

MEDICATION ADHERENCE AND ITS ASSOCIATION WITH SOCIO-DEMOGRAPHICS, PERCEIVED FAMILY SUPPORT AND BLOOD PRESSURE CONTROL AMONG ADULTS HYPERTENSIVE PATIENTS IN RURAL SOUTHWESTERN NIGERIA

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Abstract

Background: Perceived Family support and blood pressure control are important outcome measures to medication adherence in clinical trials. However, there is limited research on this topic among adult hypertensive patients in rural Southwest Nigeria. This study determined the pattern of medication adherence, blood pressure control and perceived family support and ascertained the determinants of medication adherence among adult hypertensive patients attending a tertiary hospital in rural Southwestern Nigeria.

Methods: Hospital-based cross-sectional study was conducted on 282 hypertensive patients on follow up using systematic random sampling technique. Standardized semi-structured interviewer administered questionnaire was employed to seek information on respondents' socio-demographic characteristics. Adherence level was determined using the Morisky's Medication Adherence Scale, while Perceived Social Support family (PSS-Fa) scale was employed to assess the level of respondents' perceived family support. Data were analyzed using SPSS 20. Multivariate logistic regression analysis was used to identify the determinants of medication adherence.

Results: The majority of the respondents had high medication adherence (61.0%), good controlled blood pressure (60.6%), and strong perceived family support (56.0%). Being a middle age ($p < 0.05$), formal education ($p < 0.01$), civil servants ($p < 0.001$), higher income level ($p < 0.001$), higher pill burden ($p < 0.001$), normal BMI ($p = 0.012$), controlled blood pressure ($p < 0.001$) and strong perceived family support ($p < 0.001$) were the independent determinants of medication adherence.

Conclusion: The pattern of medication adherence, perceived family support and blood pressure control were good. The findings would assist the stakeholders at improving adherence to medication among patients with hypertension in rural Southwest Nigeria.

Keywords: hypertension, medication adherence, family support, blood pressure, rural Nigeria.

Introduction

Hypertension is the leading global cardiovascular disease that poses both clinical and family-related health problems in terms of morbidity and mortality.¹ Hypertension affects about one billion people worldwide, of which, two thirds are in developing countries.¹ Hence there is a need to develop strategies to prevent, treat, and control hypertension effectively in Nigeria.²

Medications to regulate hypertension as well as to prevent the complications are available, but, the maximal beneficial effect of an appropriate treatment plan can be achieved only if patients strictly adhere to the medications.³ Non adherence to prescribed drugs has been and continues to be a major problem worldwide. According to the World Health Organization (WHO), medication adherence intervention can have a more direct impact on patient outcomes than the specific treatment itself.⁴ Medication adherence can affect quality and length of life, health outcomes, and overall healthcare costs.⁴

Rate of adherence is usually reported as the percentage of the prescribed doses of the medication actually taken by the patient over a specified period.⁵ Despite the availability of effective medical therapies for chronic diseases and specific interventions to improve

adherence, medication adherence rates remain low ranging between 50% and 60% globally.⁵ Rate of adherence among hypertensive patients ranges between 42% and 60% in Nigeria.⁶

A Study has revealed that poor adherence to medication include forgetfulness and financial constraints especially in Nigeria where the cost of medication are borne almost entirely by the individuals as the health care financing is mostly out of pocket.⁶ Also, high pill burden, side effect of medication, poor knowledge regarding the risk of hypertension, unrealistic expectation of treatment, poor, and unawareness of lifestyle modification were identified as patient related factors affecting medication adherence.⁷ Other factors include demographics such as age, gender, education, marital status and psychological such as beliefs, motivation and attitude.

