

Factors Influencing Compliance to Treatment Regimen Among Renal Patients Attending Two Selected Teaching Hospital in Ogun State

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ABSTRACT: *Kidney disease involves the progressive decline of kidney function, leading to complications like cardiovascular disease, anemia, and electrolyte imbalances. Poor knowledge and non-compliance with treatment regimens exacerbate these issues, increasing morbidity, mortality, hospital visits, and reducing patients' quality of life. This study investigated factors affecting treatment compliance among renal patients at Olabisi Onabanjo University Teaching Hospital and Babcock University Teaching Hospital in Ogun State. A descriptive cross-sectional design surveyed 340 renal patients from these institutions, with 191 and 149 respondents from each hospital respectively, selected via simple random sampling. Data were collected using self-structured questionnaires and analyzed using SPSS 23.0, with results displayed in frequency-percentage tables and hypotheses tested at a 5% error level. Findings indicated that 65.7% of respondents were female, predominantly aged 26-35. Over half were employed, with a significant portion earning N50,000 - N100,000. The study identified the high cost of kidney disease medications as the primary factor ($x=3.11$) influencing treatment compliance. Recommendations include exploring financial assistance or insurance coverage to reduce the cost burden of managing kidney disease and improving access to affordable healthcare services, such as subsidized medications, lab tests, and dialysis, particularly for financially challenged patients.*

KEYWORDS: factors, influencing, compliance, kidney, disease

INTRODUCTION

Authors in Africa have shown a prevalence of renal disease at 4.2%, which is significantly lower compared to the prevalence reported in other recent studies (12.2–15.8%). The unexpectedly low occurrence of this condition is surprising given the substantial occurrence of apolipoprotein L1 mutations, which are a significant risk factor for kidney disease, in people of recent sub-Saharan African descent (Bello et al., 2024). In 2020, the Kidney Disease Outcome Quality Initiative (K/DOQI) Advisory Board of the National Kidney Foundation (NKF) authorised the development of clinical practice guidelines to provide a clear definition of kidney disease and categorise its stages as it progresses. Defining kidney illness and categorising the phases of severity will establish a shared vocabulary for communication among medical professionals, patients and their families, researchers, and policymakers. This statement proposes the establishment of a structure that would guide the development of a public health strategy aimed at providing efficient care and enhancing the results of renal disease treatment (Harris, 2022).

Chronic Kidney Disease Africa (CKD-A) states that kidney disease is a worldwide public health issue, primarily impacting individuals from low-income and middle-income countries (LMICs), particularly in sub-Saharan Africa. Although there is mounting evidence indicating a rising occurrence of kidney disease throughout Africa, there has been a lack of coordinated efforts on a continent-wide scale to generate accurate estimates that could effectively guide the planning of

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health services and the development of policies to tackle the repercussions of kidney disease. Consequently, we formed the KD-Africa Collaboration to address kidney disease in Africa. So far, the network has collected data from 39 research carried out in 12 African nations, with a total of 35,747 participants, the majority of whom are from sub-Saharan Africa.

According to the World Health Organisation (WHO), around 850 million individuals worldwide are affected by kidney disease. A study conducted by researchers at the Johns Hopkins Bloomberg School of Public Health and the National Institute of Diabetes and Digestive and Kidney Diseases revealed that between 10 to 20 million individuals worldwide were affected by kidney disease a decade ago. It is worth noting that the majority of these cases went undiagnosed. Kidney disease, commonly referred to as nephropathy is a worldwide health concern that impacts millions of people and places a heavy strain on healthcare systems (Kidney illness Prognosis Consortium, 2020). In addition to the proper medical interventions, patient education and adherence to treatment plans are essential for the effective management of renal illness (Chathuranga et al., 2021). To achieve the best results and stop the progression of the condition, patients must adhere to their treatment plans, which include taking their medications as prescribed and making dietary and lifestyle adjustments (Osunmakinde & Gbenga-Epebinu 2020). In order to create focused interventions that can improve patient outcomes, healthcare providers must have a thorough understanding of the variables influencing patients' knowledge and adherence. Numerous factors, such as patient education, social support, healthcare provider-patient communication, drug complexity, and resource accessibility, have been linked to compliance in patients with kidney disease in previous studies (Kitagawa, et al., 2022).

