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ORIGINAL ARTICLE

LEVEL OF DEPRESSION, STRESS, QUALITY OF LIFE, AND FUNCTIONAL INDEPENDENCE IN PATIENTS WITH SPINAL CORD INJURY

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ABSTRACT:

The primary goal of the survey was to determine the level of depression, stress, quality of life, and functional independence in patients with spinal cord injury (SCI). Additionally, the study aimed to determine the correlation between the psychological factors with the severity of the injury, and to compare the differences in male and female patients with SCI. **Methods:** In this cross-sectional survey 100 patients with SCI were recruited through non- non-probability convenience sampling technique. Male and Female SCI patients 25 to 50 years of age, SCI level C5 and above, patients on ASIA scale A, B, C with complete and incomplete SCI, acute and chronic SCI patients, were included in the study. The outcome measures used to assess their depression stress and quality of life were the Perceived Quality of Life Scale, Functional Independence Measure, Perceived Stress Scale, and Beck Depression Inventory Scale. The analysis was done through the SPSS version. 23. **Results:** Descriptive analysis showed that among the calculated, 54% were males 46% were females, 53% were married and 47% were unmarried. 48% of individuals experienced mild mood disturbances, 85% were in moderate stress, 98% were dissatisfied individuals and those who showed moderate functional independence were 74%. Moreover, depression, stress, and functional independence have a high association and significant p-value<0.05 with the level of injury according to the ASIA scale. **Conclusion:** The current study's findings indicate that patients with spinal cord injuries are significantly agitated and depressed, and their quality of life is relatively low. **Key Words: Depression, Functional Independence Measure, Quality of Life, Spinal Cord Injury Patients, Stress**

INTRODUCTION:

When the cauda equina, the terminal section of the spinal cord, or any portion of the spinal cord or nerves are compromised, a spinal cord injury (SCI) injury occurs. The motor and sensory functions below the site of the damage may undergo either permanent or transient yet enduring alterations. (1). This condition is highly debilitating and has a long-lasting impact on daily functioning. A spinal cord injury (SCI) occurring closer to the neck will result in a more widespread paralysis that affects a larger area of the body, as opposed to an injury in the lumbar region. Therefore, when the injury along the spinal cord increases in elevation, the affected portion of the body also increases in size. (1). This sickness is quite serious and has a prolonged effect on daily functioning. A spinal cord injury (SCI) occurring in the cervical region will lead to a more extensive paralysis that affects a greater area of the body, in contrast to an injury in the lumbar region. Consequently, the more elevated the position of the lesion on the spinal cord, the broader the area of the body that is impacted by its effects. (2). Individuals who have undergone spinal cord injuries (SCI) may feel persistent and enduring depression as a result of their physical restrictions. Therefore, it is essential to comprehend the persistent psychosocial disorders that result from spinal cord injury (SCI). Depression arises from heightened levels of stress, which manifest in symptoms including distress, sleep disturbances, and fluctuations in body weight. Additionally, the indication of posttraumatic stress in individuals with spinal rope injuries is immediately apparent. (3). Functional autonomy and quality of life are closely linked elements that are crucial for individuals, especially those with spinal cord injuries. Functional autonomy, defined as the ability to perform daily tasks without assistance, can be compromised by factors like stress and depression, leading to increased dependence on others. Physical health and social relationships are among the numerous factors that influence the quality of life, which encompasses complete satisfaction and contentment. Individuals who have sustained spinal cord injuries face distinctive obstacles, as they are required to surmount both psychological and physical impediments. (4). All the factors mentioned above are interrelated i.e. stress makes the depression worse (3), insomnia causes stress, depression causes insomnia (5). Similarly, exercise and therapy are helpful for all of the above. It reduces stress and depression as well (4, 5) and in turn, the independence in functional activities and the quality of life will get better too. Cohort research on anxiety and depression has revealed that individuals with spinal cord injuries (SCI) are very susceptible to acquiring depression. (5). It is imperative to identify the factors and guidelines that contribute to the resilience of spinal cord injury (SCI) patients, as suggested by a review that examined the relationship between financial factors and disability in individuals with SCI. This will be effective in the early detection of despair and the implementation of a viable treatment plan. (6). An additional study that examined the presence of depression in patients with spinal cord injury (SCI) during the initial six months of the injury revealed that it was present. The individual's quality of life was significantly impacted by the impairment, which led to elevated levels of tension and

