে এই গবেষণার ফলাফল এই অসুবিধাগুলি দূর করবে। আপনার পরিচয় সম্পর্কে জানতে পারে এমন প্রশ্নগুলি নিয়ে চিন্তা না করার জন্য অনুরোধ করা হলো। ব্যক্তি

সনাক্তকরণের ঝুঁকি কমাতে, রোগীর নাম এবং ঠিকানা ডেটা বিশ্লেষণ সফ্টওয়্যারে অন্তর্ভুক্ত করা হবে না।

তথ্যের গোপনীয়তা

এই চুক্তিতে স্বাক্ষর করার মাধ্যমে, আপনি গবেষণা দলকে এই প্রকল্প অধ্যয়ন করার এবং আপনার ব্যক্তিগত তথ্য ব্যবহার করার অনুমতি প্রদান করেন। এই গবেষণা প্রকল্পের জন্ম সংগৃহীত যেকোনো তথ্য যা আপনাকে শনাক্ত করতে পারে তা গোপন রাখা হবে। আপনার তথ্য প্রতীকীভাবে উপস্থাপন করা হবে, এবং শুধুমাত্র গবেষক এবং তত্ত্বাবধায়ক এর কাছে এর সরাসরি প্রবেশাধিকার থাকবে। প্রতীকীভাবে চিহ্নিত উপাত্ত ডেটা বিশ্লেষণের জন্য ব্যবহার করা হবে। সাংকেতিক উপায়ে চিহ্নিত তথ্য একটি লক করা ড্রয়ারে সংরক্ষণ করা হবে, যখন ইলেকট্রনিক ডেটা বিএইচইআই অকুপেশনাল থেরাপি বিভাগের কম্পিউটার এবং গবেষকের ব্যক্তিগত ল্যাপটপে সংরক্ষণ করা হবে। এই গবেষণার ফলাফলগুলি বিভিন্ন ফোরামে প্রকাশিত এবং উপস্থাপন করা হবে বলে আশা করা হচ্ছে। যাইহোক, যেকোনো প্রকাশনা বা উপস্থাপনায়, আপনার পরিচয় গোপন থাকবে যদি না আপনি স্পষ্ট সম্মতি প্রদান করেন।

ফলাফল প্রচার সম্পর্কিত তথ্য

এই গবেষণার ফলাফল বিভিন্ন সামাজিক মিডিয়া, ওয়েবসাইট, সম্মেলন, আলোচনা এবং পর্যালোচনা করা জার্নালে প্রকাশিত হবে বলে আশা করা হচ্ছে।

অংশগ্রহণকারীর পারিশ্রমিক

এই গবেষণায় অংশগ্রহণের জন্য কোন উদ্দীপনা এবং পারিশ্রমিক নেই।

গবেষণা পরিচালনার জন্য ব্যয়কৃত অর্থের উৎস

এই গবেষণার ব্যয় শুধুমাত্র গবেষকদের নিজস্ব তহবিল থেকে ব্যয় করা হবে।

এই গবেষণাটি একটি নির্দিষ্ট এলাকায় করা হবে এবং বাইরের উৎস থেকে কোনো অর্থ আসবে না।

অংশগ্রহণ থেকে প্রত্যাহার সম্পর্কিত তথ্যসমূহ

আপনার সম্মতি সত্ত্বেও, আপনি গবেষককে কোনো ব্যাখ্যা না দিয়ে যেকোনো সময় আপনার অংশগ্রহণ প্রত্যাহার করতে পারেন।

অভিযোগ

এই গবেষণা প্রকল্প পরিচালনার বিষয়ে কোনো অভিযোগ থাকলে, এসোসিয়েশন অফ এথিক্সের সাথে যোগাযোগ করুন। এই প্রস্তাবটি ইনস্টিটিউশনাল রিভিউ বোর্ড (আইআরবি), বাংলাদেশ হেলথ প্রফেশনস ইনস্টিটিউট (বিএইচপিআই), সিআরপি, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ দ্বারা পর্যালোচনা করা হবে, যেটি একটি কমিটি যার কাজ হল গবেষণায় অংশগ্রহণকারীদের ক্ষতি থেকে সুরক্ষিত করা নিশ্চিত করা।

সম্মতিপত্র

(অংশগ্রহণকারীরা অনুগ্রহ করে পড়ুন)

