










# Determinants of quality of life among patients with chronic kidney disease in two tertiary hospitals in ondo state

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## Abstract

**Aim:** This study assessed the determinants of quality of life among chronic kidney disease patients and the socio-demographic variables contributing to the quality of life of chronic kidney disease patient attending Renal Clinics of two Tertiary Hospitals in Ondo State.

**Material and Methods:** Descriptive cross sectional research design was utilized. Total enumeration method was used to select 140 respondents for the study. Adapted World Health Organization quality of life - BREF Version questionnaire was used to collect data, data generated were processed and analyzed using the Statistical Package for Social Sciences (SPSS) version 20; both descriptive and inferential statistics were used.

**Results:** Finding revealed that the mean age of the respondent was 47.81±1.69 years. More (57.1%) of the respondents were males. The mean quality of life score of the respondents was found to be (38.51±13.45). Results further showed that highest quality of life were observed in the environmental domain (mean score 16.21±5.66) followed by physical health (mean score 9.08±3.98) and the lowest in the social relation domain (mean score 5.13±3.31). Result showed that only family type is a significant determinant contributing to quality of life of patients ( $p = 0.038$ ). There is no significant relationship between the socio-demographic variable of respondent (age  $p = 0.12$ , gender  $p = 0.627$ , marital status  $p = 0.167$ , educational qualification  $p = 0.131$ ) and their quality of life.

**Conclusion:** Quality of life was poor among the respondents. To enhance the quality of life in patients with CKD, Good family and social relationships are of great importance and are the source of positive feelings and self-esteem as they improve the quality of life of patients.

**Keywords:** Chronic kidney disease; determinants; end stage renal disease; haemodialysis; patients; quality of life

## INTRODUCTION

Chronic kidney disease negatively affects the patient quality of life since the kidney is an important organ of excretion in the body. Diseases that make the kidney to lose this important function it performs may leads to morbidity and mortality of the individual affected. Any diseases that affect the kidney are capable of influencing and affecting the quality of life of such individual. The Quality of life of people living with the disease is often compromised because of an increase in the burden of the diseases leading to morbidity and mortality.

Chronic Kidney Disease (CKD) is a global health problem affecting 10% of the population, and millions die each year because they do not have access to affordable

treatment to improve their quality of life (1). The weight of the disease is felt more in rising countries like Nigeria where there is no health indemnity to meet up the massive economic stress faced by the sufferers and their families (2). Chronic kidney disease (CKD) is a non-transmissible disease condition happening due to rise in the occurrence of hypertension, diabetes, and glomerulonephritis, it have an effect on approximately 500 million adults globally.

The problem of CKD is so massive (2). In the global guidelines, CKD is defined and staged according to the changes in the structure and function of kidney. All the stages of chronic kidney disease are linked with increased risk of cardiovascular morbidity, untimely death, and decreased quality of life (3). It is often non suggestive in its early stages, and early discovery is important to

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reduce future risk (4). The most frequent signs comprise of tiredness, reduced energy for daily activities, poor concentration, poor appetite, insomnia, muscle cramping at night, swollen legs, facial puffiness, having dry/itchy skin, and frequency and urgency in urinating especially at night. As the kidney loses its function, other symptoms like uremia, hyperkalemia, hyperphosphatemia, decreased production of erythropoietin, generalized edema, vitamin D deficiency, hypocalcemia and metabolic acidosis ensues (5).

According to Saran and Colleagues (6), in United States Renal Data System (USRDS), it was revealed that over 10 percent of people above 20 years of age now have chronic kidney disease. Patients more than 100,000 begin dialysis the previous year in the United States making the entire patient on dialysis over 350,000. The anticipated death of an adult on dialysis is 20% at one year, 70% at five years and 90% by 10 years. The fee for end stage kidney disease is more than 30 billion dollars, influencing not only the patients, but everyone who works and pays for health insurance (7). In a study conducted in Poland (8), it was reported that the quality of life of patients suffering from chronic kidney disease is influenced through social and family relationships. Good family and social relationships are of immense significance and are the basis of positive feelings and good self-esteem and they improve the quality of life of chronic kidney disease patients. Also, Bamgboye (9) added that out of 50,000 CKD patients that are supposed to undergo dialysis to increase their quality of life, only 1,000 are able to do it because of the cost implication.

