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ORIGINAL ARTICLE

THE EFFECT OF PERCEIVED FAMILY SUPPORT ON MEDICATION ADHERENCE AND BLOOD PRESSURE CONTROL AMONG HYPERTENSIVE PATIENTS AT THE GENERAL OUTPATIENT CLINIC OF FEDERAL MEDICAL CENTRE, MAKURDI. NIGERIA

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ABSTRACT

Background: Non-adherence to antihypertensives increases the burden of hypertension-related complications which directly impacts on the rising cost of health care services.The role of family support in adherence to hypertensive medication is receiving renewed attention.

Objectives: The aim of the studywas to determine the effect of perceived family support on hypertensive medication adherence with the overall purpose of achieving optimal blood pressure control among adults on hypertensive medications.

Methods: The study was a descriptive cross-sectional study of adult hypertensive patients attending the GOPC of Federal Medical Centre Makurdi from 1st February to 31st May 2013. Using a systematic sampling technique, 304 patients were recruited for the study. An interviewer-administered questionnaire was used to obtain data on respondents' socio-demographic characteristics, level of perceived family support, medication adherence and blood pressure status of the patient. Data was analyzed using SPSS version 20. Chi square test was used to determine the relationship between categorical variables; multivariate logistic regression was used to determine the independent factors for adherence. The level of significance was set at $p<0.05$.

Results: Two hundred and twelve (69.7%) of the 304 respondents had strong perceived family support; 194 (63.8%) had good adherence to their anti-hypertensives; and 150 (49.3%) had their blood pressure controlled. There was a statistically significant relationship between strong perceived family support and good medication adherence ($\chi^2=76.71$, df = 1, $p<0.001$), as well as optimal blood pressure control ($\chi^2= 16.76$, df =1, $p<0.001$).

Conclusion: Strong perceived family support has a positive impact on adherence to hypertensive medications, which in turn promotes optimal blood pressure control. Primary care physicians should explore the factors strengthening family ties in their patientsand harness these to promote medication adherence for optimal blood pressure control.

INTRODUCTION

Adherence to therapy is a primary determinant of treatment success.[1] Failure to adhere is a serious problem which not only affects the patient but also increases the cost of health care services.[2] Barriers to antihypertensive medication adherence could be addressed through interaction between the patient, healthcare provider and health system factors.[3] Identifying specific barriers and adopting suitable techniques to overcome them will be necessary to improve hypertensive medication adherence .[1,3]

The family is considered as the basic cell of the society.[4] A family is defined as two or more people who are related biologically, legally, emotionally or by choice, from which they can reasonably expect a measure of support in the form of food, shelter, finance, and emotional nurturing.[5] All social and cultural lifestyle find their expression within the context of the family.[4] Perceived family support is defined as an individual opinion regarding assistance that could include emotional, financial or instrumental support from his or her family member or significant other.[6] The study by Sharma in Delhi, India revealed that individuals with a positive family environment like parental support and less conflict tend to develop positive psychosocial profile.[4]

Medication adherence is the extent to which a person's behavior: taking medication, following a diet and /or executing lifestyle changes corresponds with agreed recommendations from a health care provider.[3]

The study by Okoro and colleagues at the University of Maiduguri Teaching Hospital revealed that marital

status which enhances family support could predict patient's adherence to hypertensive medication.[7] Ofoli and colleague also revealed that family support enhances beneficial health behaviour like medication adherence.[8]

Perceived health criticism is associated with non-adherence and frequent relapse of disease symptoms in chronically ill individuals.[1] Considerable research has documented the deleterious effect of criticism on children and patients with schizophrenia, bipolar disorder, depression and hypertension.[4]

This study was aimed at determining the effect of perceived family support on hypertensive medication adherence with the overall purpose of achieving optimal blood pressure control among adult hypertensives at Federal Medical Centre Makurdi, Nigeria.

SUBJECTS AND METHODS

The study was carried out at Federal Medical Center Makurdi, North-Central Nigeria at geographical co-ordinates of latitude 7^0 42' and 10^0 0' East and at Longitude 6^0 25' and 6^0 8' North. Makurdi is the capital of Benue State. The major ethnic groups are Tiv, Idoma and Igede.[8,9] The Federal Medical Centre Makurdi is a 400 bedded tertiary health institution and comprises four satellite centres; the Mission Ward, Psychiatric and Dental complex, Riverside Specialist Clinic and the permanent site at Apir. The GOPC and other specialist clinics run at the Permanent site, Apirand is the first point of care for most patients seeking medical care at the facility. The GOPC attends to all patients on out-patient basis irrespective of the disease type, age, gender or social class, excluding those who need emergency health care services. The average monthly GOPC attendance during the period of this study was 3,700 with a monthly average of 360 hypertensive patients.