Lack of family support has been identified as one of the factors affecting medication adherence. Family support has been demonstrated to reduce potential complications of hypertension due to its impact on patients management, as it is likely to promote medication adherence and enhance their blood pressure control.⁸ Mekonnen et al. reported that people who lacked family support are less likely to adhere to medication because the family plays an integral role in health and diseases.⁹ A study done in south west

Nigeria reported a strong relationship between medication adherence and social support amongst patient with hypertension.¹⁰ Family involvements play a significant role in hypertension treatment, by encouraging the acceptance of self-care practices such as proper diet, medication adherence and physical exercise. Thus, it was considered as a facilitating agent of adherence to treatment of hypertension resulting in a positive health-related quality of life.¹¹

Though, some studies on pattern of medication adherence, blood pressure control, and perceived family support have been conducted especially in urban and semi-urban centres in health facilities in Nigeria. However, there is limited research on this topic among adult hypertensive patients in rural Southwest Nigeria. This study, therefore, determined the pattern of medication adherence, blood pressure control and perceived family support and ascertained the determinants of medication adherence among hypertensive patients attending a tertiary hospital in rural southwest Nigeria.

Materials and Methods:

Study area: This study was conducted between April and June 2019 at the Family Medicine clinic of federal teaching hospital, Ido-Ekiti, Ekiti State, Southwest Nigeria. The study centre lies along the Federal highway linking the state to its neighbouring states. The population of the town was 67,470 according to the recent 2006 population census.¹² The hospital runs in-patient care, general and specialized out-patient clinics. The hospital has 180 beds.

Study design/population

It was a hospital-based cross sectional study and the study population comprised all adult hypertensive patients attending the Family Medicine Clinic.

Inclusion Criteria: All consenting adult hypertensive patients aged between 18 years and above who had been on antihypertensive for at least three months and had at least three (3) clinic visits.

Exclusion Criteria: Critically ill patient as at the time of study (hypertensive emergency, congestive cardiac failure, and cerebrovascular accident)

Sample Size Determination:

The sample size was determined using the formula $n = z^2pq/d^2$ (for population > 10,000)¹³

Where n is the minimum sample size, z is standard normal deviate was set at 1.96 for 95% confidence level, d is desired level of precision (maximum error of estimate usually set at 0.05). p is estimated prevalence of medication adherence among hypertensive patients in a local study was 80.0%,¹⁴ q is $1 - p$.

Therefore, the minimum sample size was 245 and this was increased to 282 to cover for unexpected losses.

Sampling method:

Systematic random sampling method was used to recruit respondents. Based on the figures from the medical records of the clinic in 2017, a total of 3900 hypertensive patients were seen. This translated to 15 patients per day, 75 patients per week (Monday to Friday) and 900 patients over the 12 weeks period of the study out of which the 282 was systematically selected.

A sampling interval (K) was calculated using formula: $K = N / n$ where: N = sample population over three months and n is calculated

sample size. Therefore $K = 900 / 282 = 3$. The first respondent was selected by simple random technique and thereafter, every 3rd hypertensive patient who met the inclusion criteria were enrolled until the sample size was reached. Each selected folder was color tagged to prevent re-sampling at subsequent clinics.

Data collection and instrument

Pre-testing:

The instrument, a four-section standardized semi-structured interviewer administered questionnaire which was drafted in English Language, was pre-tested by the author on a population of 30 adult hypertensive patients who had similar characteristics as the study population at the General Outpatient Department (GOPD) of a nearby sister's institution. This was done over a period of one week, four (4) weeks prior to the commencement of the study and appropriate adjustments were made. The respondents were recruited by convenience sampling method and the questionnaire was administered after informed verbal consent was obtained from each of the respondents. It was deduced that the questionnaire required approximately 20 minutes to complete and the responses generated showed that its content were well understood.

Research instrument:

A four section, interviewer-administered pre-tested questionnaire was used to collect data from the selected respondents on their socio-demographic characteristics including the age, gender, marital status, level of education, occupation, place of domicile, family size and type, income, religion, duration on medications and pill burden. Lifestyle behaviors such as smoking, use of alcohol and regular exercise were also documented in this section. Adherence to antihypertensive medications, and perceived family support were determined using appropriate tools. The blood pressure, height, weight and body mass index of the patients were evaluated and recorded. All the questionnaires were translated from their original English language into Yoruba language which was the local language and back translated into English Language by separate and competent interpreters to ensure that their original meanings were maintained.

