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Perceived Family Support and Medication Adherence Among Hypertensive Patients in Rivers State, Nigeria

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Abstract

Background: Hypertension is a major public health problem worldwide. As a chronic condition posing a major health challenge to the adult population, poor medication adherence has been shown to cause uncontrolled blood pressure and poor treatment outcomes. This study assessed the perceived family support and medication adherence among hypertensive patients at a Tertiary Centre in Rivers State.

Method: This was a cross-sectional design conducted among 414 adult hypertensive patients using a simple random sampling technique. Data were collected using an interviewer-administered questionnaire. Eligible participants were adult aged 18 years and above and who were on antihypertensive medications, were recruited for the study, while critically ill patients were excluded. Chi-square test was used to assess the association between categorical variables.

Results: The mean age of participants was 57.68 ± 12.0 years. Females made up the majority of participants (65.7%). Only 33.6% of the participants were adherent to their medications. Perceived family support was rated as strong in 97% of the participants and weak in 3%. A statistically significant association was found between perceived family support and medication adherence ($p = 0.0409$).

Conclusion: Medication adherence was low despite the reported presence of strong family support. A significant association was observed between perceived family support and medication adherence. Healthcare providers, therefore, should leverage this support system by encouraging active family involvement in patient care.

Keywords: Perceived family support, medication adherence, hypertension, MMAS-8 (Morisky Medication Adherence Scale), PSS-Fa (Perceived Social Support–Family)

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Introduction

Hypertension is a major public health problem worldwide and the leading risk factor for morbidity and mortality.[1,2] It is estimated to cause 7.5 million deaths and about 12.8% of all deaths worldwide according to World Health Organization.[3] Hypertension and its associated complications, affect over one billion people worldwide and is the main risk factor for many other cardiovascular diseases [4,5] According to WHO, only 54% of adults with hypertension are diagnosed, 42% receive treatment, and 21% have their hypertension controlled.[4] The burden of hypertension is rapidly increasing globally, and Africa is currently the most affected region.[6] The prevalence in Nigeria may form a significant proportion in Africa because of the large population of the country which was estimated to be over 170 million.[5,6] Adherence to long-term treatment for chronic illnesses has been shown to be 50% in developed countries and the rates are even lower in developing countries.[7] Early detection, timely management, and adherence to medication are vital to reduce the complications of hypertension.[8]

The World Health Organization defines adherence as the extent to which a person's behaviour-taking medication, following a diet, or executing lifestyle changes corresponds with agreed recommendations from a health-care provider.[3] Adherence to therapeutic plans has been shown to improve when patients are motivated in the form of having a family support or supported by engaged family members.[9-11] The family can influence therapeutic success or failure including medication adherence.[12] A study estimated that approximately 80% of patients' health care takes place at home.[9] Thus, family support is of particular interest in hypertension management because it is readily accessible and can facilitate improved health outcomes.[9,10,13,14] Several studies have reported that a greater degree of practical or emotional family support is associated with higher levels of medication adherence.[10,13,15-18]

Hypertension is highly prevalent in the adult population in Nigeria, and awareness, treatment, control rates and adherence levels are low.[5] The aim of this study was to assess the perception of family support and medication adherence among hypertensive patients attending a family medicine clinic at a Tertiary Centre in Rivers State. The study assessed medication adherence, perceived family support, and determined the association between perceived family support and medication adherence.

Methodology

Study Site

This study was conducted at the Family Medicine clinic of the Rivers State University Teaching Hospital (RSUTH). Rivers State is located in the south-south geo-political zone of Nigeria, along the Niger Delta Basin. Port Harcourt is the capital and largest city of Rivers State. It is the hub of the Nigeria's oil industry. The Rivers State University Teaching Hospital (RSUTH) is situated at the Old Government Residential Area in Port Harcourt. Family Physicians and resident doctors are involved in providing care to patients at the family medicine clinics. The clinics run from Mondays to Fridays (8am-4pm) weekly and over a thousand patients are seen monthly. The institution serves as a referral Centre to primary and secondary public health institutions and private hospitals in Rivers State.

Study Design

This was a cross-sectional hospital-based study, conducted among 414 respondents for a duration of three months. A cross-sectional design was selected to enable the capture of perceived family support and adherence levels at a single time point.

Study Population

Inclusion criteria and Exclusion criteria

The study population was drawn from consenting adult hypertensive patients (≥18 years) who had been on antihypertensive drugs for at least 3 months at the time of the study and that attended the family medicine clinic of RSUTH. Hypertensive patients that were critically ill, pregnant or having major psychiatric illness were excluded from the study.

