

# Influence of Environmental Barrier on Participation Among Persons with Spinal Cord Injury in Bangladesh

Rasel Howlader<sup>1,\*</sup>, Farhana Akter Pipasa<sup>2</sup>, Md. Rafiqul Islam<sup>3</sup>

<sup>1</sup>BRAC Education Program (BEP), BRAC, Dhaka, Bangladesh

<sup>2</sup>Department of Occupational Therapy, Center for the Rehabilitation of the Paralyzed (CRP), Dhaka, Bangladesh

<sup>3</sup>Protibondhi Seba-O-Sahajjo Kendro (PSOSK), Jatiya Protibondhi Unnayan Foundation (JPUF), Ministry of Social Welfare, Dhaka, Bangladesh

## Email address:

howlader.rasel@yahoo.com (R. Howlader), pipasa.ot.crp@gmail.com (F. A. Pipasa), rafiquelphysio@gmail.com (Md. R. Islam)

\*Corresponding author

## To cite this article:

Rasel Howlader, Farhana Akter Pipasa, Md. Rafiqul Islam. Influence of Environmental Barrier on Participation Among Persons with Spinal Cord Injury in Bangladesh. *European Journal of Clinical and Biomedical Sciences*. Vol. 8, No. 2, 2022, pp. 19-22.  
doi: 10.11648/j.ejcbcs.20220802.12

**Received:** November 2, 2021; **Accepted:** November 22, 2021; **Published:** April 9, 2022

---

**Abstract:** Introduction: Persons with SCI experience limitations of activity and inabilities in their early age in comparison with non-injured individual and also experience difficulties in participation in personal and social life. The participation has significant relationship with environment that's why improving participation in the socio-cultural context can advance their personal satisfaction adequately for people with spinal cord injury. Disability, individual and environmental factors are considered as indicators of participation. Objectives: To explore the perceive impact of environmental barriers on participation of community dwelling individuals with spinal cord injury in Bangladesh. Methodology: A qualitative study design was selected by the researcher to carry out the research. All dimensions of each individual were completed at one theme in time. Data were collected within a short period of time. The target population was the persons with spinal cord injury discharged from a rehabilitation center and living in the community and data collected by purposive sampling. Results: From the transcriptions, researcher identified 15 environmental factors that influenced participation among individuals with SCI. Approximately there are some causes which straightly influence the participation and some causes through others. Conclusion: Participation have to ensure throw ensure accessibility and removing barrier. The participation of persons with disabilities in the formulation and application of public strategy is perceived as indispensable in dropping poverty and confirming their rights. Exclusionary guidelines not only put burden on the country socio-economically, but also create psychological barricades for people with disabilities to explore full potential.

**Keywords:** Spinal Cord Injury, Environment, Participation, Barrier, Disability

---

## 1. Introduction

The international incidence and prevalence of SCI increasing progressively [1]. In 30 years, review of SCI incidence and prevalence in Northern America was 51/million/year and 755/million, In Europe the was 19.4/million/year and 252/million, In Australia 16.8/million/year 681/million [2]. In Asia the incidence was 23.9/million/year. Spinal cord injure (SCI) is a therapeutically complex and life-upsetting condition which prompts an extensive variety of disabilities of working and

wellbeing [3]. Individuals with SCI encounter activity limitations and superimposed inabilities 15-20 years earlier compare to non-injured populations [4] and encounter trouble in participation in individual and social life [5]. The participation has significant relationship with quality of life that's why improving participation in the social context can advance their personal satisfaction adequately for people with spinal cord injury [6]. Disability, individual and environmental factors are considered as indicators of quality of life. Advancing mobility is an essential tool to improve participation and subsequently QOL of people with SCI [7].

Environment is defined as the person's surrounding condition: the circumstances and state that influence the health, wellbeing etc., of individual [8]. Participation restriction is experience when persons with spinal cord injury encounter barrier in their physical, economic, social and cultural aspect of environment rather than individual impairment [9]. The relationship between individual, environmental and participation and the influence of this relationship on health and function is still complex [10]. Environment has frequent influence on participation e.g persons with wheelchair or poor walking balance experience numerous difficulties during rainy season, here weather is a barrier in natural environment. In spite of this person's experience accessibility barrier in transport, health facilities etc here barrier is conceptualized as physical environmental barrier [11].

