



## Quality of Life and Lifestyle Factors among Stroke Survivors and People Living With Osteoarthritis in Port Harcourt Metropolis, Rivers State

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### ABSTRACT

**Background:** Quality of life (QoL) and Lifestyle factors (LFs) are key determinants of health. Poor QoL and unhealthy lifestyles are global concerns and have been linked to stroke and osteoarthritis (OA).

**Aim of the Study:** This study determined and compared QoL between stroke survivors and People living with osteoarthritis (PLWOA), and also established association between selected LFs and QoL of the stroke survivors and PLWOA in Port Harcourt Metropolis, Rivers State.

**Materials and Methods:** The study adopted a comparative cross-sectional design. A multistage sampling technique was used to select 78 stroke survivors and 186 People Living with Osteoarthritis (PLWOA) from the two strata making up Port Harcourt Metropolis – Port Harcourt City Local Government Area (PHALGA) and Obio-Akpor Local Government Area (OBALGA). The World Health Organization Quality of Life Bref (WHOQoL-BREF) Scale was used to measure their current QoL while LFs (Smoking, Alcohol consumption, Physical activity, and Balanced Diet) were selected in line with WHO STEPS instrument for non-communicable diseases (NCDs) from June 2019 to January, 2000. Data were analyzed using the IBM SPSS version 24. Chi-square test statistic was used to compare the proportion of stroke survivors with very poor, poor and good QoL and that of PLWOA. Chi-square test of independence was used to determine association between LFs and QoL of the two groups, and where appropriate Fisher's exact test. *P-value* ≤ 0.05 was considered statistically significant.

**Results:** Results revealed that the proportion of stroke survivors with very poor, poor and good QoL was 18 (23.16%), 53 (67.9%), and 7 (9.0%) compared to 16 (8.6%), 53 (67.9%), and 7 (9.0%) respectively of those of PLWOA. The difference observed between these proportions was statistically significant (Chi-square = 67.097, *p-value* <0.0001). For association between LFs and QoL, Smoking (Chi-square = 40.678, Fisher's *p-values* <0.0001, <0.0001), Alcohol consumption (Chi-square = 26.541, Fisher's *p-values* <0.0001, <0.0001), Physical activity (Chi-square = 13.679, Fisher's *p-values* 0.001, 0.022), Balanced diet (Chi-square = 39.691, Fisher's *p-values* < 0.0001, 0.002) were all associated for stroke survivors and PLWOA respectively.

**Conclusion:** Majority of stroke survivors and PLWOA had poor QoL. Association exists between LFs and QoL of stroke survivors and PLWOA in the study. There is need for government to collaborate and set up specialized healthcare facilities for stroke survivors and PLWOA in our communities.

**KEYWORDS:** Quality of life, stroke, Lifestyle factors, osteoarthritis, Port Harcourt

### INTRODUCTION

Quality of life (QoL) is a broad term which includes all aspects of an individual's life such as physical health, psychological and social states, level of independence, personal beliefs and their relationship to salient features of their environment [1]. In healthcare, QoL is viewed as multifaceted, encompassing material, emotional, physical, as well as social well-being [2, 3]. In public health, it is often used to assess individuals with chronic health challenges such as stroke, osteoarthritis, obesity, diabetes and hypertension among others. Poor quality of life is a global concern and has also been negatively associated with debilitating chronic conditions [4]. About 45% of all



poverty worldwide has been attributed to poor QoL, and more than half of this figure is seen among individuals with debilitating chronic conditions especially those in low and middle income countries [5].

In the same vein, poor lifestyle has been found to be strongly linked to debilitating chronic conditions [6]. Lifestyle factors (LFs) such as smoking, alcohol consumption, poor diet and lack of physical activity etc. have great negative impacts on health [6]. Lifestyle factors, which include lack of physical activities, poor nutrition or diet, smoking, alcohol or drug use among others, have been attributed to be risk factors for various forms of diseases across the globe [7]. Lifestyle factors are very important indices for both social and economic health of individuals. It is strongly believed that modification of some sort of an individual lifestyle could change a disease outcome [8]. Although LFs could be key to the management and treatment of several illnesses, its adjustments is often challenging and difficult to sustain because of complicated environmental, social as well as personal factors. Hence, health lifestyle theories have been developed to explain how these factors influence the adoption and modification of specific health behaviours, and intervention could be developed to minimise and help disease conditions by modifying lifestyle behaviours across patient populations and settings.

Stroke is described as a brain injury which is caused by a sudden obstruction, interruption or even blockage of the blood supply to the brain [9]. Due to recent improvement and increase in the number of individuals surviving stroke, there has been a new development which emphasized on stroke management with change in the adage from “adding years to life” to “adding life to years” [10]. Thus, one of the goals of stroke rehabilitation is to better the health-related quality of life of survivors in order to enable them fulfill their aspirations [11]. When the QoL of a stroke survivor is improved they are able to cope well with the effects of the stroke. They are also able to carry on with their activities of daily living without being too dependent on their family or caregivers. Therefore, it is important to note that any kind of aid planned for stroke survivors should aim at improving their quality of life [12].