আসসালামুয়ালাইকুম,

আমি মোঃ ফারহান শাহরিয়ার, ঢাকা বিশ্ববিদ্যালয়ে

চিকিৎসা অনুষদের অধীনে বাংলাদেশ হেলথ প্রফেশনস ইন্সটিটিউটে বি.এস.সি ইন অকুপেশনাল থেরাপি বিভাগের ৪র্থ বর্ষের একজন ছাত্র। আমার ব্যাচেলর ডিগ্রী পেতে, আমাকে একটি গবেষণা প্রকল্প পরিচালনা করতে হবে এবং এটি আমার অধ্যয়নের একটি অংশ। আমার গবেষণার শিরোনাম হল "(মেরুদণ্ডে আঘাতপ্রাপ্ত শিশু ও কিশোর-কিশোরীদের বিভিন্ন জীবনক্ষেত্রে অংশগ্রহণের স্তরের মূল্যায়ন)"। এই গবেষণার উদ্দেশ্য হল "মেরুদণ্ডে আঘাতপ্রাপ্ত শিশু ও কিশোর-কিশোরীদের বিভিন্ন জীবনক্ষেত্রে অংশগ্রহণের স্তরের মূল্যায়ন "। এটি সমূর্ণ হতে প্রায় ১০-১৫ মিনিট সময় নেবে।

আমি আপনাকে জানাতে চাই যে এটি একটি সম্পূর্ণরূপে একাডেমিক অধ্যয়ন এবং এটি অন্য কোনো উদ্দেশ্যে ব্যবহার করা হবে না। আমি আশ্বাস দিচ্ছি যে সমস্ত তথ্য গোপন রাখা হবে। আপনার অংশগ্রহন সম্পূর্ণ সেচ্ছায় হবে। এবং আপনি চাইলে যেকোনো সময় কোনোরূপ সমস্যা ছাড়াই আপনার সম্মতি প্রত্যাহার করার অধিকার রাখেন।

এই সবেষণা সম্পর্কে আপনার কোন প্রশ্ন থাকলে, আপনি আমার (মোঃফারহান শাহরিয়ার) বা আমার তত্ত্বাবধায়ক সাথে যোগাযোগ করতে পারেন।

তাহলে, ইন্টারভিউ নেওয়ার জন্য আমি কি আপনার সম্মতি পেতে পারি?

হ্যাঁ

না

অংশগ্রহণকারীর স্বাক্ষর ও তারিখঃ

অংশগ্রহণকারীর প্রত্যাহার পত্র
(শুধুমাত্র স্বেচ্ছায় প্রত্যাহারকারীর জন্য প্রযোজ্য)

অংশগ্রহণকারীর নাম:

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প্রত্যাহারের কারণ:

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পূর্ববর্তী তথ্যের অনুমতি থাকবে কিনা?

হ্যাঁ/না

অংশগ্রহণকারীর নাম:

অংশগ্রহণকারীর স্বাক্ষর:

তারিখ:

Appendix F: Questionnaire (English Version)

Section-1: Sociodemographic Information Sheet

1. Name of your child : _____ Date of Assessment: _____
2. Contact Number: _____
3. Age of your child : _____ (years)
4. Gender: a) Male _____ b) Female _____ c) Other _____
5. Address: Village- _____ P/O- _____
 P/S- _____ District- _____
- Type of living area: a) Rural b) Urban c) Semi-urban
6. Time since injury:(in years)
7. Date of discharge: _____
8. Causes of injury: a) Traumatic SCI _____ b) Non-traumatic SCI _____
9. Type of paralysis: a) Tetraplegia _____ b) Paraplegia _____
10. Level of injury: a) Cervical b) Thoracic c) Lumbar d) Sacrum e) Coccyx
11. Who is your child's primary caregiver? Ans: _____
12. Number of family members: _____
13. Family Monthly Income:.....(in taka)
14. Is your child currently involved in any institution-based program? Yes/No. If yes, please mention your institution's name: _____
 Current level of education: _____
15. Is there any history of school dropout present? Yes/No
 If yes, please mention when: a) Before paralysis b) After paralysis
 Highest level of education: _____
16. Have your child been victimized by bullying? Yes/No
 If yes, what types of bullying did your child experience?
 a) Verbal b) Physical c) Social d) Cyber

Section-2: Child & Adolescent Scale of Participation (CASP)

Child's name _____

Child & Adolescent Scale of Participation (CASP)

- Instructions -

1. This scale asks questions about your child's participation in activities and events at home, school and the community. There also are a few questions that ask about strategies, assistive devices or modifications that are used or have been done to help your child participate if this is needed.
2. There are no right or wrong answers. You will have to choose, and in some cases write, the answer that best describes your child's participation and things that help or interfere with his or her participation. If you are not sure about how to answer a question, give your best guess.

Thank you!

Your name _____

Your relationship to child _____

Date you completed survey _____

(Month / Day / Year)

We are interested in finding out about the activities that your child participates in at home, school and in the community.

