



## Assessment of Psychosocial Impact of Spinal Cord Injury among Survivors in National Orthopaedic Hospital Dala-Kano, Northwestern Nigeria

<sup>1</sup>Haddad M.M., <sup>1</sup>Usman U.M., <sup>1</sup>Salis A., <sup>1</sup>Dalhatu A<sup>5</sup> <sup>2</sup>Shehu S.,  
<sup>5</sup>Zubair H., <sup>3</sup> Gomma, H.I., <sup>3</sup>Kumbo A., <sup>1</sup>Murtala H.H.,  
<sup>4</sup>Bashir K., <sup>5</sup>Munnir B., & <sup>1</sup>Ashiru M.,

<sup>1</sup>Department of Nursing Sciences, Faculty of Allied Health Sciences, Bayero University, Kano

<sup>2</sup>Department of Psychiatry, Faculty of Clinical Sciences, College of Health,  
Bayero University, Kano

<sup>3</sup>Department of Nursing Sciences, Faculty of Allied Health Sciences,  
Ahmadu Bello University, Zaria

<sup>4</sup>Department of Physiotherapy, Faculty of Allied Health Sciences, Bayero University, Kano

<sup>5</sup>National Orthopaedic Hospital Dala, Kano State, Nigeria

### Abstract

*The experience of spinal cord injury (SCI) is one of the most devastating injuries that might affect an individual. Despite this, healthcare providers give inadequate attention to the psychological needs of SCI survivors. This study aimed to assess the psychological impact of spinal cord injury among survivors at National Orthopaedic Hospital, Dala-Kano. A cross-sectional descriptive survey design was adopted for the study. A purposive sampling technique was used to recruit 30 SCI survivors and a structured interviewer-administered questionnaire was used for data collection with a 100% (n=30) retrieval rate. Findings from the study revealed that the majority 20 (66.7%) of the respondents develop emotional problems such as depression and anxiety. However, less than half of 14 (46.7%) of the respondents experienced impaired cognitive function. More than three quarter 23 (76.7%) of them experienced bouts of sadness. The results further revealed that SCI interferes with their family roles 18 (60%) and jobs 18 (60%) and fewer number of patients with SCI had social support. It is concluded that survivors of spinal cord injury suffered mild to moderate emotional imbalances and therefore, it was recommended that a holistic multidisciplinary approach be adopted for SCI survivors in addition to provision of functioning support groups, effective follow-up services as well as health and vocational education.*

**Keywords:** *Assessment, Psychological impact, Spinal Cord Injury*

### Introduction

Spinal cord injury (SCI) is a devastating condition that may occur acutely as a result of traumatic accidents such as traffic crashes, falls, sports injuries, or workplace

---

<sup>5</sup> **Corresponding Author:** Adamu Dalhatu, Department of Nursing Sciences, Faculty of Allied Health Sciences, Bayero University, Kano. **Corresponding Email:**

accidents (O'Connor 2002 in Lim, Shiue, Ho, Yu, Kao, Wang, et al. 2017) or chronically due to illness such as spinal tumours or transverse myelitis (Williams,2015). Globally, the highest prevalence of SCI is 906 per million in the US (Singh, Tetreault, Kalsi & Fehlings 2014). Statistics show that 400 to 500 Nigerians and some parts of African countries such as South Africa and Ghana sustain SCI annually (QASA, 2010).

The injury usually results in symptoms of pain, disability, loss of function, and neurologic dysfunction (Furlan, Norman, Singh & Fehlings, 2011), such as paralysis of voluntary muscles and loss of sensation below the level of the lesion, which is related to reducing mobility and functional independence. Additionally, people with SCI can be prone to complications such as pneumonia, septicemia, urinary tract infections, cardiac diseases and chronic pain, which may increase the clinical severity of their medical conditions (Sipski & Richards, 2006 in Lim et al. 2017). This might lower their quality of life in comparison with the general population. (Middleton, Tran & Craig 2007)

In addition to physical injuries, psychological disorders may occur after SCI. To estimate the prevalence of mood disorders in adults with SCI, some studies have performed meta-analyses or systematic reviews about anxiety or depression following SCI. and they indicated that the prevalence of anxiety for self-reported measure estimates varied from 15–32% (Le and Dorstyn, 2016). Williams and Murry (2015) estimated the prevalence of depression to be approximately 18.7% to 26.3%. Craig, Tran and Middleton (2009) performed a systematic review and revealed that SCI patients in the rehabilitation phase still have a risk of depression and that almost 30% of those may develop a risk of depression. In addition, the potential depressive risk may be approximately 27% when SCI patients return to their normal life (Craig et al., 2009).

