Silent Struggle: Analyzing and Comprehending Depression among Rehabilitated Spinal Cord Injured Patients - A Pilot Study

Dr. Suresh Devaraj[1*], Dr. Suja Suresh[2] & Mr. Durga Sankar Suar[3]

[1]Dean, College of Occupational Therapy, SRMIST, Tiruchirappalli, Tamil Nadu, India. [2]Principal, SRM Trichy College of Nursing, Tiruchirappalli, Tamil Nadu, India. [3]Assistant Professor, College of Occupational Therapy, SRMIST, Tiruchirappalli, Tamil Nadu, India.
Corresponding Author Email: sureshdevaraj1991@gmail.com[*]

ABSTRACT

The purpose of this study was to investigate the prevalence of depression among rehabilitated Spinal cord injury (SCI) persons and its relationship with sociodemographic characteristics such as gender, age, and marital status. It was a pilot study. A total of 14 individuals with SCI (13 males and 1 woman) who received rehabilitation were studied. Data were collected by using a questionnaire including socio-demographic factors. Beck Depression Inventory (BDI) is a depression assessment tool used to assess the level of depression. The data was analyzed, using Pearson correlation, which revealed a significant relationship between marital status and depression. Interestingly, results revealed that there is no significant differences were observed in relation to age and gender. These findings contribute valuable insights into Depression and its impact on SCI-rehabilitated patients.

Keywords: Depression; Spinal cord; Spinal injury; Analysing; Rehabilitation; Silent struggle; Pilot study; Sociodemographic variables; Prevalence.

1. Introduction

Depression is one of the most prevalent psychological issues among those who have suffered a spinal cord injury (SCI). Depression symptoms impair people's capacity to participate in activities and reduce life pleasure in both healthy and impaired people.

The incidence of spinal cord injury (SCI), whether traumatic or not, is surely a difficult condition for anybody who is presented with it. Suicide was the leading cause of death for persons with complete paraplegia and the second leading cause of death for persons with incomplete paraplegia (Devivo et al., 1991). Still, because psychological assets have been demonstrated to buffer the impacts of stressful life events (Nuckolls Cassel & Kaplan, 1972), the study needs to examine these mediating elements.

Depression is also far more common in the SCI group. Kennedy & Rogers (2000) discovered that, while depression levels fluctuated during the rehabilitation and discharge periods, they remained consistently elevated even two years after discharge for a significant number of individuals, suggesting that this may explain the link between SCI and elevated suicide rates.

SCI is a significant medical disorder that frequently leads to severe morbidity and lifelong impairment. It happens when the axons of the neurons that pass through the spinal cord are damaged, resulting in a loss of motor and sensory function below the level of injury. Injury is frequently the result of substantial trauma, and initial injury is frequently irreparable. This exercise discusses SCI assessment and management, as well as the role of the multidisciplinary team in evaluating and treating individuals with this disease.

1.1. Study Objectives

(1) Study the level of Depression among SCI-rehabilitated patients, and (2) Examine the relationship between the Socio-demographic variable (age, gender, marital status) and depression in SCI patients.

1.2. Assumption

Spinal cord injured person may have depression.

2. Literature Review

The existing body of literature on Depression and SCI-Rehab patients encompasses a diverse array of literature studies that collectively contribute to a comprehensive understanding of SCI patients. A synthesis of these studies not only provides a contextual backdrop for the present research but also underscores the significance of investigating the Depression in relation socio-demographic variables of SCI-Rehab patients.
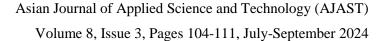
In 2020, Nirmala et al., carried out a study titled "Clinical and background variables of study participants with injury to spinal column". This forested file examination focused on spinal cord injured patients who were inmates to rehabilitation centre at NIMHANS, between January 2017 and December 2018. There were sixty spinal cord injured patients admitted. With a mean age of 32.39, the patients were primarily young, married men. The majority of them are low-income housewives who work as day workers. Injuries arise from falls and traffic accidents. Extreme anxiety and depression are common among TSCI patients.