Assessment of medication adherence

Data on medication adherence among respondents were collected using the validated eight-item self-reported questionnaire – Morisky Medication Assessment Scale (MMAS-8).¹⁵ The internal consistency and validity of the questionnaire was represented by a Cronbach's alpha value of 0.69.¹⁵ Each response was scored 'Yes' or 'No' as 0 or 1 respectively except item number 5 which was a reverse code response, 'Yes' as 1 and 'No' as 0. Item number 8 also had a standardized code as explained in the questionnaire. The scoring scale had a range of 0 to 8. In this study, the author categorized adherence score ($6 \leq 8$) as high adherence and low adherence as (< 6).¹⁵

Assessment of perceived family support

Perceived Social Support family (PSS-Fa) scale was invented by Procidano and Heller. This scale was used in assessing respondents' perceived family support. It is a 20-item validated self-report scale. It has an alpha coefficient of 0.9 indicating good internal reliability.¹⁶

The scale consisted of 20 items with each response scored as 1 for 'yes', 0 for 'no' and 0 for 'I don't know'. The higher the score, the stronger the level of family Social Support (PSS-Fa), maximum score is 20 with PSS-Fa score of < or equal to 6 as no support, 7 to 10 as weak support and 11-20 as strong respectively. This instrument had been used in Nigeria.¹⁷

Blood pressure

Accosson Brand of Mercury Sphygmomanometer was used to measure the blood pressure of participants in sitting position. An appropriate blood pressure cuff which covers 2/3rd of the arm was used to measure the respondent's blood pressure after the respondent had rested for about five to ten minutes in sitting position. Systolic blood pressure (SBP) and diastolic blood pressure (DBP) were taken as the first and fifth Korotkoff sounds respectively. The blood pressure was recorded to the nearest 2mmHg. Two measurements were taken with an interval of 1-2 minutes and an average value was taken as the blood pressure.¹²

Assessment of body mass index (BMI): Body weight was measured to the nearest 0.1kg while a portable height board in the standing position was used to measure the height to the nearest 0.1cm. BMI was calculated as weight in kilogram divided by the square of the height (in meter square). The BMI

Table : Socio – demographic characteristics of respondents

Variable	Frequency (N = 282)	Percentage (%)
Age (in years)		
Young Adult (18-39)	9	3.2
Middle-Aged Adult (40-59)	155	55.0
Older Adult (≥60)	118	41.8
Median ± IQR	57±18	
Range	30 – 88	
Mean ± SD	57.9±12.9	
Sex		
Male	106	37.6
Female	176	62.4
Marital Status		
Single	3	1.1
Married	182	64.5
Divorced	19	6.7
Separated	28	9.9
Widowed	50	17.8
Education		
None	50	17.7
Primary	45	16.0
Secondary	115	40.8
Tertiary	72	25.5
Occupation		
Civil Servant	59	20.9
Professional (self-employed)	47	16.7
Trading	68	24.1
Artisan	36	12.8
Farming	33	11.7
Retired	39	13.8

Family Type

Monogamy	251	89.0
Polygamy	31	11.0

Income

<Poverty Line (<#20,520)	159	56.4
> Poverty Line (>#20,520)	123	43.6

Residence

Rural Ekiti	199	70.6
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The majority of the respondents had a high medication adherence (61.0%) with mean adherence score of 5.4±2.1. About two-third of the respondents had a controlled blood pressure (60.6%) with a mean systolic of 110.3±9.63 and mean diastolic of 71.59±8.52. The majority had strong family support (56.0%), while few had no family support (15.3%). The mean PSS-Fa score ± SD was 13.1±3.9, Table 2.

