SOCIO-DEMOGRAPHIC CHARACTERISTICS ASSOCIATED WITH HEALTH RELATED QUALITY OF LIFE AMONG HYPERTENSIVE PATIENTS IN FEDERAL MEDICAL CENTRE OWERRI, IMO STATE, NIGERIA

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ABSTRACT

Background: Hypertension is one of the biggest threats not only to developed countries but the middle and low income countries such as Nigeria, are equally affected. To react to the growing prevalence of hypertension in Nigeria, it is necessary to have an understanding about the quality of life (QOL) among hypertensive individuals and its related factors. This study aimed to assess the health related quality of life (HRQOL) among hypertensive patients and it association with socio-demographic characteristics

Materials and Method: A cross sectional study was conducted in 2017. A total of 630 hypertensive patients in Federal Medical Centre (FMC) aged above 20years were recruited. Data was obtained using a pretested structured self-administered questionnaire and analysed using IBM SPSS version 22. Health related quality of life (HRQOL) was defined by four domains using the World Health Organization Quality of Life-Bref (WHOQOL-BREF) instrument measuring the physical, psychological, social and environment. The mean score of items were scaled in a positive direction, higher scores denote higher QOL. Independent t-test and one-way ANOVA was used to determine the association between HRQOL and the socio-demographic characteristics of the respondents.

Result: In this study HRQOL among hypertensive patients was found moderate in all domains, with highest mean satisfaction found on social and environmental domains. This study also shown that HRQOL was significantly lower among hypertensive patients with lower education ($p < 0.001$), marital status ($p < 0.001$) lower monthly income ($p < 0.001$)

Conclusion: This study revealed that HRQOL of hypertensive patients in FMC, Owerri Imo State, Nigeria to be moderate in all domains. Education level, marital status and income were important independent factors affecting all domains in the patients' HRQOL.

Keywords: Socio-demography HRQOL, Hypertension, WHOQOL-BREF, Federal Medical Centre, Owerri

1.0 Introduction

Hypertension is a major public health challenge worldwide. It affects many of the body system and may lead to organ failure such as stroke, diabetes, chronic kidney disease, ischemic heart disease and heart failure (Ogah, Okpechi, & Chukwuonye, 2012). The problem is enormous in both developed and developing countries. Data from the National Health and Nutrition Examination Survey (NHANES) spanning from 2009 to 2012 in the United States (US) reported that in the population aged 20 years and above, an estimated 80 million adults had hypertension, with the prevalence of 32.6%. Hypertension affects US men and women nearly equally, affecting an estimated 38.3 million men and 41.7 million women, and it is a contributing cause of death for more than 410,000 Americans in 2014 that's more than 1,100 deaths each day (Kochanek *et al*., 2011; Mozaffarian, Benjamin, & Go AS.,2015). In sub-Saharan Africa based on current epidemiology data projected hypertension prevalence of 150 million by 2025 (Vijver, Akinyi, & Oti, 2015). It is hence necessary to assess the health related quality of life of hypertensive patients to ensure their physical and psychological wellbeing.

In Nigeria hypertension has become an important public health burden in recent decades. Results from studies in different region in Nigeria showed that the increasing trend of hypertension from 1980 to 2015 ranges from 8% - 50%. It was reported that in South East region of Nigeria which is the study area, there was prevalence of 42% among hypertensive adults Ulasi *et al*., (2011)

World Health Organization (WHO) defines quality of life (QOL) as ''an individual's view of their aspect of life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns'' (WHO, 1997). Quality of life is also defined as a person sense of general well-being that stems from fulfillment of an obligation or satisfaction with the area of life that is significant to him or her. It observes life satisfaction, including everything from physical health, family, education, employment, wealth, religious beliefs, finance and the environment (Ferran & Power, 1992; Bredow & Peterson, 2013)

Health related quality of life (HRQOL) is a multi-dimensional concept defined as a perception of the impact of health and sickness on several dimensions of a person's life which includes domains related to physical, mental, emotional, and social functioning. It is an individual's perceived ability to participate in, enjoy physical and social activities, given the constraints of his/her health status (Schlarmann, Metzing-Blau & Schnepp, 2008). HRQOL is been assess to determine the effect of disease and it treatment within the dimension of health, related to specific dimensions of life that have been ascertain to be essential to individuals in general (generic HRQOL) or to individuals who have a specific disease. Most conceptualizations of HRQOL lay emphasis on the effects of illness on physical, social, psychological and cognitive functioning, symptoms, health perceptions, and overall QOL are often included in the concept domain of HRQOL. HRQOL is dynamic. It means that each person's assessment of their own QOL will change over time by a disease, disability or disorder, dependent upon his or her priorities, experiences and circumstances at the given time (Speight & Shaw 2007).

