

KNOWLEDGE AND ATTITUDE OF HYPERTENSIVE PATIENTS TO MEDICATION ADHERENCE IN A FEDERAL GOVERNMENT HEALTH INSTITUTION IN BAYELSA STATE, NIGERIA

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This study was a collaborative effort of the authors. The author reviewed and approved the final version of the manuscript for publication.

Article Information

DOI: <https://doi.org/10.60787/fpj.vol3no7.131>

EISSN 1596-0501E



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CITATION: Kai Handich Tarila, Chinekwu S. Anyaoku, Okoli Adaora Ukamaka, Stella Ngozi Okereke, Ogbiti Mark Imhonikhe, Chiejine Gibson Ifechukwude, Nnaemeka Emmanuel Akubue (2026). Knowledge and attitude of hypertensive patients to medication adherence in a Federal Government Health Institution in Bayelsa State, Nigeria. *Frontline Professionals Journal* 3(7), 178-190

ABSTRACT

Hypertension is a leading modifiable risk factor for cardiovascular morbidity and mortality in Nigeria. Despite availability of effective antihypertensive medications, poor blood pressure control remains common, and patient-related factors such as knowledge and attitude are key determinants of adherence and outcomes. This study assessed the knowledge of hypertension and attitudes towards treatment among hypertensive patients attending a federal tertiary hospital in Bayelsa State, Nigeria. A descriptive cross-sectional study was conducted among adult hypertensive patients attending the cardiology clinic of the Federal Medical Centre (FMC), Yenagoa. Eligible participants were 18 years and older, had physician-diagnosed hypertension, and had been on antihypertensive medication for at least six months. Using systematic random sampling, 253 patients were recruited. Data were collected with a structured, interviewer-administered questionnaire. Data were analysed using SPSS version 25 and summarised with descriptive statistics. The response rate was 100%. Respondents were predominantly female (66.8%) and aged ≥ 46 years (57.3%); most were married (72.7%), Christian (99.6%), and had tertiary education (60.1%). The mean knowledge score was 10.89 (of 14), with 197 (77.8%) having adequate knowledge and 56 (22.2%) poor knowledge. The mean attitude score was 6.47 (out of 9); 182 (71.8%)

demonstrated good attitudes towards hypertension treatment, while 71 (28.2%) had poor attitudes. Hypertensive patients attending FMC Yenagoa exhibited relatively adequate knowledge of hypertension and favourable attitudes towards treatment; however, knowledge and attitude remained suboptimal. Findings highlight the need to complement existing education with structured, behaviour-focused adherence support that addresses practical barriers, reinforces positive beliefs, and translates knowledge and attitudes into sustained medication-taking behaviour.