Table 2: Medication adherence, blood pressure control and perceived family support of respondents.

Variable	Frequency N = 282	Percentage (%)
Medication Adherence		
Low (<6)	110	39.0
High (6 – 8)	172	61.0
Mean Adherence Score ± SD	5.4±2.1	
Blood Pressure		
Controlled(<140/90mmHg)	171	60.6
Uncontrolled(≥140/90mmHg)	111	39.4
Perceived Social Support Family Scale		
No Support	42	15.3
Weak Support	81	28.7
Strong Support	158	56.0
Mean PSS-Fa Score ± SD	13.1±3.9	

In this study, there was a statistical significant relationship between medication adherence and the respondents' age groups (p = 0.004), educational level (p < 0.001), occupation (p < 0.001), income level (p < 0.001), and family type (p < 0.001), Table 3.

Table 3: Relationship between medication adherence and socio-demographic characteristics of the respondents

Variables	Medication Adherence		χ^2	P value
	Low n = 110(%)	High n = 172 (%)		
Age group in yrs., n (%)				
Young Adult (18-39)	5 (55.6)	4(44.4)	11.055	0.004
Middle Aged Adult (40-59)	47 (30.3)	108 (69.7)		
Older Adult (≥60)	58 (49.2)	60 (50.8)		
Sex				
Female	41 (38.7)	65 (61.3)	0.007	0.930
Male	69 (39.2)	107 (60.8)		
Marital Status				
Single	0 (0.0)	3 (100.0)	6.320	0.176
Married	64 (35.2)	118 (64.8)		
Divorced	9(47.4)	10(52.6)		
Separated	12 (42.9)	16(57.1)		
Widowed	25 (50.0)	25 (50.0)		

Educational Status				
			176.87	
None	49 (98.0)	1 (2.0)	5	0.001
Primary	39 (86.7)	6(13.3)		
Secondary	22 (19.1)	93 (80.9)		
Tertiary	0 (0.0)	67 (100.0)		
Occupation				
			132.19	
Civil Servant	0 (0.0)	59 (100.0)	9	<0.001
Professional	0 (0.0)	47 (100.0)		
Trading	48 (70.6)	20 (29.4)		
Artisans	23 (63.9)	13(36.1)		
Farming	27 (81.8)	6 (18.2)		
Retired	12 (30.8)	27 (69.2)		
Income				
<Poverty Line	95 (59.8)	64 (40.2)	65.916	0.001
> Poverty Line	15 (12.2)	108 (87.8)		
Family Type				
Monogamy	81 (32.3)	170 (67.7)	43.548	<0.001
Polygamy	29 (93.5)	2 (6.5)		

$\chi^2 = \text{Chi-square test}$

Table 4: Relationship between medication adherence and clinical parameters of respondents

Medication Adherence				
Variables	Low n = 110 (%)	High n = 172 (%)	χ^2	P value
Smoking				
Yes			11.04	0.001
	28 (60.9)	18 (39.1)	2	
No	82 (34.7)	154 (65.3)		
Alcohol intake				
Yes	30 (47.6)	33 (52.4)	2.528	0.112
No	80 (36.5)	139 (63.5)		
Exercise				
Yes			41.89	0.001
	12 (12.6)	83 (87.4)	0	
No	98 (52.4)	89 (47.6)		
Duration on anti-hypertensive				
Less than 5 years	48 (36.6)	83 (63.4)	1.355	0.508
5 – 9	59 (40.4)	87 (59.6)		
10+	3 (60.0)	2 (40.0)		
Pill Burden				
1---2	57 (34.1)	110 (65.9)	4.091	0.043
3---4	53 (46.1)	62 (53.9)		
Body Mass Index				
			96.77	<0.001
Underweight	5 (71.4)	2 (28.6)	4	
Normal	14 (11.7)	106 (88.3)		
Overweight	50 (45.1)	61 (54.9)		
Obese	41 (93.2)	3 (6.8)		

