

# Interdependence of Self-Esteem, Depression, Social Support and Quality of Life Among Patients with Cerebrovascular Accident and Spinal Cord Injury

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## Abstract

Spinal cord injury (SCI) has been described as one of the greatest calamities that can befall humans. SCI affects a person's physical function and psychological wellbeing. Stroke is a rapidly developing loss of brain function(s) due to disturbance in the blood supply to the brain. The physical manifestation of stroke is paresis or paralysis of the muscles of the limbs of the contra lateral side, otherwise known as hemiparetic or hemiplegic side. Many a time, stroke survivors experience frustrating physical, affective, psychosocial and cognitive disabilities that affect their quality of life. The study investigated the interdependence of self-esteem, depression, social support and quality of life among patients with cerebrovascular accident (stroke) and spinal cord injury (SCI). The study adopted cross-sectional survey research design. A total of 60 participants (30 stroke patients and 30 SCI patients) participated in this study. The selected psychosocial variables such as depression and self-esteem were assessed using Beck Depression Inventory Questionnaire (BDI) and Self Esteem Questionnaire (SE), respectively. Also, social support and quality of life were assessed using Social Support Questionnaire (SSQ6) and Short Form (SF-36) Health Questionnaire, respectively. The data obtained from this study were analyzed using descriptive and inferential statistics. The demographic profile of the respondents was summarized using frequency counts and percentages. The relationship of social support, depression, self-esteem and quality of life in both SCI and stroke patients were analyzed using Spearman rho. The results obtained from this study showed that both stroke and SCI were seen more in individuals above 41 years. However, majority of the stroke patients were married while most SCI patients were single. Also, a significant association between social support, depression and quality of life was found among stroke patients ( $p < 0.05$ ) but insignificant relationship was seen to exist between self-esteem and quality of life in stroke patients ( $p > 0.05$ ). Similarly, depression and quality of life were observed to relate significantly among SCI patients ( $p < 0.05$ ) but the study showed no significant association between social support, self-esteem and quality of life in SCI patients ( $p > 0.05$ ). It was therefore concluded that social support and depression are associated with quality of life in stroke patients while depression is associated with quality of life in SCI patients. It was therefore recommended that caregivers and families of stroke and SCI patients should be educated on the importance of social support and community re-integration on the well-being of stroke and SCI patients.

## Keywords

Stroke, Spinal Cord Injury, Quality of Life, Psychosocial Parameters

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## 1. Introduction

Spinal cord injury (SCI) has been described as one of the greatest calamities that can befall humans [15]. SCI is the loss of some or all of an individual's sensation and movement of the limbs. It often leads to permanent neurological injury and a range of associated consequences such as paralysis, loss of function, change of bowel, bladder and sexual function and loss of functional abilities such as walking [16]. Consequently, not only does SCI affect a person's physical function but also their psychological wellbeing. Likewise, most spinal cord injury patients who contemplate being forced to live this way cannot see anything but a life of low quality and conclude that they would rather be dead [13]. Some people with SCI very rationally decide to commit suicide [25], and they may do this during the period of depression and despair that is not uncommon after SCI [20]. The suicide rate among individuals with SCI is about five times as high as the population at large [9]. However, most people with SCI eventually "adjust" to the new body and the lifestyle it imposes and state that they would not have wanted to be allowed to die [12]. They seem to have, and report, a life of acceptable quality, especially individuals who live in developed countries; have access to medical care, adaptive equipment, and economic and social support; and live in cities and towns where housing, public buildings, public spaces, and transportation increasingly are accessible [2]. SCI can be a devastating and traumatic event and can happen to persons of any age. People with SCI are 2 to 5 times more likely to die prematurely, with worse survival rates in low and middle-income countries [31]. Thus, people living with SCI have different experiences but most people feel anxious, confused or depressed about what has happened.

On the other hand, stroke is a rapidly developing loss of brain function(s) due to disturbance in the blood supply to the brain. This however, could be as a result of ischaemia which is lack of blood flow, caused by blockage in the form of thrombosis or arterial embolism, or haemorrhage which is a leakage of blood into the brain. The physical manifestation is paresis or paralysis of the muscles of the limbs of the contra lateral side, otherwise known as hemiparetic or hemiplegic side [28]. Stroke is the third most common cause of death in the developed world after cancer and ischaemic heart disease, and it is the most common cause of disability [8]. It is important to note that patients afflicted with stroke are faced with many challenges. Such challenges according to [14], include reduced functional capacity, motor activity intolerance, muscle atrophy, partial paralysis, residual gait deviation, reduced psycho social functioning, job/economic stress and for some, an overwhelming sense of uncertainty. These are dependent on several factors like age, gender,

