

RELATIONSHIP BETWEEN FAMILY AND SOCIAL SUPPORT AND ADHERENCE TO TREATMENT AMONG OUTPATIENT HYPERTENSIVES IN AN URBAN HOSPITAL

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ABSTRACT

Background: The study aims to determine the correlation between family/social support and adherence to treatment in hypertensive patients.

Methods: This is a cross sectional study. Patients who met the inclusion criteria were recruited by systematic random sampling technique. A physical examination was done to determine their blood pressure, questionnaires were administered to elicit sociodemographic characteristics, Family APGAR, Social support and adherence scores. Data collected was analyzed with Statistical Program for Social Sciences (SPSS)-15.

Results: A total of 120 data sets were analyzed. The mean age of the patients was 56 years \pm 11.6 with 60% of the patients being females. The mean duration of hypertension was 8 \pm 7 years and the mean number of antihypertensive medication they were on was 2 \pm 1. Majority (94%) of the patients had a caring and supportive relationship. Mean adherence score was 1.55 \pm 2.06. Adherence rate was 52.5%. Delay in refill (18.1%), mainly due to financial constraints was the commonest reason for non-adherence. There was a significant correlation between age group, previous history of symptom, family function and social support with adherence. There was however no significant correlation between gender, marital status, duration of hypertension, family member with hypertension and number of medications with adherence.

Conclusion: Medication adherence was good in this population of hypertensives. Family and social support were significant predictors of good medication adherence.

INTRODUCTION

Hypertension (HBP) is a significant cause of cardiovascular disease related morbidity and mortality worldwide.¹ In sub-Saharan Africa, it is a widespread problem of immense economic importance because it has a high prevalence in urban areas, it is frequently under diagnosed, and its complications are severe.² Several studies on the prevalence of hypertension and factors affecting adherence have been carried out in Nigeria.⁵ However, few studies have been carried out locally on the specific role of social support and family dysfunction on adherence to treatment in hypertensive patients.

Adherence, defined by the World Health Organization (WHO) as the extent to which a person's behavior- taking medications, following diets, and/or executing lifestyle changes corresponds with the agreed recommendations from a health care provider. This is through the acceptance of an active role in one's health care.⁴

Non-adherence to hypertension medication is of great interest to Family Physicians because it is almost impossible to provide high-quality patient care while keeping costs at a minimum when patients do not use their medications as prescribed. Patient non-adherence is one of the best documented but least understood health-related behaviours.⁵

Factors pertaining to disease, treatment, patient, clinician, and the practice setting have been identified as determinants or risk factors for non-adherence.⁵

In Nigeria, blood pressure control rates remain suboptimal, varying from 42 to 45% in patients receiving care in tertiary hospitals to 30% in the general population.⁶ Even in developed countries patient adherence to treatment may be as low as 50%.^{1,5-7} A key factor contributing to poor blood pressure control is suboptimal adherence to prescribed therapy.¹⁹ Blood pressure control and clinical outcomes were significantly better in adherent patients.^{3,5-7} Health Related Quality Of Life (HRQOL) was also significantly better in hypertensives that had controlled blood pressure.⁸

Social support is defined as "resources and interactions provided by others that may be useful for helping a person to cope with a problem".⁹ Structural social support is quantification of the number of supportive relationships an individual has.⁹ Functional social support measures social support in terms of the functions it provides, including emotional and material support.⁹ The higher the functional social support score, the better the social support.

Determining the relationship between family/social support and adherence could enable the Family

Physician to improve family operations that would enhance adherence.¹⁰ This is more so in the African context where the extended family system is still operational and can be utilized to improve patient care.

Adherence has been measured in a variety of different ways including pill counts, pharmacy data, assays of blood or urine, electronic medication dispensers, and verbal reports of compliance.⁵ Standardized self-report approaches have proven to be efficient and effective methods of determining medication adherence.¹¹ They have established validity, positively correlating with pill counts and blood pressure control.¹¹ One such standardized and validated questionnaire is the Morisky's scale.¹² This measure has been found to have adequate reliability, as well as good criterion and discriminative validity.^{12,13} The Morisky's scale is easy to use and has a sensitivity between 72% to 84% for detecting poor adherence.¹⁴ This scale has been used in several different study populations and has consistently demonstrated sufficient internal consistency $\alpha = 0.61$.⁵