Sample Size Determination

A sample size calculation was performed using the Leslie and Kish formula shown below.[19]

$$n = \frac{z^2 (p) (q)}{d^2}$$

Where: n is the desired sample size, z is the standard normal deviation usually set at 1.96 which corresponds to the 95% confidence level, q is 1 – p, d is 0.05 (absolute precision of 5%) and p (42.9%) is the proportion of patients adhering to their antihypertensive medication in a hospital-based study at the Federal Medical Centre Umuahia in Abia State.[20] The calculated minimum sample size was 376. However, 10% of the total sample

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size was added to the minimum sample size to improve the power of the study. This gave a sample size of 414 respondents.

Sampling Method

Respondents were selected through a random sampling technique using a table of random numbers. Data from the Family Medicine departmental records showed that about 300 hypertensive persons were seen monthly and 900 (Sample Frame) were seen in three months. Considering the sample size of four hundred and fourteen, random numbers between one and nine hundred were generated using Microsoft excel. The numbers 1-900 were generated and put in a bag. Eligible hypertensive patients attending the clinic were asked to pick a number from a bag containing random numbers. Those whose numbers matched the pre-generated random numbers were selected, provided they met the inclusion criteria and gave informed consent. The first respondent was the first hypertensive patient who picked a number that was among the generated random numbers.

Data Collection

An interviewer administered questionnaire was used to generate data from the 414 participants. Prior to data collection, the questionnaire was pre-tested to correct any ambiguities. Pre-testing was done among 10% of the estimated sample size at the family medicine clinic of the University of Port Harcourt Teaching Hospital. Two research assistants were trained for two days on how to accurately use the data collection instruments. The questionnaire comprised four sections: socio-demographic characteristics, medication adherence, perceived family support, and the patient's support system. The 8-item Morisky Medication Adherence Scale (MMAS-8) was used to assess medication adherence.[21] The scale has been reported to have an acceptable internal consistency of 0.83 and has been used in many languages.[22-24] Scores were based on responses to Yes/No items, with totals ranging from 0 to 8. All questions have dichotomized (yes/no) response except the eighth item, which has 5-point Likert scale. Items 1 through 7 are scored as either '0' or '1' for 'yes' or 'no' response respectively, except for item 5 that has reversed scoring, and item 8 is scored as 1, 0.4, 0.3, 0.1 or 0. Scores obtained are summed up to give total scale score, with score of 8 reflecting high adherence, 6 to < 8 as moderate adherence and <6 reflecting low adherence. However, for purposes of simplifying the interpretation of the analysis, the degree of adherence was dichotomized into two groups; non-adherent (< 6) and adherent (≥ 6).[7,25] The questionnaire has previously been used in a study in an outpatient clinic of a teaching Hospital in Ilorin, Nigeria.[26]

The Perceived Social Support-Family Scale (PSS-Fa) was used to assess family support.[27] It is a validated 20-item instrument for measuring the degree to which individuals perceive support from their family.[27] The scale has been found to have an internal consistency of 0.90.[27] Participants would respond "yes", "no", or "don't know," each "yes" answer was scored +1. Any other response was scored zero. Items 3, 4, 16, 19, and 20 in the questionnaire were reversely scored (a "no" response was scored as +1). Total scores were computed and categorized as follows: strong support (≥11), weak support (7–10), and no support (≤6). For purposes of analysis, a score of ≥ 11 points suggested strong family support and those with a score of ≤10 points had weak family support.[28] This questionnaire has previously been used in a study in a Family medicine clinic of a Hospital in Abeokuta, Nigeria,[11] and has also been used in different studies in Nigeria.[12,13]

Data Analysis

The completed questionnaires were reviewed for errors after which the data were entered and analyzed using the Statistical Package for Social Sciences [SPSS] version 23. The categorical variables were expressed as frequencies and proportions. The Chi-square test or Fisher's exact test was used to assess the associations between categorical variables. The p-value of <0.05 was considered to be statistically significant.

Ethical approval for the study was obtained from the Research and Ethics Committee of the Rivers State Hospital Management Board (RSHMB/RSHREC/11.19/VOL.7/036). The study protocol was explained to each participant, and written informed consent was obtained before recruitment. Serial numbers and not the names of participants were used, so as to maintain confidentiality,

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Results

The results set out below summarize the main findings of the study.

