



## Evaluating Social Participation among the People with Spinal Cord Injury of Dhaka District in Bangladesh

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### Abstract:

**Introduction:** People with spinal cord injuries (SCI) have faced many challenges in their community life after completing their rehabilitation. Some of them can engage in their social events in a modifying way, but many of them can not engage in their social events properly. It also restricts their ability and quality of life. This study identified the level of participation among people with SCI in the community of Dhaka district. The purpose of this study was to evaluate the social participation among people living with spinal cord injury. **Materials and Methods:** The study was conducted through cross-sectional design in the quantitative study among 70

participants whose age was 18-70 years who completed the rehabilitation program. By using a purposive sampling technique participants were selected for the study based on the inclusion criteria. Data were collected using a structured socio-demographic profile sheet and the Participation Scale (P-scale). Data were collected by face-to-face interviews and also used the "Participation scale". **Results:** The findings reveal that 29% of respondents reported no significant restriction in participation, 44% experienced mild restriction, 19% had moderate restriction, 7% had severe restriction, and 1% faced extreme restriction. A substantial proportion of participants (80%) reported secondary complications, including pain (24%), pressure sores (19%) and urinary tract infections (20%). Adequate financial resources and social support were identified as key facilitators of participation, while physical environment, unsupportive social attitudes, and mental health issues were significant barriers. **Conclusion:** The study highlights the urgent need for specific interventions and supports to enhance social participation for individuals with SCI. Recommendations include improving accessibility, increasing resources and training for healthcare professionals, implementing public awareness campaigns to reduce stigma, and fostering collaboration between government and non-governmental organizations to create a more inclusive environment that supports participation and enhances the quality of life for people with SCI.

**Keywords:** *Spinal Cord Injury, Social Participation, Bangladesh.*



## Introduction

Bangladesh is a developing country and the most densely populated country situated in South Asia in the world. Bangladesh has a population of 152,518,015 which ranks Bangladesh 8<sup>th</sup> in the world, 27% of them live in urban areas and the majority 73% live in rural areas (Bangladesh Bureau of Statistics, 2011). There are an estimated 16 million people with disabilities in Bangladesh, or 10% of the country's population (Islam and Jahan, 2018). A spinal cord injury (SCI) is a medically complex and life-disrupting condition that leads to a wide range of functional impairments and health-related problems (Kirchberger et al. 2010). SCI, the common type of injury, is also a severely disabling condition and leads to a range of impairments and secondary health conditions. Patients with SCI experience difficulty in participating in society in contexts such as work and leisure activities (Magasi et al., 2008). SCI has become a major cause of mortality, and morbidity and continues to be one of the foremost causes of disability. According to the estimation of 2011, there are 17 million people in the world who experienced SCI in their lives (NSCISC 2014).

SCI is a life-altering condition that also significantly impacts an individual's physical, psychological, and social well-being. The effects of SCI spread outside the immediate health consequences, and affect various aspects of daily living and social participation (Anderson, 2004). Social participation refers to involvement in activities that enable interaction with others in society and contribute to an individual's sense of belonging and purpose (Levasseur et al., 2010). For people with SCI, the ability to engage in social activities is often hindered by numerous barriers, which can lead to social isolation and a diminished quality of life (World Health Organization, 2013).

People living with SCI in less-resourced countries such as Bangladesh, face challenges due to limited access to health care, rehabilitation programs, and quality-assistive devices (World Health Organization. 2013; Hossain et al., 2015). More specifically, a recent

study from Bangladesh reported that 19% of people who sustained an SCI were wheelchair-dependent and died within 2 years of discharge from the hospital (Hossain et.al, 2016). Social participation is the extent of people's involvement and interaction with others in their local communities, neighborhoods, and wider society. The socio-economic environment, coupled with inadequate infrastructure and diffusive societal attitudes, often creates obstacles for these individuals (Mohamed, 2022). Despite these challenges, there is a critical need to understand and address the factors that influence social participation among people with SCI to promote their integration into society. Many factors can influence social participation, including the facilities and resources available in the community or neighborhood and the ease by which people can access them. Activity and participation are crucial yet complex concepts, which may lead to inadequacies in empirical research due to the interaction of conceptual and methodological issues with environmental factors and impairments. (Whiteneck et. al., 2009). In the UK, Lancashire County Council's Community Projects team works with Lancashire residents to support projects to strengthen communities and improve health and wellbeing (Social Participation, 2020). Collaborating by parenting with affected communities in each aspect of the decision including the development of alternatives identification of solutions and Empowering and ensuring that communities retain ultimate control over the key decisions that affect their well-being (WHO, 2011; The World Health Report, 2008).