This paper aimed to examine the HRQOL among hypertensive patients in Federal Medical Centre (FMC), Owerri in four dimensions (physical health, psychological, social relationship

and environment) using the World Health Organization Quality of life - BREF instrument (WHOQOL-BREF) and its association with socio-demographic characteristics

2.0 Materials and Methods

A cross sectional study was conducted in 2017. Based on sample size calculation, 679 hypertensive patients were required. A total of 734 respondents were approached. There were 695 eligible patients of whom, only 630 were recruited using simple random sampling. This gave a response rate of 90.6%. Sampling frame was the list of all outpatient hypertensive patients in FMC Owerri. The inclusion criteria include patients in FMC with confirmed diagnosis of hypertension aged 20years and above, who had been using antihypertensive drugs. The exclusion criteria were hypertensive patients who are not willing to participate, pregnant and lactating mothers.

Data was obtained using a pretested structured self-administered questionnaire. HRQOL among hypertensive patients was measured based on WHOQOL – BREF questionnaire Skevington, Lotfy, & Connell, (2004) that contains twenty-six questions with 5-point Likert scale answer option. Respondents with higher scores indicate better QOL. The socio-demographic variables include age, gender, education, marital status and income. Mean scores are then multiplied by 4 in order to make domain scores comparable with the scores used in the WHOQOL-100, and subsequently transformed to a 0-100 scale (WHO, 1996).
Data was analysed using IBM SPSS version 22. Descriptive analysis for all variables was done. Independent t test and one-way ANOVA was used to determine the association between HRQOL and the socio-demographic characteristics of the respondents. P value was set at 0.05.

3.0 Result

3.1 Socio-demographic characteristics of respondents

Table 1 shows the distribution of respondents by their socio-demographic characteristics. Among the 630 hypertensive patients recruited in the study, the respondents age ranged from 30 to 80years, with mean 62.8±9.4, 52.4% were males and 47.6% were females, 42.8% had a minimum of secondary education. Majority of the respondents 78.6% were married and 46.3% earn 20,000 to 50,000 naira per month.

Table 1: Socio demographics distibution of respondents (N = 630)

	mean ± SD	Minimum	Maximum	n (%)
Age	62.8 ± 9.40	30	83	
Age Category				
≤ 50 years old				62 (9.9)
> 50 to 70 years old				438 (69.5)
> 70 years old				130 (20.6)
Gender				
Male				330 (52.4)
Female				300 (47.6)
Education Level				
None				16 (2.5)
Primary (low)				92 (14.6)
Secondary (medium)				263 (41.8)
Tertiary (high)				259 (41.1)
Marital Status				
Married				495 (78.6)
Single/Divorced/ Widowed				135 (21.4)
Monthly Income				
≤ NGN 20,000				139 (22.1)
> NGN 20,000 to NGN 50,000				292 (46.3)
>NGN 50,000 to NGN100,000				126 (20.0)
>NGN 100, 000				73 (11.6)