Depression and anxiety are normal reactions to the physical changes, as well as to the day-to-day consequences, of the injury and subsequent disability. Some people and their families benefit from medication or counselling. Others do well with support from family and friends. Emotional reaction becomes an issue if it limits or prevents you from taking part in therapy and moving on with life. Emotional and behavioural problems may develop or worsen after a SCI. There is often a period of adjustment after a spinal cord injury (University of Pittsburgh Schools of the Health Sciences 2021). Sometimes feelings of sadness or anxiety may develop. In some cases, clinical depression may develop.

Despite all these, psychological problems in SCI survivors tend to be trivialized by healthcare professionals and this leaves the individual helpless, further thwarting their myriads of complications. Whereas the SCI patient with psychological disorder may

benefit significantly from therapies rendered by healthcare professionals. This study aimed to assess the psychological impacts of SCI among survivors in National Orthopaedic Hospital, Dala-Kano, Kano state.

### Theoretical Framework

The theory adopted by the researcher to explain the psychological impacts of spinal cord injury is the Biopsychosocial (BPS) model. It is an interdisciplinary model that assumes that health and wellness are caused by a complex interaction of biological, psychological, and sociocultural factors. This model was first explained by psychiatrist George L. Engel in a Science journal in 1977. This model is based on the system perspective. The BPS model rejected the biomedical model as dogma. This model states mind, body, and environment interact in causing disease as depicted in the diagram below. The biological component of the model refers to the fact that pathogens like germs and toxins precipitate illness. The psychological component looks for potential psychological causes for a health problem such as lack of self-control, emotional turmoil, and negative thinking. The social part of the BPS model explains how different social factors such as socioeconomic status, culture, poverty, technology, and religion can influence health. The model presumes that it is important to handle these three factors together when managing health problems. Applying the BPS model to Spinal Cord Injury implies that in caring for the biological aspect of spinal injury, social and psychological factors should also be considered.



*Fig. 1: The BPS Model*

**Figure 1:** The BPS Model

### Methods and Materials

A descriptive survey design was used for the study. The study was conducted at National Orthopaedic Hospital Dala-Kano, Kano state, (NOHD), Nigeria. And is comprised of all spinal injured patients who came for follow-up care at Sa'ad

Abubakar III Spine Rehabilitation Complex, NOHD in June 2021. An interviewer-administered structured questionnaire was employed. The questionnaire consisted of socio-demographic data, clinicopathologic characteristics and psychological assessment components. Ethical approval was sought and granted by the ethics review committee of the hospital NHREC/17/03/2018.

### Validity and Reliability of Instrument

The research instrument was validated by the researcher's supervisor for face and content validity, observations, suggestions and comments were incorporated and final approval was sought from the supervisor before administering the instrument. A pilot study was conducted using 3 (10%) respondents to test the reliability of the research instrument using the split-half method, with  $R=0.81$ .

### Results

The result from Table 1 indicated that the majority of the respondents 12(40%) were between <20-29 years while the least was 5(17%) respondents between 40-49 years of age. On gender, many of the patients with SCI were males 22(73%). On marital status, majority were 18(60%) married while 2(7%) were widows. On an educational level, the majority 16(53%) had a primary-secondary level of education while 6(20%) had non-formal education. The rest of the results are presented in the table below

In Table 2, a large number of patients with SCI 20(66.7%) reported that SCI-related pain causes anxiety and depression. The majority of the patients 20(66.7%) lamented that they feel bored secondary to SCI while only 10(33.3 %) did not express the feeling of being bored. The majority of the patients 17(56.7%) expressed a feeling of low ebb as a result of SCI, with a significant number 20(66.7%) reporting being stressed secondary to SCI. The rest of the results are presented in Table 2 below

**Table 1:** Distribution of Demographic and Clinicopathologic Characteristics (n=30)

Variables	F	%
<b>Age</b>		
≤20-29	12	40
30-39	7	23
40-49	5	17
50 & above	6	20
<b>Gender</b>		
Male	22	73
Female	8	27