Patients with chronic kidney disease are faced with many physical, spiritual and social problems (10, 11). Patient also experiences signs such as fatigue, cramp, pain, sleep disorder, dyspnea, pruritus, depression, nausea & vomiting, constipation, limitations in social life and physical activities and these negatively influence the areas of daily living and their quality of life (12, 13). In addition, Hiraki and colleagues (14) observed that there is deterioration in physical health function in patients with chronic kidney disease requiring dialysis and also in the pre-dialysis stage. Patients diagnosed to have chronic kidney disease are physically less active, they have problems while carry out their activities of daily living and their livelihood tasks, leading to a reduction in patient's quality of life. Also, Dąbrowska-Bender and colleagues (15) reported that 37.5% of patients getting hemodialysis believed hope on the medical personnel very important.

Patients known to have chronic kidney disease have physical, psychological and social limitations that have effect on their standard of living and quality of life. In addition, hemodialysis involves additional changes in daily life. Its impact on the functionality and the quality of life of patients becomes quite significant (16). Reports

from comparing of the preference-based EQ-5D-5L and SF-6D in patients with end-stage renal disease have confirmed that end stage renal disease patients undergoing hemodialysis have lower quality of life (17). Patients who reach advanced stages may have physical, psychological and social limitations that affect their lifestyle and quality of life (16).

The quality of life areas of difficulty most frequently cited for chronic kidney disease patients include cognitive dysfunction, depression, anxiety, pain, sleep disturbance, reduced physical functioning, sexual dysfunction, reduced social interaction, reduced global perception of general health or overall quality of life, and a variety of other symptoms commonly noted in ESRD patients, such as muscle weakness, restless legs, post-dialysis fatigue, and so on. The determinants of quality of life among chronic kidney disease patients included both adaptable risk factors such as co-morbidities (namely anxiety and depression), low serum hemoglobin level, sedentary lifestyle, unemployment and non-modifiable risk factors such as poor glomerular filtration rate, female gender, and older age. Gender, occupation, age, education, socioeconomic status, duration of dialysis, co morbidity and malnutrition have also been identified by several studies as determinants of quality of life among patients with chronic kidney disease (18).

In addition, it was found out at one hospital in Korea (19), that Female patient with pre dialysis chronic kidney disease showed poorer quality of life than their male counterparts (20). Some national and international studies have identified factors associated with HRQOL of patients with CKD, such as gender, age, education, socioeconomic status, occupation, duration of hemodialysis, co-morbidity, and malnutrition (18). Chronic kidney disease affects 45% of persons above the age of 70 and can increase two fold the risk for physical impairment, cognitive dysfunction, and infirmity (21).

Their physical health, functional status, personal relationships and their socio economic status are seriously exaggerated. Although much research has been carried out on the quality of life in developed countries, there is a paucity of such studies in Nigeria. Hence, the need for a study to assess the determinants of quality of quality of life among patients with chronic kidney disease attending renal clinic of two tertiary hospitals in Ondo State arose.

### **Objective of the Study**

These studies assessed the determinants of quality of life among patients with chronic kidney disease and identify socio demographic variables contributing to the quality of life of patients with chronic kidney disease

### **MATERIAL and METHODS**

The study adopted a descriptive cross sectional research design. The study was carried out among renal patients

attending renal clinic of the two government owned tertiary hospitals (Federal Medical Center Owo and University of Medical Science Teaching Hospital Ondo). Total enumeration method was utilized to include 140 patients who voluntarily volunteer to participate in the study (60 patients at the Federal Medical Centre, Owo and 80 patients at the University of Medical Sciences Teaching Hospital, Ondo).