This was a hospital based descriptive cross-sectional study. The minimum sample size for the study was determined using the Leslie Kish formula.[10]

$N = Z^2pq/\delta^2$

Where N = Minimum sample size

Z = constant at 95% confidence level = 1.96

p = 27.1% (0.271) prevalence of hypertension in Nigeria in a study by Akinlua and colleagues.[11]

q = 1-p (i.e. 1-0.271) = 0.729

δ = desired precision at 5% = 0.05

$N = (1.96)^2 \times (0.271 \times 0.729)/(0.05)^2$

N = 304

The minimum size of 304 subjects was recruited for the study.

The inclusion criteria were patients aged 18 years and above, diagnosed as having primary hypertension and attending the GOPC of Federal Medical Center Makurdi, and had been on antihypertensive medication for at least three months. Those who were very ill and required urgent attention and pregnant women were excluded from the study.

A systematic random sampling technique was used to select the participants. On average, 360 hypertensive patients are seen every month with an average of 12 patients with primary hypertension seen daily at the GOPC. This translated to 60 within a five-day working week and 960 over the four months of the study (February – May 2013). The sampling interval was determined by dividing the sample frame (960) by the number of participants to be recruited (304), which gave a sampling interval of 3. Every working day the first patient was selected by ballot from the first three patients listed in the daily GOPC register. Subsequently, every third eligible patient was selected until the 304 participants were recruited over four months.

An interviewer administered questionnaire was used to obtain information on socio-demographic characteristics, perceived family support, and medication adherence. Perceived family support was determined using the perceived family support scale.[12] A score of $\geqslant$ 11 points suggested strong family support and those with a score of $\leqslant$ 10 points had weak family support. The eight-item modified Morinsky adherence scale was used for the measurement of medication adherence.[13] Scores of $\geqslant$ 6 suggested good adherence and scores of $\leqslant$ 5 were regarded non adherence. This was followed by measurement of the systolic and diastolic blood pressure. Blood pressure of $\leqslant$ 140/90 mmHg was considered controlled.

Data were analyzed using SPSS version 20 (Chicago IL USA). Descriptive statistics were generated for each study variable; and were summarized by frequencies and percentages. Chi-square was used to test associations between categorical variables. Multivariate logistic regression analysis was performed to identify independent variables predicting adherence to anti-hypertensive drugs. The independent variables entered into the logistic regression model were those that were significant at 10% ($p<0.1$) on bivariate analysis.

Ethical approval was obtained from the Health and Research Ethics Committee of Federal Medical Center Makurdi. Written informed consent was also obtained from the respondents before their enrollment in the study.

RESULTS:
Majority of the participants, 184 (60.6%) were aged 50 years and above. There were 193 (63.5%) females compared to111(36.5%)males, giving a male: female ratio of 1:1.7. Most of the participants 196 (64.5%); were married. Two-thirds188 (61.82%) were of Tiv ethnicity and 270 (88.8%); were Christians. Table 1 shows the socio-demographic characteristics of the study participants.

Majority of the participants212 (69.7%) had strong perceived family support (Figure 1), and 194 (63.8%) had good adherence to their medication. Those with adequately controlled blood pressure were 150 (49.3%).(Table 2) A higher proportion of those with strong perceived family support 167(79.7%)had good adherence to antihypertensive therapy. The relationship between perceived family support and medication adherence was statistically significant ($\chi 2$ =76.71, df=1, p <0.001). (Table 3) Majority of the respondents with adequately controlled blood pressure 121(80.7%) had strong perceived family support. The relationship between perceived family support and adequately controlled blood pressure was statistically significant ($\chi 2$ =16.76, df=1, p <0.001). (Table 4) Participants with strong perceived family support were significantly more likely to be adherent to antihypertensive medications compared to those with weak perceived family support (aOR=11.75, 95% CI=5.97-23.12, p <0.001). Participants with good medication adherence were significantly more likely to have adequately controlled blood pressure than those with poor medication adherence (aOR=7.58, 95% CI=3.93-14.63, p <0.001). (Table 5)

Table 1: Socio-demographic characteristics of the study participants (N = 304)