Keywords: Attitude, Knowledge, Bayelsa State, Hypertension, Nigeria

INTRODUCTION

Hypertension is one of the leading modifiable risk factors for cardiovascular morbidity and mortality globally and remains a major public health challenge, particularly in low- and middle-income countries (LMICs) (Mills *et al.*, 2020; Zhou *et al.*, 2021). It is a key contributor to ischaemic heart disease, stroke, heart failure, chronic kidney disease and premature death, and accounts for a substantial proportion of disability-adjusted life years (DALYs) worldwide (GBD 2021 Risk Factors Collaborators, 2022). Although effective and relatively affordable antihypertensive medications are available, global control rates remain suboptimal, largely due to poor detection, inadequate treatment, and low medication adherence (Beaney *et al.*, 2019; Geldsetzer *et al.*, 2019). In sub-Saharan Africa, hypertension prevalence is rising in the context of rapid urbanisation, population ageing, and lifestyle transitions, with reported adult prevalence estimates frequently exceeding 30% (Adeloye *et al.*, 2019). Nigeria bears a particularly heavy burden; recent estimates indicate that more than one in three adults may be hypertensive, with low awareness, treatment, and control rates (Adeloye *et al.*, 2019; Ezeala-Adikaibe *et al.*, 2020). Poor blood pressure control among those diagnosed is strongly linked to suboptimal adherence to prescribed medications, irregular clinic attendance, and inadequate lifestyle modification (Oladapo *et al.*, 2019; Akintunde *et al.*, 2020). Medication adherence, defined as the extent to which patients take medications as prescribed with respect to dose, timing and duration, is crucial for achieving and sustaining blood pressure control, preventing complications, and improving quality of life (Burnier & Egan, 2019). However, adherence to long-term therapies for chronic conditions such as hypertension is often poor, particularly in LMIC settings where economic, health system, and sociocultural barriers are common (Simmons *et al.*, 2020). Patient knowledge of hypertension and its treatment, as well as attitudes towards the disease and its management, are recognised as key determinants of adherence (Abegaz *et al.*, 2019; Boima *et al.*, 2019). In Nigeria, several studies have reported gaps in patients' understanding of hypertension, its asymptomatic nature, consequences of uncontrolled blood pressure, and the necessity of lifelong treatment (Okwuonu *et al.*, 2019; Odili *et al.*, 2020). Misconceptions, negative beliefs about medications, reliance on traditional remedies, and poor attitudes towards continuous drug use have been identified as important contributors to non-adherence (Boima *et al.*, 2019; Iloh *et al.*, 2021). Despite advances in hypertension management, control rates in Nigeria remain unacceptably low, and the burden of hypertension related complications continues to rise (Adeloye *et al.*, 2019; Ezeala-Adikaibe *et al.*, 2020). Poor adherence to antihypertensive medications is consistently highlighted as a major underlying factor (Abegaz *et al.*, 2019; Akintunde *et al.*, 2020). While structural challenges such as drug cost, availability, and health system constraints are important, patient-level factors including limited knowledge about hypertension and unfavourable attitudes towards treatment play a central role in non-adherence (Rajkumar & Romate, 2020). Studies from different parts of Nigeria and West Africa have documented that many hypertensive patients have poor understanding of the chronic and often asymptomatic nature of the disease (Boima *et al.*, 2019; Odili *et al.*, 2020). Negative beliefs about Western medicines, fear of side effects, preference for herbal or spiritual remedies, and treatment fatigue further undermine sustained adherence (Aje & Fakeye, 2024; Iloh *et al.*, 2021; Okechukwu *et al.*, 2022). However, the distribution and intensity of these knowledge and attitude gaps can vary substantially across settings due to differences in socio-demographic characteristics, health service organisation, and local cultural norms (Odukoya *et al.*, 2020). In Bayelsa State and the wider Niger Delta region, factors such as limited health literacy, economic hardship, and varying levels of trust in formal health services may shape how hypertensive patients perceive and engage with treatment. Yet, there is a paucity of empirical data from tertiary federal institutions in this region, including FMC Yenagoa, on patients' knowledge of hypertension treatment modalities and their attitudes towards

long-term medication adherence. Without such specific evidence, it is difficult for clinicians, hospital managers and public health practitioners to design effective patient education strategies, adherence counselling programmes, and follow-up systems tailored to the needs of hypertensive patients in this facility. This knowledge gap may contribute to continued poor blood pressure control and preventable cardiovascular events among patients attending FMC Yenagoa. This study posits that knowledge and attitude are central, modifiable determinants of medication adherence among hypertensive patients, operating within a broader set of individuals, social and health system influences. At the individual level, patients' knowledge about hypertension (definition, causes, risk factors, consequences, need for lifelong treatment, and available treatment modalities) influences their perceived seriousness of the condition and the perceived necessity of regular medication use. Accurate knowledge is expected to foster more positive attitudes towards treatment, including acceptance of long-term therapy, belief in the effectiveness of medications, and willingness to adhere despite side effects or inconvenience (Abegaz *et al.*, 2019; Burnier & Egan, 2019). Attitude towards hypertension treatment encompasses cognitive and affective components such as beliefs about the benefits and risks of antihypertensive drugs, feelings towards continuous pill-taking, trust in health care providers, and openness to lifestyle modification. Positive attitudes are hypothesised to strengthen motivation to adhere, whereas negative attitudes (e.g., viewing medications as harmful, unnecessary once symptoms subside, or inferior to traditional remedies) are likely to reduce adherence (Boima *et al.*, 2019; Simmons *et al.*, 2020). These individual-level factors are shaped by socio-demographic characteristics (age, sex, education, income), cultural and religious beliefs, social support, and prior experiences with the health system. Health system factors such as quality of counselling, clarity of communication, availability and affordability of drugs, and continuity of care also interact with knowledge and attitude to influence adherence behaviour. (Akuiyibo *et al.*, 2022). Knowledge and attitude are embedded within the health belief model (HBM) constructs. For instance, higher knowledge can strengthen perceived susceptibility, severity and benefits, while positive attitudes can reduce perceived barriers and enhance self-efficacy (Champion & Skinner, 2019). In this study, the HBM underpins the assessment of patients' knowledge of hypertension treatment, their attitudes towards long-term therapy, and how these may influence adherence behaviour (Abegaz *et al.*, 2019, Simmons *et al.*, 2020). The study assessment of knowledge and attitude is essential for designing behaviour-change interventions that address specific beliefs and barriers identified in this population.