<b>Marital status</b>		
Single	6	20
Married	18	60
Divorced	4	13
Widow	2	7
<b>Educational level</b>		
Primary-Secondary	16	53
Diploma	8	27
Degree	-	-
Non-formal education	6	20
<b>Occupation prior to SCI</b>		
Employed	18	60
Student	6	20
Unemployed	6	20
<b>Age(years) at the time of injury</b>		
≤20	6	20
21-30	6	20
31-40	10	33
40 & above	8	27
<b>Duration of SCI (Months)</b>		
1-6 months	12	40
7-12 months	2	7
Above 12 months	16	53

Key. F - refers to frequency % - refers to percentage

**Table 2:** Respondent's Opinion on Psychosocial Impacts of SCI (n=30)

Variables	F	%	F	%
	YES		NO	
SCI pain causes emotional problems (anxiety and depression)	20	66.7	10	33.3
Analgesics affect cognitive function	3	10	27	90
SCI affects cognitive function	14	46.7	16	53.3
SCI causes boredom	20	66.7	10	33.3
SCI causes sad mood	17	56.7	13	43.3
SCI is stressful	20	66.7	10	33.3
Taken Medications without a prescription	12	40	18	60
Bouts of sadness secondary to SCI	23	76.7	7	23.3
Suicidal thoughts secondary to SCI	5	16.7	25	83.3

Key. F - refers to frequency % - refers to percentage

The Majority of the patients with SCI 19(63.3%) reported the need to have adequate consultation with healthcare professionals to allay their fears. Several of the patients 24(80%) experienced low self-confidence as a result of SCI. Only a few patients

8(26.7%) reported fear of long-term complications as a result of SCI, and 10(33.3%) of them reported lack of social support. The rest of the results are indicated in Table 3 below.

**Table 3:** Impacts of Psychosocial Problem on SCI Patients (n=30)

Variable	f	%	f	%
	Yes		No	
Need for psychological consultation	19	63.3	11	36.7
Self-confidence	24	80	6	20
Housing problem as a result of SCI	9	30	21	70
Dependence on others	22	73.3	8	26.7
Interference with Job	18	60	12	40
High-risk complications	22	73.3	8	26.7
Interference with Family Role	18	60	12	40
Financial Insecurity	8	26.7	22	73.3
Social support	20	66.7	10	33.3

Key: SCI = spinal cord injury, F - refers to frequency % - refers to the percentage

### Discussion

The study revealed that the majority of the respondents develop emotional problems such as depression and anxiety post-SCI. This finding corroborates that of Flambouras, (2012) who found out that psychiatric diagnosis can be made in about 40% of patients with a recent-onset spinal cord injury. This study also revealed that less than half of the respondents' cognitive function was affected as a result of SCI, this is in line with the findings of Roth (2009) who identified deficits that affect spinal injured patients to include difficulties with attention, concentration, memory, problem solving, abstract reasoning, new learning and higher-level cognitive skills as well as changes in personality and emotional state. Another finding also showed that more than two-thirds of the respondents experienced sadness after sustaining SCI, which tallies with the findings of Watermeier, (2011) and Hammel (2010) who found out that individuals who sustain spinal cord injuries experience the trauma of one of the most devastating of all non-fatal injuries. Another important finding revealed from this study is that most of the respondents have no suicidal thoughts, this is in contrast with the findings of Flambouras, (2012) who opined that suicide is one of the extreme behavioural responses to SCI. Death from suicide has been found to be approximately five times as often in the SCI population as in the general population.

The findings of this study also revealed that participants affirmed that they were supported and reassured adequately by their family members and people around them this also agreed with Ronald (2019), who said that adjustment entails the long haul of day-to-day living with an SCI, and coming to terms with losses and limitations and the patients are initially dependent on others and for those with high lesions this

dependency may continue, and many may have disappointing levels of neurological recovery (Formal, Cawley & Stiens, 2015). McColl & Skinner (2015) state that emotional support reduces anxiety through empathic interaction, and changes in attitude toward disability, providing emotional release and thus buffer against stress and perceived threats. More so, most of the respondent with SCI expressed self-confidence despite their conditions. This present finding contradicts Dickson, (2010) who said stigma and societal attitudes towards people with disability (discrimination in terms of employment, promotion, and dating) and loss experienced in a more social context can result in the individual's inability to maintain their place in the social and economic hierarchy.

