



Global Quality of Life and Disability amongst Stroke Survivors in North Eastern Nigeria

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Authors' contributions

This work was conducted in collaboration between all authors. Author MAA designed the study in collaboration with authors VCO and AOT. Authors WIA, PSK and YMM collected the data. Authors DM and KBM analyzed and interpreted the data. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Quality of life and disability is commonly incorporated in the overall evaluation of the impact of Cerebrovascular Accident (CVA), this variables could lead to significant decline in the level of functioning of the survivors if neglected.

Aims: To examine the association between demographic characteristics, level of disability and Quality of Life (QOL), also to assess the level of disability among stroke survivors.

Methodology: This is a cross sectional study, accidental sampling techniques was used to select

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191 hypertensive out-patients with or without diabetes with CVA from State Specialist Hospital, Maiduguri, Borno State, Nigeria, age ranged from 18-95 years.

Results: This revealed that 87.4% of the respondents had severe disability, QOL was significantly related to level of disability ($\chi^2(6) = 12.1, P = 0.017$), marital status ($\chi^2(8) = 28.8, P = 0.000$), sex ($\chi^2(2) = 9.041, P = 0.011$), and age ($\chi^2(4) = 30.188, P = 0.000$).

Conclusion: The findings revealed the magnitude and correlates of global quality of life and disability among patients with CVA. Therefore, there is need to incorporate post-stroke psychosocial adjustment evaluation, psychiatric and psychological interventions to this vulnerable group to facilitate their rehabilitation and enhance their psychological wellbeing and recovery.

Keywords: Disability; stroke survivor; quality of life.

1. INTRODUCTION

The burden of cardiovascular disease is increasing rapidly in Africa, and it is now a public health problem throughout the African Region. Most important are hypertension, stroke, cardiomyopathies and coronary heart disease. Stroke is a major cause of death and the biggest single cause of disability worldwide. Annually, 15 million people suffer a stroke. Of these, 5 million die and another 5 million are left permanently disabled, placing a heavy burden on individuals, families and communities [1].

Today, stroke has become one of the major contributors of disease burden of African countries [2]. Its prevalence has also started to increase in Nigeria, with prevalence of 1.14 per 1000 while a 30-day case fatality rate is as high as 40% [3]. Similarly, Ogungbo, et al. [4] estimated 116 per 100, 000 of the population in the early 21st century and stroke has also been reported to account for between 1.8% and 15.6% of all deaths in most tertiary healthcare institutions in Nigeria.

Quality of life (QOL) is individuals' perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards, and concerns [5]. QOL is an indicator of complete sense of health, well-being [6], and life satisfaction [7]. At the patient level, measuring QOL is useful in gaining a better understanding of patients' reaction to illness and in monitoring the efficacy of healthcare interventions [8]. Moreover, stroke has been reported to have a negative impact on the QOL among survivors in Nigeria [9,10]. Furthermore, stroke severity, disability and depression are the important predictors of QOL among Nigerian stroke survivors [11].

Studies have shown that stroke is occurring increasingly among young people, particularly in urban areas [12]. Younger stroke survivors were more likely to have poorer QOL psychological domain grade [13]. Also, Owolabi and Ibrahim [14] found a lower trend in the survivor's age, more than a quarter of stroke survivors were below 40 years of age. Akinpelu and Gbiri [15] reported that the QOL of stroke survivors was significantly lower than that of their age-matched apparently healthy controls. Although there have been inconsistencies in studies reviewed between age and QOL domain scores [14]. Gbiri and Akinpelu [16] find that the QOL of Nigerian stroke survivors is very low at stroke onset, increases steadily during the first 6 months and little between 6 months and 12 months post-stroke; the authors believed that QOL was influenced positively by marital status, spousal support, educational qualification and occupational status; and is negatively influenced by age and depression.

Studies have shown that gender of stroke survivors had no influence on their QOL [17,9]. Another similar study by Akosile et al. [18] found that quality of life among stroke survivors is similar for both genders. On the other hand, Oni, Aina, Ojini, and Olisah [19] found that female's stroke survivors had significantly poorer QOL overall health grades, factors such as increase poverty, reduced social support, and increased present of co-morbidities such as depression in women are possible explanations. Enato et al. [20] also found that Nigerian women had significantly poorer QOL when compared to men based on activities of daily living. Contrarily to the previous study, Johnson et al. [13] found better QOL in female stroke survivors.

A greater percentage of stroke survivors were unemployed compare to control. The rate of unemployment among stroke survivors (40%) was much higher than the estimated 23.9%

unemployment rate in Nigeria [21]. Being unemployed were significantly associated with poorer QOL in health satisfaction, physical, psychological, and social health domain grade [19].