Osteoarthritis (OA), on the other hand, is defined as a degenerative joint disorder that is characterized by abnormalities relating to the degradation of joints [13]. It is a condition with a multidimensional aetiology that affects both weight-bearing and non-weight-bearing joints [14]. The burden of OA on individuals, health systems, and social care systems is a public health crisis [15, 16]. It affects individual quality of life, by limiting an individual’s ability to walk, climb stairs, and carry out their activities of daily living [17].

Stroke and osteoarthritis are both chronic non-communicable diseases of major public health concerns. They are both diseases of disabilities associated with substantial morbidity and reduced quality of life among sufferers [11, 17]. Quality of life and Lifestyle factors are key determinants of health in our society. Poor QoL and unhealthy lifestyles are global concerns and have been linked to stroke and osteoarthritis [4, 6]. This study, therefore, determined and compared QoL between stroke survivors and People living with osteoarthritis (PLWOA), and also established association between some selected LFs and QoL of the stroke survivors and PLWOA in Port Harcourt Metropolis, Rivers State.

## METHODOLOGY

### *Study Area*

The study area was Port Harcourt Metropolis, Rivers State. Port Harcourt is also the capital and largest city in Rivers State. It is located in south-south region of Nigeria, lies along the Bonny River and is located in the Niger Delta area of Nigeria. It has two major local government areas; The Port Harcourt City (PHALGA) and Obio-Akpor LGA (OBALGA). The two Local Government Areas are the two strata making up Port Harcourt Metropolis.

### *Study Design*

The study adopted a comparative cross-sectional research design

### *Study Population*

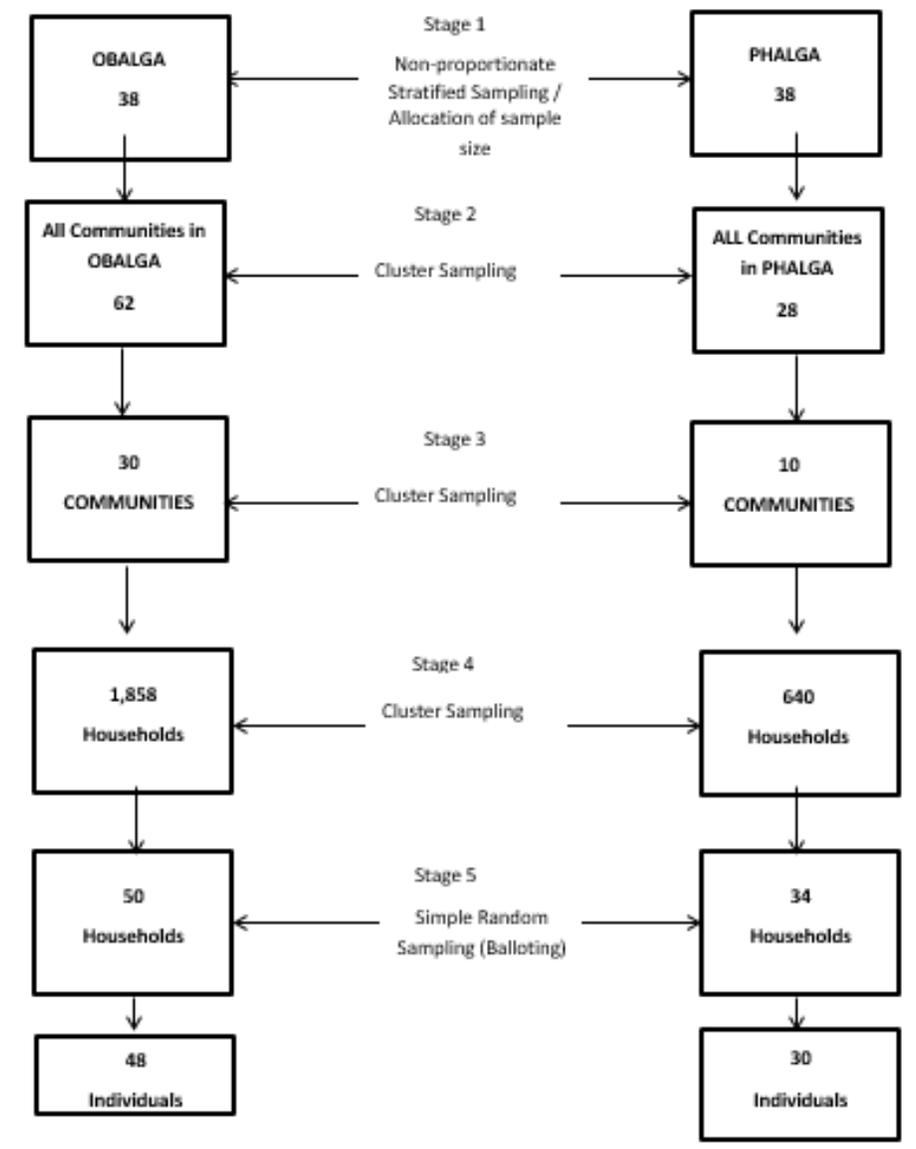
The study population was stroke survivors and People living with osteoarthritis (PLWOA) in Port Harcourt Metropolis, Rivers State.