METHODS

Study Design

The research was a hospital-based descriptive cross-sectional study.

Study Area and Study Site

The study was conducted in Bayelsa State, located in the Niger Delta region of South-South Nigeria. Bayelsa is predominantly riverine, with mixed urban and peri-urban communities and rising burden of non-communicable diseases. The specific study site was the Federal Medical Centre (FMC), Yenagoa, a federal tertiary health institution that serves as a referral centre for Bayelsa State and neighbouring states. The hospital runs specialised cardiology clinics where hypertensive patients receive follow-up care and antihypertensive medications.

Study Population

The study population comprised adult hypertensive patients attending the cardiology clinic of FMC Yenagoa.

Inclusion criteria:

- Adults who are 18 years and older.
- Adults with physician-diagnosed hypertension
- On antihypertensive medication(s) for at least 6 months prior to the study
- Willingness to provide informed consent.

Exclusion criteria:

Patients who were critically ill, had significant cognitive impairment, or were unable to participate in the interview.

Sample Size Determination

The minimum sample size was calculated using the Cochran formula for descriptive cross-sectional studies-

$$n = \frac{z^2 pq}{d^2}$$

Where:

n = minimum sample size

z = standard normal deviation usually set at 1.96 for 95% confidence interval

p = proportion of sample with characteristic of interest

An estimated proportion (p) of key outcome (knowledge/attitude/adherence) from previous literature, and a 5% margin of error was used for sample size estimation. After adjusting for non-response, the required sample size was 253. A total of 253 hypertensive patients were therefore recruited and studied.

Sampling Technique

The systematic random sampling technique was employed to select participants from the attendance list of the cardiology clinic during the study period. On each clinic day, the list of hypertensive patients who met the inclusion criteria constituted the sampling frame. The sampling interval (k) was obtained by dividing the estimated number of eligible patients by the number required per clinic day. The first respondent was selected by simple random sampling within the first k patients, and subsequent respondents were selected at every kth interval until the daily quota was reached. Sampling continued on successive clinic days until the sample size of 253 was achieved.

Study Instrument

Data were collected using a structured, interviewer-administered questionnaire. The instrument consisted of three sections:

Section A: Socio-demographic and clinical characteristics of respondents (e.g., age, sex, marital status, education, occupation, duration of hypertension, duration on treatment, comorbidities).

Section B: Knowledge of hypertension and hypertension treatment modalities (including causes/risk factors, complications, treatment goals, medication use and lifestyle modification).

Section C: Attitudes towards hypertension and antihypertensive medications, and medication adherence.

The questionnaire was developed based on existing literature and tools used in similar studies and adapted to the local context.

Assessment of Knowledge and Attitudes

Knowledge of hypertension and treatment was assessed using a set of structured questions. Each correct response was scored 1 and each incorrect or “don’t know” response scored 0. Individual scores were summed to obtain a total knowledge score, which was then categorised into levels (e.g., poor, moderate, adequate) using pre-defined cut-off points. Attitudes towards hypertension and its treatment were assessed with a 9-item questionnaire. Each item reflected key attitudinal domains such as perceived severity, perceived benefits of treatment, perceived barriers, and willingness to adhere to long-term therapy. As with the knowledge items, a score of 1 was assigned to each correct/positive attitude response and 0 to incorrect/negative responses. Total attitude scores ranged from 0 to 9. A score below 3 indicated poor attitudes, a score of 3–6 indicated moderate attitudes, and a score greater than 6 indicated good attitudes and adherence-supportive orientation towards hypertension treatment.

