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Awareness and Barriers to Paralympic Participation among Individuals with Spinal Cord Injury. A cross sectional study in Haryana State

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ABSTRACT

Spinal cord injury (SCI) is associated with profound physical, psychological, and social consequences. In India, an estimated 20,000 new cases of SCI occur annually, with approximately 483 cases of traumatic SCI reported each year in Haryana State, underscoring its considerable public health impact. Although adaptive sports, including Paralympic participation, have been shown to offer substantial physical and psychosocial benefits, many individuals with SCI remain underrepresented in these activities. A comprehensive understanding of their level of awareness and the barriers they face is essential for developing strategies that promote equitable inclusion and participation in sports at all levels of competition. This study aims to assess the level of awareness about Paralympic opportunities among individuals with spinal cord injury and to identify the key barriers hindering their participation. A cross-sectional telephonic survey was conducted involving 50 individuals diagnosed with spinal cord injury (SCI) who had attended the Ch. Ranbir Singh Outpatient Department at Pt. B.D. Sharma Post Graduate Institute of Medical Sciences (PGIMS), Rohtak.

A structured questionnaire was administered to assess awareness of Paralympic participation, knowledge of participation pathways, and access to rehabilitation services. Additionally, in-depth telephonic interviews were carried out to explore perceived barriers to participation, including physical, psychological, socioeconomic, and systemic factors. Findings indicate that general awareness about Paralympics is 30%, knowledge about participation pathways is only 20%, and rehabilitation resources remains limited. Major barriers identified include limited financial and family support, access to specialized training facilities, transportation challenges, inadequate rehabilitation, and social stigma. Psychological barriers, such as fear of injury and low self-confidence, were also prevalent. There is a critical need for structured awareness programs, improved accessibility to training and resources, and integrated support systems within rehabilitation centres at PHC level to encourage and enable greater Paralympic participation among individuals with SCI.

Introduction

Spinal cord injury (SCI) constitutes a major cause of long-term disability worldwide and is associated with profound somatic, psychological, and socioeconomic consequences that markedly diminish quality of life and community participation[1]. Globally, the annual incidence of SCI ranges between 10.4 and 83 cases per million population, with traumatic aetiologies accounting for the majority of presentations, particularly in low- and middle-income countries (LMICs)[2]. In India, recent estimates indicate approximately 20,000 new cases annually, with RTA, falls, and occupational injuries being the primary causative mechanisms. Beyond medical and functional rehabilitation, participation in adaptive physical activity and para-sport has gained prominence as a crucial avenue for restoring autonomy, improving physical conditioning, fostering psychosocial well-being, and facilitating societal reintegration among persons with disabilities[3]. Engagement in adaptive sports contributes to enhanced muscle strength, cardiovascular fitness, self-esteem, resilience, social participation, and overall life satisfaction among persons with SCI. India faces a distinctive set of contextual challenges in promoting adaptive sports participation for persons with disabilities[2]. Although the country has demonstrated progressive growth in Paralympic performance at the international level in recent years, the emergence of elite para-athletes

does not reflect the participation trends within the broader population of individuals with disabilities. The majority of persons with SCI remain excluded from structured physical activity and adaptive sports due to infrastructural inadequacies, limited availability of trained personnel, underdeveloped community-based rehabilitation (CBR) networks, and insufficient integration of para-sport promotion within healthcare and rehabilitation systems. The absence of systematic awareness initiatives, particularly at the primary healthcare and community levels, further restricts exposure to Paralympic-related information and opportunities[4]. In addition to external environmental and systemic barriers, various intrinsic psychological constraints affect the inclination of individuals with SCI to engage in sport. Fear of injury, reduced self-efficacy, perceived social judgement, and diminished motivation are frequently reported, often exacerbated by negative societal attitudes toward disability. Family apprehension, overprotection, and lack of encouragement have also been cited as influential factors in deterring participation[5]. By employing a cross-sectional telephonic survey-based approach, the study aimed to capture both quantitative measures of awareness and qualitative insights pertaining to barriers, thereby providing a contextualised understanding of the challenges faced by this population. Generating evidence in this domain is essential for developing and implementing targeted interventions that promote equitable access to adaptive sports, foster inclusive community participation, and support the national and global agenda of disability inclusion in sport.

Methodology

A descriptive, observational, cross-sectional study design was employed to assess the level of awareness of Paralympic sports and associated participation pathways among individuals with spinal cord injury (SCI), and to identify perceived barriers to engagement in adaptive and Paralympic sport. A total of 50 individuals with spinal cord injury (SCI) participated in the study. The study was conducted through the telerehabilitation Outpatient Department (OPD) of the College of Physiotherapy, Pt. B. D. Sharma Post Graduate Institute of Medical Sciences (PGIMS), Rohtak, Haryana, India. Telephonic data collection was chosen to facilitate inclusion of participants residing at varying distances from the tertiary centre, including rural and semi-urban areas, thereby enabling equitable recruitment without requiring physical attendance. Data collection was undertaken over a six-month period from March 2025 to August 2025.