An adapted questionnaire from World Health Organization Quality of Life -BRIEF Version was used for data collection which validity and reliability was ascertained before data collection (22). The World Health Organization Quality of Life – Brief Version is made up of four domains: physical health, psychological, social relationships and environment. The questionnaire consist two sections. The first section consist of 8-item that elicit information about socio-demographic characteristics of the respondent and the second section consist of 24-item that assesses quality of life of patients with chronic kidney disease across four domains of physical health (7-item), psychological domain (5-item), social relationship (4-item) and environment (9-item). The questionnaire is rated on five-point Likert scale of "0 to 4". The total obtainable score is "96" while the least is "0". A score of 67 and above representing 70% and above of the total score is regarded a good quality of life, a score of 48 to 66, representing a score of 50 to 69% of the total obtainable score is regarded as fair quality of life while a score of 47 and below representing less than 50% of the total obtainable score is regarded as poor quality of life.

Validity of questionnaire was ascertain using face and content validity criteria. The questionnaire was pilot tested among 14 renal patients in Ekiti State University Teaching Hospital, Ado Ekiti and the results yielded a Cronbach alpha score of 0.88. Permission was sought from the authority of the tertiary hospitals while informed consent was sought and gained from all participants. Ethical approval was sought from the two institutions with ethical approval number of NHREC/18/08/2016 and FMC/OW/380/VOL.LXIX/68. Statistical Package for Social Sciences version 20 was used to analyze data. Research questions were answered using descriptive statistics of mean, standard deviation, percentages and regression analysis.

## RESULTS

Results showed that the mean age of respondents was observed to be  $47.81 \pm 1.69$  years. Only 8 (5.7%) of the respondents are less than 20 years of age while 9 (6.4%) are more than 70 years of age. More than half of the respondents 80 (57.1%) are male; 96 (68.6%) are married. Vast majority of the respondents 126 (90.0%) are Yoruba's, 98 (70.0%) of the respondents are from monogamous family and 133 (95%) of the respondents had between 1-5 years duration of illness (Table 1).

Results on the physical health domain as shown in Table 2 revealed that only 7 (5.0%) of the respondents

answered extreme amount to the question on how well they were able to get around while 30 (21.4%) said not at all and 41 (29.3%) said a little. Results further showed that 36 (25.7%) said physical pain prevent them very much from doing their work and 16 (11.4%) said extreme amount. 57 (40.7%) said they needed medical treatment very much to function in their daily life while 21 (15.0%) said in extreme amount. A number of the respondents 38 (27.1%) said they did not have enough energy for everyday activities while 49 (35.0%) said very little.

Finding from the psychological domain among the respondents revealed that 24 (17.1%) said they do not enjoy their life at all, 53 (37.9%) said a little while only 2 (1.4%) said they extremely enjoy their life, only 19 (13.6%) and 1 (0.7%) said they were very much able and extremely able to concentrate respectively (Table 2). Social relationship (Social domain) of the respondents as shown in Table 3 revealed that only 8 (5.7%) were satisfied with their personal relationship while 49 (35.0%) were satisfied. Also, 52 (37.1%) and 33 (23.6%) were very dissatisfied and dissatisfied respectively with their sex life. Furthermore only 69(49.3%) were satisfied with the support they got from family and friends.

A little below half of the respondents in this study 62 (44.3%) said very much that their physical environment is healthy; 39 (27.9%) said very much they feel safe in their daily life. 3 (2.1%) and 34 (24.3%) agreed in extreme amount and very much respectively that that information they need for their day-to-day life is available (Table 4). In comparing all the four domains, the following quality of life mean scores for various domains were obtained: environmental domain ( $16.21 \pm 5.66$ ), psychological domain ( $8.09 \pm 3.59$ ), social relationship domain ( $5.13 \pm 3.31$ ), and physical domain ( $9.08 \pm 3.98$ ). The low value in social domain was expected as it was determined based on three questions. (i.e personal relationships, social support, sexual activity). Patients have poor quality of life score in all the domains assessed under the quality of life. However, the highest mean quality of life score were observed in the environment domain ( $16.21 \pm 5.66$ ) followed by physical health ( $9.08 \pm 3.98$ ) (Table 5).