You will be asked about your child's current level of participation with activities as compared to other children his or her age. For each item, choose one of the following responses:

- **Age expected (Full participation)**, your child participates in the activities the same as or more than other children his or her age. [*With or without assistive devices or equipment*]
- **Somewhat limited**, your child participates in the activities somewhat less than other children his or her age [*Your child may also need occasional supervision or assistance*]
- **Very limited**, your child participates in the activities much less than other children his or her age. [*Your child may also need a lot of supervision or assistance*]
- **Unable**, your child can not participate in the activities, although other children his or her age do participate.
- **Not applicable**, other children your child's age would not be expected to participate in the activities.

Please select one answer by placing an X in one of the boxes next to each item. If you are not sure, choose your best guess.

Compared to other children your child's age, what is your child's current level of participation in the following activities?	Age expected	Somewhat limited	Very limited	Unable	Not applicable
HOME PARTICIPATION					
1) Social, play or leisure activities with family members at home (e.g., games, hobbies, "hanging out")					
2) Social, play or leisure activities with friends at home (can include conversations on the phone or internet)					
3) Family chores, responsibilities and decisions at home (<i>For younger children</i> this may be getting things or putting things away when asked or helping with small parts of household chores; <i>For older children</i> this may be more involvement in household chores and decisions about family activities and plans)					
4) Self-care activities (e.g., eating, dressing, bathing, combing or brushing hair, using the toilet)					
5) Moving about in and around the home					
6) Communicating with other children and adults at home					

Compared to other children your child's age, what is your child's current level of participation in the following activities?	Age expected	Somewhat limited	Very limited	Unable	Not applicable
NEIGHBORHOOD AND COMMUNITY PARTICIPATION					
7) Social, play, or leisure activities with friends in the neighborhood and community (e.g., casual games, "hanging out," going to public places like a movie theater, park or restaurant)					
8) Structured events and activities in the neighborhood and community (e.g., team sports, clubs, holiday or religious events, concerts, parades and fairs)					
9) Moving around the neighborhood and community (e.g., public buildings, parks, restaurants, movies) [<i>Please consider your child's primary way of moving around, NOT his or her use of transportation</i>]					
10) Communicating with other children and adults in the neighborhood and community					

Answer the following 5 questions if your child attends school or another structured educational program such as an early intervention program or day care center. <u>Please specify</u> the type of program your child is attending here:					
Compared to other children your child's age, what is your child's current level of participation in the following activities?	Age expected	Somewhat limited	Very limited	Unable	Not applicable
SCHOOL PARTICIPATION					
11) Educational (academic) activities with other children in his or her classroom at school					
12) Social, play and recreational activities with other children at school (e.g., "hanging out," sports, clubs, hobbies, creative arts, lunchtime or recess activities)					
13) Moving around at school (e.g., to get to and use bathroom, playground, cafeteria, library or other rooms and things that are available to other children his or her age)					
14) Using educational materials and equipment that are available to other children in his or her classroom/s or that have been modified for your child (e.g., books, computers, chairs and desks)					
15) Communicating with other children and adults at school					

Compared to other children your child's age, what is your child's current level of participation in the following activities?	Age expected	Somewhat limited	Very limited	Unable	Not applicable
HOME AND COMMUNITY LIVING ACTIVITIES					
16) Household activities (e.g., preparing some meals, doing laundry, washing dishes)					
17) Shopping and managing money (e.g., shopping at stores, figuring out correct change)					
18) Managing daily schedule (e.g., doing and completing daily activities on time; organizing and adjusting time and schedule when needed)					
19) Using transportation to get around in the community (e.g., to and from school, work, social or leisure activities) [<i>Driving vehicle or using public transportation</i>]					
20) Work activities and responsibilities (e.g., completion of work tasks, punctuality, attendance and getting along with supervisors and co-workers)					

21.a. Please describe the type of things that interfere with your child's participation in the above-mentioned activities (e.g., things that your child does or that others do; or things about your home, school or community) [*Please write clearly*]:

21.b. Please describe the type of things that help with your child's participation in the above-mentioned activities (e.g., things that your child does or that others do; or things about your home, school or community). [*Please write clearly*]:

22. Does your child currently use any assistive devices or equipment to help him or her participate (e.g., adapted eating utensils, shower chair, note-taker for school, daily planner, computer)?

☐ Yes ☐ No

[If Yes], please identify:

23. Have any changes been made to your home, community or the school (or work) setting to help your child participate (e.g., rearranging furniture and materials, adjusting lighting or noise levels, building a ramp or other physical structures)?

☐ Yes ☐ No

[If Yes], please describe:

Section-3: Child & Adolescent Scale of Environment (CASE)**Child's name** _____**Child & Adolescent
Scale of Environment
(CASE)****- Instructions -**

1. This scale asks questions about physical or social aspects of the home and community environment with which your child may experience problems OR that are supportive or helpful to your child.
2. There are no right or wrong answers. You will have to choose, and in some cases write, the answer that best describes the impact that each aspect of the environment has on your child. If you are not sure about how to answer a question, give your best guess.