Validity, Reliability and Pretesting of the Instrument

The draft questionnaire was reviewed by experts in public health, cardiology and health services research to ensure content and face validity, appropriateness of items, and clarity of wording. Pretesting was conducted among hypertensive patients attending the Diète Koki Memorial Hospital, Yenagoa, Bayelsa State, a facility similar to but distinct from the study site. The pretest assessed comprehension, flow, average completion time and logistical feasibility. Feedback from the pretest was used to refine question wording and response options. Internal consistency reliability of the knowledge and attitude scales was assessed using Cronbach’s alpha, and values were within acceptable ranges (≥ 0.70) before full-scale data collection.

Data Collection Procedure and Research Assistants

Three research assistants with prior experience in data collection were recruited and trained. Training covered the study objectives, inclusion and exclusion criteria, informed consent procedures, administration of the questionnaire, and ethical considerations including confidentiality and non-coercion. On each clinic day, eligible patients were identified using the sampling procedure described above. After obtaining written informed consent, the interviewer-administered questionnaire was completed in a private setting within the clinic to ensure privacy and minimise social desirability bias. Completed questionnaires were checked daily for completeness and consistency.

Data Management and Analysis

Completed questionnaires were reviewed for completeness and internal consistency. Data were then entered into Microsoft Excel, cleaned, and exported to Statistical Package for the Social Sciences (SPSS) version 25 for analysis. Data were summarised using descriptive statistics. Categorical variables were presented as frequencies and percentages, and continuous variables as means and standard deviations. Results were organised and presented in tables and figures.

Ethical Considerations

Ethical clearance was obtained from the ethics research committee of the University of Port-Harcourt with reference number UPH/SPH/ACAD/MPH/ETHICS/2022/049), and from the Ethics Committee of Federal Medical Centre, Yenagoa. All participants were informed about the purpose, procedures, potential risks and benefits of the study. Written informed consent was obtained prior to participation. Confidentiality was maintained by using unique identification codes instead of names, conducting interviews in private, and restricting data access to the research team. Participation was voluntary, and respondents were assured of their right to withdraw from the study at any time without any effect on the care they received at the hospital.

RESULTS

A total of 253 questionnaires were administered, and a response rate of 100% was achieved. The study showed a total of 84 (33.2%) male respondents and a total of 169 (66.8%) female respondents. For age distribution, the majority of the respondents were 46 years and above with a total of 145 (57.3%) respondents, while only one respondent was between 26 and 30 years of age with 1 (0.4%) respondent. The majority of the respondents were married, with a total of 184 (72.7%), while the minority of our respondents were separated, divorced, or single, with a total of 1 (0.4%), 1 (0.4%), and 11 (4.3%), respectively. The majority of the respondents were Christians, with a total of 252 (99.6%). The majority of the respondents, with a total of 152 (60.1%), had tertiary education. A total of 78 (30.89%) respondents were civil servants, 77 (30.4%) respondents were teachers, and 28 (11.1%) respondents were engineers, while a total of 63 (24.9%) respondents did other occupations. See tables 1. The mean level of knowledge of hypertension was 10.89 implying moderate knowledge of hypertension among the respondents. There were 197 (77.8%) respondents who showed adequate knowledge of hypertension while 56 (22.2%) showed poor knowledge of hypertension (table 2). The mean level of attitude was 6.47/9 was good. And 71.8% (182) of the respondents had good attitude (table 3). The mean level of adherence to antihypertensive medication among 253 respondents was 3.68. In the study, 137 (54%) of respondents showed low adherence to their antihypertensive medications and 116 (46%) of respondents showed medium adherence to their antihypertensive medications. None of the respondents were highly adherent to their antihypertensive medications as seen in table 4.

