



Journal of Health Physiotherapy and Orthopaedics

Research article

Participation in community-dwelling individuals with spinal cord injury in India

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Received - 09-12-2024, Revised - 15-12-2024, Accepted - 20-12-2024 (DD-MM-YYYY)

Refer this article

Wasique HM, Walia Shefali, Rakesh Chaudhary, Kapil Lakhwara, Participation in community-dwelling individuals with spinal cord injury in India. Journal of health physiotherapy and orthopaedics, November-December 2024, V 1 - I 1, Pages - 0015 – 0017. Doi: <https://doi.org/10.55522/jhpo.V1I1.0006>.

ABSTRACT

The promotion of participation in major life domains such as education, employment and community life is important, yet challenging, in people with physical condition such as spinal cord injury. The purpose of this study was to assess the participation levels of community dwelling individuals with SCI in India. To co- relate the effect of age, gender education, partner status time since injury, injury, injury severity SCI etiology on participation level of community dwelling individuals with SCI in India. The design of study is cross-sectional population-based survey study. Eighty community of SCI individuals were recruited. It was done in 2 phases: data collection, filling questionnaire and data analysis. On comparison of PART-O score between different age groups. Significant difference was found between participation of age group 16-30. No significant difference was seen on comparing PART-O score with injury severity ($p \leq 0.373$): Sample size was small to establish several relationships future research with large sample size may help to clearly establish the impact of each parameter on the participation score. The results of this study conclude that there is significant impact of age and level of lesion on the participation score c-d individuals with SCI.

Keywords: spinal cord injury (SCI), Participation Assessment with Recombined Tools Objective (PART-O), American Spinal Cord Injury Association (ASIA), Traumatic brain injury (TBI).

INTRODUCTION

Spinal cord injury is one of the most devastating and disruptive events with lifelong consequence that can occurs in one's life. It is calamitous injury especially due to unique role of the spinal cord as nerve center. Spinal cord injury disrupts both the axonal pathways and segmental spinal cord circuitry; producing server impairments sensory and autonomic functions at and below the level of the injury ^[1].

Participation is an "involvement in life situation" and is a core concept in all major models of disability, including the WHO, ICF of functioning, disability and health.

Furthermore, participation is related to person's ability to be an active and contributing member of society ^[2].

Subjects with Spinal cord injury may Experience a wide range of activity limitation and Participation restrictions. People with spinal cord injury (SCI) show limited Participation across many major life domains such as productivity, employment, social relationship and family role functioning, recreational and leisure ^[3].

The promotion of participation in major life domains such as education, employment domains such as education, employment community life is important yet challenging, in

people with physical condition such as spinal cord injury. To improve this participation in society and community is the overall goal of Rehabilitation ^[4].

The Participation in major life domains may be limited or entirely curtailed in people with spinal cord injury compared to population without disabilities ^[5].

Promoting the degree of participation in these areas of life is challenging as it results from a complex interplay between a person's health condition and contextual factors (i.e., Environmental and personal factors) ^[6].

The participation in major life domains is of increasing importance to spinal cord injury research for two (2) reasons:

Performance in work, leisure, and sporting activities are affected by the lesion and the frequency of non-activities such as watching television, crafting or reading increases in people with spinal cord injury (SCI).

Estimation of the degree of participation in major life activities have been linked to increase the health and well-being ^[7].

The World Health Organization defines Participation in the International Classification of Functioning, Disability, and Health as "involvement in life situation".⁹ people with spinal cord injury (SCI) can fully participate in society with right resource and environments, despite the profound effect on multiple organ system and challenging to activities of daily living.¹⁰ The study attempting to measure participation have focused on fulfillment of social roles including productivity, social relationship, and Community life participation can be measured through relatively objective or through the personal subjective assessment of individuals ^[8].