Social support in general, and the availability of help from family or friends, is positively associated with medication adherence.¹⁰ A vast and growing literature has developed, linking various forms of social support to hypertension, often even suggestive of a causal relationship between social support and adherence.¹⁵ There is surprising consistency in the social support–adherence effects. These effects suggest that the pathway from social support to health likely travels through patient adherence.¹⁶

The risk of non-adherence is 1.35 times higher if patients do not receive emotional support than if they do.¹⁶ The relationship between emotional support and adherence is higher in studies using self-reports of adherence than in studies not using self-reports.¹⁶ The odds of adherence are 2.35 times higher with greater levels of social support. The risk of non-adherence is 1.53 times higher among patients with low social support. Social support has a greater effect on adherence in studies requiring more than one regimen for patients to adhere to than in studies requiring only one regimen.¹⁶

The Family APGAR assesses a family member's perception of family functioning by examining his/her satisfaction with family relationships.¹⁷ This instrument has acceptable reliability and validity.¹⁷

The aim of the study was to determine the relationship between family/social support and adherence to treatment in outpatient hypertensive patients at an urban hospital in Jos, North Central Nigeria.

MATERIALS AND METHOD

Study area

The study was conducted in the outpatient department of an urban mission hospital in Jos, the capital of Plateau State. The study population consisted of consenting patients 18 years and above attending the outpatient department who met the inclusion criteria.

Sample size

Using the Formula for the sample size needed in estimating the mean of a population,⁶

$$N = \frac{\alpha^2 \sigma^2}{\delta^2} \quad \text{Where}$$

N = minimum sample size

α = type I error at 95% confidence level (0.05) = 1.96

σ = assumed standard deviation of compliance score in the population by MMS = 1.3⁵

μ = assumed mean of compliance score in the population by MMS = 2.5⁵

δ = the difference between the mean of the two groups that would be regarded as clinically significant 10% of 2.5 = 0.25

$$= (1.96)^2 (1.3)^2 / (0.25)^2 = 105$$

Assuming a 10% dropout rate of 11, the minimum sample size to recruit was 116.

After obtaining approval from the Research and Ethics committee of the Hospital, patients who met the inclusion criteria were selected using systematic random sampling technique. Participation in the study was voluntary and written informed consent was obtained from all participants. Previously diagnosed hypertensives who were 18 years and above were included. We excluded pregnant hypertensives, first-time diagnosis of hypertension and/or not on antihypertensives, patients with acute complications of hypertension like myocardial infarction, stroke and uncontrolled hypertensive heart failure, patients with severe hypertension defined as systolic BP >180 and/or diastolic BP >120 mmHg, and patients with other co-morbidities like diabetes mellitus and renal failure. Standard procedure was followed measure BP. Weight in kilograms was taken using a standardized bathroom weighing scale (SALTON RED – 307, China, 2003) and height in meters using a height meter (Nestle NE, Nigeria, 2007).

The Modified Morisky's Score (MMS) allows patients to describe their typical pattern of medication adherence behavior, which facilitates its

use even when they are not currently taking a medication.¹³ This can be scored with a yes carrying one and a no carrying a zero with a range of zero to four. Adherence was defined as a score of zero while non-adherence is any score greater than 0 thus allowing for the grading of non-adherence.¹⁸

Family functioning was measured with the Family APGAR tool. The measure consists of five parameters of family functioning: Adaptability, Partnership, Growth, Affection, and Resolve. The response options were designed to describe frequency of feeling satisfied with each parameter on a 3-point scale ranging from 0 (hardly ever) to 2 (almost always) so that the total score range is 0-10. A score of 7-10 suggests a highly functional family. A score of 4 to 6 suggests a moderately dysfunctional family. A score of 0 to 3 suggests a severely dysfunctional family.¹⁷

The Duke-UNC Functional Social Support Questionnaire (FSSQ) is an eight-item instrument to measure the strength of a person's social support network. Responses to each question are scored on a 1 to 5 scale. The scores from all eight questions are summed (maximum 40) and then divided by 8 to get an average score; the higher the average score, the greater the perceived social support.

Enrolled participants were given a questionnaire to assess demographics, family/social support and

adherence to medication. After each assessment, the researcher collected each questionnaire, ensured that they were adequately filled and proceeded to consult each patient as routine care. The questionnaires were analyzed by the researcher at the end of every day. The data was entered into a preformatted/coded data page in SPSS-15 and this was updated daily.