Adhikari et al. (2020) looked into "Factors influencing depression in individuals with traumatic spinal cord injury (TSCI) and caregivers' perceived burden in a low-income country: a cross-sectional study". This study comprised 95 couples, ages 18 to 65, with one having a caretaker and the other affected with spinal injury. In this study, caregiver strain and depression in patients with TSCI were measured using the Zarit Strain Interview-12 and the Nepali Beck Depression Inventory. Regression analysis employing associations was used for the analysis. They concluded that depression rates among TSCI patients were notable and that caregivers had a lot of caring obligations. Depression in people with TSCI has been linked to caregiver stress. It was suggested that rehabilitation procedures should be followed.

The study "Social support and its association with depression, gender, and socioeconomic indicators in individuals with spinal cord injury in Iran" was conducted by Khazaeipour et al., in 2017. There were 140 spinal cord damaged (SCI) patients in this study. Support from friends, family, and "significant members" was gauged using the anticipated social support Multifaceted scale. The 21-item, multiple-choice Beck Depression Inventory (BDI-II-PERSIAN) measured the presence and severity of depression. They concluded that patients with spinal cord injury had higher level of correlation with self-reported social support and lower level of depression. Social support and depression should be addressed by SCI caregivers in their care.

Khazaeipour et al. (2015) examined the relationship between pathophysiological, demographic, and socioeconomic factors—such as age, sex, degree of damage, financial position, and suicidal thoughts—and depression after spinal cord injury (SCI). This cross-sectional experimental investigation comprised 134 SCI patients who were at least 18 years old. The BDI-II or Beck Depression Inventory The depression was measured using Presian. The method of interviewing was employed to get data. The findings showed that 66 instances (49.3%) experienced moderate to severe depression, and that female patients with tetraplegia, suicidal ideation, a history of attempted suicide, and low educational attainment were more likely to have depression. Depression among spinal injured patients has been related to socioeconomic, neurobiological, and demographic factors.

In an inpatient rehabilitation facility, Ataoglu et al. (2013) investigated the effects of pain on depression, functional independence, and quality of life (QoL) in patients with spinal cord injury (SCI). This study comprised 140 SCI patients who received inpatient rehabilitation. To gather information, a clinical questionnaire was employed. Activities of daily living (ADL) were measured by using the Functional Independence Measure's motor score; the 36-item Medical Outcomes Short-Form Health (SF-36) was used to evaluate quality of life; and the Beck Depression Inventory (BDI) was used to assess depression. After then, two groups of patients were formed: Group I experienced no discomfort at all, and Group II had persistent agony. The clinical features and demographics of the two groups were contrasted. They found that motor accidents and falls accounted for 35.0% of SCI cases.

In order to determine the degree of anxiety and depressed symptoms following traumatic spinal cord damage, Rafat Al-Owesie et al. (2012) did a study. There were 102 patients in the cross-sectional study, 84 of whom were male and 18 of whom were female, ages 17 to 70. TSCI victims admitted to Sultan Bin Abdulaziz Humanitarian City, Riyadh, Saudi Arabia's Spinal Cord Injury Unit. The Hospital Anxiety and Depression Scale (HADS) were used to measure the anxiety and depression levels of the research population. Result revealed that a statistically significant increase in anxiety and depressed symptoms among female with TSCI. Higher levels of anxiety and depression were very weakly connected with university education.

A thorough review of psychological morbidity and spinal cord injury was carried out by Craig et al., in 2009. The psychological morbidity may rise with SCI. They looked at negative psychological states in SCI patients as well as mediating and environmental factors. They used phrases like SCI, depression, anxiety, and so on in their methodical search on PsycInfo and Medline. We screened only those studies that employed reliable psychological morbidity instruments.

According to their data, individuals with spinal cord injuries who live in a rural hamlet have a 27% likelihood of developing depression, compared to 30% for rehabilitation patients. The review found that SCI patients experienced worse quality of life, higher anxiety, higher relative risks of anxiety disorders, and feelings of powerlessness.

3. Methodology

3.1. Research Approach

Quantitative study approach was adopted for this study.

3.2. Research Design

A descriptive study design is used in this study.

3.3. Setting

Patients those who have attended special camp organized by the occupational Therapy department in selected Medical college and Hospital at Tiruchirappalli.