The Participation Assessment with Recombined Tools Objective (PART-O).¹² is a measure to evaluate the participation level community dwelling individual with spinal cord injury it was developed for the use in TBI, but there is multiple reason that PART-O validated in spinal cord injury (SCI). PART-O is a Combination of three items from 3 established participation measures. Objective items from the 3 instruments were selected based on coverage of important content aspects of participation and good psychometric properties. Three domains (Productivity,

Social Relations, and Community participation domain labelled Out and About) are covered with 16 items.

Response options to PART-O items are 0–5-point scale or dichotomous yes/no questions Total 0–62 score. Item are scored on scale from 0–5, with higher score indicating greater participation ^[9].

Any neurological problems and inability to follow commands and subjects are medically unstable, hearing problems excluded in our study.

Participation Assessment with Recombined Tools-Objective (PART-O) Scale instrument is used to assess the level of participation in spinal cord injury patients.

MATERIALS AND METHODS

Participation Assessment with Recombined Tools-Objective (PART-O) Scale was used to measure the participation level. The PART-O is a 16 –items 0–5-point scale except items 8, 0–4 point or dichotomous yes/no Questions None =0, 1–4 =15–9=2, 10–19=3, 20–34=4, 35+ =5 measuring of participation Productivity, Social Relations and Out and about. Higher score indicating greater participation.

The items of part –O query the frequency of participation in various events during a typical week or typical month also ask the questions about the person's current social and romantic relationships.

The sum of (3) items (work + school + homema king) recoding $\geq 10 = 10$, initial weighting 1.0 and final score 0–10.

The items from 4–6- initial scoring- recoding 4 and 5= 4 initial weighting 1.0 and final score 0–4.

The item 14 initial scoring –recoding $\geq 2 = 2$ –initial weighting 2.0 and final score 0–4.

The items 15–16 initial score are multiplied by 4, initial weighting 4.0 and final score 0–4.

This 0–62-point total score converted into a 0–100-point scale based on the Rasch analysis.

Statistical Analysis

The Statistical package of Social Sciences (SPSS) for windows, version 20 was used for analysis the data. Mean and standard deviation for all variables was calculated. Independent t-test used for the two categories and more than two categories ANOVA was used for group to see the effect on other variables the level of significance was set at $p \leq 0.05$.

Cool down (10 minutes slow jogging).

RESULTS

A total of 80 subjects completed the study. The sample consisted of 83.8% male and 16.3% female with a mean age of 51.36 ± 6.54 Years and 51.45 ± 5.63 years respectively.

A total of 31.3% of the sample was unemployed while 68% of the sample was employed at the time of the study. Most of the participants belonged to the age group of 16-30 years (52.5%) followed by those in the age group of 31-45 years (36.3%). Participants in age group of 46-60 years and 61-75 years were 5% and 6.3% respectively. 65% of the participants were educated up to university level, 20% were vocationally trained while 15% were educated up to secondary level. 47.5% participants were married while 52.5% were unmarried. A total of 57. % of the participants had a thoracic level injury while 26.3% respected a cervical level injury and 16.3% reported a lumbar level of injury.

In term of injury severity, 58.8% participants were ASIA A, 18.8% ASIA B, 10% ASIA – C and 12.5% ASIA-D. 97.5% of the Total participants had a traumatic etiology for SCI while 2.5% had a non-traumatic etiology.

On comparison of PART-O score between different age groups. Significant difference was found between participation of age group 16-30 And 61- 75 years, 31-45 years and 46-60 years and between participants of 61-75 years with all other group age groups with P value of 0.004.

No significant difference was seen on comparing PART-O score with injury severity ($p \leq 0.373$) while significant difference was seen on comparing level of lesion with PART-O Score ($p \leq 0.00$) similarly, no significant difference was seen on comparing the education level with the score on PART-O Scale ($p=0.878$).

DISCUSSION

On comparison of participation score among male and female no significant difference was obtained, including that in our study gender did not impact the participation level of community dwelling SCI population in India, similarly or etiology of SCI, employment status also did not impact the participation level in our study. These findings on estimate to previous studies by Mirja H, et al 2019 who evaluated participation level in SCI population using the utrecht scale for education of Rehabilitation Participation (USER-participant).

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