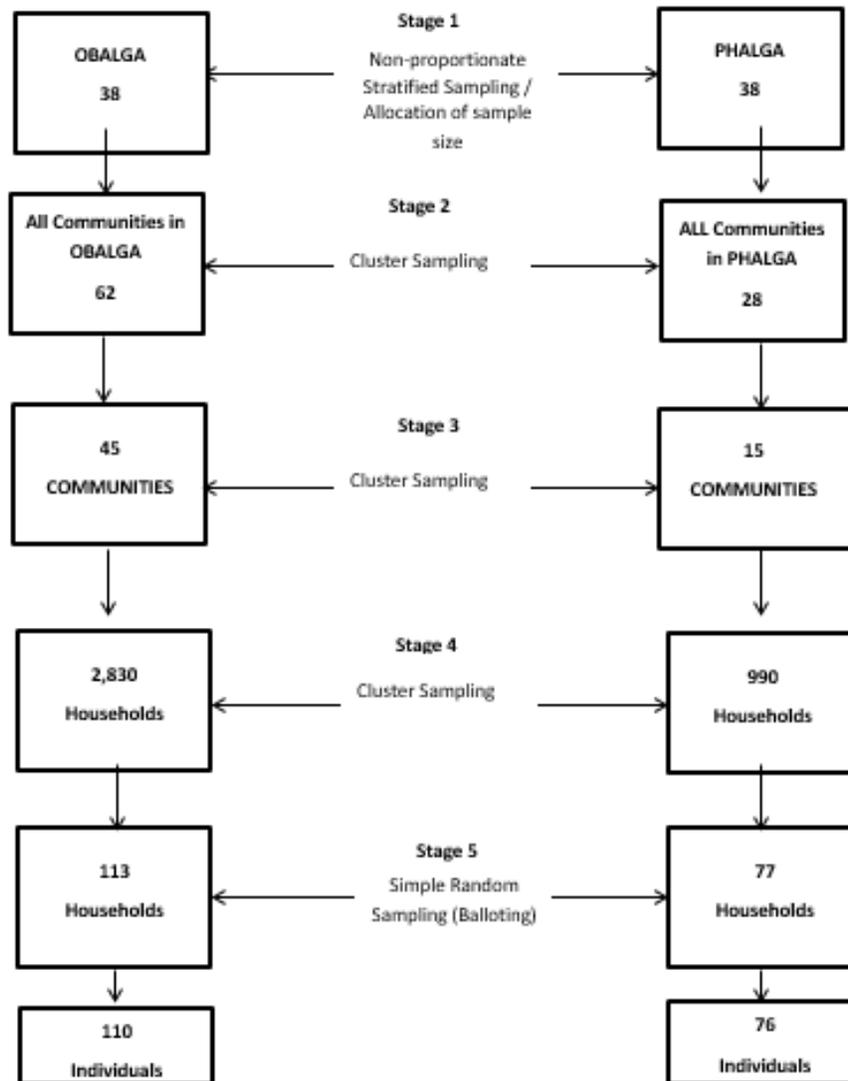
**Sample size/Sampling Method**

The minimum sample size per group (n = 76) was determined using the formula for comparative studies [18]. A multistage sampling technique involving 5 stages was used to select 78 stroke survivors and 186 PLWOA from the two strata making up Port Harcourt Metropolis – Port Harcourt City Local Government Area (PHALGA) and Obio-Akpor Local Government Area (OBALGA). Stage 1 involved stratification of Port Harcourt Metropolis into two strata – PHALGA and OBALGA by non-proportionate stratified sampling technique. This was followed by allocation of sample size (38 each) to both local government areas. The 78 stroke survivors and 186 PLWOA were selected as explained by the diagram below:

**Sampling for Stroke Survivors**



Sampling for PLWOA



At the last stage of the sampling for stroke survivors (stage 5), information was incomplete for 4 individuals in PHALGA and 2 in OBALGA. The total number of individuals (stroke survivors) finally selected in PHALGA were 30 and 48 in OBALGA, making it a total sample of 78 stroke survivors for the study. For the PLWOA (stage 5), information was incomplete for 1 individual in PHALGA and 3 individuals in OBALGA. The total number of individuals (PLWOA) finally selected in PHALGA were 76 and 110 in OBALGA, making it a total sample of 186 PLWOA for the study.