Table 1: Socio-Demographic Characteristics of Respondents

Variable	Frequency (253)	Percentage (%)
Gender		
Male	84	33.2
Female	169	66.8
Sex ratio = 1:2		

Age distribution		
26-30	1	0.4
31-35	6	2.4
36-40	21	8.3
41-45	80	31.6
>46	145	57.3
Mean age = 42.99 ±7.3		
Marital status		
Married	184	72.7
Single (never married)	11	4.3
Divorced	19	7.5
Widowed	37	14.6
Living with partner	1	0.4
Separated	1	0.4
Religion		
Christianity	252	99.6
Islam	1	0.4
Level of Education		
No formal education	3	1.2
Primary	25	9.9
Secondary	73	28.9
Tertiary	152	60.1
Occupation		
Civil servant	78	30.8
Engineer	28	11.1
Nurse	7	2.8
Teacher	77	30.4
Others	63	24.9

Table 2: Knowledge of hypertension among respondents.

Variable	Frequency (253)	Percentage (%)
Is 120/80mmHg a normal level of blood pressure?		
Yes	239	94.5
No	14	5.5
Is increase in blood pressure same as hypertension?		
Yes		
No	215	85.0
Does hypertension worsen with age?	38	15.0
Yes		
No	214	84.6
Do both sexes have equal chances of developing hypertension?	39	15.4
Yes		
No	220	87.0
Can hypertension be treated?	33	13.0

Yes		
No		
Is family history of Hypertension a risk factor for developing hypertension?	157	62.1
Yes	96	37.9
No		
Does aging increase the risk of developing hypertension?	202	79.8
Yes	51	20.2
No		
Is cigarette smoking a risk factor for hypertension?		
Yes		
No	233	92.1
Is consuming fatty foods a risk factor for hypertension?	20	7.9
Yes		
No	220	87.0
Is being overweight a risk factor for hypertension?	33	13.0
Yes		
No	222	87.7
Can regular physical exercise reduce hypertension?	31	12.3
Yes		
No	203	80.2
Can blood pressure be increased by eating diets high in salt?	50	19.8
Yes		
No	212	83.8
Can medications alone control hypertension?	41	16.2
Yes		
No	224	88.5
Can hypertension lead to life threatening conditions?	29	11.5
Yes		
No	117	46.2
Mean level of knowledge = 10.89		
Adequate knowledge = 197(77.8%)	136	53.8
Poor knowledge = 56(22.2%)	236	93.3
	17	6.7

Table 3: Attitude towards Hypertension among Respondents

Variable	Frequency (n=253)	Percentage (%)
Is your blood pressure high?		
Yes	114	45.1
No	139	54.9
Do you know the normal blood pressure value for diagnosing hypertension?		
Yes	164	64.8
No	89	35.2
Do you know your target blood pressure?		
Yes	175	69.2
No	78	30.8
Does controlling blood pressure reduce your complications?		
Yes	215	85.0
No	38	15.0
Can uncontrolled blood pressure lead to organ damage?		
Yes	220	87.0
No	33	13.0
Do you know your blood pressure today?		
Yes	180	71.1
No	73	28.9
Can hypertension be cured?		
Yes	81	32.0
No	172	68.0
Has changing your lifestyle helped in reducing your blood pressure?		
Yes	186	73.5
No	67	26.5
Has your blood pressure improved over the last one year?		
Yes	210	83.0
No	43	17.0
Mean Attitude of respondents = 6.47		
Good Attitude = 182 (71.8%)		
Poor Attitude = 71 (28.2%)		

Table 4: Level of adherence among respondents using the Morisky Medication Adherence Scale Template

Variable	Frequency (n=253)	Percentage (%)
Do you sometimes forget to take your high blood pressure pills?		
Yes	210	83.0
No	43	17.0
Over the past two weeks, was there any day when you did not take your high blood pressure medication?		
Yes		
No	118	46.6
Have you ever stopped taking your medications without telling your doctor because you felt worse when you took it?	135	53.4
Yes		
No	146	57.7
Do you sometimes forget to take your high blood pressure medication when you travel or leave home?	107	42.3
Yes		
No	128	50.6
Did you take your high blood pressure medication yesterday?	125	49.4
Yes		
No	211	83.4
Do you sometimes stop taking your medications when you feel your high blood pressure is under control?	42	16.6
Yes		
No		
Do you ever feel hassled about sticking to your high blood pressure treatment plan?	141	55.7
Yes	112	44.3
No		
How often do you have difficulty remembering to take your medications?	222	87.7
Never/rarely	31	12.3
Once in a while		
Sometimes	33	13.0
Usually	105	41.5
All the time	107	42.3
Mean level of adherence of hypertensive medications = 3.68	5	2.0
	3	1.2
Low level of adherence = 137 (54%)		
Medium adherence =116 (46%)		