It is the first research to comprehensively describe environmental barrier on participation from participant perspective in South East Asian sample of persons with spinal cord injury living in the community at post rehabilitation. Previous study in this issue represent sample living in a rich country with a well-developed social safety net. Despite this the aim of this study to explore the perceive impact of environmental barriers on participation of community dwelling individuals with spinal cord injury in Bangladesh. Such knowledge is needed as a base for the development of evidence-based interventions and rehabilitation targeting of people with SCI. Accordingly, this study aimed to explore the perceive impact of environmental barriers on participation of community dwelling individuals with spinal cord injury in Bangladesh.

The study objectives are:

- 1) To investigate the physical barrier of environment.
- 2) To explore the socio-cultural barrier of environment.
- 3) To identify the attitude and policy barrier.

## 2. Method

### 2.1. Design

A qualitative study design was selected by the researcher to carry out the research. All dimensions of each individual were completed at one theme in time. Data were collected within a short period of time.

### 2.2. Participants

Data was collected from the SCI persons living in Savar, a Upazilla of Dhaka district, Bangladesh. The target population was the persons with spinal cord injury discharged from a rehabilitation center and living in the community and sample collected by face-to-face interview. The researcher selected to the purposive sampling technique to draw out the sample from the population. The researcher received a written consent from every participant including signature.

### 2.3. Data Analysis

Data are transcribed from Bengali to English then sort under eight them and describe them.

## 3. Results

**Table 1.** Characteristics of the participants (N = 10).

Age: mean (range), year	32.4 (18-60)
Sex: men, n (%)	7 (70%)
Marital status: married, n (%)	6 (60%)
Employment status: unemployed, n (%)	3 (30%)
Family income: mean (range), BDT	16080 (1000-200000)
Living area: rural, n (%)	8 (80%)
Injury duration: mean (range), years	9 (1-35)
Cause of injury: traumatic, n (%)	9 (90%)
Completeness of injury: complete, n (%)	3 (30%)
Type of injury: tetraplegia, n (%)	2 (20%)

**Table 2.** Some environmental features which affect participation.

Theme	Level	Selected Quotes
Constructed environment	Micro	"Without assist I cannot go outside of the home but care giver is not available all time,
	Mesa	I can't go to the market without someone's help, there are no ramps and if that doesn't happen then it's safe
Natural environment	Macro	"I can't seek facilities because of in accessibility, most of the government facilities like hospital are not wheel chair friendly, and there is no policy for persons with disability.
	Micro	In rainy season front of my home become muddy, I can't go out side
Transportation	Mesa	Due to rain road become muddy so it is difficult and risky to operate wheelchair.
	Micro	I don't go outside because I feel guilt to seek help always from others.
	Mesa	"I can't visit my friends. I have to wait at the bus stop for long time. I don't take the bus. It takes a long time to get on and off the bus Bus is not accessible to wheelchair, there is not enough space for wheelchair. Bus contractor treat me as extra burden".
	Macro	"There is no outgoing transport for disable people, it is tough to dispose private transport system for me, that's why attempt to escape participation".
Social support and societal attitudes	Micro	My parents are only source of support. Sometimes my sibling hearts me in many ways.
	Mesa	When I went any social gathering like marriage ceremony surrounding people treat me as stranger, they called me disable (pongu), that's dis hearted me, that's why I try to avoid social participation."
	Macro	Before accident I was supposed to participate at local government election and also elected but now community people thought that I do not have the capacity to manage all these things, they called "you are a disable, you cannot go here and there, why you take extra burden?"
Economics	Micro	I can't contribute to my family financially this is very painful for me that I have to depend on others for my expenses.
	Mesa	"We wheelchair-users need flexibility at work. We can't stay employed eight hours as its too tiring. we want time and space to rest.
	Macro	Should formulate economic compensation policy for disable.

Theme	Level	Selected Quotes
Systems and policies	Micro	Law should be required to hire proportional number of disable person to both government and non-government organization.
	Mesa	Disable person should get compensation from the working place
	Macro	"Now the law requires public place to make accessible and build handicapped restrooms and hotels to build accessible rooms."

From the transcriptions, researcher identified 17 environmental factors that influenced participation among individuals with SCI. All of these factors were classified into eight categories according to Hammel [11], conceptual framework. Approximately there are some issues which straightly influence the participation consequences. Table 2 demonstrate that some environmental features which affect every participation.

## 4. Discussion

At present there is a lack of evidence about SCI in Bangladesh. In this study 10 participants were taken who has spinal cord injury and completed rehabilitation from CRP.

At the time of lesion 10% (n=1) of the participant was jobless but after injury a large number of peoples become jobless. Another study found this [12]. Results also suggest that people avoid agriculture and other labors after injury. At the time of interview 30% (n=3) of the participant was jobless. This study implemented qualitative method which explore multifaceted connection between multiple environmental factors and SCI people. These outcomes fulfill for our lacking knowledge by hypothetical impression about environmental factors which effect on participation.