Table 1: Socio-demographic Characteristics of the Respondents

Characteristics	Frequency(n=414)	Percentage (%)
Age (years)		
≤49	110	26.6
50 – 59	105	25.4
60 – 69	120	29.0
≥70	79	19.0
Mean age = 57.68 years ± 12.04		
Gender		
Male	142	34.3
Female	272	65.7
Educational Status		
No formal education	17	4.1
Primary	99	23.9
Secondary	134	32.4
Tertiary	164	39.6
Marital Status		
Single	24	5.8
Married	242	58.5
Divorced	7	1.7
Separated	17	4.1
Widowed	124	30.0
Ethnicity/Tribe		
*Rivers State	226	54.6
Igbo	111	26.8
Yoruba	7	1.7
Others	70	16.9
Occupation		
Artisan	213	51.4
Business	36	8.7
Civil Servant	49	11.8
Professional	23	5.6
Retiree	93	22.5
Religion		
Christianity	410	99.0
Islam	4	1.0

*Tribes in Rivers State = Ikwerre, Ogoni, Ijaw

The mean age of participants was 57.68 ±12.04 years and ranged from 20-85 years. Most of the participants were aged 60-69 years (120; 29.0%), females (272; 65.7%), had tertiary education (164;39.6%), married (242; 58.5%) and were from Rivers State (226; 54.6%). Majority were artisans (213;51.4%), Christians (410;99.0%) and earned less than ₦100,000($63) (317;80.7%) monthly.

Table 2: Level of medication adherence among the adult hypertensive patients

Level of Medication Adherence	Score	Frequency(n)	Percentage (%)
High Adherence	8	5	1.2
Medium Adherence	6 -7	134	32.4
Low Adherence	< 6	275	66.4

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The result showed that the participants had an overall adherent of 33.6% and 66.4% were non-adherent.

Table 3: Level of perceived family support among the Participants

Perceived Family Support	Score	Frequency	Percentage (%)
Strong	≥ 11	401	97
Weak	7−10	9	2
No Family Support	≤ 6	4	1

The result showed that majority of the participants (97%) perceived their family's support to be strong and 3 % reported weak family support.

Table 4: Association between perceived family support and medication adherence among the Participants

Variable		Family Support Perceived		
		Weak Family Support	Strong Family Support	Total
Medication adherence	Non-adherent	67	207	274
	Adherent	5	135	140
Total		72	342	414

Fisher's exact test, p = 0.0409

The result showed a statistically significant association between perceived family support and medication adherence among the adult hypertensive patients attending the family medicine clinic of RSUTH.

Table 5: Patient's Support System among participants

Support System	Frequency(n=414)	Percentage (%)
Who supports you		
Self	22	5.3
Spouse	177	42.8
Children	173	41.8
Grandchildren	3	0.7
Friends	9	2.2
Siblings	30	7.2
Type of support		
Financial		
Yes	302	73
No	112	27
Social		
Yes	399	96.4
No	15	3.6
Physical		
Yes	400	96.6
No	14	3.4

Majority of the participants were supported by their spouses (177;42.8%), their children (173; 41.8%) and the least support was from grandchildren (0.7%) and friends (2.2%). Most of the participants had physical (96.6%), social (96.4%) and financial support 73% respectively.

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Discussion

Hypertension is a significant public health problem in many countries, including Nigeria. Treatment with antihypertensive medication reduces the risk of cardiovascular events, stroke, and overall mortality. Medication adherence is a key component in the treatment of hypertensive patients. This study aimed to assess the perceived family support and medication adherence among adult hypertensive patients attending the family medicine clinic of the Rivers State University Teaching Hospital. A total of 414 hypertensive patients participated in this study with females constituting a higher proportion of the study participants (272; 65.7%). The level of medication adherence was 33.6% and the level of perceived family support was 97%. The association between perceived family support and medication adherence was statistically significant (0.0409).

Poor medication adherence is a major problem that negates the benefits of health care and increases its cost.[29,30] Despite the availability of efficacious self-administered therapies, adherence to medication has not changed significantly over time.[31] In this study, the level of medication adherence among the respondents was 33.6%, This was consistent with a study by Ajayi et al,[32] in Ibadan, Nigeria who reported a medication adherence of 35.1% amongst the respondents and 33.3% reported by Boima et al in Nigeria.[33] However, the adherence level in this study was lower than studies conducted in FMC Umuahia, Nigeria (42.9%),[20] FMC Owo, Ondo State (61%),[13] and the Demographic Republic of Congo (45.8%),[34] among hypertensive patients. The variations in these studies may be due to differences in study participants, methods of assessment of medication adherence and complexities of drug regimens. Medication adherence is one of the determinants of treatment success for hypertension. However, low adherence to pharmacological treatment impairs effectiveness and efficiency in the treatment of hypertension.[30,32] Effective health education and regular screening for adherence is a potential way to reduce cardiovascular risk associated with uncontrolled hypertension.[35]

The perceived availability of social support has been linked to a variety of beneficial physical and psychological health outcomes. The present study found out that the levels of the perceived family support among the adult hypertensive patients were strong (97%), weak (2%) and no family support (1%). This finding is consistent with the study done in Ibadan among hypertensive patients, where 93% of hypertensive patients were reported to have received some social support from family members.[36]