Though evidence on the consequences of stroke and its determinants on health related quality of life (HRQOL) among long term survivors had already been researched in developed countries [22], but research on global quality of life and disability among stroke survivors have been sparse in developing countries. In Nigeria, few studies has been conducted in the field of cerebrovascular accident in the southern and western parts of the country but to the best of our knowledge, no study on global quality of life and disability among stroke patients has been conducted in north-eastern Nigeria. Therefore, this study will: i. Examine the association between QOL and demographic characteristics; ii. Assess the level of disability among stroke survivors; iii identify the association between QOL and level of disability among stroke survivors. Based on the findings of this study, recommendations on the ways to improve quality of life and enhance clinical recovery of stroke patients will be generated.

2. MATERIALS AND METHODS

2.1 Setting and Participants

The study was conducted at the general outpatient clinics of the department of medicine, State Specialist Hospital, Maiduguri, Borno State, Nigeria. A total of two hundred and thirty four (234) participants were recruited to participate in the study but a total of one hundred and ninety one (191) patients fulfilled the inclusion criteria and participated in the study while 43 participants were unable to fulfil.

2.2 Inclusion Criteria

All newly diagnosed adults (18 years and above) who were hypertensive with or without diabetes mellitus and had a stroke at least two months prior to the interview were evaluated by consultant neurologists managing the patients for residual motor neurological deficits [23].

2.3 Exclusion Criteria

(1) Patients who had a history of neurological illness before stroke (2) Patients with previous

history of stroke (3) Participants who do not understand either English or Hausa languages (4) Those that were very ill and/or aphasic and could not respond to questionnaires were excluded (5) Those with HIV were excluded because their stroke could not be differentiated from being cerebrovascular or a non-cerebrovascular origin, since most of the patients could not have a CTscan investigation to identify the location of the lesion in the brain due to its financial implication.

2.4 Study Design and Sampling Techniques

This is a cross sectional study of hypertensive out-patients with or without diabetes with Cerebrovascular disease (CVD) utilizing accidental sampling techniques.

2.5 Procedure

The study was carried out at the clinics. Each consecutive patient with a diagnosis of stroke, who fulfilled the inclusion criteria for the study, and consented verbally and in writing to the interview was seen alone in a private room at the medical outpatients clinics while waiting for consultation or immediately afterwards. The researchers had earlier informed all Nursing heads of the outpatient clinics concerned to solicit their cooperation. Hence the researchers were contacted on phone whenever a patient with stroke reports at any of the clinics because there was no specific clinic for stroke patients. With this arrangement all patients with stroke who attended the clinics and who fulfilled the inclusion criteria were seen within the study period. The questionnaires were self administered if the respondent has sufficient ability for self administration or administered by the researchers, where the patients had writing difficulties. Those respondents, who did not understand English language, had their interview conducted in Hausa. The study lasted for three (3) months, commencing from February through April, 2009. Interviews were strictly conducted during clinic hours from 9:00 am to 2: 00 pm, five times weekly and lasted for thirteen weeks. On the average, three to four (3-4) patients were interviewed per day for forty five minutes duration.

2.6 Sample Size

The minimum sample size was computed using a prevalence of 32.6% of a similar study in Ibadan,

South-Western Nigeria among stroke patients [24], 95% confidence interval with a corresponding critical value (Z) of 1.96 and 0.05 degree of precision was used. This yielded a minimum sample size of 338 respondents. However, $n = 338$ sample size for population $>10,000$ but When 'N' (entire population) is less than 10,000, the required sample size will be smaller. In such case, a final sample estimate (nf) was calculated and based on the computations, a sample size of 187.29 was required. However it was increased by 20% to 234 to allow for possible attrition and drop outs, and to improve on the significance of the study [25].

2.7 Ethical Consideration

Ethical clearance was obtained for this study from the State Specialist Hospital Maiduguri Ethical Committee, and permission was taken from consultants and doctors managing the patients.

2.8 Instruments

This comprises of three sections:

Section A: was an anonymous socio-demographic questionnaire designed by the authors that sought for variables like age, gender, marital status, sex, educational background and occupational status.

Section B: World Health Organization Quality of Life Short Version (WHOQOL-BREF) was developed by World Health Organization [26] to measure individuals' perception of their position in life in the context of the culture and value systems in which they live. The WHOQOL-BREF is a shorter version of the original WHOQOL-100 and it contains 26 items, two items are from the overall quality of life and general health with one item each from the domain. The WHOQOL-BREF is scored over four major domains which are: Physical, Psychosocial, Social relationships and Environment. Scoring is done using all items which are rated on a five-point-scale (1-5). Items are scored from the most negative to the most positive thus, the higher the scores, the better the quality of life. A global score was calculated by summing all the items scored without regards to the domains and scores can also be obtained for each domain. The raw scores were further transformed using the transformation score sheet to convert the raw scores to transformed scores that were then used for the final computations.