The multidimensional nature of kidney disease necessitates a holistic approach to its management, incorporating not only medical expertise but also a comprehensive understanding of patient perspectives, knowledge levels, and behavioral patterns. The existing disparities in knowledge and adherence, if left unaddressed, and have the potential to undermine the healthcare system's efforts in effectively managing kidney disease. Inadequate adherence to treatment regimens and lack of knowledge may result in the deterioration of medical conditions, increased morbidity and mortality rates, frequent hospital visit and stays, and complications like cardiovascular incidents and end-stage kidney disease arises, all of which can significantly lower the quality of life for patients (Al Salmi, 2020).

Basma, et al. (2022) conducted a cross-sectional study in China to explore factors influencing unmet palliative care needs in end-stage renal disease (ESRD) patients undergoing hemodialysis. Data were collected from 325 participants using various scales and questionnaires. The participants were categorized into three groups based on their palliative care needs: mild (50.5%), moderate (29.2%), and severe (20.3%). Key factors influencing unmet needs included education level, income, functional status, depression, social support, and symptom severity. The study emphasized the importance of addressing these factors to improve the health-related quality of life for ESRD patients.

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Latif et al. (2022) conducted a systematic review to identify patient-related factors affecting medication adherence among ESRD patients. The review included six studies from various electronic databases, focusing on factors from the World Health Organization's adherence model. The study found strong correlations between patients' perspectives on medication necessity and their adherence. Factors such as knowledge, beliefs, education, gender, and ethnicity were positively associated with adherence, while findings on age and viewpoint were inconclusive. The review highlighted the need for more research to understand how patient-related factors impact medication adherence, urging caution in interpreting the limited findings.

Varghese et al. (2020) examined quality of life and medication adherence in chronic kidney disease (CKD) patients through a six-month prospective study. The study involved 140 participants, including CKD stage 3-5 patients, post-transplant patients, and those undergoing hemodialysis. Medication adherence and quality of life were assessed using standardized questionnaires. Initial patient adherence was 80%, increasing to 85.7% after patient counseling, which also led to a slight improvement in quality of life. The study suggested that patient counseling by clinical chemists can enhance medication adherence and overall quality of life. Kaesler et al. (2022) explored factors contributing to therapy non-adherence among Indonesian hemodialysis patients with ESRD through qualitative research in Bandung. Interviews with 23 participants, including patients, caregivers, nurses, general practitioners, and a nephrologist, revealed significant psychological burdens and various obstacles faced during treatment. The study identified key factors influencing non-adherence and suggested these insights could inform interventions to improve adherence among ESRD patients. The main objective of this study is to identify the factors influencing compliance to treatment regimen among renal patients attending nephrology clinic of Olabisi Onabanjo University Teaching hospital and Babcock University Teaching Hospital.

METHODOLOGY

This study employs a descriptive survey design to describe the knowledge and compliance with treatment regimens among renal patients, focusing on those attending nephrology clinics at Olabisi Onabanjo University Teaching Hospital (OOUTH) and Babcock University Teaching Hospital (BUTH) in Ogun State. The selected population is strategic for examining kidney disease (KD) knowledge and adherence within these specific healthcare settings. According to clinic records, OOUTH sees 21-35 patients weekly and BUTH sees 20-25 patients, with clinics operating on different days. Monthly attendance records over four months show varying numbers for both hospitals. The inclusion criteria for the study are patients diagnosed with kidney disease and receiving treatment at these clinics, while exclusions include non-consenting individuals, those under 18, and pregnant women with renal diseases. The sample size was determined from a total population of approximately 605 patients attending these clinics over three months. OOUTH had 368 patients and BUTH had 237 patients over six months. Using Solvin's formula with a 0.05 alpha level, a total sample size of 340 was calculated, with OOUTH contributing 191 and BUTH 149 to the sample. Simple random sampling was employed to select

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respondents from the nephrology clinics at both hospitals. This approach ensures a representative sample, accounting for a 10% attrition rate to maintain the study's reliability and validity.

The study utilized a researcher-designed questionnaire to ensure data reliability and validity, reviewed by the supervisor and field experts. The questionnaire, translated into Yoruba for participants not proficient in English, comprised four sections based on validated scales and literature. Section A covered socio-demographic characteristics with seven questions. Section B focused on factors influencing compliance to treatment regimens with nine questions assessed using a Likert scale. The scoring ranged from poor (1-12) to good (25-36). To ensure validity, content validity was addressed by consulting nephrology experts and the research supervisor, while construct validity was assessed through factor analysis. Reliability was ensured via a pilot study at University College Hospital Ibadan, distributing the questionnaire to 10% of the sample size. Construct reliability, measured using Cronbach Alpha, showed high reliability ($\alpha = 0.92$) for factors affecting compliance to treatment regimens, confirming internal consistency and strengthening the study's credibility.