NGN= Nigerian Naira

3.2 Distribution of Respondents by Health Quality of Life Scores

In order to assess HRQOL, respondents answered two general questions on overall QOL and overall health, followed by domain-specific questions. Table 2 shows that among the respondents only 39 (6.2%) reported that their overall QOL is very good besides only 8 (1.3%) of the respondents are very satisfied with their overall health with a mean of 3.60± 0.76 and 3.25±0.86 respectively. However, this revealed that among the respondent only very few had a good and satisfied QOL. As for the physical health domain, there were seven factors that assessed the percentage of respondents with ceiling effect ranged from 3.0% for their ability to get around to 12.4% for those who admit that physical pain does not prevent them from doing any tasks. For psychological health domain, the percentage of respondents with ceiling effect ranged from 1.3% for accepting their bodily appearance to 26.2% for not having any negative feelings in life. As of social relationship domain, the latter also had a higher percentage of respondents at ceiling effect (13.8%). The respondents were either dissatisfied or had a neutral opinion about their sex life, with a mean of 2.56±1.15. Lastly, environmental domain respondents seem to have lack of financial support as they have a little or moderate amount of money to meet their needs 2.97±1.11. Maximum number of respondents (12%) had ceiling effect for satisfying home environment.
HRQOL based on domain scores, the highest mean satisfaction rating was found on social domain (61.33±14.4), while lowest mean score was shown for physiological domain (58.58± 14.16).

Table 2: Distribution of respondents by health quality of life scores

	Mean ± SD	Ceiling, n (%)
Overall QOL	3.60 ± 0.76	Very good, 39 (6.2)
Overall Health	3.25 ± 0.86	Very satisfied, 8 (1.3)
Itemized Score		
Physical Health		
Pain	3.40 ± 0.99	Not at all, 78 (12.4)
Dependence of medical aids	3.27 ± 0.85	Not at all, 29 (4.6)
Energy	3.13 ± 0.94	Completely, 44 (7.0)
Mobility	3.60 ± 0.69	Very good, 19 (3.0)
Sleep and rest	3.70 ± 1.86	Very satisfied, 68 (10.8)
Activities of daily living	3.38 ± 0.82	Very satisfied, 22 (3.5)
Work capacity	3.35 ± 0.83	Very satisfied, 26 (4.1)
Psychological Health		
Positive feelings	2.87 ± 0.97	Extremely, 23 (3.7)
Personal belief	3.20 ± 0.70	Extremely, 14 (2.2)
Concentration	3.47 ± 0.71	Extremely, 23 (3.7)
Bodily Image	3.09 ± 0.71	Completely, 8 (1.3)
Self-esteem	3.57 ± 0.80	Very satisfied, 44 (7.0)
Negative feeling	3.86 ± 0.90	Never, 165 (26.2)
Social Relationship		
Personal relationship	3.98 ± 0.64	Very satisfied, 89 (4.1)
Sexual activity	2.56 ± 1.15	Very satisfied, 35 (5.6)
Social support	3.80 ± 0.75	Very satisfied, 87 (13.8)
Environmental Health		
Security	3.32 ± 0.85	Extremely, 53 (8.4)
Physical environment	3.31 ± 0.99	Extremely, 64 (10.2)
Financial support	2.97 ± 1.11	Completely, 42 (6.7)
Accessibility of information	3.27 ± 0.92	Completely, 58 (9.2)
Leisure Activity	3.48 ± 0.82	Completely, 64 (10.2)
Home environment	3.62 ± 0.86	Very satisfied, 77 (12.2)
Health care	3.65 ± 0.79	Very satisfied, 58 (9.2)
Transport	3.52 ± 0.91	Very satisfied, 63 (10.0)

Table 3: Quality of life scores for domains (N = 630)

	Mean ± SD	Minimum	Maximum
Physical Health			
Raw Domain Score (0-35)	23.72 ± 4.70	10.0	34.0
Transformed Domain Score, 4-20	13.54 ± 2.66	6.0	19.0
Transformed Domain Score, 0-100	59.74 ± 16.59	13.0	94.0
Psychological Health			
Raw Domain Score (0-30)	20.07 ± 3.40	12.0	30.0
Transformed Domain Score, 4-20	13.37 ± 2.27	8.0	20.0
Transformed Domain Score, 0-100	58.58 ± 14.16	25.0	100.0
Social Relationship			
Raw Domain Score (0-15)	10.34 ± 1.70	5.0	15.0
Transformed Domain Score, 4-20	13.81 ± 2.30	7.0	20.0
Transformed Domain Score, 0-100	61.33 ± 14.4	19.0	100.0
Environmental Health			
Raw Domain Score (0-40)	27.14 ± 5.27	14.0	39.0
Transformed Domain Score, 4-20	13.82 ± 2.63	7.0	20.0
Transformed Domain Score, 0-100	61.50 ± 16.46	19.0	100.0

3.2 *Association between socio-demographic factors and health related quality*

The association between HRQOL and socio-demographic characteristics were tested separately for each of the four domains. The results are shown in Table 4, 5, 6 and 7 for physical health, psychological health, social relationship and environmental health respectively.