The mean scores and the standard deviations for the global score and all the four domains were then calculated. Scores, one standard deviation above the mean were considered 'good', one standard deviation below the mean were considered 'poor' and scores in between them were adjudged 'fair' [26]. However for the purpose of this study, WHOQOL-BREF was translated to Hausa using the iterative back translation method and was used for patients who do not understand English.

Section C: Brief Disability Questionnaire (BDQ) is a World Health Organization adapted questionnaire for assessing how physical impairment affects daily activities. It is a standard questionnaire that contains eight questions of two parts: BDQ (part 1) and BDQ (part 2). BDQ (part 1) consists of items 1-6. It measures how physical disability affects the patient's ability to function in areas such as walking long distance, lifting heavy objects, climbing stairs, bending, bathing etc. It also examines whether patients had to cut down or stopped activities, had decreased motivation or personal efficiency or experienced deteriorations in their social relations [27]. The possible scores on each of these items are 0 (not at all), 1 (sometimes or a little) and 2 (moderately or definitely). The possible total score ranges from 0 to 22. BDQ (part 2) consist of items 7 and 8. The number of days in a month when patients were incapacitated and thus unable to complete their usual activities is recorded under item 7, while in item 8 it is the number of days in the month when the patient was confined to bed all day because of the severity of feeling unwell. The score for the Disability day score ranges from 0 and 30 days. The scores are categorized into severity of disability. The levels and corresponding BDQ scores are: A score of < 2 = no disability, 3-4 = mild disability, 5-9 = moderate disability and $10 >$ = severe disability. This instrument was also translated to Hausa using the iterative back translation method and was used for patients who do not understand English.

2.9 Analysis

The data obtained was cleaned and coded where appropriate and entered into the Statistical Package for Social Sciences (SPSS) version 11.0 with the assistance of a biostatistician. Socio-demographic was presented in frequency tables with appropriate summary statistics. Chi square was used to examine the association between: i. QOL and socio-demographic characteristics, ii. QOL and level of disability.

Level of significance for inferential statistics was set at $p < 0.05$, two tailed.

global QOL and level of disability of survivors.

3. RESULTS

4. DISCUSSION

The results are presented in four tables utilizing the socio-demographic factors,

In this study, age of the survivors has a significant influence on global QOL, age 35 and

Table 1. Socio-demographic Characteristics of the Participants

Demographic Characteristics	No of respondents
Age (Years)	Mean Age = (50±16.05)
<35	42(22.0%)
36 – 65	110(57.6%)
>65	39(20.4%)
Gender	
Male	117(61.3%)
Female	74(38.7%)
Marital Status	
Single	10(5.2%)
Married	146 (76.4%)
Widowed	18(9.4%)
Separated	11(5.8%)
Divorced	6(3.1%)
Occupational Status	
Unemployed	100(52.4%)
Employed	91 (47.6%)

Table 2. Association between global QOL and socio-demographic factors of the respondents

	No of responders	Good global QOL n(%)	Fair global QOL n(%)	Poor global QOL n(%)	Statistic
Age groups (Years)					
<35	42	1(2.4%)	26(61.9%)	15(35.7%)	$\chi^2(4) = 30.188,$ $P=0.000$
35-65	110	26(23.6%)	75(68.2%)	9(8.2%)	
>65	39	1(2.6%)	32(82.1%)	6(15.4%)	
Total	191	28(14.7%)	133(69.6%)	30(15.7%)	
Sex					
Male	117	24(20.5%)	78(66.7%)	15(12.5%)	$\chi^2(2) = 9.041,$ $P=0.011$
Female	74	4(5.4%)	55(74.5%)	15(20.5%)	
Total	191	28(14.7%)	133(69.6%)	30(15.7%)	
Marital Status					
Single	10	0(0%)	6(60.0%)	4(40.0%)	$\chi^2(8) = 28.847,$ $P=0.000$
Married	146	25(17.1%)	104(71.2%)	17(11.6%)	
Widowed	18	2(11.1%)	15(83.3%)	1(5.6%)	
Separated	11	0(0%)	4(36.4%)	7(63.6%)	
Divorced	6	1(16.7%)	4(66.7%)	1(16.7%)	
Total	191	28(14.7%)	133(69.6%)	30(15.7%)	
Employment status					
Unemployed	100	9(9.0%)	74(74.0%)	17(17.0%)	$\chi^2(2) = 5.384,$ $P=0.068$
Employed	91	19(20.9%)	59(64.8%)	13(14.3%)	
Total	191	28(14.7%)	133(69.6%)	30(15.7%)	
Educational status					
Primary & below	124	16 (12.9%)	86 (69.4%)	22(17.7%)	$\chi^2(4) = 3.273,$ $P=0.513$
Secondary	38	5(13.2%)	28 (73.7%)	5(13.2%)	
Tertiary	29	7(24.1%)	19(65.5%)	3 (10.4%)	
Total	191	28(14.7%)	133(69.6%)	30(15.7%)	