3.4. Population

The study population was spinal cord injured persons.

3.5. Samples

Spinal cord injured patients were included in this study who attended rehabilitation follow-up, comprising 1 female and 13 males.

3.6. Sample size

14 spinal cord injured persons were selected for this study.

3.7. Sample selection

3.7.1. Inclusion criteria

i. Rehabilitated spinal cord injured persons; ii. Who were willing to participate in this study; iii. Both genders are included.

3.7.2. Exclusion criteria

i. Spinal cord injured persons on psychiatric treatment; ii. Spinal cord injured persons with listening and visual impairment.

3.8. Sampling Technique

The convenient sampling method was used to select samples from the population.

4. Data collection Tool

Section A: Background Variables

Background variables like age, gender, duration of illness, level of injury, history of psychiatry illness, type of family, marital status, family income, etc.

Section B: Beck's Depression Inventory

Beck's Depression Inventory tool was used to assess the severity of depression in adults and adolescents (Beck, Steer, & Brown, 1996. This tool consisted of 21-question, multiple-choice). Each item has a scored between 0 and 3, and the sum of all replies determines the final score. This tool is the most frequently used, to assess the degree and occurrence of depression in both practice and research.

5. Scoring Interpretation

Total score= 63, higher score indicated greater severity of depression.

Mild: 0–18

Moderate: 19– 29

Severe: 30–63

6. Data collection Procedure

Data were collected using Beck's Depression Inventory, encompassing demographic details. Participants responded to items from 0 to 3. The obtained data were tabulated for analysis.

7. Statistical Analysis

The data was analysed using descriptive and inferential statistics by using the Statistical Package for Social Sciences (SPSS) Version 20.

8. Results

Table 1. Depression based on Age

Age	N	Mean	SD	df	f-value	p-value
25-35	6	17.66				
36-45	4	12.25	.864	13	22.32	0.373
46-55	4	15.75				

Table 1 provides the ANOVA results for depression concerning age. The mean for the age group 25-35 is 17.66, 36-45 is 12.25 and for 46-55, it is 15.75. The calculated f-value (13) indicates that there is no apparent difference between the group means (p > 0.05). Consequently, there is association between depression and age.

Table 2. Depression based on Gender

Gender	N	Mean	SD	df	t-value	p-value
Female	1	26	.267	13	15	0.348
Male	13	14.76				

Table 2 provides the t-test results for depression concerning gender. The mean relationship satisfaction score for females is 26, and for males, it is 14.76. The calculated t-value (15) suggests that there is no significant difference between the two group means (p > 0.05). There is no association between depression and gender.

Table 3. Depression based on Marital status

Marital status	N	Mean	SD	df	t-value	p-value
Married	3	15	.425	13	15.69	0.924
Unmarried	11	15.72				

Table 3 provides the t-test results for depression concerning Marital status. The mean score for married is 15, and for unmarried, it is 15.72. The calculated t-value (15.69) suggests that there is no significant difference between the two group means (p > 0.05). There is association between depression and marital status.

Table 4. Correlation Analysis

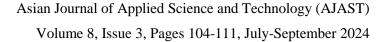|	Depression level	Gender	Marital status	Age
Depression level	1	0.27	0.03	- 0.10
Gender		1	0.14	-0.29
Marital status			1	-0.30
Age				1

Table 4 presents the correlation analysis for the association between the demographic factors (age, gender, and marital status) and the severity of depression. Notably, marital status was positively associated with the depression severity

9. Summary of Key Findings

(1) There was no association between the degree of depression and age group (21–30); (2) There was no association between the level of depression and gender was observed; (3) Positive correlations between marital status and level of depression were observed; (4) Negative correlations between age, gender and level of depression were observed.

These findings contribute to a nuanced understanding of the complex interplay between depression and the demographic variables among SCI patients.

10. Discussion

The current study's main objective was to explore depression in SCI-Rehab patient with respect to their socio-demographic variables. This study Holds Significance in light of the rising challenges related to SCI Patients and various issues associated with Depression. The discussion will interpret the findings, relate them to existing literature, and discuss their implications.

