

Levels of anxiety and depression among patients with spinal cord injury coming to paraplegic centre, Peshawar

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ABSTRACT

Introduction: Anxiety and depression are some of the known psychological conditions leading to an increased rate of morbidity and affects overall functional capabilities of an individual. In patients suffering from spinal cord injury, anxiety and depression are the commonest reported problems. This study was conducted to investigate the level of anxiety and depression among patients with spinal cord injury coming to Paraplegic Centre Peshawar.

Materials & Methods: The research design of this study was a cross sectional survey conducted from September 2018 to February 2019 at Paraplegic Centre, Peshawar. A total of 133 patients with spinal cord injury participated in this survey. Convenient sampling technique was used during data collection. Assessment of levels of anxiety and depression was done by Depression Anxiety and Stress Scale-21 (DASS-21). Responses from the patients were recorded and were analyzed on IBM SPSS 22.

Results: Out of the 133 participants, 100 (70.3%) were males and the rest 33 (29.7%) were females. The mean age of the patients was 30.34 ± 11.40 years (mean \pm sd). The commonest level of spinal cord injury in these patients was thoracic spine. About 72.6% participants suffered from both anxiety and depression. Within the recruited patients, 9% suffered from depression only while 18.4% of the patients suffered specifically from anxiety. No association was found between the level of anxiety and depression with gender ($p=0.37$), occupation ($p=0.477$), age ($p=0.54$), marital status ($p=0.36$), bread-earner ($p=0.55$) and length of hospital stay ($p=0.40$).

Conclusion: Majority of patients suffering from spinal cord injury develop anxiety and depression, with female gender being more prone to developing these conditions compared to their counterpart's males. Patients within age range 21 – 40 years are more prone to developing anxiety and depression.

Key Words: Anxiety, Depression, Spinal Cord Injury

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INTRODUCTION

Spinal cord injury (SCI) is of the conditions that develops serious long-lasting disability and an adverse impact on overall health of an individual.¹ SCI can be caused by a traumatic (e.g. impact related injury) or non-traumatic (e.g. degenerative disease or infection) causes. Traumatic spinal cord injury is more common in young to middle-aged adults especially in male population. Spinal cord serves as a pathway to link the brain and body in executing both sensory and motor information. Any damage or disruption to this connection will lead to an impaired and disabled life.

Individuals with SCI are prone to develop associated health concerns including neurogenic disorders, bowel and bladder dysfunctions, respiratory distress and complications, cardiovascular diseases, pressure ulcers, sexual dysfunctions, urinary tract infections, autonomic dysreflexia and neuropathic pain.² These health concerns not only effects mobility in these patients but are responsible for developing mental health problems in these patients.

Depression which is characterized as a serious mental health problem that elicits cues of personal and societal damage is one the conditions observed in SCI patients. Depression effects 121

million population globally and has been associated with developing disability.³ Depression is one of the most common condition observed in patients with SCI and has been associated with a number of problems among these individuals. It has been reported that patients with SCI having depression have limited self esteem which may lead to decrease functional capabilities and social integration in these patients.⁴ Another problem observed in these patients is anxiety which is more of a perceptual disorder encompassing feelings of doubt, fearfulness and failure. It may be cardinal symptom to an underlying disease and must be differentiated. Anxiety disorders are not only common in these patients but has been categories is one of the commonest psychiatric disorders in general population.

The Global Burden of Disease study estimated that anxiety disorders contribute to roughly 26.8 million disability-adjusted life-years.⁵ Anxiety and depression have a considerable and significant impact on human functioning. A meta-analysis concluded that severe depressive episodes can cause health problems, and social and financial troubles in individual having this condition.⁶ These depressive episodes can be even more pessimistic for those with functional losses including patients with