Dhaka District is the capital and most densely populated area of Bangladesh, presenting a unique setting for this study. The district encompasses a wide range of socio-economic backgrounds and varying levels of accessibility and support services. This diversity makes Dhaka an ideal location to explore the dynamics of social participation among individuals with SCI. This study aims to evaluate the current status of social participation among people with SCI in the Dhaka District. By identifying the

barriers and facilitators that affect their involvement in social activities, the research provides insights that can inform policies and interventions designed to enhance social integration and improve the quality of life for individuals with SCI. Ultimately, this study contributes to the people with SCI and their social participation in Bangladesh and also highlights the urgent need for inclusive and supportive measures that enable individuals with SCI to live fulfilling and socially active lives.

## Materials and Methods

Researchers used a quantitative cross-sectional study design. By using a purposive sampling technique 70 participants were selected for the study based on the inclusion criteria. All participants who suffered from spinal cord injury completed a rehabilitation program from CRP and lived in their community of the Dhaka district. The researcher gained permission from the Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI), the Rehabilitation Wing department of CRP, and also from the participants during the data collection period. Data were collected using a widely used Socio-demographic profile sheet and Participation scale (P-scale). Data were analyzed through descriptive Statistics of Statistical Packages for Social Science (SPSS), version 20.0.

## Results

The total respondents were 70 from the age group of 18-70 years. There were 17 respondents (24%) from 18-30 years, another 17 respondents (24%) from 31-40 years, 19 respondents (27%) from 41-50 years, 11 respondents (16%) from 51-60 years and 6 respondents (9%) from 61-70 years. Data shows that 69% (n=48) were males and 31% (n=22) were females. The number of male respondents was higher than females. The table also shows that the maximum respondents in this study lived in urban areas. About 84% of respondents (n=59) lived in urban areas, 10% of respondents (n=7) lived in rural areas, and 6% of respondents (n=4) lived in semi-urban areas.

About 26% of respondents (n=18) were unmarried and 69% of respondents (n=48) were married. Around 4% of respondents (n=3) were separated from each other and 1% of respondents (n=1) had divorced. Besides, it was found from the study that, a large number of respondents lived in a single family. Around 56% (n=39) respondents lived in a single family and nearly 34% (n=24) respondents lived in a joint family among of total respondents. Only 10% (n=7) of respondents lived alone.

**Table 1. Demographic Information of the Participants**

Variable	N=70	Percentage (%)
<b>Age Range</b>		
18-30 years	17	24%
31-40 years	17	24%
41-50 years	19	27%
51-60 years	11	16%
61-70 years	06	09%
<b>Gender</b>		
Male	48	69%
Female	22	31%
<b>Marital Status</b>		
Unmarried	18	26%
Married	48	69%
Separate	03	04%
Divorced	01	01%
<b>Living Area</b>		
Rural	07	10%
Urban	59	84%
Semi-urban	04	06%
<b>Type of Family</b>		
Joint family	24	34%
Single family	39	56%
Living alone	07	10%
<b>Causes of Injury</b>		
Road accident	33	47%
Fall from height	22	31%
Faced violence	03	04%
During play	02	03%
Diving	03	04%
Tumor (in body)	03	04%
Spinal bi-fida	01	02%
Degenerative spinal column	01	02%
Congenital medical issues	01	02%
SCI infections	01	01%
<b>Diagnosis of Injury</b>		
Traumatic paraplegia	41	59%
Traumatic tetraplegia	22	31%
Non-traumatic paraplegia	05	07%
Non-traumatic tetraplegia	02	03%

<b>Assistive Device for the Participants</b>		
Wheelchair	45	64%
Walking frame	02	03%
Elbow crutch	11	16%
Axillary crutch	02	03%
Helping stick	01	01%
Long trolley	03	04%
Not required	06	09%
<b>Vocational Training</b>		
Shop management training	31	44%
Electric training	17	24%
Computer training	10	15%
Tailoring training	07	10%
Woodwork	03	04%
Animal husbandry training	02	03%
<b>Source of Income</b>		
Self-employment	38	54%
Govt. job	04	06%
Non govt. job	08	11%
Farming work	02	03%
No earnings	18	26%

### Causes of Injury

The respondents were asked about the causes/reasons for their injury. Different reasons were found. But, the identifiable and most common reason in this study is road accidents. Among the total participants with SCI, about 47% (n=34) of respondents were injured by road accident, 31% (n=23) of respondents were injured by fall from height, 4% (n=3) of respondents were injured by violence, 3% (n=2) of respondents were injured during play and 4% (n=3) of respondents were injured by diving. These reasons indicate traumatic SCI. Besides, about 4% (n=3) of respondents were injured by tumor (in the body), 2% (n=1) by spinal bifida, 2% (n=1) by degenerative spinal column, 2% (n=1) by congenital medical issues and another 1% (n=1) of respondents were injured by infections. These reasons indicate non-traumatic SCI.