Variable	Frequency	Percentage
Age (years)		
<40	37	12.2
40-49	83	27.2
50-59	92	30.3
	92	30.3
Gender		
Male	111	36.5
Female	193	63.5
Marital status		
Currently married	196	64.5
Currently not married*	108	35.5
Ethnic group		
Tiv	88	61.8
Idoma	43	14.2
Igede	17	5.6
Others**	56	18.4
Religion		
Christianity	270	88.8
Islam	33	10.9
Traditional	1	0.3
Level of education		
No formal education	129	42.0
Primary	58	19.0
Secondary	44	15.0
Tertiary	73	24.0
Estimated monthly income (Naira)		
<18,000	164	53.9
18,000-58,999	82	27.0
59,000-99,999	35	11.5
⩾100,000	23	7.6

*Currently not married included single, separated, divorced and widowed persons **Others include Hausa, Ibo, Yoruba and Jukun

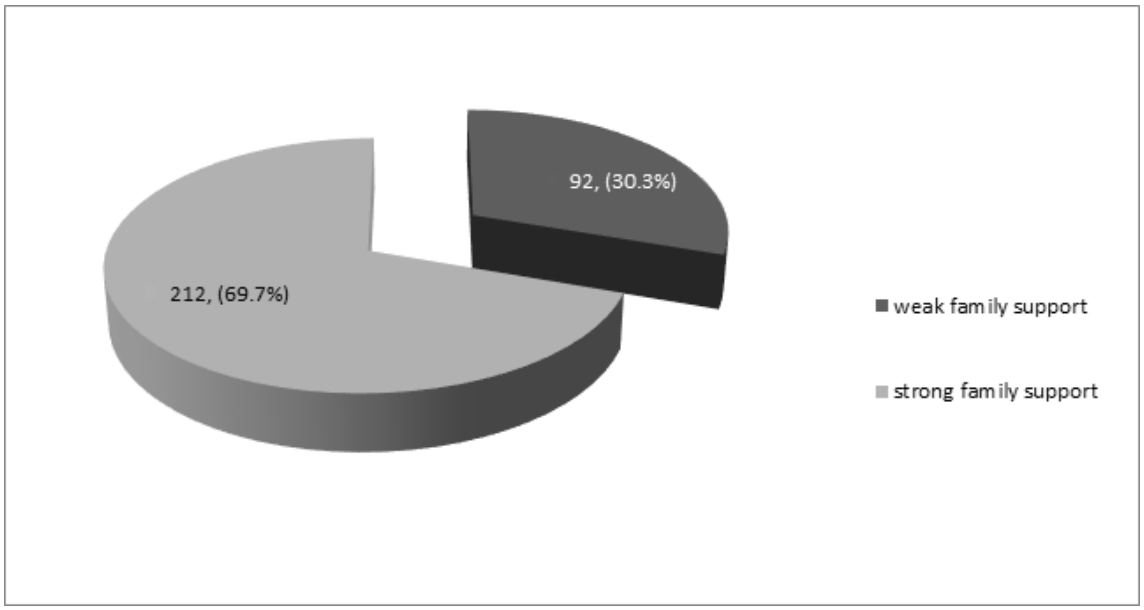

Figure 1: Level of perceived family support

Table 2: Level of medication adherence and Blood pressure control among the study participants

Variable	Frequency	Percentage
Level of adherence status		
Adherent	194	63.8
Non-adherent	110	36.2
Hypertension status		
Controlled	150	49.3
Uncontrolled	154	50.7

Table 3: Association between respondents' perceived family support and medication adherence

Variables	Medication adherence		χ^2	df	p-value
	Adherent n (%)	Non-adherent n (%)			
Perceived family support			76.71	1	<0.001
Strong	169 (79.7)	43 (20.3)			
Weak	25 (27.2)	67 (72.8)			
Total	**194**	**110**			

Table 4: The association between respondents' perceived family support and blood pressure status.