*Thank you***Your name** _____**Your relationship to child** _____**Date you completed survey** _____*(Month / Day / Year)*

The following is a list of possible problems your child may be experiencing with the physical or social aspects of the home and other places in the community OR with the quality or availability of services or assistance that he or she needs. Please put an ☒ in the box under the appropriate column next to each problem listed below.

<u>Possible Problem:</u>	<u>No Problem</u>	<u>Little Problem</u>	<u>Big Problem</u>	<u>Not Applicable</u>
1. Problem with design and layout of <u>home</u> (Hard to get to places and things, or hard to see or hear important information)	☐	☐	☐	☐
2. Problem with design and layout of buildings and places your child uses in the <u>community or neighborhood</u>	☐	☐	☐	☐
3. Problem with design and layout of <u>school or work setting</u> (Circle <u>school</u> or <u>work</u>)	☐	☐	☐	☐
4. Lack of support and encouragement for your child in the <u>community or neighborhood</u>	☐	☐	☐	☐
5. Lack of support and encouragement for your child at <u>school or work</u> (Circle <u>school</u> or <u>work</u>)	☐	☐	☐	☐
6. Problems with people's attitudes toward your child at <u>school or work</u> (Circle <u>school</u> or <u>work</u>)	☐	☐	☐	☐
7. Problems with people's attitudes toward your child in the <u>community or neighborhood</u>	☐	☐	☐	☐
8. Inadequate or lack of assistive devices or equipment	☐	☐	☐	☐
9. Inadequate or lack of assistance from people at <u>home</u> or in the <u>community or neighborhood</u>	☐	☐	☐	☐
10. Inadequate or lack of assistance from people at <u>school or work</u> (Circle <u>school</u> or <u>work</u>)	☐	☐	☐	☐
11. Inadequate or lack of transportation	☐	☐	☐	☐
12. Inadequate or lack of programs and services at <u>school</u>	☐	☐	☐	☐
13. Inadequate or lack of programs and services in the <u>community or neighborhood</u>	☐	☐	☐	☐
14. Inadequate or lack of family finances	☐	☐	☐	☐
15. Family stress	☐	☐	☐	☐
16. Crime or violence in the <u>community or neighborhood</u>	☐	☐	☐	☐

<u>Possible Problem (Continued):</u>	<u>No Problem</u>	<u>Little Problem</u>	<u>Big Problem</u>	<u>Not Applicable</u>
17. Problems with government agencies and policies	☐	☐	☐	☐
18. Inadequate or lack of information about your child's diagnosis or condition or intervention approaches (e.g., educational, rehabilitation or medical)	☐	☐	☐	☐
• Other problems or comments (<i>please specify →</i>):				

B. Please identify the physical or social aspects of the environment or qualities about the services that your child receives that are supportive or helpful to your child:

Appendix G : Questionnaire (Bangla Version)

Section-1: Sociodemographic Information Bangla

ব্যক্তিগত ও আর্থ-সামাজিক অবস্থা সম্পর্কিত সাধারণ প্রশ্নপত্র

১। আপনার সন্তানের নামঃ

মূল্যায়নের তারিখঃ

২। যোগাযোগের নম্বরঃ

৩। সন্তানের বয়সঃবছর

৪। লিঙ্গঃ ক) পুরুষ খ) নারী গ) অন্যান্য

৫। ঠিকানাঃ গ্রাম- পোস্ট অফিস-

উপজেলা- জেলা-

বসবাসের স্থানঃ ক) গ্রাম খ) শহর গ) উপশহর

৬। আঘাতের পরবর্তী সময়কালঃ

৮। হাসপাতাল থেকে ছাড়পত্রের তারিখঃ

৯। আঘাতের ধরণঃ ক) ট্রমাটিক এসসিআই খ) নন-ট্রমাটিক এসসিআই

১০। প্যারালাইসিস এর ধরণঃ ক)টেট্রাপ্লেজিয়া খ) প্যারাপ্লেজিয়া

১১। আঘাতের স্তরঃ ক) সারভাইকাল খ) থরাসিক গ) লামবার ঘ) সের্ভাল ঙ) কক্সিক্স

১২। আপনার সন্তানের দেখাশোনার জন্য প্রধান ব্যক্তি কে?