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melancholy. (6). Moreover, a particular report that focused on personal satisfaction (QOL) following spinal string injury uncovered that the level of practical freedom in development is the essential indicator and critical impact on the general personal satisfaction of people with spinal wounds. (7). The Multicenter Study on "Quality of Life in and After SCI Rehabilitation" determined that the quality of life improved during the rehabilitation process and after discharge. (6). The objective of this investigation is to evaluate the extent of these attributes in individuals with spinal cord injuries (SCI) to identify and supervise pain and anxiety in SCI patients. The general welfare of individuals with spinal line lesions can be further enhanced by incorporating proactive systems into the treatment routine. In Pakistan, no investigation has been conducted to investigate the incidence of tension and despondency in patients with spinal cord injuries (SCI), regardless of the current state of knowledge. Furthermore, no research has been conducted on the relationship between stress, depression, and quality of life with the severity of spinal cord damage, or the differences in these parameters between male and female patients. It is essential to determine the extent of, stress, depression, and quality of life to identify and implement effective strategies for enhancing the well-being of individuals with spinal cord injuries.

METHODS:

In this cross-sectional survey, non-probability convenience sampling was done to acquire data on SCI patients from hospitals in Islamabad and Peshawar. The sample size was 100 SCI patients which was calculated through epi-tool. Both males and females from age 25 to 50 having C5 and above SCI injury were included in this study. The study was conducted from July 2018 to December 2018. Approval from the ethical committee was taken (Riphah/RCRS/REC). Informed consent was taken from subjects. The outcome measure used to assess depression in SCI patients was the Beck Depression Inventory scale, each of the 21 items in the BDI is a clear secondary effect that is associated with pessimism. For instance, the instrument evaluates the following: perspective, skepticism, sensations of disillusionment, self-frustration, obligation, discipline, self-scorn, reckless contemplations, crying, sensitivity, social withdrawal, dithering, self-discernment change, work trouble, a dozing issue, exhaustion, hunger changes, weight reduction, significant interruption, and loss of drive, as well as the seen pressure scale. (8). The perceived stress scale evaluates the perception of stress. It comprises ten items that require respondents to rate the frequency with which they have experienced or anticipated a specific emotion or thought in the past month on a five-point Likert scale, with values ranging from zero (never) to four (very often). Feelings of being unable to control significant aspects of life, confidence in managing personal issues, the perception that things are going their way, and feelings of being overburdened are all components of the PSS. The PSS is instrumental in assessing the efficacy of interventions designed to mitigate stress and comprehending the influence of stress on health and well-being. (9). The Perceived Quality of Life Scale was employed to evaluate the quality of life, which encompasses physical health, psychological well-being, social relationships, level of independence, and environment. (10). The functional independence measure was employed to assess the degree of independence in SCI patients. (11). SPSS version 21 was implemented to analyze the data. The descriptive statistics and frequencies of all variables were assessed and analyzed. The mean and standard deviation of each variable were determined. To determine the correlation between the ASIA scores of the patients and their depression, tension, quality of life, and functional independence, the chi-square test was implemented. Furthermore, P values were determined. The difference between these parameters in males and females was determined using the independent t-test.

RESULTS:

Descriptive statistics of gender showed that 54% were males and 46% were females) Moreover, the ASIA scale showed that those who fell under the category of ASIA-A were 82%, those in ASIA-B were 15% and those in ASIA-C were 3%.

Then, the descriptive chi-square association between the ASIA scores of all the individuals and the variables under study illustrated that depression had the highest significant value of 0.000 and functional independence had a p-value of 0.031. The insignificant p-values were of stress i.e. 0.079 and quality of life i.e. 0.799.

The Chi-square association of Gender with all the variables disclosed that the Functional Independence Measure showed the highest significant value of 0.000 while depression had a p-value of 0.011 which too is significant. Stress, on the other hand, had an insignificant p-value of 0.64 and so did quality of life 0.122. The association of marital status with the variables using chi-square depicted that depression and stress had significant p-values of 0.034 and 0.019 respectively. The quality of life did not have a significant value and gave the value of 0.129. The functional independence measure too had a slightly insignificant value of 0.064.