**Study Instrument**

The research instrument used was a Semi-Structured Questionnaire (SSQ) containing three Parts (I - III). Part I consisted of socio-demographic features of the participants while Part II and III consisted of research questions on the Quality of life (QoL) and some selected lifestyle factors (LF) respectively. Quality of life of the participants was measured using the World Health Organization Quality



of Life Scale-BREF (WHOQOL-BREF) while LFs (Smoking, Alcohol consumption, Physical activity, and Balanced Diet) were selected in line with WHO STEPS instrument for non-communicable diseases (NCDs) for a period of six months (June 2019 to January, 2000).

### **World Health Organization Quality of Life Scale-BREF (WHOQOL-BREF):**

This instrument was developed by the WHOQoL Group with fifteen international field centers in an attempt to develop a quality of life assessment elsewhere [19]. It has 26 items with four sub-components (domains). It is a self-administered and widely used generic instrument which has a good theoretical conceptualization of the quality of life [19]. It is a multi-dimensional measure of the quality of life which can be used in different cultural settings.

The questionnaire includes the seven-item physical health domain (scored 7–35); the six-item psychological health domain (scored 6–30); the three-item social relationship domain (score range, 3–15); and the eight-item environment domain (score range, 8–40). The score of items within each domain are used to calculate the domain score. Each item of the WHOQOL-BREF is responded to on a 5-point Likert type scale which is summed into four domain scores. The first two items “Overall ratings of quality of life” and “Subjective satisfaction with Health” are combined as a single facet known as “Overall QoL and General Health”. Higher scores denote higher quality of life.

The WHOQoL-BREF has been used and validated in Nigeria [20, 21]. Generally, the scores for grading quality of life (QoL) are from 1 to 5. This is the case with WHOQoL-BREF. Quality of life has been graded as very poor, poor and good [22]. This study adopted “very poor, poor and good” as the grading for quality of life in line with WHOQoL-BREF scores ranging from 1 to 5. In this study, individual’s average scores of 1-1.99 denote very poor QoL, scores 2-3.99 stand for poor QoL while scores 4-5 stand for good QoL.

### **Administration of the Instrument**

The questionnaire was administered to participants by the principal investigator and some trained research assistants who carefully explained the purpose of the study to the participants. An introductory letter explaining the purpose of the study was dully attached to the instruments. Participants were made to sign the consent form before they were admitted for the study.

### **Data Analysis**

The data collected were collated, coded and analysed using the computer software (Statistical Package for Social Science [SPSS] package) version 24. Descriptive statistics was used to express the variables (categorical variables) in proportions. Chi-square test statistic was used to compare the proportion of stroke survivors with very poor, poor and good QoL and that of PLWOA. Chi-square test of independence was used to determine association between LFs and QoL of the two groups, and where appropriate Fisher’s exact test. P-value  $\leq 0.05$  was considered statistically significant.

### **Ethical Consideration**

Ethical approval for the study was obtained from University of Port Harcourt Ethical Research Committee. The reference number of the ethical clearance letter is UPH/CEREMAD/REC/MM61/050. An informed consent letter was signed by participants before they were admitted for the study. All the information provided by the participants was treated with high level of trust and confidentiality. The study did not pose any risk to participants.



**RESULTS**

**Table 1:** Socio-demographic Characteristics of Stroke survivors (n=78) and PLWOA (n=186)

Categories	Stroke survivors (n=78)		PLWOA (n=186)	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
<b>Sex</b>				
Male	55	70.5	106	57
Female	23	29.5	80	43
<b>Age</b>				
40-50 years	9	11.5	37	19.9
51-60 years	37	47.4	71	38.2
61-70years	28	35.9	68	36.6
71 and above	4	5.1	10	5.4
<b>Marital status</b>				
Single	6	7.7	22	11.8
Married	65	83.3	149	80.1
Divorced/separated	4	5.1	10	5.4
Widowed	3	3.8	5	2.7
<b>Education</b>				
No formal education	20	25.6	23	12.4
Primary	4	5.1	11	5.9
Secondary	36	25.6	118	63.4
Tertiary	18	46.2	34	18.3
<b>Religion</b>				
Christianity	59	75.6	129	69.4
Islam	7	9	7	3.38
Others	12	15.4	50	26.9
<b>Occupation</b>				
Trading	25	32.1	60	32.3
Civil service	22	28.2	54	29
Farming	13	16.7	25	13.4
Public service	1	1.3	1	0.5
Apprenticeship	2	2.6	13	7
Retired	15	19.2	33	17.7