Only 5 (3.6%) of the patients with chronic kidney disease have good quality of life; 40 (28.6%) have fair quality of life while 95 (67.9%) have poor quality of life with mean quality of life score of  $38.51 \pm 13.45$  (Table 6). Only family type is a significant determinant contribution to the quality of life of patient with chronic kidney disease ( $p = 0.038$ ) (Table 7).

<b>Table 1. Socio Demographic Characteristics of the Respondents</b>			
		<b>Frequency (n = 140)</b>	<b>Percentage (%)</b>
<b>Age in years</b>	Less than 20	8	5.7
	21 – 30	21	15.0
	31 – 40	30	21.4
	41 – 50	21	15.0
	51 – 60	22	15.7
	61 – 70	29	20.7
	71 and above	9	6.4
	Mean = 47.81±1.69		
<b>Sex</b>	Male	80	57.1
	Female	60	42.9
<b>Marital status</b>	Married	96	68.6
	Single	35	25.0
	Divorced/Separated	4	2.9
	Widowed	5	3.6
<b>Ethnicity</b>	Yoruba	126	90.0
	Hausa	1	0.7
	Igbo	12	8.6
	Ijaw	1	0.7
<b>Highest educational qualification</b>	No formal education	38	27.1
	Diploma	44	31.4
	Degree	33	23.6
	Master	16	11.4
	PhD	9	6.4
<b>Duration of illness in years</b>	1 – 5	133	95.0
	6 – 10	3	2.1
	11 and above	4	2.9
	Mean = 2.59 ±2.16		
<b>Family type</b>	Monogamous	98	70.0
	Polygamous	42	30.0
<b>Employment</b>	Employed	27	19.3
	Unemployed	32	22.9
	Retired	40	28.6
	Self-employed	41	29.3

**Table 2. Physical Health and Psychological Domain of Quality of Life**

	Not at all	A little	Moderate	Very much	Extreme amount	Mean score
How well are you able to get around?	30 (21.4)	41(29.3)	38(27.1)	24(17.1)	7(5.0)	1.55
To what extent does physical pain prevent you from doing your work?	14(10.0)	32(22.9)	42(30.0)	6(25.7)	16(11.4)	2.06
How much do you need medical treatment to function in your daily life?	7(5.0)	20(14.3)	35(25.0)	57(40.7)	21(15.0)	2.46
Do you have enough energy for everyday activities?	38(27.1)	49(35.0)	35(25.0)	17(12.1)	1(0.7)	1.24
Are you able to accept your bodily appearance?	36(25.7)	50(35.7)	29(20.7)	19(13.6)	6(4.3)	1.35
Have enough money to meet your need?	39(27.9)	30(21.4)	44(31.4)	22(15.7)	5(3.6)	1.46
<b>Psychological Domain of Quality of Life</b>						
How much do you enjoy life?	24(17.1)	53(37.9)	44(31.4)	17(12.1)	2(1.4)	1.43
How well are you able to concentrate?	23(16.4)	52(37.1)	45(32.1)	19(13.6)	1(0.7)	1.45
How satisfied are you with yourself?	39(27.9)	41(29.3)	41(29.3)	17(12.1)	2(1.4)	1.30
To what extent do you feel your life is meaningful?	20(14.3)	47(33.6)	40(28.6)	23(16.4)	10(7.1)	1.69
How often do you have negative feelings such as despair, depression?	22(15.7)	41(29.3)	33(23.6)	34(24.3)	10(7.1)	1.78

**Table 3. Social Relationship Domain of Quality of Life**

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied	Mean score
How well are you able to get around?	23(16.4)	46(32.9)	14(10.0)	49(35.0)	8(5.7)	1.81
To what extent does physical pain prevent you from doing your work?	52(37.1)	33(23.6)	21(15.0)	30(21.4)	4(2.9)	1.29
How much do you need medical treatment to function in your daily life?	31(22.1)	17(12.1)	23(16.4)	55(39.3)	14(10.0)	2.03