Finding the association between the Age and the variables under study (i.e. depression, stress, quality of life, and functional independence) using chi-square revealed that depression had a significant p-value of 0.02 while functional independence measure had an insignificant p-value of 0.522. Stress and quality of life, also, did not show significant p-values, and their values were calculated to be 0.110 and 0.845 respectively.

Table 1: Descriptive characteristics of the participants

Variables	Mean±SD	
Age	31.28 ± 9.82	
	Sub-Components	**Frequency**
Gender	Male	54%
	Female	46%
Marital Status	Married	53%
	Unmarried	47%

Table 2: Level of Severity, depression, Stress, QoL and Independence measure in SCI

Variables	Sub- Components	Frequency
ASIA scale	A	82%
	B	15%

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	C	3%
Beck Depression Inventory	Normal	7%
	Mild Mood Disturbance	48%
	Borderline Clinical Depression	30%
	Moderate Depression	8%
	Severe Depression	1%
	Extreme Depression	6%
Perceived Stress Scale	Low Stress	6%
	Moderate Stress	85%
	High Perceived Stress	9%
Perceived Quality of Life Scale	Dissatisfied	98%
	Satisfied	2%
Function Independence Measure		
Motor Subtotal Score	Dependent	37%
	Moderately Dependent	43%
	Independent	20%
Cognitive Subtotal Score	Dependent	6%
	Moderately Dependent	2%
	Independent	92%
Total FIM Score	Dependent	6%
	Moderately Dependent	74%
	Independent	20%

Table-3: Association between variables

Variables	ASIA scale	Age	Gender	Marital status
Depression	0.000*	0.02*	0.011	0.034*
Stress	0.079*	0.110	0.64	0.019*
Quality of Life	0.799	0.845	0.122	0.129
Functional Independence	0.031	0.522	0.000	0.064

Table 3: Comparison between male and female SCI patients for depression, stress, QOL, and functional independence

Variables	Male Mean±SD	Female Mean±SD	p-value
Depression	17.27±5.46	18.84±9.50	0.001*
Stress	19.38±4.02	22.50±6.45	0.002*
Quality of Life	4.09±0.77	3.67±6.45	0.019*
Functional Independence	75.12±11.32	81.69±19.77	0.001*

DISCUSSION:

The primary objective of this investigation was to assess the degree of depression, stress, and quality of life, in individuals who had experienced spinal cord injuries. Additionally, the investigation sought to analyze the potential correlations between the levels of depression, tension, quality of life, and functional independence in these individuals, as well as the severity of spinal cord injury and age and marital status. The data analysis of this study indicated that 54% of the participants were male, whilst 46% were female. 48% of the participants experienced mild mental problems, 85% had a moderate level of psychological pressure, 98% displayed grief, and 74% showed a moderate level of self-sufficiency. The study discovered a statistically significant and robust association between depression and the ASIA scale, with a p-value of less than 0.001. Additionally, a p-value of 0.031 was observed to indicate a substantial correlation between ASIA and FIM. The study's results indicated a significant correlation between gender and melancholy, as demonstrated by a p-value of 0.011. Additionally, a p-value of 0.000 indicated a statistically significant correlation between FIM and gender. Research indicates that depression is a prevalent issue among women, and its severity is more severe in this demographic. Among the 51 women polled, 41% displayed varying degrees of depressive symptoms, spanning from mild to severe. The BDI scores exhibit a robust association with intense pain, significant adverse consequences, and diminished health perceptions. (12). The results of our review indicate a critical and significant correlation between the event of melancholy and the individual's conjugal status, as evidenced by a p-value of 0.034. Additionally, we have identified a substantial correlation between the event of stress and the individual's conjugal status, as evidenced by a p-value of 0.019. A review of the relationship between despondency and personal satisfaction in individuals with spinal cord injury (SCI) revealed that unmarried individuals demonstrated a significantly improved quality of life (QOL; $p<0.05$) than their married counterparts. Out of the 36 patients analyzed in the study, 63.9% exhibited a heightened level of depression based on all measurements. An exhaustive examination uncovers a robust association between demographic variables and depression, with 49.3% of individuals encountering depression at varying degrees of intensity. The male population comprised 73.9% of the total population, and the female population made up 26.1%. The typical onset age for spinal cord injury (SCI) is 25.7 ± 8.2 years. (13). A recent report has demonstrated that the long-term likelihood of experiencing pain is significantly increased in young male patients