১৩। পরিবারের সদস্য সংখ্যাঃ

১৪। পরিবারের মাসিক আয়ঃ..... টাকা

১৫। আপনার সন্তান কি বর্তমানে কোন প্রাতিষ্ঠানিক কার্যক্রমে যুক্ত আছেন? হ্যাঁ/না

যদি হ্যাঁ হয়,তাহলে প্রতিষ্ঠানের নাম উল্লেখ করুন:

আপনার সন্তানের বর্তমান শিক্ষাগত স্তরঃ ক) প্রাক-স্কুল খ) প্রাথমিক গ) মাধ্যমিক ঘ) উচ্চ মাধ্যমিক

১৬। আপনার সন্তানের কখনো কি স্কুল বা প্রতিষ্ঠান ছেড়ে দেওয়ার ইতিহাস আছে? হ্যাঁ / না

যদি হ্যাঁ হয়, তাহলে কখন ছেড়েছেন তা উল্লেখ করুন:

ক) প্যারালাইসিস এর পূর্বে খ) প্যারালাইসিস এর পরে

আপনার সন্তানের সর্বোচ্চ শিক্ষাগত যোগ্যতাঃ ক) স্বাক্ষরজ্ঞান খ) প্রাথমিক গ) মাধ্যমিক ঘ) উচ্চ মাধ্যমিক

১৭। আপনার সন্তান কি কখনো বুলিংয়ের(অপমান,হেয় প্রতিপন্ন,নির্যাতন বা অন্যায়ের)শিকার হয়েছেন?

যদি হ্যাঁ হয়, তাহলে আপনার সন্তান কি ধরনের বুলিংয়ের শিকার হয়েছেন?

ক) মৌখিক খ) শারীরিক গ) সামাজিক ঘ) অনলাইন

Section-2: Child & Adolescent Scale of Participation (CASP) (Bangla Version)

শিশু ও কিশোরদের অংশগ্রহণের মাত্রা মূল্যায়ন স্কেল (CASP)

নির্দেশাবলী

1.এই স্কেলটি আপনার সন্তানের বাড়ি, স্কুল এবং সমাজে (কমিউনিটি) বিভিন্ন কার্যক্রমে অংশগ্রহণ সম্পর্কে জানতে চায়। এছাড়াও এখানে কিছু প্রশ্ন আছে যেখানে জিজ্ঞাসা করা হবে, আপনার সন্তানের অংশগ্রহণে সাহায্যের জন্য কোনো কৌশল, সহায়ক উপকরণ বা পরিবেশগত পরিবর্তন ব্যবহার করা হয়েছে কিনা।

2.এখানে সঠিক বা ভুল উত্তর নেই। আপনার সন্তানের বর্তমান অংশগ্রহণের অবস্থা সম্পর্কে যেটি সবচেয়ে উপযুক্ত মনে হয় সেটি নির্বাচন করুন। কোনো প্রশ্নের উত্তর নিয়ে অনিশ্চিত হলে আপনার সেরা অনুমানটি দিন।

ধন্যবাদ!

আপনার নাম: _____

শিশুর সাথে সম্পর্ক: _____

তারিখ: _____ (দিন / মাস / বছর)

আপনার সন্তানের অংশগ্রহণের মাত্রা সম্পর্কে তথ্য

আমরা জানতে চাই আপনার সন্তান বাড়ি, স্কুল এবং সমাজের বিভিন্ন কার্যক্রমে অন্যান্য সমবয়সী শিশুদের তুলনায় কতটা অংশগ্রহণ করে। প্রতিটি প্রশ্নের জন্য নিচের মধ্যে একটি উত্তর নির্বাচন করে "✓" চিহ্ন দিন।

বয়স অনুযায়ী স্বাভাবিক (পূর্ণ অংশগ্রহণ) (৪) – আপনার সন্তান সমবয়সীদের মতো বা তার চেয়েও বেশি অংশগ্রহণ করে। (সহায়ক যন্ত্রপাতি ব্যবহার করলেও)

কিছুটা সীমিত (৩) – সমবয়সীদের তুলনায় কিছুটা কম অংশগ্রহণ করে। (মাঝে মাঝে সাহায্য বা তত্ত্বাবধান প্রয়োজন হতে পারে)

খুব সীমিত (২) – সমবয়সীদের তুলনায় অনেক কম অংশগ্রহণ করে। (বেশি তত্ত্বাবধান বা সাহায্য লাগে)

অংশগ্রহণ করতে অক্ষম (১) – যেখানে সমবয়সীরা অংশগ্রহণ করে, সেখানে অংশ নিতে পারে না।