SCI. It is obvious that depressed SCI patients are more bed-bound, have less out-of-home activity and need more care than non-depressed SCI patients.⁷ SCI brings significant alternations to life such as increased mental health problems, amplified pain, health complications and substance overuse.⁸ Emotional disorders and psychological disorders after SCI have been associated with adverse outcomes such as increased pain and poorer adjustment to injury and may compromise rehabilitation in spinal cord injury.⁹ The effects of depression on body is very complex as the changes it induces are inconsistent, often life endangering and not much is known about it.¹⁰ It is a concerning health related public issue which leads to excessive morbidity and mortality. The impact of depression is similar to or even greater than that attributed to cardiovascular diseases. Problems with mental health issues in the general population often go unrecognized, not prominent and untreated.^{11, 12} The disturbance in mood (anxiety and depression) is more prevalent population having SCI compared to control people. This condition is more obvious in early and late phase of rehabilitation when patients are in hospitals and community, respectively. A study carried out showed that mood disturbance is two times more in the people with anxiety and depression than the people without anxiety and depression.^{13, 14} It was reported that anxiety was more disturbing in average population with SCI, of which 45% people had worry, fever and panic condition that could elicit the condition like autonomic dysreflexia and pre-injury psychological morbidity. Accurate and timely analysis is required to understand the association between SCI and mood disturbance. The diagnosis performed in clinics showed a lower prevalence because they allow the distinction of symptoms related to SCI.¹⁵ Some studies have shown that the condition of having SCI may cause changes in temperature regulation, blood pressure, respiratory functioning and motor weakness. SCI has major impact on life. It has greater effects on mental health which can result in decrease outcome in substance abuse. Studies with different methodologies have revealed that about one third population is suffering from depression due to SCI.⁶ Depression due to SCI within 6 years was reported to be 20.9% in Canadian cohort and 14% in US cohort.¹⁶ A common comprehension is that the ratio of mental disorders, post-SCI, is much higher than that of population having other health related problems. In a literature review, it was found that major depression prevalence estimates appeared to range from 9.8% to 38%.¹³ Worldwide prevalence has been estimated to range between 223 and 755 per million people, and because of improved survival rates, SCI prevalence is increasing.¹⁶ A North American study estimated incidence of SCI to be 25 to 83 people per million annually, while in Europe, it ranges between 9.2 to 130.6 individuals per million.¹⁴ It was found in Australia that sufferers of both types the traumatic and non traumatic injury of SCI sum up between 19000 and 28000.^{3, 17} A literature review conducted regarding studies investigating the psychological consequences of spinal injury suggested that conflict exists between clinical impressions and objective based research.¹⁸ In the past, opinion based suggestions stated that onset of depression after SCI was a generalized reaction and that its absence led to a state of denial among the patients. Systematic reviews reported that depression is 20% to 45% in SCI patients^{19, 20} and a mean of the estimated prevalence in depression and anxiety

diagnosis after SCI was found to be 22.2%.²¹

There is a lacking of available research literature in our community regarding depression and anxiety in patients with SCI. By knowing different levels of psychological involvement, specific treatment protocols addressing the psychological factors can be designed and implemented. The purpose of this study was to investigate the level of anxiety and depression among patients with SCI injury in Paraplegic Centre Peshawar and identify common age group of patients suffering from anxiety and depression.

MATERIALS & METHODS

This cross-sectional survey was conducted in Paraplegic Centre, Hayatabad Peshawar with prior permission to conduct research from the CEO of the Paraplegic Centre, Hayatabad Peshawar. The duration of this research was six months; from September 2018 to February 2019. A total sample of 133 was calculated on an online calculator (openepi.com) with 95% of confidence interval.²² Margin of error = 5% or 0.05133 as calculated by an online calculator (openepi.com) with 95% of confidence interval. Convenience sampling was used for data collection and participants who were aged 15 years or above and suffered from traumatic and non-traumatic spinal cord injury were included in the study. The patients who already suffered from anxiety and depression and were on medication were excluded. Participants who fulfill the inclusion criteria were recruited in the study. The research team met SCI patients individually, explained the title and purpose of the study and after their willingness, recruited them in this research. Consent forms were obtained from all willing participants. After taking signed consent, the participants were then handed over the questionnaire derived from the checklist and criteria defined for anxiety and depression by DASS 21 scale. The scale is based on four-point Likert scale, consisting of 21 items that examine the levels of depression, anxiety and stress of individuals. Both the consent form and questionnaire were converted to Urdu language by a professional translator, for the ease of patients who could not understand English language, and then the translated versions were handed over to them. A member of the group overlooked the participants filling their questionnaire for any query or ambiguity regarding any questions. All the questionnaires were filled by the participants themselves. The data collected was then analyzed using IBM SPSS version 20. The responses to estimate mean, standard deviation, pattern and cross-tabulation of the variables under consideration. The independent variables identified in this study were gender, bread-earner, hospital stay, Level of injury and their marital status.

RESULTS

A total of 133 participants were recruited for this research. Out of the total participants, 100 (75.2%) were males and 33 (24.8%) were females. Among them 60 (45%) were single and 73 (54%) were married. The average age of the patients was 30 ± 11 years (mean ± sd). The details of demographics are given in the table 1.

Table 1: Table showing demographic details of patients

Variables		Frequency
Gender	Male	100 (75.2%)
	Female	33 (24.8%)
Age	Mean ± sd	30 ± 11 years
Marital Status	Single	60 (45.1%)
	Married	73 (54.9%)
District	Peshawar	27 (20.3%)
	Dir	17 (12.8%)
	Swat	13 (9.8%)
	FATA	10 (7.5%)
	Swabi	6 (4.5%)
Bread Earner	Yes	54 (40.6%)
	No	79 (59.4%)
District	Mansehra	10 (7.5%)
	Others	50 (37.6%)

Among the participants the most prevalent mechanism of injury was fall from height 57 (42.9%) in which 44 were males and 13 were females. Further description provided in table 2.

Table 2: Table showing mechanism of Injury

Mechanism of Injury	Frequency	Males	Females
Fall from height	57 (42.9%)	44	13
FAI	23 (17.3%)	22	1
RTA	22 (16.5%)	17	5
Others	31 (23.3%)	17	14
Total	133	100	33

The level of injury of most of the participants was thoracic (T1-T12) with the frequency of 86 (64.7%) followed by lumbar spine 36 (27.1%) and then cervical spine 11 (8.6%). Illustrated in figure 1.