with spinal cord injuries. The incidence rate ratios (IRRs) are 1.84 and 1.63, respectively (4). Additionally, our research indicates a statistically significant correlation between depression and age, as evidenced by a p-value of 0.02. The study provided empirical evidence of the occurrence of depression following spinal cord damage, irrespective of the time of injury. Depression, stress, and functional independence were found to be important factors, but quality of life remained consistently low regardless of age, gender, marital status, or the severity of the injury as measured by the ASIA scale. The study exclusively aimed to evaluate the degrees of depression and stress in patients with spinal cord injuries, without considering aspects such as coping mechanisms or other variables like posture. The study encountered challenges in recruiting patients who had been undergoing long-term treatment, primarily because these individuals infrequently visited the hospital and were reluctant to participate due to their profound melancholy. A comprehensive investigation should be conducted to further enhance the problems stated in this study, namely by evaluating individuals who have not previously contributed data or were not present in hospital settings owing to various factors.

CONCLUSION:

The study concluded that spinal cord injury patients face significant depression, stress, and compromised quality of life. The severity of injury and functional independence was strongly correlated with depression, stress, and quality of life, with females exhibiting higher levels of tension and depression and a lower quality of life than their male counterparts.

Author Contributions:

Conception and design: *Aruba Saeed*
Collection and assembly of data: *Iqra Shabbir*
Analysis and interpretation of the data: *Marrium Batool*
Drafting of the article: *Ferwa Tehrim*
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Statistical expertise: *Ferwa Tehrim*
Final approval and guarantor of the article: *Iqra Shabbir*
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REFERENCES:

1. Cripps RA, Lee BB, Wing P, Weerts E, Mackay J, Brown D. A global map for traumatic spinal cord injury epidemiology: towards a living data repository for injury prevention. Spinal cord. 2011;49(4):493-501.

2. Ho CH, Wuermser L-A, Priebe MM, Chiodo AE, Scelza WM, Kirshblum SC. Spinal cord injury medicine. 1. Epidemiology and classification. Archives of physical Medicine and Rehabilitation. 2007;88(3):S49-S54.

3. Pollock K, Dorstyn D, Butt L, Prentice S. Posttraumatic stress following spinal cord injury: a systematic review of risk and vulnerability factors. Spinal cord. 2017;55(9):800-11.

4. Lim S-W, Shiue Y-L, Ho C-H, Yu S-C, Kao P-H, Wang J-J, et al. Anxiety and depression in patients with traumatic spinal cord injury: a nationwide population-based cohort study. PloS one. 2017;12(1):e0169623.

5. Dryden DM, Saunders LD, Rowe BH, May LA, Yiannakoulias N, Svenson LW, et al. Depression following traumatic spinal cord injury. Neuroepidemiology. 2005;25(2):55-61.

6. Lude P, Kennedy P, Elfström M, Ballert C. Quality of life in and after spinal cord injury rehabilitation: a longitudinal multicenter study. Topics in spinal cord injury rehabilitation. 2014;20(3):197-207.

7. Pagliacci M, Franceschini M, Di Clemente B, Agosti M, Spizzichino L. A multicentre follow-up of clinical aspects of traumatic spinal cord injury. Spinal Cord. 2007;45(6):404-10.

8. Jackson-Koku G. Beck depression inventory. Occupational medicine. 2016;66(2):174-5.

9. Scale PS. Perceived Stress Scale. PSS; 1983.

10. George LK. Perceived quality of life. Handbook of aging and the social sciences: Elsevier; 2006. p. 320-36.

11. Mackintosh S. The Functional Independence Measure: Australian Physiotherapy Association; 2009.

12. Robinson-Whelen S, Taylor H, Hughes R, Wenzel L, Nosek M. Depression and depression treatment in women with spinal cord injury. Topics in spinal cord injury rehabilitation. 2014;20(1):23-31.

13. Khazaeipour Z, Taheri-Otaghsara S-M, Naghdi M. Depression following spinal cord injury: its relationship to demographic and socioeconomic indicators. Topics in spinal cord injury rehabilitation. 2015;21(2):149-55.