Table 4 shows that there was a statistically significant association between age and HRQOL ($p<0.001$). The quality of physical health was similar between male and female respondents. ($p=0.147$). With regards to educational level, there was a statistically significant association between level of education and HRQOL among the respondents ($p<0.001$). Marital status shows a statistically significant association-: It was significantly higher among those who were married compared to singles, divorced or widowed ($p<0.001$). Quality of physical health increased significantly with monthly income ($p<0.001$).

Based on Table 5, similar to physical health, the quality of psychological health was equivalent between male and female respondents. It was significantly higher among those who were married as compared to single, divorced or widowed ($p<0.001$), decreased significantly with age ($p<0.001$) and increased significantly with education level ($p<0.001$) as well as monthly income ($p<0.001$).

Unlike the quality of physical and psychological health, the quality of social relationship was significantly higher among males ($p<0.001$) as shown in Table 6. Similar to previous two domains, it was significantly higher among those who were married as compared to single,

divorced or widowed individuals ($p<0.001$), decreased significantly with age ($p<0.001$) and increased significantly with education level ($p<0.001$) as well as monthly income ($p<0.001$).
As of the quality of environmental health as shown in (Table 7), all of the respondents were almost equal regardless of their age, a contradiction with the three domains described previously. Similar to all other domains, married individual also had significantly higher quality of environmental health as compared to single, divorced or widowed individuals ($p=0.039$) which also increased significantly with education level ($p<0.001$) as well as monthly income ($p<0.001$). Likewise social relationships, male respondents had significantly higher quality of environmental health ($p=0.005$).

Table 4: Association between socio-demographic characteristics and their physical health quality (N = 630)

Variable	mean ± SD	t / F	p-value
Age Category			
≤ 50 years old	72.35 ± 13.26	73.869[a]	<0.001**
> 50 to 70 years old	61.75 ± 15.22		
> 70 years old	46.92 ± 14.76		
Gender			
Male	60.65 ± 16.84	1.454[b]	0.147
Female	58.73 ± 16.28		
Education Level			
None	44.75 ± 11.43	19.794[a]	<0.001**
Primary (low)	56.46 ± 15.34		
Secondary (Medium)	56.46 ± 16.10		
Tertiary (high)	65.15 ± 16.09		
Marital Status			
Married	61.42 ± 16.63	4.964[b]	<0.001**
Single/Divorced/ Widowed	53.57 ± 14.90		
Monthly Income			
≤ NGN 20,000	51.19 ± 17.62	39.715[a]	<0.001**
> NGN 20,000 to NGN 50,000	57.91 ± 14.19		
> NGN 51,000 to NGN 100,000	66.19 ± 14.59		
>NGN 101, 000	72.18 ± 15.50		

** Significant *p*-value at 0.001; [a] One-way ANOVA; [b] Independent t-test

Table 5: Association between socio-demographic characteristics and their psychological health quality (N = 630)

Variable	mean ± SD	t / F	p-value
Age Category			
≤ 50 years old	62.92 ± 17.71	10.386[a]	<0.001**
> 50 to 70 years old	59.31 ± 13.61		
> 70 years old	54.07 ± 13.04		
Gender			
Male	59.47 ± 14.04	1.649[b]	0.100
Female	57.61 ± 14.25		
Education Level			
None	49.94 ± 8.35	43.638[a]	<0.001**

	mean ± SD	t / F	p-value
Primary (low)	55.92 ± 11.77		
Secondary (Medium)	53.22 ± 12.79		
Tertiary (high)	65.50 ± 13.60		
Marital Status			
Married	60.03 ± 14.16	5.014[b]	<0.001**
Single/Divorced/ Widowed	53.27 ± 12.85		
Monthly Income			
≤ NGN 20,000	49.77 ± 14.72	68.610[a]	<0.001**
> NGN 21,000 to NGN 50,000	56.58 ± 11.52		
> NGN 51,000 to NGN 100,000	64.83 ± 11.12		
>NGN 101, 000	72.59 ± 12.28		