Table 1 gives a description of the socio-demographic characteristics (Age, Sex, Marital Status, Education, Religion, and Occupation) of the participants (Stroke survivors and PLWOA). The results showed that out of 78 stroke survivors and 186 PLWOA, 55 (70.5%), 106 (57%) were males, while 23 (29.5%), 80 (43%) were females respectively, thus majority of the participants in the study were male. Out of the stroke survivors and PLWOA, majority 37 (47.4%), 71 (38.2%) were between the ages of 51-60years. Also, majority 65 (83.3%), 149 (80.1%) of the participants were married. The level of education among the participants showed that those with secondary education were the majority 36 (25.6%), 118 (63.4%) for both stroke survivors and PLWOA respectively. For religion, majority of the stroke and PLWOA 59 (75.6%), 129 (69.4%) respectively were Christians. Lastly, the participants' occupation showed that majority of them were into Trading which represents 25 (32.1%), 60 (32.3%) for stroke survivors and PLWOA respectively.



**Table 2:** Quality of life of Stroke Survivors (n=78) and PLWOA (n = 186)

QoL Categories (WHOQoL-BREF Scale)	Participants		X <sup>2</sup>	Df	p-value
	Stroke survivors n (%)	PLWOA n (%)			
Very poor	18 (23.16)	16 (8.6)	67.097	2	<0.0001*
Poor	53 (67.9)	155 (82.9)			
Good	7 (9.0)	15 (8.0)			

\* Statistically significant

Table 2 shows that the proportion of stroke sufferers with very poor QoL is 18 (23.16%) compared to 16 (8.6%) among osteoarthritis (OA) sufferers. Also, the proportion of stroke sufferers with poor QoL is 53 (67.9%) compared to 155 (82.9) among OA sufferers. In the same vein, the proportion of stroke sufferers with good QoL is 7 (9.0%) compared to 15 (8.0%) among OA sufferers. Finally, the difference observed between these proportions is statistically significant (Chi-square = 67.097, *p-value* <0.0001).

**Table 3:** Association between Lifestyle factors and Quality of life of stroke survivors (n = 78)

Variable	Categories	QoL n (%)			X <sup>2</sup>	Df	P-value	Fisher's exact p-value
		Very poor	Poor	Good				
Smoking	Yes	18 (62.1)	11 (37.9)	0 (0.0)	40.678	2	<0.0001*	<0.0001*
	No	0 (0.0)	42 (85.7)	7 (14.3)				
Alcohol consumption	Yes	18 (31.0)	40 (69.0)	0 (0.0)	26.541	2	<0.0001*	<0.0001*
	No	0 (0.0)	13 (65.0)	7 (35.0)				
Physical activity	Yes	2 (6.9)	27 (93.1)	0 (0.0)	13.679	2	0.001*	0.001*
	No	16 (32.7)	26 (53.1)	7 (14.3)				
Balanced diet	Yes	0 (0.0)	6 (46.2)	7 (53.8)	39.691	2	<0.0001*	<0.0001*
	No	18 (27.7)	47 (72.3)	0 (0.0)				

\* Statistically significant

Table 3 reveals that significant association exists between Quality of life of stroke survivors and Smoking (X<sup>2</sup>= 40.678, *p-value* < 0.0001, Fisher's exact *p-value* < 0.0001), Alcohol consumption (X<sup>2</sup>= 26.541, *p-value* < 0.0001, Fisher's exact *p-value* < 0.0001), Physical activity level (X<sup>2</sup>= 13.679, *p-value* = 0.001, Fisher's exact *p-value* = 0.001), and eating of balanced diet (X<sup>2</sup>= 39.691, *p-value* < 0.0001, Fisher's exact *p-value* < 0.0001).



**Table 4:** Association between Lifestyle factors and Quality of life of PLWOA (n = 186)

Variable	Categories	QoL n (%)			X <sup>2</sup>	Df	p-value	Fisher's exact p-value
		Very poor	Poor	Good				
Smoking	Yes	16 (55.2)	13 (44.8)	0 (0.0)	95.504	2	<0.0001*	<0.0001*
	No	0 (0.0)	142 (90.4)	15 (9.6)				
Alcohol consumption	Yes	16 (16.2)	80 (80.8)	3 (3.0)	20.874	2	<0.0001*	<0.0001*
	No	0 (0.0)	75 (86.2)	12 (13.8)				
Physical activity	Yes	0 (0.0)	29 (100.0)	0 (0.0)	6.871	2	0.032*	0.022*
	No	16 (10.2)	126 (80.3)	15 (9.6)				
Balanced diet	Yes	0 (0.0)	46 (85.2)	8 (14.8)	10.876	2	0.004*	0.002*
	No	16 (12.1)	109 (82.6)	7 (5.3)				