severity of neurological involvement and the like. According to [30], stroke is an important cause of morbidity and mortality in Africans. Specifically, stroke accounts for 0.5 to 45% of neurological admissions in Africa and has been found to be the eighth leading cause of death in Nigeria [1]. In addition, about 75% of patients with stroke experience difficulties with daily living activities [22]. Equally, if stroke occurs after the age of 65 years, about 80% of the survivors will experience chronic disability [5]. Many a time, stroke survivors experience frustrating physical, affective, psycho social and cognitive disabilities that affect their quality of life. According to [35], complications of stroke include, but are not limited to anxiety, confusion, depression, emotionalism, falls, fatigue, infection (especially urinary tract and chest), malnutrition/under-nutrition, pain, pressure sore/skin break, recurrent stroke, shoulder pain, shoulder subluxation, spasticity and venous thrombo embolism.

Furthermore, [18] reported higher prevalence of depression in SCI and stroke patients than normal population. Also, the occurrence of depression is associated with both the occurrence of secondary medical complications and diminished self-esteem in patients with neurological problems such as stroke and SCI which cause difficulty in community reintegration [11]. Equally, [27] stated that while the prevalence of depression appears to be fairly stable overtime, demographic factors do play a role in its presence as well as health behaviours such as exercise and the time spent out of the house. However, one of the strongest predictors of depression in persons with SCI is the level of pain [7]. The direct effects of the conditions, as well as the effects of the treatment, may influence quality of life in patients with neurological illnesses like stroke and SCI [6]. In addition, [3] affirmed that self-efficacy in psychosocial functioning was related to all components of well-being, even when relevant demographic variables and level of physical functioning were controlled. Moreover, [23] submitted that disease-management self-efficacy is sub-optimal in many communities living with SCI individuals. Furthermore, [19] reported that the unmarried group of SCI patients had a significantly higher quality of life when compared with the married group. Also, in the motor complete group, severity of depression and level of stress were higher, where as quality of life was lower than the motor incomplete group. They equally found that patients within six months of SCI had higher rate of depression and higher overall level of depression. Several studies have been conducted to establish the interdependence of psychosocial characteristics among patients with stroke and SCI in developed countries with little evidence of such in developing countries like Nigeria. Therefore, this observed gap in knowledge and research efforts informed the need for

the present study.

#### Research Question

The following research question was formulated and answered descriptively.

What is the frequency of occurrence of stroke and SCI with respect to the demographic variables such as age, sex, marital status, occupation and level of skill?

#### Research Hypotheses

The following hypotheses were formulated and tested at 0.05 alpha level.

- I. There would be no significant association between:
  - a. Social support and quality of life in SCI patients.
  - b. Depression and quality of life in SCI patients.
  - c. Self-esteem and quality of life in SCI patients.
- II. There will be no significant association between:
  - a. Social-support and quality of life in stroke patients.
  - b. Depression and quality of life in stroke patients.
  - c. Self-esteem and quality of life in stroke patients

## 2. Methods

### *Research design*

This study is a correlational survey design of the interdependence of self-esteem, depression, social support and quality of life among patients with cerebrovascular accident and SCI.

### *Population*

The population for this study included 45 patients with SCI and 60 stroke patients who were receiving physiotherapy treatment in the University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla Enugu, National Orthopaedic Hospital, Enugu (NOHE) and the Physiotherapy Unit of 82 Division Military Hospital, Enugu.

### *Sample size and sampling technique*

This research work consists of 60 respondents; 30 stroke patients and 30 SCI patients. They were recruited using the disproportionate stratified random sampling technique. The population was firstly stratified into stroke and SCI. Then, balloting without replacement was used to select two-third (2/3) of the SCI patients for the study. The names of the patients were written on pieces of paper and these pieces of paper were put in a bag from where one piece of the paper was picked at a time and the name on the piece of paper picked was recorded. This process was repeated until the desired sample size was obtained. Likewise, the same process

was adopted to select one-half (1/2) of the stroke patients for the study. However, SCI patients and stroke patients with other neurological impairments or with any other disabilities were excluded from the study.

### 2.1. Data Collection Instruments

Social Support Questionnaire 6 (SSQ6) [32] was used to assess the social support of the participants. It is a 14-item questionnaire to measure the perceived adequacy of support given by three different sources: family (four items), friends (four items), and significant other persons (four items). All items were rated on a seven point Likert scale ranging from 1 (strongly agreed) to 6 (strongly disagreed).

Beck Depression Inventory [33] was used to assess the severity of depression of participants. It has 21 items corresponding to a symptom of depression and a four-point scale for each item ranging from 0 to 3. It also provided information on one's feeling and how well participants were able to complete their usual activities which are both physically and emotionally based.