DISCUSSION

This study assessed knowledge of hypertension, attitudes towards treatment, and medication adherence among hypertensive patients attending a federal tertiary hospital in Bayelsa State, Nigeria. The response rate was 100%, and the sample was predominantly female, middle-aged or older, married, Christian, and with relatively high educational attainment, which has implications for interpretation and generalisability. Two-thirds of respondents were female, and over half were aged 46 years and above. This age and sex pattern is consistent with other Nigerian studies in which women and older adults are more likely to utilise clinic-based hypertension services and engage

with chronic care (Iloh *et al.*, 2021; Odili *et al.*, 2020). The high proportion of participants with tertiary education contrasts with some community-based Nigerian samples (Adeloye *et al.*, 2019), and may partly explain the relatively high knowledge and attitude scores observed (Asiri *et al.*, 2020). The mean knowledge score (10.89/14) and the finding that 77.8% of respondents had adequate knowledge indicate a generally good understanding of hypertension and its treatment in this clinic population (Ralapanawa *et al.*, 2020; Worku Kassahun *et al.*, 2020). This is higher than levels reported in several community and primary care settings in Nigeria and other sub-Saharan African countries, where substantial proportions of hypertensive patients have poor awareness of hypertension, its complications, and the need for long-term treatment (Adeloye *et al.*, 2021; Boima *et al.*, 2019; Odili *et al.*, 2020). The relatively high knowledge in this study may reflect the tertiary setting, repeated contact with specialist providers, and higher educational attainment of respondents Paczkowska *et al.*, 2021). However, the presence of a sizeable minority (22.2%) with poor knowledge suggests persistent gaps that may compromise risk perception and adherence, consistent with prior work showing that inadequate understanding of the asymptomatic nature and chronic course of hypertension is associated with non-adherence and poor control (Burnier & Egan, 2019; Okechukwu *et al.*, 2022). A reasonable poor knowledge of hypertension was also found in a study conducted in Imo and Kaduna States by Anyanti in 2021 (Anyanti *et al.*, 2021). The mean attitude score (6.47/9) and the finding that 71.8% of patients demonstrated good attitudes suggest that most respondents held generally favourable views towards hypertension treatment and medication adherence. This is encouraging and aligns with evidence that positive beliefs about the benefits of antihypertensive therapy and trust in health providers are associated with better adherence (Abegaz *et al.*, 2019; Simmons *et al.*, 2020). Nonetheless, nearly one-third (28.2%) of respondents had poor attitudes, indicating ongoing concerns or misconceptions such as fears about side effects, pill burden, or doubts about the necessity of lifelong treatment that may undermine adherence. Prior Nigerian and West African studies have highlighted negative medication beliefs, reliance on traditional remedies, and treatment fatigue as key attitudinal barriers to sustained adherence (Boima *et al.*, 2019; Iloh *et al.*, 2021). These findings underscore the need for routine, structured counselling to address both cognitive (knowledge-related) and affective (attitude-related) components of patients' perceptions. Although the present manuscript focuses on knowledge and attitude, the MMAS-8 findings from the same study population showed predominantly low to medium adherence, with no respondents achieving high adherence. This "knowledge-attitude-behaviour gap" is well documented in chronic disease management: adequate knowledge and even generally positive attitudes may not translate automatically into optimal adherence when practical, psychosocial and health system barriers persist (Burnier & Egan, 2019; Shubber *et al.*, 2020). Commonly reported reasons for poor adherence in this study such as difficulty maintaining the regimen, forgetfulness, side effects, and stopping medications when feeling better mirror those found in other Nigerian and African contexts (Abegaz *et al.*, 2019; Akintunde *et al.*, 2020; Okechukwu *et al.*, 2022). Within the Health Belief Model, these correspond to perceived barriers (e.g., side effects, complexity), low cues to action (e.g., lack of reminders), and sometimes reduced perceived susceptibility once symptoms abate (Champion & Skinner, 2019). Addressing these barriers requires more than information; it calls for behaviour-change strategies that enhance self-efficacy, simplify regimens, and support habit formation. The findings suggest that in a tertiary hypertension clinic with relatively well-educated patients, basic knowledge and attitudes may already be reasonably favourable, yet adherence remains suboptimal. Interventions should therefore move beyond one-time health talks to personalised adherence counselling that explores beliefs and practical challenges; use of reminders and adherence aids to address forgetfulness; proactive management of side effects; and, strengthening of long-term patient-provider relationships. Integrating these components into routine cardiology clinic practice at FMC Yenagoa could help translate existing knowledge and attitudes into sustained adherence and better blood pressure control.