\* Statistically significant

Table 4 reveals that significant association exists between Quality of life of PLWOA and Smoking ( $X^2= 95.504$ ,  $p\text{-value} < 0.0001$ , Fisher's exact  $p\text{-value} < 0.0001$ ), Alcohol Consumption ( $X^2= 20.874$ ,  $p\text{-value} < 0.0001$ , Fisher's exact  $p\text{-value} < 0.0001$ ), Physical activity level ( $X^2= 6.871$ ,  $p\text{-value} = 0.032$ , Fisher's exact  $p\text{-value} = 0.022$ ), and eating of balanced diet ( $X^2= 10.876$ ,  $p\text{-value} = 0.004$ , Fisher's exact  $p\text{-value} = 0.002$ ).

## DISCUSSION

This study determined and compared Quality of Life (QoL) between stroke survivors and People living with osteoarthritis (PLWOA), and also established association between selected Lifestyle factors (LFs) and QoL of the stroke survivors and PLWOA in Port Harcourt Metropolis, Rivers State. The result revealed that majority of stroke survivors and PLWOA in Port Harcourt metropolis had poor QoL 53 (67.9%) and 155 (82.9%) respectively, while the least had good QoL 7 (9.0%) & 15 (8.0%) respectively for stroke survivors and PLWOA. This finding is similar to the findings of Bello et al. [23]; Chen et al. [24]; Nnachi et al. [25], and Whittaker et al. [26].

Bello and colleagues [23], and Chen and colleagues [24] reported very poor QoL among stroke patients. Nnachi and colleagues [25] in a study titled "Quality of Life of type 2 Diabetic Patients attending a Tertiary Hospital in South-South Nigeria," found out that majority of the type 2 diabetic patients had fair QoL while the least had good QoL, and therefore stated that there was urgent need for increased health awareness and education of diabetic patients regarding diabetic care. The major difference between this present study and that of Nnachi and colleagues [25] is the study population. While the present study was conducted among stroke survivors and PLWOA, Nnachi and colleagues [25] conducted theirs among type 2 diabetic patients. Whittaker and colleagues [26] reported that individuals suffering from osteoarthritis tend to have low QoL and that it increases with debility as the disease progresses.

This study also revealed that more stroke survivors had very poor QoL compared to PLWOA. In the same vein, poor QoL was higher in PLWOA as compared to those of stroke survivors. This finding is consistence with previous studies. Jeon et al. [27]; Flanagan et al. [28]; Park et al. [29]; and Lim [30] reported poor QoL among stroke survivors and PLWOA. The very poor QoL found among stroke sufferers could be as a result of the fact that they usually suffer more debility which involves both the upper and lower limbs in contrast to osteoarthritis which majorly affects the knee of the sufferers, and as a result unable to perform activities of daily living (ADL). One



would assume poor QoL to be also higher among stroke survivors, for the same reason given above. But this is not the case here. The reason for this could be age difference and also difference in the quality of care given both sufferers.

Furthermore, this study also found out that significant association exists between Lifestyle factors (LFs): Smoking, Alcohol consumption, Physical activity level, balanced diet and the QoL of stroke survivors and PLWOA. Among stroke survivors studied, none of the smokers reported good QoL. Also, majority of those who consume alcohol reported poor QoL (69.0%). In the same vein, only a few of them engaged in physical activities (29 out of 78). Among those who did not engage in physical activities, 53.1% reported poor QoL while 14.3% reported good QoL. Also, among those who had balanced diet, 53.8% were found to have good QoL. Similar to stroke survivors, none of the PLWOA that smoke reported good QoL. Majority of the smokers reported very poor QoL (55.2%). Also, a substantial percentage of individuals that consume alcohol reported very poor QoL. None of those who engage in physical activities reported very poor QoL while. None of the individuals who had balanced reported very poor QoL. This finding indicates poor lifestyle among stroke survivors and PLWOA, and clearly shows that lifestyle factors (LFs) could contribute to debilitating health conditions such as stroke and osteoarthritis, reducing the quality of life of the sufferers. This finding is consistent with previous studies (Go et al. [31]; Manns et al. [32]; Estruch et al. [33]; Tsigoulis et al. [34]; Smith et al. [35]; Bailey [8], Chaganti et al. [36], and Hootman et al [37]).