$\chi^2 = \text{Chi-square test}$

In this study, there was a statistically significant relationship between medication adherence and the respondents family

support ($\chi^2 = 82.175$; $p < 0.001$), and blood pressure control ($\chi^2 = 27.917$; $p < 0.001$), Table 5

Table 5: Relationship between medication adherences and respondents' perceived family support and blood pressure

Medication Adherence				
Variables	Low n = 110 (%)	High n = 172 (%)	χ^2	P value
Perceived Social Support family scale (PSS-Fa)				
No Support	39 (90.7)	4 (9.3)	82.1 75	<0.001
Weak Support	64 (79.0)	17 (21.0)	151	
Strong Support	7 (4.5)	(95.5)		
Blood Pressure				
Controlled	9 (5.3)	162 (94.7)	27.9 17	<0.001
Uncontrolled	101 (91.0)	10 (9.0)		

$\chi^2 = \text{Chi-square test}$

In this study, after adjusting for possible confounders; the odds of being adherent with medication was 3.14 times (95% CI: 1.26-16.32) higher among the respondents who were of middle age groups, 5.22 times (95% CI: 1.51-25.64) higher among the respondents who had tertiary education, 3.16 times (95% CI: 1.41-20.97) higher among the respondents who were civil servants, 4.11times (95% CI: 1.21-12.57) higher among the respondents whose income were above the poverty, 1.11times (95% CI: 1.34-4.62) higher among the respondents who have lesser pill burden, 4.00 times (95% CI: 1.35- 10.34) higher among the respondents who have normal BMI, 3.94 times (95% CI: 1.52-14.63) higher among the respondents whose blood pressure were controlled, and 5.12 times (95% CI: 1.39- 15.27) higher among the respondents who had strong family support. In contrast, the respondents who were not exercising (AOR = 0.21; 95% CI: 0.11-1.60), and who were obese (AOR = 0.95; 95% CI: 0.13-2.70) were negatively independent determinants significant of medication adherence, Table 6.

Table 6: Binary Logistics regression for the significant predictors of Medication Adherence

		95% CI			
Variable	Medication Adherence (High)	OR	Lower	Upper	p - value
Age					
Young Adults		1.0 (RC)			
Middle-Aged Adults		3.14	1.26	16.32	0.001
Older		2.11	0.19	9.96	0.001

Education	None	1.0 (RC)			
	Primary	1.67	0.11	7.49	0.016
	Secondary	3.24	0.45	12.53	0.001
	Tertiary	5.22	1.51	25.64	0.011
Occupation	Civil Servant	3.16	1.41	20.97	0.001
	Professional	2.09	0.64	7.02	0.021
	Trading	1.74	0.62	5.26	0.034
	Artisans	0.91	0.19	2.89	0.025
	Farming	0.57	0.04	3.33	0.048
	Retired	1.0 (RC)			
Income	Below Poverty Line	1.0 (RC)			
	Above Poverty Line	4.11	1.21	12.57	0.001
Smoking	Yes	1.0 (RC)			
	No	0.50	0.05	1.38	0.001
Exercise	Yes	1.0 (RC)			
	No	0.21	0.11	1.60	0.021
Pill Burden	3-4	1.0 (RC)			
	1-2	1.11	1.34	4.62	0.001
Body Mass Index	Underweight	1.0 (RC)			
	Normal	4.00	1.35	10.34	0.012
	Overweight	0.51	0.17	3.11	0.061
	Obese	0.95	0.13	2.70	0.048
Blood Pressure	Controlled	3.94	1.52	15.27	0.001
	Uncontrolled	1.0 (RC)			
Perceived Social Support Family Scale (PSS-Fa)	No Support	1.0 (RC)			
	Weak Support	1.93	0.92	6.13	0.001
	Strong Support	5.12	1.39	15.27	0.001

Model variance R^2 : 0.6924

Discussion:

The mean age of the respondents in this study was 57.9 ± 12.9 years. This observation was similar to the study findings of Oluwole et al who conducted their study among hypertensive patients in Lagos and reported a mean age of (58.9 ± 13.3 years).¹⁹ Slightly higher mean age was reported among hypertensive patients in a study conducted in the same geographical zone.²⁰ This higher mean age in both studies was not surprising giving the fact that most of the chronic medical conditions occur within this age.