** Significant *p*-value at 0.001; [a] One-way ANOVA; [b] Independent t-test

Table 6: Association between socio-demographic characteristics and their social relationship quality (N = 630)

Variable	mean ± SD	t / F	p-value
Age Category			
≤ 50 years old	72.90 ± 14.98	60.296[a]	<0.001**
> 50 to 70 years old	62.56 ± 13.26		
> 70 years old	51.69 ± 12.10		
Gender			
Male	63.58 ± 14.87	4.186[b]	<0.001**
Female	58.86 ± 13.46		
Education Level			
None	51.94 ± 9.35	28.230[a]	<0.001**
Primary (low)	59.05 ± 13.28		
Secondary (medium)	57.00 ± 12.54		
Tertiary (high)	67.13 ± 14.78		
Marital Status			
Married	63.46 ± 14.44	8.505[b]	<0.001**
Single/Divorced/ Widowed	53.54 ± 11.26		
Monthly Income			
≤ NGN 20,000	55.57 ± 16.09	42.834[a]	<0.001**
> NGN 20,000 to NGN 50,000	58.51 ± 12.50		
> NGN 50,000 to NGN 100,000	67.11 ± 11.72		
>NGN 100, 000	73.64 ± 11.72		

** Significant *p*-value at 0.001; [a] One-way ANOVA; [b] Independent t-test

Table 7: Association between socio-demographic characteristics and their environmental health quality (N = 630)

Variable	mean ± SD	t / F	*p*-value
Age Category			
≤ 50 years old	63.32 ± 20.16	0.848[a]	0.429
> 50 to 70 years old	60.95 ± 16.76		
> 70 years old	62.47 ± 13.19		
Gender			
Male	63.26 ± 16.60	2.834[b]	0.005*
Female	59.56 ± 16.11		
Education Level			
None	48.19 ± 12.97	61.243[a]	<0.001**
Primary (low)	58.04 ± 13.78		
Secondary (medium)	54.48 ± 15.67		
Tertiary (high)	70.67 ± 13.59		
Marital Status			
Married	62.20 ± 16.91	2.066[b]	0.039*
Single/Divorced/ Widowed	58.91 ± 14.48		
Monthly Income			
≤ NGN 20,000	50.06 ± 15.21	134.554[a]	<0.001**
> NGN 20,000 to NGN 50,000	57.64 ± 13.32		
> NGN 50,000 to NGN 100,000	70.54 ± 10.05		
>NGN 100, 000	83.08 ± 10.15		

** Significant *p*-value at 0.001; [a] One-way ANOVA; [b] Independent t-test

4.0 Discussion

This study has revealed the HRQOL among hypertensive patients in FMC, Owerri, Imo State Nigeria in four dimensions (physical health, psychological, social relationship and environment) using the WHOQOL-BREF and its association with socio-demographic characteristics.

The study result shows the distribution of respondents by HRQOL scores. In the physical domain, satisfactions of life with lower scores were energy which shows that the respondents had impaired QOL and dependence on medical aid which shows that dependence on antihypertensive medications and long-term treatment influence their QOL. Regarding psychological domain, aspects of life with lower scores were positive feeling, this indicate that among the respondent only few enjoyed life and also bodily image which shows that respondent had mixed opinion about accepting their bodily appearance. However, facet of life with lower scores regard to social domain is sexual activity which indicate the respondents were dissatisfied and had a neutral opinion about their sex. Lastly, environment domain the lower scores were observed in financial support which revealed the respondents seem to have lack of financial support, as they have a little or moderate amount of money to meet their needs and accessibility of information.

HRQOL based on domain scores, the highest mean satisfaction rating was found on social domain and environmental domain, followed by physical domain and psychological domain

The results of this present study is comparable with findings by Ha *et al*., (2014) among hypertensive people living in Vietnam with the highest mean satisfaction for social relationship and lowest mean for psychological. However, the study in Vietnam found a higher range in social health than this study, while other domains were a bit lower than the present study. Another study conducted in Brazil by Melchiors, Correr, Pontarolo, Santos & Souza, (2010) found comparable results with the highest range in social health.