### Diagnosis of Injury

It was found that, among the total participants, the maximum number of respondents faced Spinal Cord Injury (SCI) with traumatic paraplegia. About 59% (n=41) of respondents faced Spinal Cord Injury (SCI) with traumatic paraplegia, and 31% (n=22) of respondents faced SCI with traumatic tetraplegia. Besides, about 7% (n=5) of respondents faced SCI with

non-traumatic paraplegia, and 3% (n=2) of respondents faced SCI with non-traumatic tetraplegia.

### Statistics on Assistive Devices

The respondents were asked about their assistive devices and actual using assistive devices in the community. Already, it was known that about 91% (n=64) respondents use assistive devices in their community life, and 09% (n=6) respondents do not use assistive devices. Then, it was found (from 64 respondents) that as an assistive device, the wheelchair was used by 64% (n=45) of respondents, a walking frame was used by 03% (n=2) of respondents, an elbow crutch was used by 16% (n=11) of respondents and axillary crutch was used by 03% (n=2) of respondents in their own community. 01% (n=1) of respondents used a helping stick and 04% (n=3) of respondents were using a long trolley as an assistive device in the community.

### Statistics of Vocational Training

All respondents were asked about their actual taking vocational training from CRP. About, 44% (n=31) took shop management training, 24% (n=17) took electric training, 15% (n=10) took computer training, 10% (n=7) took tailoring training, 4% (n=3) took woodwork training and 3% (n=2) took animal husbandry training. These respondents took vocational training to lead their lives securely in their community.

### Statistics on Source of Income

Total respondents were asked about their source of income. Different responses were found from different respondents in this section. Already, it was known that about 74% of respondents (52 persons) had earnings and about 26% of respondents (18 persons) had no earnings. It was seen that, among 52 earning participants, 54% (n=38) were self-employed, 6% (n=4) were Government jobs, and 11% (n=8) were non-govt. job and 3% (n=2) were engaged in farming work.

Table 2 shows that the respondents were asked about their occupation before the injury and their current occupation. It was found that, before the injury, respondents were involved

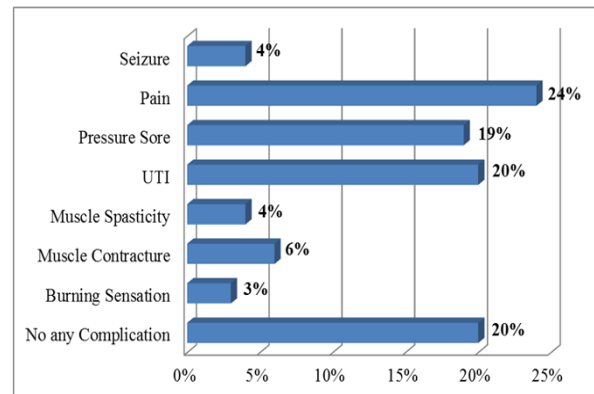
with different types of work. 11% (n=8) of respondents were housewives, 30% (n=21) were service holders, 16% (n=11) maintained their own businesses, 14% (n=10) were day laborers, 29% (n=20) were students before their injury. However, after their injury, it was seen that a maximum of respondents were involved with their own business. About 56% (n=39) of respondents maintain their own business, 19% (n=13) were service holders, 01% (n=1) were day laborers, 08% (n=6) of respondents were housewives and 6% (n=4) respondents went back to their studies. About 10% (n=7) of respondents were unemployed.