প্রযোজ্য নয় (০) – এই বয়সের বাচ্চাদের জন্য এই কাজ প্রত্যাশিত নয়।

১. বাড়ির মধ্যে অংশগ্রহণ

নিম্নলিখিত কার্যক্রমে আপনার সন্তানের তার সমবয়সী অন্য শিশুদের তুলনায় বর্তমান অংশগ্রহণের মাত্রা কেমন? বাড়ির মধ্যে অংশগ্রহণ	বয়স অনুযায়ী স্বাভাবিক(৪)	কিছুটা সীমিত(৩)	খুব সীমিত(২)	অক্ষম(১)	প্রযোজ্য নয়(০)
১) পরিবারের সাথে সামাজিক, খেলাধুলা বা বিনোদনের কাজ (যেমন, খেলনা খেলা, টিভি দেখা, গল্প শোনা, আড্ডা দেওয়া)					
২) বন্ধুর সাথে বাড়িতে সামাজিক বা বিনোদনের কাজ (যেমন, মোবাইল বা ফোনে কথা বলা, একসাথে খেলা)					
৩) পারিবারিক কাজ, দায়িত্ব ও সিদ্ধান্তে অংশগ্রহণ (যেমন, ছোট বাচ্চাদের জন্য জিনিস আনা-নেওয়া, বড় বাচ্চাদের জন্য ঘরের কাজে সাহায্য করা, পারিবারিক অনুষ্ঠানের সিদ্ধান্তে মতামত দেওয়া)					
৪) নিজের কাজকর্ম (যেমন, খাওয়া-দাওয়া, জামা-কাপড় পরা, গোসল করা, দাঁত বা চুল আঁচড়ানো, টয়লেট ব্যবহার করা)					
৫) ঘরের ভিতর ও বাইরে চলাফেরা করা					
৬) বাড়িতে অন্য শিশু বা বড়দের সাথে যোগাযোগ করা					

নিম্নলিখিত কার্যক্রমে আপনার সন্তানের তার সমবয়সী অন্য শিশুদের তুলনায় বর্তমান অংশগ্রহণের মাত্রা কেমন? পাড়া ও সমাজে অংশগ্রহণ	বয়স অনুযায়ী স্বাভাবিক(৪)	কিছুটা সীমিত(৩)	খুব সীমিত(২)	অক্ষম(১)	প্রযোজ্য নয়(০)
৭) বন্ধুদের সাথে পাড়া বা সমাজে সামাজিক, খেলাধুলা বা বিনোদনমূলক কার্যক্রমে অংশগ্রহণ (যেমন, মাঠে খেলা, দোকান বা মেলায় যাওয়া, পার্কে ঘোরা, সিনেমা হলে যাওয়া)					
৮) পাড়া বা সমাজে সংগঠিত অনুষ্ঠান বা কার্যক্রমে অংশগ্রহণ (যেমন, খেলাধুলার দল, কুরআন ক্লাস/মক্তব, ঈদ বা পূজা অনুষ্ঠান, গ্রাম বা মহল্লার মেলা, স্কুলের সাংস্কৃতিক অনুষ্ঠান)					
৯) সমাজের ভেতরে চলাফেরা করা (যেমন, মসজিদ, বাজার, স্কুল, পার্ক বা অন্যান্য জায়গায় হেঁটে বা হুইলচেয়ারে যাওয়া)					
১০) সমাজে অন্য শিশু ও বড়দের সাথে কথা বলা বা যোগাযোগ করা					

৩. স্কুল বা শিক্ষা প্রতিষ্ঠানে অংশগ্রহণ

(যদি শিশু স্কুল বা ডে কেয়ার/শিশুশিক্ষা কেন্দ্রে যায়)

নিম্নলিখিত কার্যক্রমে আপনার সন্তানের তার সমবয়সী অন্য শিশুদের তুলনায় বর্তমান অংশগ্রহণের মাত্রা কেমন? স্কুল বা শিক্ষা প্রতিষ্ঠানে অংশগ্রহণ	বয়স অনুযায়ী স্বাভাবিক(৪)	কিছুটা সীমিত(৩)	খুব সীমিত(২)	অক্ষম(১)	প্রযোজ্য নয়(০)
১১) ক্লাসের পড়াশোনায় অংশগ্রহণ (যেমন, শিক্ষক ও অন্যান্য শিক্ষার্থীর সাথে পাঠে অংশ নেওয়া)					
১২) বন্ধুদের সাথে সামাজিক বা বিনোদনমূলক কার্যক্রম (যেমন, টিফিন টাইমে আড্ডা, খেলাধুলা, ক্লাব, হস্তশিল্প, গান বা নাটক)					
১৩) স্কুলের ভিতরে চলাফেরা করা (যেমন, টয়লেট, মাঠ, লাইব্রেরি বা অন্যান্য জায়গায় যাওয়া)					
১৪) শিক্ষাসামগ্রী বা সরঞ্জাম ব্যবহার (যেমন, বই, পেনসিল, কম্পিউটার, বেঞ্চ, হুইলচেয়ার বা শিশুর জন্য মানিয়ে নেওয়া উপকরণ)					
১৫) স্কুলে অন্য শিশু বা শিক্ষকদের সাথে যোগাযোগ করা					