Table 3. Association between level of disability and global QOL of the respondents

Level of disability	No of respondents	Good global QOL n(%)	Fair global QOL n(%)	Poor global QOL n(%)	Statistic
Mild Disability	3	2(66.7%)	1(33.3%)	0(0%)	$\chi^2(6)=12.1$, P=0.017
Moderate Disability	21	6(28.6%)	14(66.7%)	1(4.8%)	
Severe Disability	167	20(12.0%)	118(70.7%)	29(17.4%)	
Total	191	28(14.7%)	133(69.6%)	30(17.7%)	

below revealed highest percentage of the survivors with poor global QOL. This study was in tandem with the finding of Owolabi and Ibrahim [14] who found that more than a quarter of the survivors in their study were age 40 and below. In addition, the finding of Karaye et al. [12] also supported our finding as he discovered that stroke is occurring increasingly among young people, also Johnson et al. [13] finding was in support of this index study on age and QOL, Johnson et al. found that younger stroke survivor are more likely to have poor QOL.

Table 4. Level of disability of the survivors

Clinical Variable	All Subjects N=191
Mild Disability	3(1.6%)
Moderate Disability	21 (11.0%)
Severe Disability	167 (87.4%)

Finding of this study revealed that male had better QOL than their female counterpart; this implies that there is a strong association between sex of the survivors and global QOL. The finding of this study agreed with Oni et al. [19] that female's stroke survivors had significantly poorer QOL overall health grades. And also in support of Enato et al. [20] founding that Nigerian woman had significantly poorer QOL when compared to men. However, disagree with Johnson et al. [13] finding that found better QOL in female stroke survivors. The discrepancy between Johnson et al study and ours might be due to the availability of social support received from their tertiary level and their orientation in general in western world.

Marital status of the survivors has a significant influence on global QOL, single and separated survivors had significantly poorer global QOL. This present study supported the finding of Gbiri, Akinpelu and Odole [16] that the QOL of Nigerian stroke survivors was influenced positively by marital status and spousal support among others.

This study found that no significant association between global QOL and employment status of

the survivors, this finding was contrary to the previous study by Oni et al. [19] who found that being unemployed was significantly associated with poorer QOL in health satisfaction, physical, psychological, and social health domain grade. Also, educational status has no significant influence on global QOL, this is contrary to the finding of Gbiri and Akinpelu [10], who found that the higher the educational qualification of the participants at stroke onset, the better their QOL.

More than eighty seven percent of the survivors were severely disabled in this index study. Also, there was a significant association between levels of disability and global QOL of survivors, levels of disability of the survivors has a significant influence on global QOL. This study supported the finding of Badaru, Ogwumike and Adeniyi [11] that stroke severity, disability and depression are the important predictors of QOL among Nigerian stroke survivors.

Study of this kind will not be completed without its limitation, due to the long duration of most of the cases, survivors might have adjusted to the new challenges and this is likely to affect the QOL being reported.

5. CONCLUSION AND RECOMMENDATIONS

The downward trend in the age of stroke survivors as it was revealed in this present study, age 35 and below was the highest group among the survivors with poor QOL. QOL after stroke was not favourable because at age 35 and below most of the survivors are still full of energy and ready to explore more but unfortunately this is when the stroke hit and limit their capacity to achieve more in life.

Sex of the survivors is another critical area to focus on when assessing QOL among stroke survivors. This study found that males had better global QOL than their female counterpart. Furthermore, marital status of the survivors has a significant influence on global QOL, single and

separated survivors had significantly poorer global QOL.

This study also found that no significant association exist between global QOL and employment and educational status of the survivors. In addition, post-stroke disability does not recognise individual with or without employment, the fact is disability has been set in but the severity may differ. More than eighty seven percent of the survivors were severely disabled in this study. Also, there was a significant association between levels of disability and global QOL of survivors, levels of disability of the survivors has a significant influence on global QOL.

In view of the above findings, it is recommended that health care providers should concentrate more on younger, female, single and separated survivors because it has been established that QOL is often poor among this categories of people as a result of many factors such as early occurrence of stroke when the individual has not achieve much to cater for the burden, poor social support at both primary, secondary and tertiary level. Also, levels of disability among stroke survivors should always be assess in other to determine its impact on QOL.

CONSENT

All authors declare that written informed consent was obtained from all the stroke survivors in the study.

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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