Data collection involved obtaining an introduction letter from the School of Nursing Sciences at Babcock University to seek permission for administering questionnaires to renal patients at Olabisi Onabanjo University Teaching Hospital and Babcock University Teaching Hospital. The study employed closed-ended self-administered questionnaires, distributed by trained nursing research assistants, who assisted participants with reading, writing, and translation into Yoruba as needed. The data collection took approximately three weeks, ensuring high response rates through clear instructions and opportunities for clarification. This method provided objective information on participants' knowledge of kidney disease, disease stage, comorbidities, and treatment compliance, adhering to ethical guidelines for confidentiality and privacy. Data analysis was conducted using SPSS version 25, employing descriptive statistics such as frequency tables, percentage distributions, and means, with findings presented in tables to address the study's questions and objectives.

RESULTS

Table 1: Socio-demographic Characteristics of the Participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	116	34.3
	Female	224	65.7
Age	0-10yrs	20	5.7
	18-25yrs	99	28.6
	26-35yrs	114	34.3
	36-70yrs	107	31.4
Religion	Christianity	240	71.4

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	Islam	69	20.0
	Traditional	20	5.7
	Others	10	2.9
Educational Level	Primary School	49	14.4
	Secondary School	142	41.8
	Tertiary and Others	149	43.8
Employment Status	Employed	179	51.4
	Unemployed	61	20.0
	Retired	58	15.6
	Students	42	14.0
Monthly Income Range	Below ₦50,000	97	28.7
	₦50,000- ₦ 100,000	114	34.2
	₦ 100,000- ₦ 150,000	78	22.8
	₦ 150,000 and above.	51	14.3
How long have you been diagnosed of kidney disease	less than 5 years	100	28.6
	5 – 10 years	78	22.9
	10 – 15 Years	68	21.0
	15 years and above.	95	28.5
Total		340	100.0

Table 1 shows the socio demographic information of the renal patients that participated in the study. It is observed that 34.3% of the renal patients in the sample were male, while 65.7% were female. This indicates a higher representation of females among renal patients in the selected teaching hospitals in Ogun State. Majority of patients were in the age groups of 18-25 years (28.6%) and 26-35 years (34.3%), indicating a relatively younger population affected by kidney disease in this sample. The age groups of 0-10 years and 36-70 years had lower but still notable representation among renal patients. Christianity was the dominant religion among renal patients, with 71.4% of the sample. Islam accounted for 20.0%, while traditional and other religions had smaller percentages. The distribution of educational levels shows that a significant portion of renal patients had completed secondary school (42.86%) or tertiary education (42.86%). A smaller percentage had only completed primary education (14.29%). More than half of the patients (51.4%) were employed, while 20.0% were unemployed, 15.6% were retired, and 14.0% were students. This suggests that a substantial portion of renal patients in the sample were in the workforce. The income range distribution shows that a considerable number of patients had monthly incomes between N50,000 and N150,000, with 34.2% falling in the range of N50,000- N 100,000 and 22.8% in the range of N 100,000- N 150,000. The distribution of the duration since diagnosis of kidney disease shows a relatively balanced representation across different time frames. Around 28.6% were diagnosed less than 5 years ago, 22.9% were diagnosed 5-10 years ago, 21.0% were diagnosed 10-15 years ago, and 28.5% were diagnosed 15 years ago or more.

Table 2: Factors Affecting Compliance to treatment regimen on kidney disease among renal patients at nephrology clinic

FACTORS	A	SA	D	SD	Mean	Std
Do you experience unpleasant side effects after taking kidney disease medications?	83 (23.71%)	93 (26.57%)	65 (18.57%)	104 (31.14%)	2.21	0.96
It is difficult to prepare a KD meal that suits my condition.	105 (30.00%)	75 (21.43%)	55 (15.71%)	110(32.8 6%)	1.90	0.95
Nephrology clinic is far from my house.	63 (18.00%)	102(30.5 7%)	85 (24.29%)	90(27.14 %)	2.49	0.89
Lately screened for early detection of kidney disease.	90 (27.14%)	85 (24.29%)	75 (21.43%)	90 (27.14%)	2.37	0.82
Kidney disease management is expensive.	115 (35.71%)	63 (18.00%)	43 (12.29%)	119 (34.00%)	3.03	0.88
It takes longer to be able to see a nephrologist.	73 (20.86%)	103 (32.29%)	93 (26.57%)	71 (20.29%)	2.26	0.87
Is kidney disease pill a high burden?	121(37.4 3%)	43 (12.29%)	63 (18.00%)	113 (32.29%)	3.11	0.86
I prefer taking alternative medicine drugs.	98 (29.43%)	83 (23.71%)	53 (15.14%)	106 (31.71%)	2.67	0.94
Do you have family support and trust regarding KD?	108 (32.29%)	73 (20.86%)	63 (18.00%)	101 (28.86%)	2.76	0.84
I find it difficult to take my medications at the prescribed time daily.	75 (21.43%)	100 (30.00%)	83 (23.71%)	87 (24.86%)	2.07	0.91