**Table 4. Environment Domain of Quality of Life**

	Not at all	A little	Moderate	Very much	Extreme amount	Mean score
How healthy is your physical environment?	4(2.9)	16(11.4)	53(37.9)	62(44.3)	5(3.6)	2.34
How safe do you feel in your daily life?	6(4.3)	33(23.6)	57(40.7)	39(27.9)	5(3.6)	2.03
How available to you is the information that you need in your day-to-day life?	6(4.3)	25(17.9)	72(51.4)	34(24.3)	3(2.1)	2.02
To what extent do you have the opportunity for leisure activities?	21(15.0)	43(30.7)	49(35.0)	24(17.1)	3(2.1)	1.61
	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied	Mean score
How satisfied are you with the condition of your living?	13(9.3)	30(21.4)	28(20.0)	60(42.9)	9(6.4)	2.16
How satisfied are you with your access to health services?	15(10.7)	38(27.1)	22(15.7)	59(42.1)	6(4.3)	2.02
How satisfied are you with your mode of transportation?	17(12.1)	54(38.6)	37(26.4)	25(17.9)	7(5.0)	1.65
How satisfied are you with your capacity for work?	33(23.6)	67(47.9)	20(14.3)	18(12.9)	2(1.4)	2.21
How satisfied are you with your ability to perform your daily living activities?	37(26.4)	61(43.6)	24(17.1)	16(11.4)	2(1.4)	1.18

**Table 5. Summary of Quality of Life by Different Domain**

Domain	Total obtainable score	Mean Score	Mean score on 4 point
Physical health	28	9.08±3.98	1.51±0.66
Psychological domain	20	8.09±3.59	1.62 ±0.72
Social relationship domain	12	5.13±3.31	1.71±1.10
Environment domain	36	16.21±5.66	1.80±0.63
Total	96	38.51±13.45	1.67±0.58

**Table 6. Summary of Quality of Life of Patients with CKD**

Quality of life	Frequency	Percentage (%)
Good quality of life	5	3.6
Fair quality of life	40	28.6
Poor quality of life	95	67.9
Total	140	100.0

**Table 7. Socio-demographic Variables of Patients with Chronic Kidney Disease Contributing to Quality of Life**

Socio demographic variable	Unstandardized B	Coefficient Std. Error	Standardized Coefficient Beta	T	Sig
(Constant)	36.773	7.305		5.034	.000
Age in years	0.146	0.078	0.183	1.880	0.062
Sex	-1.179	2.441	-0.044	-0.483	0.630
Marital status	2.225	1.737	0.119	1.281	0.202
Ethnicity	-0.767	1.885	-0.035	-0.407	0.685
Educational qualification	0.498	1.057	0.044	0.471	0.639
Family type	-5.358	2.556	-0.183	-2.096	0.038

## DISCUSSION

The mean age of respondents was observed to be 47.81±1.69 years. This conforms to the productive age group. More than half of the respondents are male and there was a definitive preponderance of male over female patients. This agrees with the study conducted in three hemodialysis units in Saudi Arabia by Bayoumi and colleagues (23). It was identified that majority of their respondents were male, old and had had longer duration of treatments. In Bayoumi and others study (23) it was also found out that male gender, older age, and long duration of treatment are predictors of a reduced quality of life. Findings from our study also revealed that only few of the respondents in our study have no formal education. Their study further submitted that this could be due to the fact that educated patients may have a better understanding of the illness and its effects; they have more information about the treatments, greater self-reported adherence, and a better relationship with their healthcare team (23).