Go and colleagues [31], and Manns and colleagues [32] reported that physical inactivity is a significant risk factor for stroke. Unfortunately, individuals with stroke spend up to 86 percent to 88 percent of their time in sedentary activity compared with 57 percent to 72 percent in adults without stroke. Estruch and colleagues [33] and Tsigoulis and colleagues [34] asserted that dietary patterns are very potent means of reducing the risk of stroke. Smith and colleagues [35] explained that lifestyle factors can lead to advances and prevention of certain diseases such as hypercholesterolemia, hypertension, obesity, Diabetes mellitus, which are in turn linked to reduced risk for CVD related diseases and death. Bailey [8], on the other hand, posited that modification of some sort of an individual lifestyle could change a disease outcome and the quality of life (QoL) of the individual involved. Chaganti and colleagues [36] found a relationship between diet and quality of life (QoL) of individuals with stroke, while Hootman and colleagues [37] reported a relationship between physical activities and osteoarthritis.

## CONCLUSION

This study has shown that majority of stroke survivors and PLWOA in Port Harcourt metropolis have poor QoL. Also, poor QoL was higher in PLWOA as compared to those of stroke survivors. In the same vein, association exists between LFs (smoking, alcohol consumption, physical activity, balanced diet) and QoL of stroke survivors and PLWOA in the study. Therefore, there is need for federal, state and local governments to collaborate and set up specialized healthcare facilities for stroke survivors and PLWOA in several communities in Nigeria as poor QoL has been implicated in the study. This will go a long way to improve their QoL, enhancing their productivity in the society.

## REFERENCES

1. Spasic, A., Radovanović, R.V.; Đorđević, A. C., Stefanović, N., & Cvetković, T. Quality of Life in Type 2 Diabetic Patients. *Scientific Journal of the Faculty of Medicine in Niš*, 2014; 31(3), 193–200.
2. Oni OD, Olagunju AT, Olisah VO, Aina OF, Ojini FI. Post-stroke depression: Prevalence, associated factors and impact on quality of life among outpatients in a Nigerian hospital. *South African Journal of Psychiatry*. 2018 Mar 22;24.
3. Opara JA, Jaracz K. Quality of life of post-stroke patients and their caregivers. *Journal of medicine and life*. 2010 Aug 8;3(3):216.
4. Megari K. Quality of life in chronic disease patients. *Health psychology research*. 2013 Sep 9;1(3).
5. World Health Organization, Public Health Agency of Canada, Canada. *Public Health Agency of Canada. Preventing chronic diseases: a vital investment*. World Health Organization; 2005 Sep 28.



6. Chakma JK, Gupta S. Lifestyle practice and associated risk factors of noncommunicable diseases among the students of Delhi University. *Int J Health Allied Sci.* 2017 Jan 1;6(1):20.
7. Basu J, Avila R, Ricciardi R. Hospital readmission rates in US states: are readmissions higher where more patients with multiple chronic conditions cluster?. *Health services research.* 2016 Jun; 51(3):1135-51.
8. Bailey RR. Lifestyle modification for secondary stroke prevention. *American journal of lifestyle medicine.* 2018 Mar; 12(2):140-7.
9. Gund, B. M., Jagtap, P. N., Ingale, V. B., & Patil, R. Y. Stroke: A brain attack. *IOSR Journal of Pharmacy*, 2013; 3(8), 1-23.
10. Van den Bos G, Triemstra A. Quality of life as an instrument for need assessment and outcome assessment of health care in chronic patients. *Quality in health care: QHC.* 1999 Dec; 8(4):247.
11. Owolabi MO. Taming the burgeoning stroke epidemic in Africa: stroke quadrangle to the rescue. *West Indian Med J.* 2011 Jul 1; 60(4):412-21.
12. Theofanidis D, Gibbon B. Nursing interventions in stroke care delivery: An evidence-based clinical review. *Journal of Vascular Nursing.* 2016 Dec 1; 34(4):144-51.
13. Hunter DJ, March L, Chew M. Osteoarthritis in 2020 and beyond: a Lancet Commission. *The Lancet.* 2020 Nov 28; 396(10264):1711-2.
14. Vincent KR, Conrad BP, Fregly BJ, Vincent HK. The pathophysiology of osteoarthritis: a mechanical perspective on the knee joint. *PM&R.* 2012 May 1;4(5):S3-9.
15. Costa D, Rodrigues AM, Cruz EB, Canhão H, Branco J, Nunes C. Driving factors for the utilisation of healthcare services by people with osteoarthritis in Portugal: results from a nationwide population-based study. *BMC Health Services Research.* 2021 Dec; 21(1):1-3.
16. Woolf AD, Pfleger B. Burden of major musculoskeletal conditions. *Bulletin of the world health organization.* 2003 Sep; 81(9):646-56.
17. Goldring SR, Goldring MB. Clinical aspects, pathology and pathophysiology of osteoarthritis. *Journal of Musculoskeletal and Neuronal Interactions.* 2006 Oct 1;6(4):376.
18. Kish L. *Statistical design for research.* John Wiley & Sons; 2005; Feb 25
19. World Health Organization. WHOQOL-BREF: introduction, administration, scoring and generic version of the assessment: field trial version, December 1996. World Health Organization; 1996.
20. Ohaeri JU, Olusina AK, Al-Abassi AH. Path analytical study of the short version of the WHO quality of life instrument. *Psychopathology.* 2006; 39(5):243-7.
21. AWOYE, ISSA B., Abdullah D. Yussuf, and Olusegun Baiyewu. The association between psychiatric disorders and quality of life of patient with diabetes mellitus. 2007: 30-34.
22. Skevington SM, O'connell KA. Can we identify the poorest quality of life? Assessing the importance of quality of life using the WHOQOL-100. *Quality of life Research.* 2004 Feb; 13:23-34.
23. Bello UM, Chutiyami M, Salihu D, Abdu SU, Tafida BA, Jabbo AA, Gamawa A, Umar L, Lawan A, Miller T, Winsor SJ. Quality of life of stroke survivors in Africa: a systematic review and meta-analysis. *Quality of Life Research.* 2021 Jan; 30:1-9.
24. Chen Q, Cao C, Gong L, Zhang Y. Health related quality of life in stroke patients and risk factors associated with patients for return to work. *Medicine.* 2019 Apr;98(16).
25. Nnachi C, Alabere I, Asuquo EA, Oti IK. Quality of Life of Type 2 Diabetic Patients attending a Tertiary Hospital in South-South Nigeria: Quality of Life of Type 2 Diabetic. *The Nigerian Health Journal.* 2023 Mar 11; 23 (1):498-505.
26. Whittaker JL, Roos EM. A pragmatic approach to prevent post-traumatic osteoarthritis after sport or exercise-related joint injury. *Best Practice & Research Clinical Rheumatology.* 2019 Feb 1; 33 (1):158-71.
27. Jeon NE, Kwon KM, Kim YH, Lee JS. The factors associated with health-related quality of life in stroke survivors age 40 and older. *Annals of rehabilitation medicine.* 2017 Oct 31; 41(5):743-52.