Through in-depth interview with individuals with SCI, 15 environmental factors were identified. Many of the factors are already identified by different studies [11], some of the factors have never been identified in Bangladeshi context, for example build environment was found most critical factors of participation as most of the infrastructure like hospital, educational institute, market etc. don't follow universal design, so this are not accessible to the persons with disability.

"Social support and societal attitudes," support from family and friends found direct impact on a person's participation, but societal attitudes demonstrated a much-broader impact on a person's participation, They not only affect participation, but also impact participation by influencing other environmental factors like policy, the built environment and transference.

Previous study [11] shows the association among the participation and the social attitude where describe some barricade which adversely impact on disable persons occupation, education, public programs and healthcare [13].

## 5. Conclusion and Recommendation

### 5.1. Conclusion

Participation has to be ensured throw accessibility and removing barrier. The participation in the formulation and application of public strategy is perceived as indispensable in dropping poverty and confirming their rights. As persons with

disability are predominantly poor and marginalized in society, need to support their organization first in order to prepare them "visible" and empower them to hear their voices.

Exclusionary guidelines not only put burden on the country socio-economically, but also create psychological barricades for people with disabilities to explore full potential. Thus, investments for lifetime productivity and contribution to the society are required.

### 5.2. Recommendation

Though the research has some limitations but identified some further step that might help for the better accomplishment of further research. In case of further long duration research study with more samples will bring more significant results. Study is required with diverse geographic area and similar baseline character and representative sample to generalize the result.

## References

- [1] Cripps, R. A., Lee, B. B., Wing, P., Weerts, E., Mackay, J., & Brown, D. (2011). A global map for traumatic spinal cord injury epidemiology: towards a living data repository for injury prevention. *Spinal Cord*, 49, 493–501.
- [2] Wyndaele, M., & Wyndaele, J. J. (2006). Incidence, prevalence and epidemiology of spinal cord injury: what learns a worldwide literature survey. *Spinal Cord*, 44, 523–529.
- [3] Kirchberger I., Biering-Sorensen, F., Charlifue, S., Baumberger, M., Campbell, R., & Kovindha, A. (2010). Identification of the most common problems in functioning of individuals with spinal cord injury using the International Classification of Functioning. *Disability and Health. Spinal cord*, 48 (3), 221-9.
- [4] Kemp, B., Adkins, R., & Thompson, L. (2004). Aging with a Spinal Cord Injury: What Recent Research Shows. *Topics in Spinal Cord Injury Rehabilitation*, 10 (2), 175-97.
- [5] Barclay, L., McDonald, R., & Lentin, P. (2015). Social and community participation following spinal cord injury: a critical review. *International journal of rehabilitation research*, 38 (1), 1-19.
- [6] Huang, W. C., Wu, T. F., Liao, H. F., Liou, T. H., & Kang, Y. W. (2016). The Relationship of Participation Restriction with Quality of Life in Individuals with Spinal Cord Injury. *Physical Medicine and Rehabilitation International*, 3 (5).
- [7] Post, M., & Noreau, L. (2005). Quality of Life after Spinal Cord Injury. *Journal of Neurological Physical Therapy*, 29 (3).
- [8] Merriam Webster online collegiate dictionary. 11th ed. Springfield: Merriam-Webster, Incorporated; 2014. Available at: <http://www.merriamwebster.com/dictionary/environment>. Accessed December 1, 2014.

- [9] Charlton JI. (2000). *Nothing about us without us: disability oppression and empowerment*. Berkeley: University of California Press.
- [10] Magasi, S., Hammel, J., Heinemann, A., Whiteneck, G., & Bogner, J. (2009). Participation: a comparative analysis of multiple rehabilitation stakeholders' perspectives. *Journal of rehabilitation medicine*, 41 (11), 936-944.
- [11] Hammel, J., Magasi, S., Heinemann, A., Gray, D. B., Stark, S., Kisala, P., & Hahn, E. A. (2015). Environmental barriers and supports to everyday participation: a qualitative insider perspective from people with disabilities. *Archives of physical medicine and rehabilitation*, 96 (4), 578-588.
- [12] Islam, M, S., Hafez, M, A., and Akter, M., (2011). Characterization of spinal cord lesion in patients attending a specialized rehabilitation center in Bangladesh. *Spinal Cord*, 49 (7): 783-786.
- [13] Iezzoni, L. I., & Freedman, V. A. (2008). Turning the disability tide: the importance of definitions. *Journal of American Medical Association*, 299 (3), 332–334.