**Table 2. Previous and Current Occupation of the Participants**

Variable	N=70	Percentage (%)
<b>Occupation before Injury</b>		
House-wife	08	11%
Day labor	10	14%
Service holder	21	30%
Own business	11	16%
Student	20	29%
<b>Current Occupation</b>		
Unemployment	06	10%
House-wife	07	08%
Day labor	01	01%
Service holder	13	19%
Own business	39	56%
Student	04	06%

### Secondary Complication

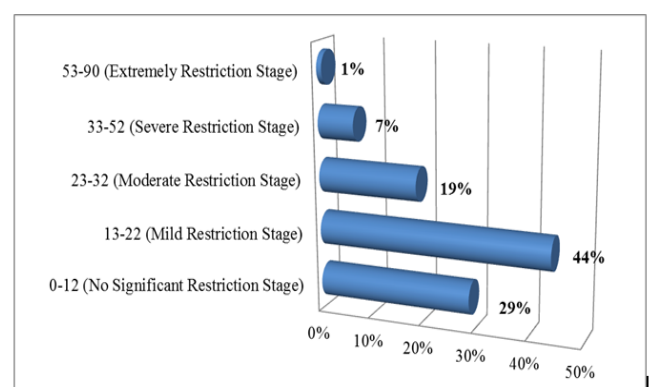
It was already known that about 80% (n=56) of respondents in this study had faced different types of health complications and about 20% of respondents (14 persons) had no complications. Among them (n=56), about 24% (n=17) of respondents had pain, 19% (n=13) had a pressure sore, and 20% (n=14) of respondents had UTI (Urinary Tract Infection). Besides, about 04% (n=3) of respondents had muscle spasticity, 06% (n=4) of respondents had muscle contracture, 03% (n=2) of respondents had a burning sensation, and 04% (n=3) of respondents had a seizure as a health complication.



**Figure 1. Statistics on Secondary Complication**

### Level of Participation of SCI Participants

The total respondents were asked about their social perception according to the questionnaire of participation scale. Different responses were found about these from the participants. After completing data collection from the participants, it was found that about 29% (n=20) of respondents are in the “No significant restriction stage (score: 0-12)”, about 44% (n=31) of respondents are in the “Mild restriction stage (score: 13-22)”, and about 19% (n=13) of respondents are in “Moderate restriction stage (score: 23-32)”. Besides, about 7% (n=5) of respondents are in the “Severe restriction stage (score: 33-52)” and about 1% (n=1) of respondents are in the “Extremely restriction stage (score: 53-90)”.



**Figure 2. Statistics on the Level of Participation of SCI participants**

## Discussion

The results of this study provide an overview of demographic characteristics, causes of injury, diagnosis, usage of assistive devices, vocational training, sources of income, secondary complications, and level of participation among individuals with spinal cord injury (SCI) in Dhaka District. These findings highlight several areas that impact the social participation and overall quality of life for individuals with SCI. The demographic data show the age groups among the respondents, the total number of participants was 70, while 69% (n=48) were male 31% (n=22) were female and the age range was 18-70 years. The male prevalence (69%) supports previous research indicating higher SCI incidence among males due to their greater involvement in high-risk activities (Chen et al., 2022). In another study in Nepal, the total number of participants was 37, while males were 25 and another 12 were female, and the age range of them was 13-73 years (Scovil et al., 2007). A study on the SCI population in Bangladesh found that the majority of participants 88.8% (71) were male and other participants 11.3% (09) were female (Sanjida et al., 2023). But in another two studies in Canada, the sample was 145 (n) and males were 79% (n=115), females were 21% (n=30) and mean±SD was 48.7±17.4 approximately similar compared to this study (Noonan et al., 2010). In another study in the UK, a sample of 357 people (response rate-44%) with SCI was recruited through the British Columbia Paraplegic Association. The mean age standard deviation was 46.0±14.7years, the mean time since SCI was 13.0±11.0 years, and 68% of the respondents were men; and respondents ranged in age from 17 to 98 years (Carpenter et al., 2007).

In this study, 26% (n=18) of participants were unmarried, 69% (n=48) of participants were married, 4% (n=3) of participants were separated, and 1% (n=1) of participants were divorced. But a Canadian study found that 31% (n=45) were unmarried, 55% (n=80) led cohabiting life and 14% (n=20) were divorced (Noonan et al., 2010). The study identified road accidents (47%) as the leading cause of SCI, followed by falls from height (31%). These