৪. বাড়ি ও সমাজের দৈনন্দিন কাজকর্মে অংশগ্রহণ

কার্যক্রম	বয়স অনুযায়ী স্বাভাবিক(৪)	কিছুটা সীমিত(৩)	খুব সীমিত(২)	অক্ষম(১)	প্রয়োজ্য নয়(০)
১৬) ঘরের কাজ (যেমন, ছোটখাটো রান্নার কাজে সাহায্য, থোলা ধোয়া, জামা-কাপড় ধোয়া)					
১৭) বাজার করা ও টাকার হিসাব করা (যেমন, দোকানে যাওয়া, টাকা দেওয়া-নেওয়া, খুচরো ফেরত নেওয়া)					
১৮) দৈনন্দিন কাজের সময় ঠিক রাখা, কাজ শেষ করা এবং সময় ম্যানেজ করা					
১৯) চলাফেরার জন্য পরিবহন ব্যবহার (যেমন, স্কুল বা মাদ্রাসায় যাওয়া-আসা, রিকশা, বাস বা অটোরিকশা ব্যবহার করা)					

Section-3: Child & Adolescent Scale of Environment (CASE) (Bangla Version)

CASE SCALE : নির্দেশনা: নিম্নে আপনার শিশুর বাড়ি এবং সমাজের অন্যান্য স্থানে শারীরিক বা সামাজিক

দিক এবং সেবা বা সহায়তার গুণগত মান বা প্রাপ্যতা সম্পর্কিত কিছু সম্ভাব্য সমস্যার তালিকা দেওয়া হলো।

অনুগ্রহ করে প্রতিটি সমস্যার পাশে সঠিক ঘরে (☑) চিহ্ন দিন।

সম্ভাব্য সমস্যা	কোনো সমস্যা নেই (১)	সামান্য সমস্যা (২)	বেশি সমস্যা (৩)	প্রয়োজ্য নয় (০)
১. বাড়ির গঠন ও ব্যবহারযোগ্যতায় সমস্যা (কোনো যায়গায় যাওয়া ,কোনো কিছু নেওয়া অথবা গুরুত্বপূর্ণ তথ্য দেখা বা শোনা কঠিন)	☐	☐	☐	☐
২. সমাজে বা পাড়ায় আপনার শিশু যেসব ভবন ও স্থান ব্যবহার করে সেগুলোর গঠন ও ব্যবহারযোগ্যতায় সমস্যা	☐	☐	☐	☐
৩. স্কুল বা কর্মস্থলের গঠন ও ব্যবহারযোগ্যতায় সমস্যা (স্কুল বা কর্মস্থল যেটা প্রয়োজ্য তা বৃত্তাকারে চিহ্নিত করুন	☐	☐	☐	☐
৪. সমাজে বা পাড়ায় আপনার শিশুর জন্য সহায়তা এবং উৎসাহের অভাব	☐	☐	☐	☐
৫. স্কুল বা কর্মস্থলে আপনার শিশুর জন্য সহায়তা এবং উৎসাহের অভাব(স্কুল বা কর্মস্থল যেটা প্রয়োজ্য তা বৃত্তাকারে চিহ্নিত করুন)	☐	☐	☐	☐
৬. স্কুল বা কর্মস্থলে আপনার শিশুর প্রতি মানুষের মনোভাবজনিত সমস্যা(স্কুল বা কর্মস্থল যেটা প্রয়োজ্য তা বৃত্তাকারে চিহ্নিত করুন	☐	☐	☐	☐
৭. সমাজে বা পাড়ায় আপনার শিশুর প্রতি মানুষের মনোভাবজনিত সমস্যা	☐	☐	☐	☐
৮. সহায়ক সরঞ্জামের বা উপকরণের অভাব অথবা অপর্যাপ্ততা	☐	☐	☐	☐
৯. বাড়ি অথবা সমাজে বা পাড়ায় অন্যদের কাছ থেকে সহায়তা অপর্যাপ্ত বা অনুপস্থিত	☐	☐	☐	☐