Level of Injury

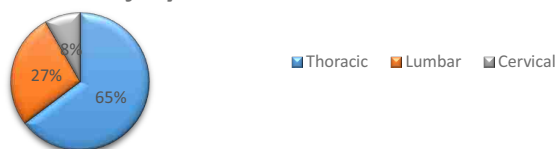


Figure 1: Figure showing levels of spinal cord injury

The analysis from the questionnaire revealed that among the whole population, 72.6% participants suffered from both anxiety and depression, 18.4% from anxiety only and 9% suffered from depression only.

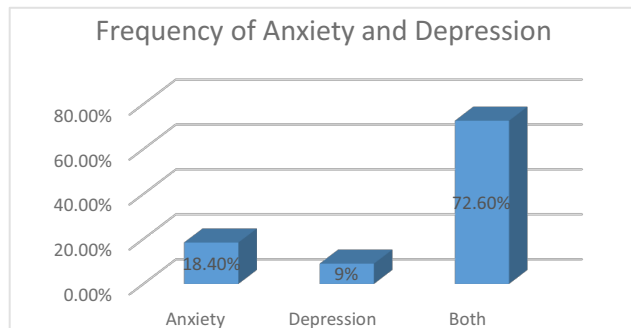


Figure 2: Figure showing Anxiety and Depression

On the scale of severity of anxiety and depression, most of the patients suffering from moderate anxiety 60 (45.1%) and from mild depression 65 (48.9%). Further details are given in table 3.

Table 3: Severity of Anxiety and Depression

Results	Anxiety	Depression
Normal	16 (12.0%)	26 (19.5%)
Mild	38 (28.6%)	65 (48.9%)
Moderate	60 (45.1%)	41 (30.8%)
Severe	19 (14.3%)	1 (0.8%)
Total	133 (100%)	133 (100%)

No association was found between the level of anxiety and depression with the gender (p= 0.37), occupation (p=0.477), age (p = 0.54), marital status (p= 0.36), bread-earner (p=0.55) and length of hospital stay (p=0.40). The frequency distribution of gender in the severity is given in the table 4.

Table 4: Distribution of severity of Anxiety and Depression among genders

Results	Anxiety		Depression	
	Male	Female	Male	Female
Normal	12	4	20	6
Mild	32	6	52	13
Moderate	43	17	27	14
Severe	13	6	1	0

DISCUSSION

The aim of this study was to investigate the level of anxiety and depression among patients with SCI. Specifically, this study examined the psychological distress among patients with SCI who were varied in time since their injury and the level of distress experienced within the years following their injury. Depression and anxiety are known to be a global health issue affecting population at large with lifetime prevalence falling between 20.8% and 28.8%.²³ As from the literature review we came to know that the level of anxiety and depression in SCI patients is about half and comparatively lower compared with the

level of anxiety and depression in SCI patients in our locality. In the literature review 20 to 40% of the patients are suffering from anxiety and depression while in our results 70.6% patients were suffering from the latter conditions. The main reason of higher the level of anxiety and depression in our study might be inadequate lack of facilities and lack of psychological issues, stressful working and social environment, lack of counseling, unemployment, disruption of the social settings and lack of therapeutic intervention.²⁴ Following standardized diagnostic criteria, the impact of psychological disorders like depression have been found to be affecting 30% to 40% of the patients suffering from SCI¹², which then correlates with our results showing the population of 70.6% suffering from both anxiety and depression of various intensities. The levels of these disorders incline as the population changes from general to medical in patients.²⁵ Gender wise prevalence evident that females are more likely to suffer from psychological issues compared to males^{26, 27}, our results support the same fact with an average of 82.5% of the female population being sufferers of both anxiety and depression. Females are more likely to suffer from psychological issues because they cannot tolerate drastic fluctuations in their surrounding and are at high risk of developing anxiety and depression. Majority of women are confined to their houses and have limited social interactions in our community. The effect of length of stay at hospital on levels of depression tend to have a direct relation, as the hospital stay increases the hope and willpower of the patients decreases.^{28, 29} This coincides with our results of increased depression rates in patients with prolonged stay in hospitals.

CONCLUSION

It can be concluded that majority of the patients suffering from spinal cord injury are prone to develop anxiety and depression, with a gender significance of females being the most affected among the population. However, the distribution of level of severity of depression and anxiety was found to be moderate among both the genders. Patients with SCI falling in age group 21-40 years are prone to develop both the conditions.

RECOMMENDATIONS

Future research work must focus on the use and integration of various diagnostic tools with a wide variety of population. Furthermore, the identification of comorbidities that exist with psychological distress should be evaluated for an association. The research population and study period could be prolonged to further assess the impact of anxiety and depression. Sample selection could be done based on randomization.

LIMITATIONS

Limitations of our study included selecting a single research setting with a limited number of patients as there was no other specialized facility for SCI patients in our city. Since number of patients was already low, we had to select the sample on the basis of convenient sampling. Another issue was language and literacy barrier as some of the patients were from areas where only local language was spoken so we had to interpret the questions in that specific.

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