Variables	Perceived family support		χ^2	df	p-value
	Strong No. (%)	Weak No. (%)			
Blood pressure status			16.76	1	<0.001
Controlled	121 (80.7)	29 (19.3)			
Uncontrolled	91 (59.1)	63(40.9)			
Total	**212**	**92**			

Table 5: Logistic regression model of independent variables predicting medication adherence

Variables	Adjusted odds ratio (aOR)	95% confidence interval (CI)	p-value
Gender			0.084
Male	1.84	0.92-3.68	
Female	1.00		
Ethnic group			
Tiv	1.83	0.81-4.11	0.146
Idoma	0.67	0.24-1.9	
Igede	1.12	0.27-4.75	
Others*	1.00		
Perceived family support			<0.001
Strong	11.75	5.97-23.12	
Weak	1.00		
Hypertension status			<0.001
Controlled	7.58	3.93-14.63	
Uncontrolled	1.00		

*Others include: Hausa, Ibo, Yoruba and Jukun
Note: Hosmer-Lemeshow goodness of fit test: $\chi^2 = 11.54$, df = 8, p = 0.173

DISCUSSION

Most of the participants in this study were currently married. This finding was in agreement with the study by Ofoliand colleagues at Bingham University Jos, Nigeria.[14] Care, intimacy and support which exist in a married relationship could encourage spousal health care seeking behavior hence the large number of married participants attending health care facilities.

Many of the participants 212(69.7%) had strong perceived family support. This emphasizes the importance of the family in the health seeking behavior of its members as also reported by Olowookereand colleagues at Federal Medical Center Owo, Nigeria.[15]

The level of adherence to antihypertensive medication in this study was 63.8%.This was higher than the 39.2% reported by Usman and colleagues in Minna, Nigeriaand the 36.8% reportedby Akintunde at Ladoke Akintola University of Technology, Ogbomosho, Nigeria.[16,17]Focused health educationto the participants in thisstudywith emphasis on medicationadherence and follow- up in the management of hypertension at the GOPC might likely be the reason for the high adherence rate foundin this study.The medication adherence rate of 72.5% in the study by Ajite and colleagues among glaucoma patients in Ekiti, Nigeria was high comparedto the adherence rate in this study on hypertensive patients.[18]This is probably because it is more convenient to apply a few drops of medication in the eyes than the stress of swallowing pills.The optimal blood pressure control rate in this study was 49.3%. The finding was higher than those of Ilohand colleagues in Umuahia, Nigeria (35.0%), Qu andcolleagues in China (32.9%).[17,19] The higher rate of optimalblood pressure control in this study could probably be due to the awareness of the populace on the management of hypertension and its attendant complications. Such knowledge could have dispelled the myth about hypertension, hence improving adherence to antihypertensive regimen.

Family support was an important predictor of medication adherence in this study. The study by Olawookereand colleagues at FMC Owo, Nigeriaand Ilohand his colleagues in Umuahiaalso in Nigeria affirmed that respondents with strong family support had good adherence to antihypertensive medication.[15,17]The relationship between family support and blood pressure control was statistically significantin this study. Participants with strong family support had their blood pressure controlled due to good adherence to antihypertensive medication.The study by Ajayi and colleagues in Ado-Ekiti and Ofoli and colleague at Bingham University Jos, both in Nigeriaagree with this finding.[14,20] Family support is a strong predictor to medication adherence as revealed in this study.This finding agrees with that of Masumehand colleagues in Iranand Peacockand colleagues in the United States of America where the participants with strong family support had improved adherence to antihypertensive medication.[2,21]

Medication adherence was a strong predictor of controlled hypertension status. Participants with good adherence to antihypertensive medication were more likely to have good blood pressure control. The study by Ibrahim and colleagues in Maiduguri North-

Eastern Nigeria, and Ramli and colleagues in Malaysia also revealed that respondents with good medication adherence were more likely to have controlled hypertension status.[22,23] Ali and colleagues in Ethiopia and Onwukwe and colleagues in Eastern Nigeria in their study also demonstrated the positive effect of medication adherence on blood pressure control in their respondents.[24,25]Hence strong perceived family support is vital in ensuring adherence to antihypertensive medication which may influence controlled hypertension status positively.

CONCLUSION

Strong perceived family support has a positive impact on antihypertensive medication adherence. The benefit an individual derives from the supportive role of his/her family which include social, emotional and financial support tend to improve the individual's adherence to medications. Adherence to medication facilitates better blood pressure control. Physicians should explore the family support systems of their patients and address the peculiarity in the family dynamics that tend to act as barriers to adherence

LIMITATIONS.

1. The interviewer-administered questionnaire relied on the honesty of those being interviewed and may not adequately reflect the complex aspect of family support and medication adherence of the respondents.
2. This study was hospital-based. It was only a reflection of the picture of medication adherence in those receiving health care services at Federal Medical Centre Makurdi, which may not be atrue reflection of the situation among hypertensives in the community.

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