The State Self Esteem (SSE) was used to assess the state of self-esteem of participants [34]. The questionnaire includes Performance Self Esteem, Social Self Esteem and Appearance Self Esteem. All items were answered using a 5-point scale as seen in the questionnaire.

The short form-36 (SF-36), a 36-item tool structured into 8 domains— namely, physical functioning (PF), role limitations due to physical health problems (RP), bodily pain (BP), general health perceptions (GH), vitality (VT), social functioning (SF), role limitation due to emotional problems (RE), and mental health (MH) was used to assess quality of life of the participants.

### *Validity and reliability of data collection instruments*

The Social Support Questionnaire 6 (SSQ6), the Beck Depression Inventory, the State Self Esteem and the SF-36 are internationally validated generic questionnaires, and their reliability was calculated to be 0.87 to 0.91 ( $r=0.87-0.91$ ), 0.70 to 0.76 ( $r=0.70-0.76$ ), 0.74 to 0.82 (0.74-0.82) and 0.84 to 0.93 (0.84-0.93) respectively.

### 2.2. Data Collection Procedure

Ethical approval was sought for and obtained from the Medical Research and Ethics Committee of University of Nigeria Teaching Hospital, Ituku-Ozalla (NHREC/05/01/2008B-FWA00002458-1RB00002323) and National Orthopaedic Hospital, Enugu (IRB / IIECNUMBER: 5/313/1111, PROTOCOL NUMBER: 983). Also, an informed consent form was issued to each of the participants who signed it before participating in this study. The participants' demographic details were recorded using an

exercise book. The various out come measures as itemized above were then administered facet of ace by the researcher to the participants, and there was 100% retrieval. All items in each measure were scored on a scale of 0 to 100, with 100 representing the highest level of psychosocial functioning possible. Aggregate scores were compiled as a percentage of the total points possible for each measure.

### 2.3. Data Analysis

The data obtained from this study were analyzed using descriptive and inferential statistics. Descriptive statistics of percentage and frequency were used to summarize the demographic characteristics of the participants. The relationship of social support, depression, self esteem with quality of life in both SCI and stroke patients were analyzed using Spearman rho. All inferential analyses were performed at 0.05 alpha levels using the IBM Statistical Package for the Social Sciences (SPSS) version 20.0.

## 3. Results

The results are presented in Tables 1 and 2. Table 1 shows the classification of the participants into different age-groups. Table 1 equally shows the occupational groups of the participants which are students, civil servant, public servants, traders, artisan, with the frequency of occurrence for stroke and SCI being 2 (6.7%) and 5 (16.7%) for students, 19 (63.3%) and 9 (30.0%) for civil servants, 2 (6.7%) and 1 (3.3%) for public servants, 2 (6.7%) and 7 (23.3%) for traders, 5 (16.7%) and 8 (26.7%) for artisan, respectively. Therefore, the table indicates that there is a higher percentage of SCI in civilservants, artisans and traders while there is a higher percentage of stroke in civil servants and artisans.

Likewise, the level of skill of the participants who were classified into students, non-skilled, semi-skilled and skilled was also presented in table 1. The frequency of occurrence of stroke and SCI in the subjects respectively were 2 (6.7%) and 5 (16.7%) for students, 3 (10.0%) and 0 (0.0%) for non-skilled, 4 (13.3%) and 16 (53.3%) for semi-skilled, 21 (70.0%) and 9 (30.0%) for skilled. Therefore, the table shows higher percentage of both SCI and stroke in skilled and semi-skilled workers.

Meanwhile, the frequency of occurrence of stroke and SCI in the subjects as regards marital status respectively were 3 (10.0%) and 15 (50.0%) for single, 26 (86.7%) and 13 (43.3%) for married, 1 (3.3%) and 1 (3.3%) for divorced, 0 (0.0%) and 1 (3.3%) for widow/widow eras presented in table 1. Therefore, the table shows higher percentage of SCI in the single and married patients while higher percentages of the stroke patients were married. Equal percentage of stroke and SCI patients were divorced.

**Table 1.** Frequency (percentage) table of demographic profile of the participants (n=60).

Variables	Stroke n(%)	Spinal cord injury n(%)	Total n(%)
Age (years)			
<29	0(0.0)	10(33.3)	10(100)
30-41	3(10.0)	9(30.0)	12(100)
>41	27(90.0)	11(36.7)	38(100)
Sex			
Male	19(63.3)	24(80.0)	43(100)
Female	11(36.7)	6(20.0)	17(100)
Marital status			
Single	3(10.0)	15(50.0)	18(100)
Married	26(86.7)	13(43.3)	39(100)
Divorced	1(3.3)	1(3.3)	2(100)
Widow/Widower	0(0.0)	1(3.3)	1(100)
Occupation			
Student	2(6.7)	5(16.7)	7(100)
Civil servant	19(63.3)	9(30.0)	28(100)
Public servant	2(6.7)	1(3.3)	3(100)
Trader	2(6.7)	7(23.3)	9(100)
Artisan	5(16.7)	8(26.7)	13(100)
Level of skill			
Student	2(6.7)	5(16.7)	7(100)
Non-skilled	3(10.0)	0(0.0)	3(100)
Semi-skilled	4(13.3)	16(53.3)	20(100)
Skilled	21(70.0)	9(30.0)	30(100)