However, the proportion of respondents who received strong family support in this study was higher than the finding in a study by Ekundayo et al in Ekiti, Nigeria, who reported that 50% of the adult hypertensive patients demonstrated strong perceived social spousal support(PSSS).[16] Similarly, this study's finding was higher than the finding by Ojo et al in Abeokuta, Southwest Nigeria, who reported that 79% of the respondents received strong perceived social support.[10] The finding of a significant proportion of respondents having a strong perceived family support corroborates the fact that Africans have a naturally rich social support network because of the extended family system in the environment.[16,37] Also, it could be as a result of the culture and rural nature of those study areas. It is known that in family-centered societies, people tend to receive major support from family as was observed in a previous study.[13,37] The finding in this present study could be because most respondents were in a marital relationship. Marital characteristics affect individual perception of family therefore report a better family support perception than their unmarried counterparts.[10] This study showed that majority of the participants were supported by their spouses. In the management of hypertension, involving family members is very important for adequate care of patients.

In this study, the association between perceived family support and medication adherence was statistically significant (P=0.0409). This finding is consistent with a study by Olowookere et al, who reported that patients with good family support had good medication adherence.[13] Strong perceived family support has a positive impact on medication adherence which in turn promotes optimal blood pressure control. Moreover, adherence to therapeutic plans improves if motivation in the form of social support is provided.[10] Similarly, another study by Ekundayo et al in Ido-Ekiti, Nigeria, found out that there was an association between perceived spousal social support, its four domains and medication adherence to antihypertensive medications in that population.[16] Furthermore, perceived spousal

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support was an independent predictor of medication adherence in that study.[16] The outcome of this current study can be related to a study by Padhy et al in India where a significant positive correlation was observed between social support and adherence.[17] Family members and other social ties are likely to impact health by encouraging health care utilization, behaviours that enhance good health and adherence to medication.[17] Also, the finding in this study is in accordance with the finding reported by Hu et al in a study where family social support was found to be positively associated with adherence and regular blood pressure measurement.[18] Conversely, Wu et al in a related study found out that the risk of a cardiac event occurring is 3.5 times higher with medication non-adherence and lower perceived social support than with those who were adherent and had higher perceived social support.[28]

In contrast, a community-based, cross-sectional study by Pauline, reported that most of the subjects received social support from family members than from friends. However, Social support from friends ($p < 0.0001$) but not from family ($p = 0.162$) was significantly associated with good compliance with treatment for hypertension.[36] Similarly, Melita et al, in a study reported that all the elderly hypertensive patients expressed having high family support but this was not significantly associated with medication adherence initially (at baseline assessment).[11] However, the analysis to find out the influence of family support on medication adherence was performed and the data was collected at the sixth month. The findings revealed that the family support has statistically significant influence ($t=75.09$, $p<.001$) on the medication adherence behaviour of the elderly hypertensive patients.[11] Furthermore, a study by Kurniawati et al reported that there was a relationship between family support and medication compliance in hypertensive patients.[15] Contrary to the findings in this study, Xiog et al in Kenya reported a high family support and suboptimal medication adherence, with no significant associations between family support and medication adherence.[38] The study suggested that the lack of health knowledge in that population may have contributed to a failure for family support to meaningfully translate into improvements in medication adherence.[38] Similarly, Spike et al in their study reported that social support did not have a significant relationship with medication adherence, however comorbidities was found to be associated with medication adherence.[39] Family support is a key support type which aims to achieve optimal blood pressure control in hypertensive patients.[15]

This study revealed that majority of the participants received physical, financial and social support from members of their family. Family involvement in the management of hypertension promotes medication adherence and encourages lifestyle changes leading to a better treatment outcome.

Limitations of the Study

1. The use of a self-report questionnaire to assess medication adherence. This method has the disadvantage of recall and social desirability biases and could have given an underestimated or overestimated level of adherence among the population. However, effort was made to minimize this threat by way of training the research assistants on standard interview procedure and respondents were assured of anonymity.
2. This was a hospital-based study involving a single centre and as such the results obtained may not be generalizable to other populations.
3. The cross-sectional design of this study limits the ability to make causal inferences.
4. Additional factors on lifestyle modifications and psychological factors, which could impact blood pressure control and/or medication adherence were not assessed in this study. Future studies can investigate these factors.

Implications of the findings

The implications of the findings are the need for continuous patient-specific adherence education and counselling for hypertensive patients in order to ensure better treatment outcomes. Also, future research should be done on this subject matter as community-based studies.

Conclusion

Poor adherence to antihypertensive medication remains a significant public health problem. This study showed a low level of medication adherence among the participants. Most of the participants received strong family support and there was a positive association between perceived family support and medication adherence. Family support plays a crucial role in improving adherence, hence, involving family members in the management plan will improve treatment outcome. Health institutions should formalize family-

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inclusive counseling as part of routine hypertensive management, especially in primary care setting.

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