High medication adherence of 61.0% was found in this study. This may be due to the fact that, the respondents at each clinic visit were given health talk by nurses and doctors in the mornings each day

before they were seen. This showed that health education plays a key role in modifying attitudes to diseases.¹⁰ This was consistent with the reports from other study.¹⁰ In contrast to this study, a lower level of medication adherence was found in the studies by Iloh et al. in Umuahia,⁶ Mekonnen et al. in Ethiopia,⁹ and Lemay et al. in Kuwait.²¹ The difference in finding may be due to the fact that the index study was done on patients with one disease condition while the other studies were done in patients with more than one co morbid conditions.

In this study, about two-third (60.6%) of the respondents had a controlled blood pressure with a mean systolic of 110.3 ± 9.63 and mean diastolic of 71.59 ± 8.52 . This result was similar to the findings by Rasaan et al. who also reported about two-third (60.0%) of respondents having controlled blood pressure with a mean systolic blood pressure 136.9 ± 19.5 mmHg and 84.6 ± 12.0 mmHg for mean diastolic blood pressure.²² This may be due to the similarity in the study design and population of the respondents. However, a study conducted in Brazil had reported higher level of blood pressure control than the finding in this study.²³ The difference could be because the index study was done in a developing country where majority of patients pay out of pocket for their health, while in the Brazilian study, there is availability and easy accessibility to social health insurance scheme possibly aided treatment, drug refill and thus medication adherence. On the other hand, several other studies have reported lower level of BP control than the result of this study.^{5,6} This may be due to patient factors of adherence to medication, increased awareness of hypertension and the education on importance of lowering the blood pressure provided by the health care providers in this index study.

More than half (56.0%) of the respondents in this study had strong perceived family support. This result is unexpectedly average because Nigeria is noted for her rich family support network.¹¹ However, a study by Ojo et al. in Abeokuta,¹⁷ had found higher prevalence of respondents with strong family support than the result of this study. This difference could be due to differences in the socio-demographic profiles of the study population, as majority of our respondents were observed to lived below the poverty level. Reports on the impact of social demographic variables on adherence have been inconsistent.^{9,10,21} Both positive and negative relationships have been reported in literatures.²¹

In this study, respondents who were in the middle age group were at odds of increased medication adherence. This was consisted with previous study by Karam et al. who had reported a bimodal pattern of ages where patients aged between (30-39) years and 60 years and above were adherent.²⁴ This finding was opposite to the reports of a study who found that patients with older or younger age were associated with poorer medication adherence.²¹

In this study, income has been identified as factor associated with medication adherence. This was consistent with previous study who have reported that, the higher the income, the better their medication.²⁵ However, other study did not find income as one of the factors that influence medication adherence.²¹

The respondents with formal educational were significantly as likely

to have good medication adherence as compared with those without formal education. This was in agreement with previous studies who have reported that, the higher the education status of the patients, the better the adherence.^{14,21} Previous studies have linked high level of education to increase patient awareness of health and disease, increase self-care practices and increase medication adherence.^{21,26} Therefore, clinicians should use the opportunity of every encounter with hypertensive patients to provide effective health education and screening for adherence as a way to reducing cardiovascular risk associated with uncontrolled hypertension. However, Ngarkar et al. found no significant relationship between education and medication adherence.²⁶

The current study showed that respondents who were civil servants and professionals were significantly associated with medication adherence. This finding was in agreement with a study who had found the relationship between literacy level and professional workers.²⁶ The study had linked the high health literacy among patients to high understanding of treatment regimen and higher knowledge of the diseases leading to increase in treatment outcome.²⁶