METHOD OF DATA ANALYSIS

Data analysis was conducted using SPSS- 15. The results were expressed as means \pm standard deviations and proportions. Mean values were compared using the student t test while proportions were compared using χ^2 test. Correlation was used to determine factors that influence adherence. A p value <0.05 was considered statistically significant.

RESULTS

Out of 1040 patients seen in the study period, 130 were recruited and 120 had full results to analyze.

Characteristics of patients at enrolment

The participants had a mean age of 56 ± 11.6 years, were mostly female (75%) and married (66.7%). They were commonly hypertensive for 0-5 years (50.8%) and on two antihypertensive drugs (33.3%). Almost all (94.2%) felt they were in a caring and loving relationship with children (30.6%) been the commonest providers of care and support. Other details are in Table 1.

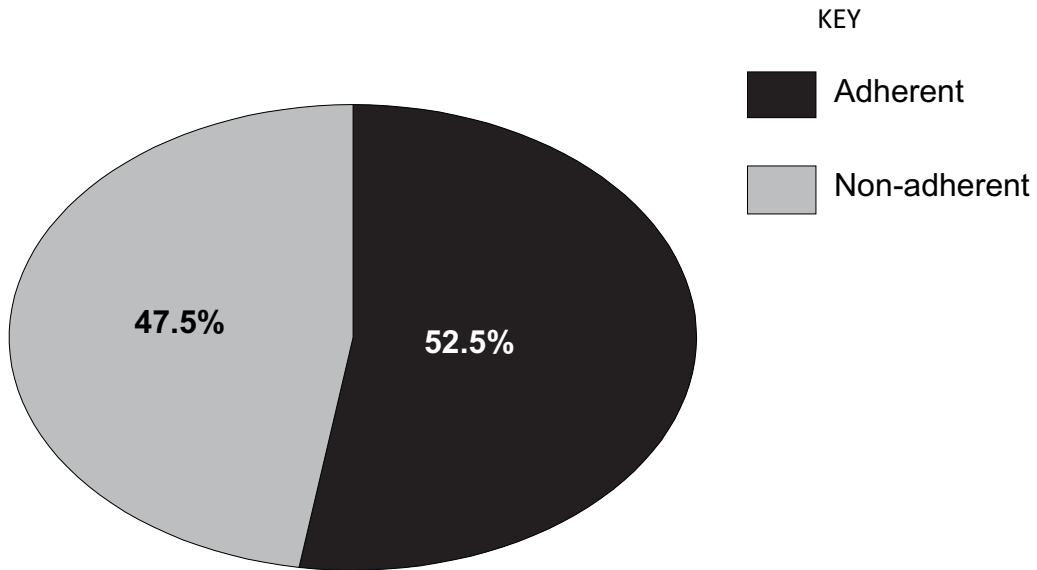
Table 1: Socio-demographic characteristics of participants

Variable		Frequency	Percentage
Age (Years)	≤30	1	0.8
	31-40	10	8.3
	41-50	35	29.2
	51-60	32	26.7
	61-70	33	27.5
	71-80	5	4.2
	≥81	4	3.3
Gender	Male	30	25
	Female	90	75
Level of Education	None	54	45.0
	Primary	26	21.7
	Secondary	12	10.0
	Tertiary	28	23.3
Marital status	Married	80	66.7
	Separated	4	3.3
	Divorced	1	0.8
	Widowed	35	29.2
Occupation	Manual worker	19	15.8
	Self employed	49	40.8
	Professional	22	18.3
	Others	30	25
Duration of HBP (years)	0-5	61	50.8
	6-10	35	29.2
	11-15	9	7.5
	16-20	7	5.8
	≥21	8	6.7
Number of antihypertensive medications	1	28	23.3
	2	40	33.3
	3	36	30.0
	4	11	9.2
	5	4	3.3
	6	1	0.8
Monthly Household income	≤ ₦20,000	72	60
	₦ 20,001-40000	15	12.5
	₦ 40,001-60,000	7	5.8
	₦ 60,001-80,000	4	3.3
	>₦80,000	24	18.3
Family member with HBP	Yes	57	47.5
	No	63	52.5
Relationship of family member with HBP	Sibling	20	30.8
	Parent	37	56.9
	Child	8	12.3
Recommended treatment for HBP	Diet	85	56.7
	Exercise	47	31.3
	Weight loss	18	12.0
Caring and supportive relationship	Yes	113	94.2
	No	7	5.8
Person giving Caring and supportive relationship	Spouse	76	25.0
	Sibling	58	19.1
	Relative	37	12.1
	Friend	40	13.2
	Children	93	30.6
Reasons for non-adherence	Forgetfulness	86	16.1
	Carelessness	81	15.2
	Side effects	83	15.5
	Lack of symptoms	94	17.6
	Knowledge	92	17.2
	Refill	98	18.4
	Carelessness	81	15.2
	Side effects	83	15.5
	Lack of symptoms	94	17.6
	Knowledge	92	17.2
Refill	98	18.4	