*Decision Rule: 0.1-0.9=strongly disagree; 1.0-1.9=disagree; 2.0-2.9=agree; 3.0-3.9=strongly agree
Table 2 shows results on the factors affecting compliance to treatment regimen on kidney disease. High burden of kidney disease pill ($x=3.11$) is the strongest factor affecting compliance to treatment regimen on kidney disease. This is followed by the cost of kidney disease management ($x=3.03$), family support and trust regarding KD ($x=2.76$), preference for alternative medicine drugs ($x=2.67$), distance of Nephrology clinic ($x=2.49$) while the least factor affecting compliance to treatment regimen on kidney disease is difficulty in taking medications at the prescribed time daily as shown in the table.

The analysis reveals high burden of kidney disease pill as the strongest factor affecting compliance to treatment regimen on kidney disease. This is followed by the cost of kidney disease management, family support and trust regarding KD, preference for alternative medicine drugs, distance of

Nephrology clinic while the least factor affecting compliance to treatment regimen on kidney disease is difficulty in taking medications at the prescribed time daily as shown in the analysis.

DISCUSSION

The findings revealed that the high burden of renal disease is the most influential factor in determining compliance with the treatment plan for kidney disease. The factors influencing compliance to treatment regimen for kidney disease, in order of importance, are the cost of kidney disease management, family support and trust regarding KD, preference for alternative medicine drugs, and the distance of the Nephrology clinic. The least influential factor is the difficulty in taking medications at the prescribed time daily, as indicated in the table. This discovery supported the findings of Kaesler et al., (2021), who examined the factors that contribute to treatment non-adherence in Indonesian patients undergoing hemodialysis for end-stage renal disease (ESRD). The study utilised qualitative methodologies and was done at the hemodialysis unit of a private hospital in Bandung. It revealed that patients undergoing hemodialysis for end-stage renal disease (ESRD) experience a substantial psychological burden. Owing to the difficulties encountered by patients, carers, and medical workers in the process of receiving medical treatment, noncompliance is a widespread problem among patients with end-stage renal disease (ESRD). This discovery aligns with the findings of Chathuranga et al., (2021), who conducted a qualitative study titled "Treatment adherence in chronic kidney disease and support from health care providers." The objective of this study was to assess the level of difficulty experienced by patients with renal disease in adhering to their treatment programmes, as well as to examine the extent to which doctors contribute to fostering adherence. Four primary themes were identified through an analysis of factors associated with treatment planning and adherence: factors pertaining to treatment planning (such as absence of a plan, proactive research, treatment goals focused on the provider, and shared decision making); factors concerning responses to the treatment plan (such as disagreement with the treatment, perceived deficiency in capability, lack of information, and positive feedback); factors related to patient care (including the presence of multiple chronic conditions, motivation, and outlook); and factors related to provider care.

CONCLUSION

The study identifies the high burden of kidney disease pill as the strongest factor affecting compliance. This implies that the complexity or side effects associated with medications prescribed for kidney disease play a crucial role in patients' ability to adhere to their treatment plans. Additionally, the cost of kidney disease management emerged as a significant barrier, highlighting the financial strain that renal patients may face in accessing necessary treatments and healthcare services. Family support and trust regarding kidney disease, as well as preferences for alternative medicine drugs, were also identified as influential factors affecting compliance. The proximity of

the nephrology clinic and the difficulty in taking medications at prescribed times were comparatively lesser factors impacting compliance, although they still contribute to overall treatment challenges.

Recommendations

Financial assistance or insurance coverage should be explored to alleviate the cost burden of kidney disease management for patients. Enhance accessibility to affordable healthcare services, including subsidized medications, laboratory tests, and dialysis treatments, especially for patients facing financial challenges.

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