It was also found that the majority of the participants affirmed that SCI affected their jobs, and family roles and many have no social support. Most of them developed secondary medical complications as a result of SCI. According to Scullion (2010), states that besides the financial consequences impacting the individual, family, and society, there are alterations that may occur in individual's interaction activities and in their relationships with significant others. Such changes may be attributed to the societal devaluation of disabled persons, the daily struggle to accomplish activities of daily living, the stress of significant others' relationships/role interactions and the loss of satisfaction from vocational and leisure activities which can no longer be accomplished. The financial constraints usually have a bearing on the SCI and the family. In order to be able to alleviate some of the problems that the families may be faced with, the SCI patient must acquire as much independence as possible before leaving the hospital. Furthermore, after discharge access to health care services depends on the patients' proximity to a hospital with such services, or their ability to meet transport and treatment costs.

## Conclusion

In conclusion, spinal cord injury survivors experience mild to moderate psychological impacts. Many of them experienced symptoms of anxiety and depression among others.

## References

- Craig, A., Tran, Y. and Middleton, J.(2009). Psychological morbidity and spinal cord injury: *A systematic review spinal cord*, 47: 108 – 114.
- Flambouras, N. (2012). *Psychological Adjustment after Spinal Cord Injury*. A rural spinal cord injury project. Retrieved from <https://ncbi.nlm.nih.gov>. 20/7/2021.
- Formal, C.S., Cawley, M.F. &Stiens, S.A. (2015). *Spinal cord injury rehabilitation*. 3. Functional outcomes. *Archives of Physical Medicine and Rehabilitation*, 78, S59-S64. Retrieved from <https://www.ncbi.nlm.nih.gov>. 22<sup>nd</sup> July, 2021.

- Furlan, J.C., Noonan, V., Singh, A. and Fehlings, M.G.(2011). Assessment of Impairment in Patients with Acute Traumatic Spinal Cord Injury. *A systematic review of the literature Neurotrauma*: 28: 1445 -77
- Graig, A.R., Hancock, K. M. & Dickson, H. G. (2014). A longitudinal investigation into anxiety and depression in the first two years following a spinal cord injury. *Paraplegia*, 32-675-679.
- Hammell, K.W. (2010). Quality of life after spinal cord injury: a meta-synthesis of qualitative findings. *SC* (45), 124-139
- Dorstyn, D. and Le, J. (2016). Anxiety Prevalence Following SC1: A Meta-analysis. *Spinal Cord*.
- McColl, M.A. & Skinner, H. (1995). Assessing inter- and inner-personal resources: social support and coping among adults with a disability. *Disability and Rehabilitation*, 17:24-34
- Middleton, J., Tran, Y. and Craig, A.A. (2007). Relationship & for quality of life and self-efficacy in persons with SC injuries. *Archives of Physical Medicine and Rehabilitation*. 88:1643–1648.
- O'Connor, P. (2002) Incidence and Patterns Spinal Cord Injury in Australia, *Accidental prev.*; 34:405 – 415
- Ronald, J.S. (2019) Parental illness and disability: a family systems framework. *Journal of Family Therapy*, 21:242-266
- Roth, E., Davidoff, G. & Thomas, P. (2009). A controlled study of neuropsychological deficits in acute spinal cord injury patients. *Paraplegia*, 27: 480-489
- Singh, A., Tetreault, L., Kalsi-Ryan, S., Nauri, A. and Fehlings, M.G. (2014). Global Prevalence and Incidence of Traumatic Spinal Cord Injury. *ClinEpidemal*; 6:309–31.
- Sipki, M.L. and Richards, J.S. (2006). Spinal Cord Injury Rehabilitation State of The Science. *Am J PhysMed Rehabil*. 85(4): 310 – 42
- University of Pittsburgh Schools of the Health Sciences 2021, report
- Weller, D. J. & Miller, D. M. (2017). *Emotional reactions of patient, family, and staff in acute care period of spinal cord injury: Part I. Social Work in Health Care*, 2, 369-37.
- Willam, R. and Murray, A. (2015). Prevalence of Depression after SCI: A Metanalysis. *ArchPhys Med. Rehabil.*, 96 (1): 133–40
- Wang, M, and Chan, F. (2017). psychosocial adjustment patterns of persons with spinal cord injury in Taiwan. *Disab&Rehabil*, 29 (24), 1847-1857