Prevalence of Adherence.

Mean adherence score on the Modified Morisky's scale was 1.55 ± 2.06 . This is skewed towards Nonadherence since the score is greater than zero.

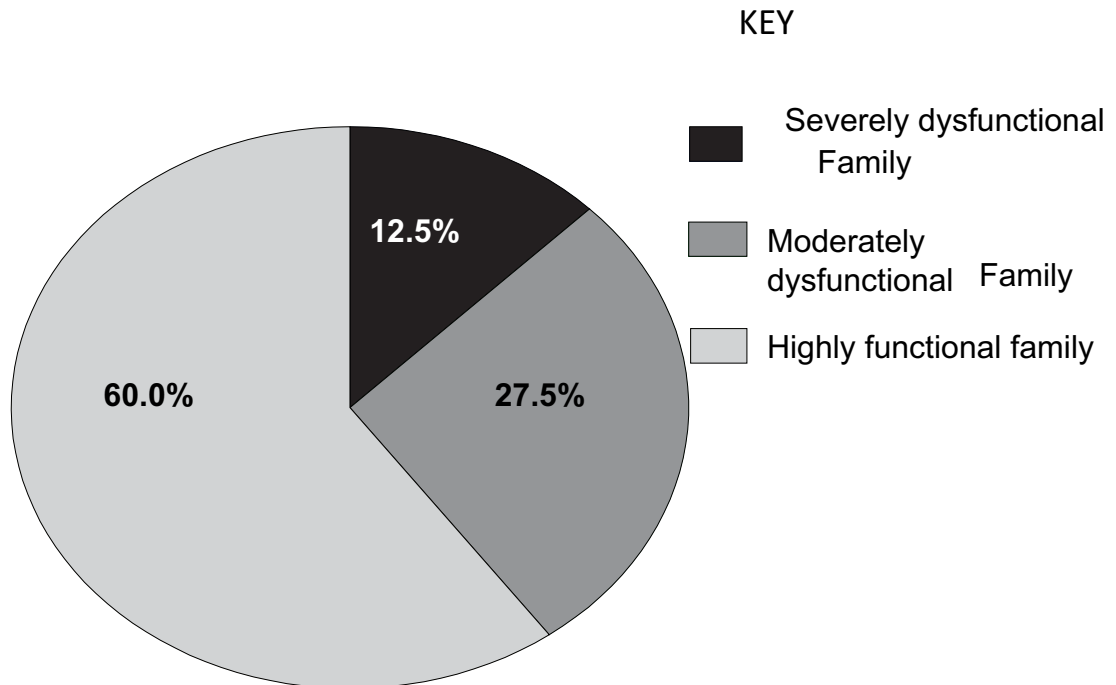
Figure 1: Pie Chart Showing Adherence to Antihypertensives



Quality of Family Function

Majority (60.0%) of the patients belonged to highly functional families while 27.5% were from moderately dysfunctional families and 12.5% were from severely dysfunctional families.

Fig 2: Pie Chart Showing Family Function



Relationship between family and social support with adherence

Family APGAR score ($p=0.013$), Family function category ($p=0.001$) and social support score ($p=0.005$) were significantly correlated to the adherence (MMS). (Table 2)

Table 2: Correlation between Variables and Adherence

Variable	Adherence (MMS)	
	p-value (1-tail)	Correlation
Family APGAR	0.013*	r = -0.203
Family Function Category	0.001**	r _s = -0.270
Social support	0.005**	r = -0.237