Physical domain, revealed that quality of physical health lower significantly with age which was similar to another study in India (Oza, Patel, & Malhotra, 2014), the quality of physical health was equal between male and female respondents which shows no statistically significant association between gender and HRQOL. This finding contradicts with prior study in Nigeria (Akinyemi *et al*., 2014). However, education is one of the most prominent factors affecting HRQOL, patients with higher level of education often reported better HRQOL in this domain, those attained tertiary or secondary education had significantly higher mean scores in this domain. This finding is similar with a study conducted in Nigeria by Ogunlana et al., (2009). Marital status was significantly associated with QOL; it revealed a significant higher QOL among married participants than their counterparts. A study by Ha *et al.,* (2014) is in agreement with this present study. In respect to income the QOL increased significantly with monthly income. This is consistent with previous study by Khosravi, Ramezani & Toghianifar., (2010) which reviewed that among respondents with higher income was associated with good QOL.

In psychological domain, this study shows that HRQOL lower significantly with age. Another study conducted by Zygmuntowicz *et al* (2012) among hypertensive patients revealed that QOL among hypertensive patients decreased with age. Findings of this study also revealed that the mean of psychological domain was same between male and female respondents. This finding also corroborate with finding of another study in Iraq among their respondents, there was a significant difference between men and women with respect to gender Shakor *et al*., (2015). Regarding education those with secondary and tertiary reported better in the entire domain. This finding corroborate with a study conducted in Brazil which shows that study participants with higher educational level also had a higher HRQOL De carvalho *et al*., (2012).Married respondents and those with higher income was found to have good QOL than their counterparts. This finding is consistent with previous studies in India and Iran by Khosravi *et al*., (2010) & Heshmati, Maghsouldloo, & Mansourian, (2014).

As of social domain, there was a significant association between age and HRQOL. Similar to the findings of this study, a study conducted in India by Kumar *et al*., (2014) showed that age was a significant factor affecting QOL. Gender revealed a significant higher QOL among men respondents compared to female. This result is consistent with finding in prior study in Nigeria by Akinyemi *et al*., (2014). Whereas, education significantly influenced social domain, which is in accordant with study in Ethopia which revealed that educational level is a significant factor affecting HRQOL Jufar *et al*., (2017). Also, marital status is among the factors associated with lower QOL in social domain. There is an association between monthly income and HRQOL. This is consistent with previous study by Khosravi *et al*., (2010) which reviewed that among respondents higher income was associated with good QOL among Iranian adults.

Lastly, environmental domain there was a statistically significant association between gender, educational level, marital status and monthly income and HRQOL among the respondents. This finding is in agreements with other studies by (Ha *et al*., 2014, Akinyemi *et al*., 2014 & Adedapo, Adakunne & Adedokun, 2015). Except for age which did not attained any significant association with environment domain.

This is a cross-sectional study therefore it is restricted, to measuring the association, but do not allow causality. The questionnaire was self-administered to the respondents who can read and write as such there may be respondent bias. However, those who cannot read and write were interviewed as such there may be social desirability bias.

5.0 Conclusion and recommendation

This study has revealed that HRQOL of hypertensive patients in FMC, Owerri Imo State, Nigeria to be moderate in all domains, education level, marital status and income were important independent factors affecting all domains in HRQOL. Older age was associated with lower HRQOL in physical, psychological and social health. Women with hypertension had lower satisfaction rating in social and environmental health than men.

Programs and health education to enlighten the patients more on the risks and complications of hypertension and how to manage the condition is very important. Therefore, interventions studies and programs targeted towards improving HRQOL of disadvantage patients are needed in the setting.

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Declaration

Author(s) declare that this article is our original work.

Author's contribution

Author 1: Research concept and design, preparing research proposal, data collection, analysis and preparing the draft manuscript.

Author 2: Research concept and design, supervising the research process, actively involved in the data analysis and reviewing the manuscript.

Author 3: Supervising the research, reviewing the manuscript

Author 4: Supervising the research, actively involved in data collection.

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