The target population comprised individuals with a confirmed diagnosis of SCI who had previously attended the Ch. Ranbir Singh OPD at PGIMS, Rohtak. Participant details were accessed from the orthopaedic departmental patient census records to identify eligible individuals diagnosed with SCI and registered for follow-up. Individuals aged 18 years or older with a clinically diagnosed traumatic or non-

traumatic spinal cord injury (SCI) and who were at least six months post-injury, were included in the study. Participants were required to have been previously registered and attended the designated Outpatient Department (OPD) at PGIMS, Rohtak, be accessible via telephone, and willing to provide informed verbal consent. Individuals with cognitive or communication impairments that prevented meaningful participation in the interview were excluded, as were those who declined consent or remained unavailable after three telephonic contact attempts. Data collection was conducted using a structured and pretested telephonic interview.

Data Analysis

Descriptive statistics, including frequencies and percentages, were computed for demographic variables, awareness levels, physical activity patterns, and reported barriers. Quantitative data were tabulated and summarised in tables for clarity of presentation.

Result

The mean age of participants was 35.4 ± 9.2 years, ranging from 25 to 58 years. The sample comprised 38 males (76%) and 12 females (24%). With respect to educational attainment, 24% had completed primary education or less, 30% had secondary education, 36% had higher secondary or undergraduate level education, and 10% held postgraduate or professional degrees (Table 1). A total of 56% of participants presented with complete SCI, while 44% had incomplete injuries. Regarding the level of injury, the majority (60%) had dorsal-level involvement, followed by lumbar (24%), sacral (10%), and cervical (6%) levels. Assistive device usage was reported by 72% of participants.

Table 1: Demographic and Clinical Profile of Participants (n = 50)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	Mean ± SD	35.4 ± 9.2	—
Gender	Male	38	76
	Female	12	24
Education	Illiterate/Primary	12	24
	Secondary	15	30
	Higher Secondary/Graduate	18	36

Variable	Category	Frequency (n)	Percentage (%)
	Postgraduate/Professional	5	10
Type of Injury	Complete	28	56
	Incomplete	22	44
Level of Injury	Cervical	3	6
	Dorsal	30	60
	Lumbar	12	24
	Sacral	5	10
Assistive Device Use	Yes	36	72
	No	14	28

Awareness of Paralympic Sports and Participation

Only 30% (n=15) of participants reported being familiar with the term *Paralympics*, and 14% (n=7) had previously watched Paralympic events. Interest in learning more about the Paralympics was expressed by 44% of participants, while 24% were not interested, and 32% were uncertain. Confidence in watching or following Paralympic sports was reported by 36% of respondents.

Table 2: Awareness and Interest in Paralympic Sports (n = 50)

Item	Yes n (%)	No n (%)	Maybe/Not sure n (%)
Familiar with the term “Paralympics”	15 (30)	35 (70)	—
Watched Paralympic events	7 (14)	43 (86)	—
Interested in learning more	22 (44)	12 (24)	16 (32)
Confident in watching/following Paralympics	18 (36)	32 (64)	—

Knowledge of Paralympic participation pathways was observed in only 20% of the sample, indicating minimal exposure to procedural information regarding entry mechanisms, classification, training, and competitive progression.

Physical Activity Status and Types of Activity

A total of 40% of participants reported being physically active, with 56% engaging in physical activity based on healthcare provider advice. Among physically active participants, the most commonly reported form of activity was physical therapy (50%), followed by recreational activities (25%), sports (15%), and others (10%).

Table 3: Physical Activity Status and Nature of Activity

Variable	Category	Frequency (n)	Percentage (%)
Physically Active	Yes	20	40
	No	30	60
Advised by Healthcare Provider	Yes	28	56
	No	22	44
Type of Physical Activity (among active, n=20)	Physical Therapy	10	50
	Recreational Activity	5	25
	Sports	3	15
	Others	2	10