N (%)=Frequency (percentage)

**Table 2.** Correlation matrix of participants showing association between social support, depression, self-esteem and quality of life in stroke and SCI patients (N=60).

Variables	Stroke quality of life	SCI quality of life
Social support	0.398	0.033
	0.030*	0.074
Depression	0.398	0.388
	0.034*	0.034*
Self-esteem	0.145	0.191
	0.443	0.312

Table 2 shows there was a significant association between social support, depression and quality of life in stroke patients ( $p < 0.05$ ) but shows insignificant correlation between self esteem and quality of life in stroke patients ( $p > 0.05$ ). The table equally shows that there was a significant relationship between depression and quality of life ( $p < 0.05$ ) but no significant association between social support, self-esteem and quality of life in SCI patients ( $p > 0.05$ ).

## 4. Discussion

The findings from this study indicate that the majority of the stroke and SCI patients were above 41 years old and were mostly males, civil servants, skilled and semi-skilled workers. The age above 41 years is a vital age as regards to employment status and risk of undue use of the back. This could explain why most SCI patients were within this age category. Also, male gender being more affected among stroke and SCI patients might equally suggest better level of activity and

lifestyle factors among male individuals. Similarly, a higher percentage of the SCI patients were single while more of the stroke patients were married. The result of this study agrees with the fact that morbidity of stroke among the young adults continues to rise and is worrying as this will negatively impact on the country's economy. Other possible reasons for this may be attributed to emergence of other conditions such as HIV which have been reported to be a risk factor for stroke. The proportion of patients who were semi-skilled in this study was high and may have increased their dependence on either their spouses or relatives for financial support. Evidently, a report by [29] indicates that men have a 1.32 times risk of developing stroke and this was supported by [24] that being of male gender increases risk of developing stroke. This concurs with the results obtained in this study which revealed that more males had stroke and SCI. This is also incongruence with the study carried out by Juan et al., (2011) on factors predicting depression among persons with SCI which reported that 78% of the respondents were males, 61% married, high school (63%) and 68% employed. [21] also reported that the mean age of SCI patients were 37.7 years. However, the results obtained in this study contradict the study conducted by [21] in Ghana where her results indicated that the study sample consisted of more women than men (2:1). This may be explained by the fact that in Ghana, male to female ratio was found to be 0.96:1 by [4].

Likewise, this study equally showed that there was a significant association between social support, depression and quality of life in stroke patients. This implies that the higher the social support from family and caregivers, the more improvement in quality of life is noticed. This agrees with the work of [23] which reported that social support was no longer significantly associated with quality of life after depressive symptoms and pain interference were observed in the stroke patients. It is possible that those who perceive themselves to have more support from others may experience less depressive symptoms and pain interference, and may thus develop a stronger sense of control of their condition. [26] also showed that depressive symptoms are among the significant determinants of quality of life for physical tasks in people with stroke. Our finding is also consistent with that reported by [17] who demonstrated a moderate negative relationship between depressive symptoms and quality of life in a sample of 80 individuals with SCI.

The results of this study show that there was a significant association between depression and quality of life among SCI patients. The probable explanation for this is the fact that certain factors like pain interference tend to affect the occurrence of depression among SCI patients and contributes to the decline in their quality of life. In a study conducted by [23], a substantial proportion of individuals with SCI report a

moderate to high level of pain interference, and that pain interference is independently associated with quality of life. Chronic pain is one of the more common sequel of SCI, and often poses limitations on engagement in activities of daily living, work, and social activities. Pain is also highly related to other psychosocial variables, such as depression and psychological stress in people with SCI [11].

## 5. Conclusion

It was concluded from this study that majority of the stroke and SCI patients were above 41 years and were mostly males and civil servants. Also, majority of the SCI patients were single and semi-skilled while most stroke patients were married and skilled. Equally, social support and depression are associated with quality of life in stroke patients while only depression is associated with quality of life in SCI patients. Therefore, there is need for the education of care givers and families of stroke and SCI patients on the importance of social support and community re-integration on the well-being of stroke and SCI patients. More so, health the professionals should make appropriate assessment of the quality of life, self-esteem, depression and social support of stroke and SCI patients to enable proper management of the conditions.

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