Physical health component of the quality of life among the participants revealed that only few believed that physical pain prevent them very much from doing their work. Also, only few of the participants said they did not have enough energy and very little for everyday activities. This implies that for majority of the participants in this study. Their physical health functioning is affected by the diseases condition. The findings support the submissions of Hiraki and colleagues (14) where they submitted that chronic renal failure causes deterioration in physical health functioning of patients requiring dialysis and also in the pre-dialysis stage. This further corroborate Padilla and colleagues (24) in their earlier submission that patients diagnosed to have chronic kidney disease are physically inactive, they have problems while carrying out their activities of daily living and their livelihood tasks, leading to a reduction in patients quality of life. Also, Dąbrowska-Bender and others established in their study that 37.5% of patients with Chronic Kidney Disease receiving hemodialysis considered dependence on the medical personnel very important and this is relatively lower to the

finding from this study that 57(40.7%) participants said they need medical treatment very much to function in their daily life.

Respondents in this study reported that they have negative feeling of despair, anxiety and depression and this is similar to the finding of (24). Also, Gonçalves and others (16) submitted that patients who reach advanced stages may have physical, psychological and social limitations that affect their lifestyle and quality of life. Wiśniewska and colleagues (8) reported that the quality of life of patients suffering from chronic kidney disease is influenced through social and family relationships. This is further corroborated by the results of our study; more than half of the participants in this study were not satisfied with their personal and social relation since they had been diagnosed of the disease condition. Hospitalization and frequent hospital visit for check on one hand is capable of negatively affecting social relationship of people with CKD. Furthermore since majority of the participants in the study agreed that the disease condition affect the physical health it is therefore not surprising that it is affecting their social relationship. This is because physical health functioning is essential for social functioning. Only few of the participants were satisfied with the support they receive from their family and friends.

Good family and social relationships are of great importance and are the source of positive feelings and self-esteem and they improve the quality of life of patients. Lack of support and acceptance from family and friends has a negative influence on patients' health. Results further showed that the highest quality of life mean score in the domains was observed in the environmental domain (16.21±5.66) followed by physical health (8.13±4.40) and the lowest mean score was observed in the social relation domain 5.13±3.31. Findings from this study revealed that the quality of life of patients with chronic kidney disease across all the domains is poor. This was in agreement with the report conducted on chronic kidney disease in Iran and Nepal (26, 27). They submitted that the overall mean score of quality of life of respondents with chronic kidney disease was poor in the different domains. Family type was found to be the only determinant of quality of life of patients with CKD that participated in this study. This further emphasized that family support and family network is essential in determining the quality of life of patients with CKD that participated in this study.

## CONCLUSION

In conclusion, chronic kidney disease has led to an increase in the disease burden of the patients and it influenced the areas of physical, psychological, social relationship and environment negatively. Quality of life was low among the respondents. In order to enhance the quality of life in patients with chronic kidney disease, Good family and social relationships are of great importance and are the source of positive feelings and self-esteem as they improve the quality of life of patients. Lack of support and acceptance from family and friends has a negative influence on patients' health.

## Study Limitation

The number of subjects was small. Some did not coming regularly for their clinic appointment. Also, many of the chronic kidney disease patients underwent once-a-week dialysis instead of thrice-a-week dialysis. This might be due to economic constraints. The reduced frequency is known to limit the quality of life of patients.

## Recommendation

Patients with Chronic kidney disease have lower quality of life compared with the general population. Based on the findings of the study, the following recommendations were made:

1. Efforts should be geared towards providing prompt care in managing patients with chronic kidney disease.
2. Good family and social relationships are of great importance and are the source of positive feelings and self-esteem and they improve the quality of life of patients. They added that lack of support and acceptance from family and friends has a negative influence on patients' health.
3. Designed and developed illustrated booklet about interventions that can be tailored to meet individual needs should be available and distributed by health institutions to each patient diagnosed to have chronic kidney disease in order to improve their quality of life.
4. Government should work in assisting patients with these chronic conditions in subsidizing their treatment as this may improve their quality of life.
5. It is also expected the results would serve as important baseline data for nurse researchers and other researchers interested in this area and would contribute to the body knowledge in nursing regards quality of life among chronic kidney disease patients.

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