Barriers to Participation in Adaptive and Paralympic Sports

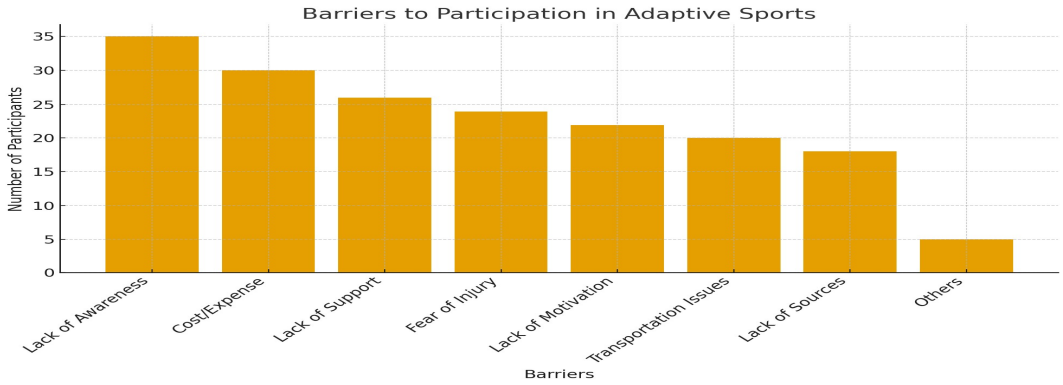
Lack of awareness emerged as the most prevalent barrier (70%), followed by financial constraints (60%), lack of family or social support (52%), fear of injury (48%), transportation limitations (40%), lack of motivation (44%), and lack of accessible information sources (36%). Other barriers, including cultural norms and personal health limitations, were reported by 10% of respondents.

Table 4: Reported Barriers to Participation (n = 50)

Barrier Type	Frequency (n)	Percentage (%)
Lack of awareness	35	70
Cost/Expense	30	60
Lack of support (family/social)	26	52
Fear of injury	24	48

Barrier Type	Frequency (n)	Percentage (%)
Lack of motivation	22	44
Transportation issues	20	40
Lack of information sources	18	36
Others	5	10

Additionally, 76% of participants reported limited exposure to appropriate facilities for adaptive sports. Interest in participating in sports and games was reported by 52% of respondents.



Functional and Employment Status

The majority of participants (56%) reported being unable to work, 28% were partially dependent, and only 16% reported full independence in daily functioning after SCI.

Discussion

The present study aimed to assess the level of awareness of Paralympic sports and identify barriers influencing participation among individuals with spinal cord injury (SCI) in Haryana state. The findings demonstrate a markedly low level of awareness and knowledge regarding Paralympic opportunities. Only 30% of participants had heard of the Paralympics, and fewer than 15% had ever watched a Paralympic event. These results are consistent with earlier studies from low- and middle-income countries, where awareness and accessibility of adaptive sports remain limited due to socioeconomic and systemic constraints[6].

A key finding of this study is the discrepancy between interest and actual engagement. Although 44% of respondents expressed interest in learning more about the Paralympics and 52% reported interest in sports or games, only 15% of physically active participants actually engaged in any sports activity. This suggests that interest alone is not sufficient to translate into participation without supportive structures, accessible resources, and enabling environments. Furthermore, 56% of physically active participants reported engaging only because of medical or rehabilitation advice, indicating that proactive healthcare-led encouragement plays a crucial role in activity adoption. Integrating adaptive sports counselling within rehabilitation settings may therefore facilitate greater engagement[7]. The predominant barriers to participation were lack of awareness (70%), financial burden (60%), inadequate family support (52%), fear of reinjury (48%), and limited access to facilities (76%). These findings mirror previous research that highlights financial constraints, social stigma, and inadequate community reintegration support as major deterrents for persons with disabilities[8]. Family and social support emerged as significant determinants of engagement, emphasising the influence of cultural norms, societal perceptions of disability, and dependency within the Indian socio-family system9. Limited access to rehabilitation and sports facilities also contributed to low participation. Only 40% of participants were physically active, and half of these engaged mainly in physiotherapy rather than leisure or competitive sports. Participants reported difficulty accessing transportation and suitable venues, highlighting systemic and logistical challenges. 56% of the population was unemployed further intensifies dependence on family members for financial and transport support, thereby reinforcing a cycle of inactivity and social isolation.

Educational status appears to influence awareness, with greater familiarity among those with higher educational attainment. This aligns with international evidence that increased education correlates with greater health literacy, awareness of disability rights, and engagement in social and physical activities[10]. The low current participation levels observed in this study suggest that individuals with SCI are missing a valuable avenue for holistic recovery. The findings therefore reinforce the need for counselling, peer-support networks, and role-model-based mentorship from Paralympic athletes[11]. Paralympic awareness and training opportunities remain largely centralised and inaccessible for individuals from semi-urban and rural backgrounds. There is a pressing need for decentralised community-level sports promotion, policy-supported funding models, caregiver engagement programmes, social inclusion campaigns, and collaboration between healthcare institutions and sports bodies. Integrating adaptive sports within primary healthcare (PHC)-level rehabilitation may improve early exposure and reduce stigma.

Conclusion

In conclusion, systemic, societal, and psychological barriers significantly restrict Paralympic participation among individuals with SCI in the study region. Targeted interventions and collaborative efforts between healthcare providers, sports authorities, policymakers, and community networks are essential to foster a supportive environment that promotes awareness, accessibility, and engagement in adaptive sports for persons with SCI.

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