11. Interpretation of Results:

This pilot study encompassed 14 SCI patients. Descriptive statistics revealed that the majority (43%) fell within the age group of 25-35. The t-test results indicated that there is no significant association in the level of depression and different age groups or genders. Additionally, the correlation analysis demonstrated that marital status positively correlated with the level of depression while others (age and gender) showed negative correlations.

12. Limitation of Study

(1) The same study can be replicated using larger samples; (2) The study can be done in community dwelling spinal cord injured persons; (3) The same study can be carried out to compare rural and urban dwelling spinal cord injured persons; (4) Intervention study can be implemented for the spinal cord injured persons.
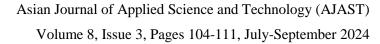
13. Direction for Future Research

Future research in this area should investigate increasing the sample size and broadening the scope of the study to include other factors. This will lead to a better understanding of depression in SCI-Rehab patients.

14. Conclusion

Finally, this Pilot study on SCI-Rehabilitated patients demonstrates the relationship of depression to socio-demographic characteristics (age, gender, marital status). The study revealed that there is a substantial correlation between marital status and depression after meticulously analysing data from 14 participants. But the study showed that there was no association between the level of depression and age or gender.

These findings offer an important comprehensive manner to the scholarly discussion of depression and call for further study to extend sample sizes and explore further variables.

Overall, this study contributes to our understanding of depression in SCI-Rehabilitated patients, implying the need for more individualized ways to assist individuals living with psychological problems in the society. The study findings reveals that spinal cord injured person suffer from depression even after rehabilitation process is completed and recommends the urgent need for psychological intervention.

15. Recommendations

(1) The study can be further carried with larger sample size; (2) Effectiveness of psychological intervention can also be investigated; (3) Level of depression among rehabilitated spinal cord injured patients and among spinal cord injured patient who are currently undergoing treatment can be compared; (4) Level of Depression among the caregivers of the spinal cord injured patients can be investigated.

Declarations

Source of Funding

The authors declare that they had no funding for this study.

Conflicts of interest

The authors have no competing interests to declare that are relevant to the content of this article.

Consent for Publication

The authors declare that they consented to the publication of this study.

Authors' contributions

All the authors took part in literature review, analysis, and manuscript writing equally.

References

Adhikari, S.P., Gurung, G., Khadka, B., & Rana, C. (2020). Factors influencing depression in individuals with traumatic spinal cord injury and caregivers' perceived burden in a low-income country: a cross-sectional study. Spinal Cord, 58(10): 1112–1118. https://doi.org/10.1038/s41393-020-0451-5.
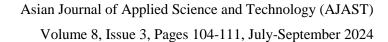
Ataoğlu, E., Tiftik, T., Kara, M., Tunç, H., Ersöz, M., & Akkuş, S. (2013). Effects of chronic pain on quality of life and depression in patients with spinal cord injury. Spinal Cord, 51(1): 23–26. https://doi.org/10.1038/sc.2012.51.

Craig, A., Tran, Y., & Middleton, J. (2009). Psychological morbidity and spinal cord injury: a systematic review. Spinal Cord, 47(2): 108–14. doi: 10.1038/sc.2008.115.

Devivo, M.J., Black, K.J., Richard, J.S., & Stover, S.L. (1991). Suicide following spinal cord injury. Paraplegia, 29(9): 620–627. doi: 10.1038/sc.1991.91.

Khazaeipour, Z., Hajiaghababaei, M., Mirminachi, B., Vaccaro, A.R., & Rahimi-Movaghar, V. (2017). Social support and its association with depression, gender and socioeconomic indicators in individuals with spinal cord injury in Iran. Spinal Cord, 55(11): 1039–1044. https://doi.org/10.1038/sc.2017.80.

Nirmala, B.P., Srikanth, P., Janardhana Vranda, M.N., Kanmani, T.R., & Khanna, M. (2020). Clinical and sociodemographic profiles of persons with spinal cord injury. Journal of Family Medicine and Primary Care, 9(9): 4890–4896. https://doi.org/10.4103/jfmpc.jfmpc_427_20.

Rafat, M.A., Nehmat, M.M., & Asirvatham, A.R. (2012). Anxiety and depression among traumatic spinal cord injured patients. Neurosciences, 17(2): 145–50.