findings highlight the need for improved road safety and workplace regulations to prevent such injuries (World Health Organization, 2013). The high prevalence of traumatic paraplegia (59%) and traumatic tetraplegia (31%) among the respondents reflects the severity of these injuries and their profound impact on mobility and daily functioning. Rahman et al., (2023) found that Characteristics of Injury among the participants, 91.8% (n=56) were Traumatic Injury, and 8.2% (n=05) were Non- Traumatic Injury and after injury, their neurological levels of 37.7% (n=23) were T7-T12: Paraplegia, 32.8% (n=20) were C1-C4: High Tetraplegia, 16.4% (n=10) were L1-S5: Low Paraplegia, 8.2% (n=5) were T2-T6: High Paraplegia. In another study in Nepal, among total participants (n=37), about 19 participants faced complete paraplegia, 10 participants faced incomplete paraplegia, 3 participants faced complete tetraplegia and 4 participants faced incomplete tetraplegia (Scovil et al., 2007). A significant majority (91%) of respondents used assistive devices, with wheelchairs being the most common (64%). This highlights the necessary role of assistive devices in enhancing mobility and independence, thereby facilitating social participation (Levasseur et al., 2010). However, the reliance on wheelchairs also indicates the need for accessible infrastructure and services to support the mobility of individuals with SCI (Serres-Lafontaine, 2023).

Vocational training is an important factor for the economic integration of persons with SCI, with 44% of respondents receiving training in shop management. The variety of vocational training programs, including electrical, computer, tailoring, woodworking, and animal husbandry, indicates efforts to prepare individuals with diverse skills to secure livelihoods. Self-employment was the most common source of income (54%), suggesting a strong inclination towards entrepreneurship among people with SCI, the relatively low representation in government (6%) and non-government jobs (11%) highlights the need for more inclusive employment policies and opportunities in the formal sector. A study on post-rehabilitation status found that before SCI 19.1% were

involved in self-business and 37.3% started the business after injury besides that after rehabilitation 33.6% of participants as not engaged in any work (Nayan et al., 2016). . In a Canadian study, 32% (n=46) were employed (full or part-time), 7% (n=10) were unemployed, 32% (n=46) were volunteer or retired and 26% (n=38) were unable to work (Noonan et al., 2010). Urban areas provide better access to rehabilitation services and employment opportunities, essential for the social integration of individuals with SCI (Tzanos et al., 2016; Lidal et al., 2007). Secondary complications were prevalent, with 80% of respondents experiencing complication issues such as pain (24%), urinary tract infections (20%), and pressure sores (19%). Secondary complications not only affect physical health but also exacerbate social isolation and reduce quality of life (Charlifue et al., 2006). Effective management of these complications through regular medical care and rehabilitation services is essential to improve health outcomes and support social participation (Fort et al., 2021).

The level of social participation varied significantly among respondents. About 29% experienced no significant restrictions, while the majority faced mild (44%) to moderate (19%) restrictions and severe and extreme restrictions were less common but still significant (8%). These findings indicate that while some individuals manage to maintain social engagement, many face barriers that hinder their full participation in community life (Levasseur et al., 2010). Addressing these barriers through proper rehabilitation interventions and supportive policies is essential for enhancing social integration. Adequate financial resources and social support facilitate social participation for people with SCI, while physical environment, unsupportive social attitudes, and mental health issues pose barriers, highlighting the need for occupational therapy to focus on meaningful community engagement and advocacy to enhance the quality of life (Barclay et al., 2016).

## Conclusion

The findings of this study highlight the many challenges faced by individuals with SCI in Dhaka District. Addressing these challenges requires a holistic approach that includes improving road and workplace safety, enhancing access to assistive devices, providing comprehensive vocational training, and promoting inclusive employment opportunities. Additionally, effective management of secondary complications is essential for improving the overall well-being and social integration of individuals with SCI. Collaborative efforts from government agencies, non-governmental organizations, and community stakeholders are essential to create a more inclusive environment that supports participation and enhances the quality of life for people with SCI.

## Recommendation

Future research should involve a larger and more diverse sample size to enhance the generalizability of the findings across different demographics and regions in Bangladesh and use the findings to advocate for policies that improve road and workplace safety, enhance accessibility, and promote inclusive employment opportunities for individuals with SCI; increase resources and training for healthcare professionals and caregivers to better manage secondary complications and support social integration; implement public awareness campaigns to reduce stigmatizing attitudes; and encourage collaboration between government agencies, NGOs, and community stakeholders to create comprehensive support systems for enhancing the quality of life for people with SCI.

## Limitation

The study's relatively small sample size may limit the generalizability of the results to the broader population of individuals with SCI in Bangladesh, and the lack of related studies and limited resources on participation within the

Bangladeshi context makes it difficult to compare these findings with other research.

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## Ethical Approval

The study was approved by the Institutional Review Board (IRB).

## Conflict of Interest

The authors declare there is no conflict of interest.

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