* = significant at $P \leq 0.05$

r_s = Spearman's rho

r = Pearson's coefficient

Lev of sig = level of significance

DISCUSSION

Majority of the participants were older and female. This is expected since hypertension is commoner in the older population and this has been previously reported by other studies.^{19,20} Many studies have shown a higher preponderance of hypertension among females in their middle ages.²⁰ In addition men tend to have a poorer health seeking behavior.⁷ Overall about 55% of the study population was literate, reflecting the urban status of the study center. Two thirds (67%) of the participants were married while 29.2% were widowed. This is similar to findings reported from Kano.¹⁹ This result is reflective of the age group of the patients with the middle aged more likely to be married, and the elderly more likely to be widowed. The low prevalence of hypertension among singles is also reflective of the low prevalence of hypertension among young people.¹⁹ About 41% of the patients were self-employed and 25% had retired from regular employment. This is also reflective of the age distribution of the patients with the elderly more likely to be retired. Again, these findings have been reported from a similar setting.²¹ Most (60%) patients had a monthly household income of 0-20,000 Naira while 18.3% had a monthly household income of $\geq 80,001$ Naira. The low monthly household income, which is below the poverty line, indicates that over 60% of patients have financial constraints. This is similar to other reports from Nigeria.^{19,21}

Majority (51%) had hypertension of 0-5years in keeping with other reports.²² The duration of hypertension is probably reflective of the late age at diagnosis of hypertension and the low life expectancy in the country.²¹ One third (33%) were on three medications while 30.0% were on two medications. The mean number of medications was

2±1.09. The low mean number of medications for each patient could have accounted for the better mean adherence in the population sample since a lower number of medications has been positively associated with adherence in several series.^{19,20} The low number may also be reflective of the practice standard of the center in which the study was done since it is a training center for Family Physicians.

Most (94%) of the patients had a caring and supportive relationship in keeping with previous reports indicating that family support is high in treatment of patients with hypertension.²³

Lack of refill (18.1%) mainly due to financial constraints was the commonest challenge to adherence. Other problems include absence of symptoms (17.6%), lack of knowledge of the long-term benefit of taking antihypertensives (17.2%), forgetfulness (16.1%), unbearable side effects (15.5%) and carelessness of the patients (15.2%). These problems were similar to those found in other studies.^{4,19,24,25}

Adherence rate in this study was 52.5%. This is similar to 54.2% adherence reported from Kano, Nigeria.²¹ It also compares with reports from Iran and most Eastern centres.^{26,27} However, this adherence is higher than reports from Lagos, Nigeria where 34.2% were adherent,³ or Sudan where 36.8% were adherent.²⁸ It is however lower than reports from other studies especially in the west (Switzerland-79.8%) and Japan (68.3%).³ These studies however used different methods to assess adherence. The discrepancy could be due to higher sensitivity and specificity of the MMS in contrast to the Morisky's score or other methods used to determine adherence.

The mean family APGAR score was in the highly

functional range. Most (60%) of the patients were from highly functional families. The significant correlation between family APGAR and MMS, is similar to the findings of a meta-analysis of 122 studies from 1948 to 2001, where adherence was 1.74 times higher in patients from cohesive families and 1.53 times lower in patients from families in conflict.¹⁶

There was a significant correlation between social support and adherence. These results have been demonstrated in several studies.^{9,15,16} A meta-analysis of 122 studies from 1948 to 2001 suggested a strong overall positive correlation between adherence and practical social support. It demonstrated that the odds of adherence (compared with nonadherence) are 3.6 times higher among those who receive practical support than among those who do not, and the standardized relative risk specifies that the risk for nonadherence is almost twice as high among patients who do not receive practical support as among those who do.¹⁶

Limitations

The research was limited by the fact that the data collection was susceptible to recall bias by the informants, but the available options given in the questionnaire were designed to aid recall. Another limitation was the use of self-report for measurement of adherence, family function and social support. While self-report measures can be valid and reliable, it is possible that the measures chosen were not ideal. The study was also cross sectional hence causal inference was impossible to make.

CONCLUSION

The results of this study provide solid quantitative evidence that family and social support has substantial effects on adherence to treatment among outpatient hypertensive patients. These findings call on physicians to utilize the biopsychosocial approach in the management of hypertension to enable them elicit family and social factors that may interfere with adherence to treatment. Family and significant others should also be involved when managing hypertension to increase the likelihood of improved adherence. It also calls for further research to elucidate a tentative model of the mechanisms by which family and social support and adherence are linked.

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