STRENGTHS AND LIMITATIONS

The study achieved a 100% response rate, minimising non-response bias. The use of an interviewer-administered, structured questionnaire and a standardised tool (MMAS-8) enhanced the completeness and consistency of data. The focus on both knowledge and attitudes, alongside adherence, provides a comprehensive view of key patient-level determinants relevant for intervention design. The cross-sectional design precludes causal inferences

regarding relationships between knowledge, attitudes and adherence. Data were collected in a single tertiary facility, which may limit generalisability to primary care or community settings and to less-educated populations. Adherence was self-reported, which is subject to recall and social desirability bias; objective measures (e.g., pharmacy refill, pill counts, blood pressure control) were not incorporated. The relatively high proportion of respondents with tertiary education may overestimate knowledge and favourable attitudes compared with the broader hypertensive population in Bayelsa State.

CONCLUSION

This study among hypertensive patients attending the Federal Medical Centre, Yenagoa, found generally adequate knowledge of hypertension and predominantly positive attitudes towards treatment; however, adherence to antihypertensive medications remained suboptimal. The findings illustrate that while improved knowledge and favourable attitudes are necessary, they are not sufficient to achieve high adherence. Persistent practical barriers, negative beliefs, and behavioural challenges must be actively addressed through structured, theory-informed interventions.

RECOMMENDATIONS

There is need to implement regular, patient-centred education sessions that reinforce understanding of the chronic nature of hypertension, the importance of lifelong therapy, and the risks of stopping drugs when asymptomatic. These should be integrated into each clinic visit rather than delivered as one-off talks. There will be improvement in knowledge and attitude by introducing simple adherence aids (e.g., pill boxes, SMS reminders, appointment cards) and encourage involvement of family members or caregivers as “treatment supporters,” particularly for older patients. It is pivotal to continuously train clinicians and nurses to proactively discuss side effects, provide anticipatory guidance, and consider regimen simplification (e.g., fixed-dose combinations, once-daily dosing) where clinically appropriate. Periodic training in communication skills, motivational interviewing and the Health Belief Model for doctors, nurses and pharmacists to enhance their ability to address attitudinal and behavioural barriers is very important. And ensuring consistent availability of antihypertensive drugs, reduce waiting times where possible, and maintain clear, respectful communication to build trust and support long-term engagement with care cannot be over emphasized.

RECOMMENDATIONS FOR FUTURE STUDIES

Future research should use cohort or interventional designs to examine how changes in knowledge and attitudes over time influence adherence and blood pressure control, and to evaluate the impact of specific adherence-support interventions. Studies including multiple facilities (primary, secondary and tertiary) and community samples in Bayelsa and other regions would improve generalisability and highlight contextual differences. Incorporating objective adherence indicators (e.g., electronic pill monitors, pharmacy refill data) and clinical outcomes (e.g., BP control, cardiovascular events) would provide a more robust assessment of the relationship between knowledge, attitudes and adherence. Qualitative or mixed-methods studies exploring patients lived experiences, cultural beliefs, and perceived barriers in depth could complement quantitative findings and guide the development of tailored, culturally appropriate interventions. Future work should explicitly operationalise constructs from the Health Belief Model and other behavioural frameworks (e.g., self-efficacy, perceived barriers, cues to action) to design and test targeted behaviour-change strategies for hypertensive patients.

CONFLICT OF INTEREST: The authors declare no conflict of interest

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