With regards to smoking, (83.7%) of the respondents were non-smokers. This may be explained by the fact that majority of the respondents were females and in conjunction with social values in this part of the world, smoking is not a cultural acceptable way of life among females. This was similar to a study conducted by Asgedom et al. who reported that majority (96.9%) of respondents were non-smokers and were females.²⁷ The similarity in findings may be due to the fact that both studies were done in African countries and smoking among women is not cultural accepted. However, this was different from what was obtained by Abu EL Hay and El-Mezayen in their study on Knowledge and Perception Related to Hypertension, life style Behavior Modification and challenges that faces hypertensive patients, who documented less than a quarter (23.8%) of their respondents as non-smokers.²⁸ The differences may be due to their different study location, climatic condition and the westernized culture associated with respondents in their study. Less than two fifth of the respondents (33.7%) were involved in some form of exercise like brisk walking. This finding may reflect that only 33.7% of the respondents adhere to the importance of exercise given during the health talk and practiced it. This is in agreement with the report that physical activity is inadequate among hypertensive patients in Nigeria.²⁹

In this study, pill burden has been found to be significantly associated with medication adherence. This is consistent with the reports of other study who had found that the higher the pill burden the better their adherence.³⁰ This was because patients on two or more drugs would assume that the severity of their disease is high and become more conscious of the need to use medications coupled with pressure from close family members.³⁰ However, other study in Italy reported that the higher the pill burden the lower the adherence.³¹

In this study, respondents with co-occurrence with obesity were found to be negatively significantly associated with medication

adherence. This was in agreement with other studies who have found a negative association between obesity and medication adherence.^{27,28} Previous studies have established that hypertensive patients who harbor other co-morbid ailments require multiple drugs for treatment.^{27,28} This could create additional burden both in terms of medication adherence and cost of the drugs, where majority of the respondents in this study paid their service fee out-of-pockets. This study found that greater proportion of the respondents who had strong family support to have high medication adherence. This was in conjunction with that obtained by Osamor in his study on social support and management of hypertension in Southwestern Nigeria, who found a relationship between support from family members or friends and medication adherence.¹¹ Other studies have also reported that there was a positive association between family support and medication adherence both locally and globally.^{10,11} These other studies have found that expectation of care and social support are important factors for developing interventions to increase medication adherence among blacks.^{10,11}

Limitations:

The research was a hospital based study, and therefore may not give a true reflection of the general population. The study was cross sectional design, hence, causality cannot be determined. The research instrument being interviewer administered may not be a true reflection of the actual situation as it is subjective. Despite these limitations, the study generates distinctive information regarding the determinants of medication adherence among hypertensive patients in the study area, which could be helpful in formulating further steps to implement interventions in rural Southwest Nigeria.

Conclusion:

In this study, the majority of the respondents had high medication adherence (61.0%), good controlled blood pressure (60.6%), and strong family support (56.0%). Being a middle age, formal education, civil servants, higher income level, higher pill burden, normal BMI, controlled blood pressure and strong family support were the independent determinants of medication adherence

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Implications for Policy Makers: Given the strong relationship between medication adherence and blood pressure control in this study, policy makers should consider systematic assessment of medication adherence as part of routine hypertension care. The rural setting of this study highlights the need for policy makers to develop and implement culturally appropriate adherence-enhancing interventions.

Implications for Clinical Practice: The high rate of medication adherence in this study highlights the need for sustained current intervention to further improve adherence. The strong association between family support and medication adherence in this study suggests that involving family members in hypertensive care could be an effective approach. Therefore, clinicians should consider

incorporating family-based counseling and education in hypertensive care to improve adherence. The study was conducted in rural setting where access to care and medication availability can be limited. These findings highlight the need to strengthen the capacity of health facilities in rural areas.

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