১০. স্কুল বা কর্মস্থলে অন্যদের কাছ থেকে সহায়তা অপরিাপ্ত বা অনুপস্থিত (স্কুল বা কর্মস্থল যেটা প্রযোজ্য তা বৃত্তাকারে চিহ্নিত করুন)	☐	☐	☐	☐
১১.পরিবহনের অপরিাপ্ততা বা অভাব	☐	☐	☐	☐
১২. স্কুলে প্রোগ্রাম ও সেবার অপরিাপ্ততা বা অভাব	☐	☐	☐	☐
১৩. সমাজে বা পাড়ায় প্রোগ্রাম ও সেবার অপ্রতুলতা বা অভাব	☐	☐	☐	☐
১৪. পারিবারিক আর্থিক সংস্থানের অভাব বা অপরিাপ্ততা	☐	☐	☐	☐
১৫. পারিবারিক মানসিক চাপ	☐	☐	☐	☐
১৬. সমাজে বা পাড়ায় অপরাধ বা সহিংসতা	☐	☐	☐	☐
১৭. সরকারি সংস্থা ও নীতিমালার সাথে সম্পর্কিত সমস্যা	☐	☐	☐	☐
১৮. আপনার শিশুর রোগ নির্ণয় বা অবস্থা অথবা চিকিৎসাব্যবস্থা(যেমন, শিক্ষাগত, পুনর্বাসন, বা চিকিৎসা) সম্পর্কে তথ্যের অভাব বা অপরিাপ্ততা	☐	☐	☐	☐

Appendix H : Supervision Contact Schedule

Bangladesh Health Professions Institute
Department of Occupational Therapy
4th Year B. Sc in Occupational Therapy
OT 401 Research Project

Thesis Supervisor- Student Contact; face to face or electronic and guidance record

Title of thesis: Level of Participation & it's associated factors among children and Adolescent with Spinal Cord Injury: An Analytical Cross-Sectional Study

Name of student: Md. Farhan Shahriyar

Name and designation of thesis supervisor: Md. Saddam Hossain
Assistant Professor
Department of Occupational Therapy
Bangladesh Health Professions Institute (BHPI)

Appointment No	Date	Place	Topic of discussion	Duration (Minutes/Hours)	Comments of student	Student's signature	Thesis supervisor signature
1	25.05.25	BHPI	Title, Scale, Aim/Objective	2 hour	Helpful	Shahriyar	Farhan
2	27.05.25	BHPI	Proposal Presentation Guideline	50 minutes	Helpful for preparing presentation	Shahriyar	Farhan
3	31.05.25	BHPI	Proposal Presentation Feedback	2 hour	Helpful for preparation	Shahriyar	Farhan

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4	04.06.25	BHPI	Discussion about sample size, data collection	45 minutes	Preparation for finding potential participants	Shahriyar	Farhan
5	07.06.25	BHPI	Discussion about socio-demographic questionnaire	50 minutes	Preparation for field test	Shahriyar	Farhan
6	09.06.25	BHPI	Feedback about socio-demographic questionnaire	2 hour	Preparation for data collection	Shahriyar	Farhan
7	11.06.25	BHPI	Feedback on bangla translated questionnaire	45 minutes	Get some feedback which need to be correct	Shahriyar	Farhan
8	14.06.25	BHPI	Guideline on literature review	3 hour	Purpose and process of finding literature and interpret	Shahriyar	Farhan
9	21.06.25	BHPI	Feedback on literature review	3 hour	How to find key information from literature and writing skill	Shahriyar	Farhan
10	06.08.25	BHPI	Guideline on data collection	45 minutes	For maintaining ethics and consideration	Shahriyar	Farhan
11	19.08.25	BHPI	Discussion about data collection status	45 minutes	Get some feedback which need to be correct	Shahriyar	Farhan
12	30.08.25	BHPI	Discussion about data entry and data analysis	2 hour	Effective methods & processes of entry & analysis	Shahriyar	Farhan
13	01.09.25	BHPI	Data entry variable set guideline	2 and half hour	How to set variable	Shahriyar	Farhan
14	10.11.25	BHPI	Data analysis guideline on SPSS	3 hour	Processes of analysis that need to be done	Shahriyar	Farhan

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15	11-11-25	BHPI	Descriptive analysis feedback	4 hour	Get some feedback on result interpretation	<i>Shahidun</i>	<i>File</i>
16	12-11-25	BHPI	Feedback on descriptive analysis result writing	3 hour	Need to be correct mistakes in writing	<i>Shahidun</i>	<i>File</i>
17	13-11-25	BHPI	Discussion on inferential analysis	4 hour	Processes of analysis	<i>Shahidun</i>	<i>File</i>
18	15-11-25	BHPI	Feedback on result writing	3 hour	Get some effective & valuable feedback	<i>Shahidun</i>	<i>File</i>
19	16-11-25	BHPI	Overall feedback on result writing	3 hour	How to interpret finding more effectively	<i>Shahidun</i>	<i>File</i>
20	23-12-25	BHPI	Feedback on 1st draft	2 hour	Need to be correct findings, some references	<i>Shahidun</i>	<i>File</i>

Note:

1. Appointment number will cover at least a total of 40 hours; applicable only for face to face contact with the supervisors.
2. Students will require submitting this completed record during submission your final thesis.