28. Flanagan S, Damery S, Combes G. The effectiveness of integrated care interventions in improving patient quality of life (QoL) for patients with chronic conditions. An overview of the systematic review evidence. *Health and quality of life outcomes*. 2017 Dec;15(1):1-1.
29. Park HM, Kim HS, Lee YJ. Knee osteoarthritis and its association with mental health and health-related quality of life: a nationwide cross-sectional study. *Geriatrics & Gerontology International*. 2020 Apr;20(4):379-83.
30. Lim JH. Predictors of health-related quality of life in Koreans with cardiovascular disease. *Osong Public Health and Research Perspectives*. 2022 Feb;13(1):62.
31. Go, A. S., Mozaffarian, D., Roger, V. L., Benjamin, E. J., Berry, J. D., Blaha, M. J., ... & Fullerton, H. J. (2014). Executive summary: heart disease and stroke statistics—2014 update: a report from the American Heart Association. *Circulation*, 129(3), 399-410.
32. Manns, P. J., Dunstan, D. W., Owen, N., & Healy, G. N. Addressing the non-exercise part of the activity continuum: a more realistic and achievable approach to activity programming for adults with mobility disability?. *Physical therapy*, 2012; 92(4), 614-625
33. Estruch, R., Ros, E., Salas-Salvadó, J., Covas, M. I., Corella, D., Arós, F., ... & Lamuela-Raventos, R. M. Primary prevention of cardiovascular disease with a Mediterranean diet. *New England Journal of Medicine*, 2013; 368(14), 1279-1290.
34. Tsivgoulis, G., Psaltopoulou, T., Wadley, V. G., Alexandrov, A. V., Howard, G., Unverzagt, F. W., ... & Judd, S. E. Adherence to a Mediterranean diet and prediction of incident stroke. *Stroke*, 2015; 46(3), 780-785
35. Smith Jr SC, Jackson R, Pearson TA, Fuster V, Yusuf S, Faergeman O, Wood DA, Alderman M, Horgan J, Home P, Hunn M. Principles for national and regional guidelines on cardiovascular disease prevention: a scientific statement from the World Heart and Stroke Forum. *Circulation*. 2004 Jun 29;109(25):3112-21.
36. Chaganti RK, Tolstykh I, Javaid MK, Neogi T, Torner J, Curtis J, Jacques P, Felson D, Lane NE, Nevitt MC, Multicenter Osteoarthritis Study Group. High plasma levels of vitamin C and E are associated with incident radiographic knee osteoarthritis. *Osteoarthritis and cartilage*. 2014 Feb 1;22(2):190-6.
37. Hootman, J. M., Macera, C. A., Helmick, C. G., & Blair, S. N. (2003). Influence of physical activity-related joint stress on the risk of self-reported hip/knee osteoarthritis: a new method to quantify physical activity. *Preventive medicine*, 36(5), 636-644.

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