ORIGINAL RESEARCH

Influence of patient's knowledge of hypertension and beliefs about medicines on adherence in Lagos University Teaching Hospital (LUTH), Lagos

Olugbake OA* and Odugbemi OT
Department of Clinical Pharmacy and Biopharmacy, Faculty of Pharmacy, University of Lagos, Lagos, Nigeria

Address for correspondence:
Dr. Olubusola A. Olugbake
Department of Clinical Pharmacy and Biopharmacy, Faculty of Pharmacy, University of Lagos, Lagos, Nigeria
Email: oolugbake@unilag.edu.ng; oga1063@gmail.com

To cite this article: Olugbake OA and Odugbemi OT. Influence of patient's knowledge of hypertension and beliefs about medicines on adherence in Lagos University Teaching Hospital (LUTH), Lagos. Journal of Basic and Social Pharmacy Research, 2020;1(3):11-20.
ISSN: 2705-3245

ABSTRACT

Background: Poor adherence to antihypertensive medications compromises the effectiveness of treatment outcomes and has been associated with increased morbidity and mortality. An understanding of beliefs to hypertensive medicines may result in better understanding and improvement of non-adherence among patients.
Objective: This study was carried out to assess the knowledge and beliefs to hypertensive drugs among out-patients in the Lagos University Teaching Hospital.
Methods: Hypertensive out-patients attending the clinic of Lagos University Teaching Hospital, Idi-araba, Lagos, were approached and asked to complete a self-report instrument about knowledge of hypertension, beliefs about their prescription medicines, and the Brief Medication Questionnaire. Analysis was done using frequencies and cross tabulations
Results: A total of 387 patients were approached. However, only 349 patients consented to partake in the study. Majority (about 80%) of the respondents agreed that their hypertension medication protects them from getting worse. However, about half of the respondents had concerns about long term effects of their medicines. About three-fifths of the respondents believed that doctors place too much trust on medicines and more than two-fifths believed that medicines are addictive.
Conclusion: Patients had inadequate knowledge about hypertensive disease and medications which influenced adherence negatively. There was a positive association between the beliefs about the necessity of their medication and adherence but a negative one between the beliefs of concern, harm and overuse and adherence. Intervention strategies of educating and addressing beliefs of patients on hypertensive disease and medications may improve non - adherence and consequently treatment outcomes.

Keywords: Adherence, Beliefs, Hypertension, Knowledge, Medication, Patients

INTRODUCTION

Hypertension, a silent killer is a global public health problem and is one of the most significant risk factors for cardiovascular morbidity and mortality[1,2]. Hypertension is on the increase worldwide[3] and it is not different in Nigeria[4]. High blood pressure remains the number one risk factor for stroke, heart failure, coronary artery disease and chronic renal failure[5]. Almost three-quarters of people suffering from high blood pressure live in developing countries and are not aware of their

condition[6]. In Nigeria, it is estimated that about 28% of the adult population have hypertension and this figure is said to increase to 31% by 2030[7]. In another study of over 5000 persons conducted in a major city over half of the adult population were classified to have hypertension[8]. In developing countries with limited health resources, there is low awareness of hypertension, poor blood pressure control and a tendency not to seek early treatment[9]. For those who seek treatment, poor adherence to treatment regimens is a major factor for uncontrolled blood pressure[10]. Adherence defined by the World Health Organization (WHO) is the extent to which the person's behaviour (including medication-taking) corresponds with the agreed recommendations from a health care provider[11]. It is a multidimensional phenomenon made up of various dimensions. The dimensions include social/economic, condition-related, therapy-related and patient-related factors as well as provider-patient/health care system[12.] Patients' beliefs and perceptions of any of the dimensions to medicines form one of the most salient influences on adherence[13]. The patient must believe that by following a particular set of health recommendations, the severity and complications of the condition will be abolished or reduced [14-16] and thus do not view all recommended treatments as necessary for their interests[17]. Knowledge, ideas and experiences, as well as those of family and friends, have been shown to influence adherence[14,18]. A study in Poland showed that knowledge on hypertension was a positive determinant of good adherence[19]. Other studies have also shown that patients' negative beliefs about medication affect adherence while the necessity for medication influence positive adherence [20-22].

There is a dearth of literature about patients' beliefs about medicines and disease in Nigeria especially hypertension, and such findings might well have relevance for understanding adherence to medication. This study sought to determine patients' knowledge and beliefs to antihypertensive medications and its relationship to adherence.

METHODS

Study Area

This study was conducted at the outpatient clinic of the cardiology unit of the Department of Medicine, Lagos University Teaching University (LUTH), Idi-araba, Lagos State. Lagos University Teaching Hospital is a premier teaching hospital in Lagos serving a multi-cultural number of patients.

Study Design, Sampling and Data Collection

A cross-sectional, descriptive study was conducted between July and September 2017. Sample size was calculated using the Raosoft® calculator to give 364 patients. A 10% overage was added. The population was based on the total number of patients that visited the cardiology clinic in the month of January and extrapolated for the year.

Patients in the waiting area of the clinic were asked if he/she was willing to partake in the study. If the person agreed an informed consent was read and obtained by the researcher. The questionnaire was explained and given to be filled. The questionnaires were given to patients sampled through a non-random method (convenience sampling) that met the inclusion criteria and agreed to participate in the study. The inclusion criteria included hypertensive patients above the age of 18 years and patients who must have been prescribed antihypertensive medications in the last three months. Pregnancy-related hypertensive patients were excluded from the study.

Study instrument

The questionnaire was divided into 4 sections: i) socio-demographic data ii) knowledge about hypertension iii) Beliefs

about Medications (BMQ general and specific) assess beliefs of participants about their medications and iv) the Brief Medication Questionnaire to assess adherence to antihypertensive medication.

Knowledge Questionnaire: The Knowledge about Hypertension Questionnaire was an 11-item questionnaire was adapted from a questionnaire used in the study by Vikeneswari and colleagues[23] (Cronbach α – 0.765). Each correct score was given a score of 1, giving a total of 11. This was turned into percentages and the following ratings were used: Good knowledge ≥75%, Fair knowledge 50-74.9% and poor knowledge ≤ 49.9%.

The Belief about Medicines Questionnaire[24,25] is a self-administered questionnaire, which estimates cognitive representations of medication. It consists of 2 domains- the BMQ-Specific and the BMQ-General. The BMQ-Specific assesses beliefs about medications prescribed for a particular illness and consists of the necessity and concerns scales regarding prescribed medications while the BMQ-General which assesses beliefs about the degree to which patients perceive medicines as harmful. The 5-point scale for the beliefs about medicine questionnaire was collapsed into 3: strongly agree/ agree, uncertain and disagree/strongly disagree. Higher scores on the General-overuse indicate more negative views about the way in which medicines are prescribed and beliefs that they are overused by physicians.

The Brief Medication Questionnaire[26] is a self-report tool for screening adherence and barriers to adherence. The questionnaire includes: a 5-item Regimen Screen that assesses adherence behaviour and a 2-item Belief Screen that assesses difficulty with any of the medications and if the medication bothers in any way. Two questions were included to inquire about side effects from the medicines.

Data from the research instruments were coded, entered and analysed using the Statistical Package for Social Sciences (SPSS; SPSS Inc., Chicago, IL, USA) program version 23. Frequencies, proportions and statistics were used to describe the study population in relation to relevant variables. Correlation and Chi-square were carried out to see if there were any associations of each independent variable with the dependent variable. p-values of ≤ 0.05 were statistically significant.

Ethical considerations: Ethical approval was obtained from the Lagos University Teaching Hospital (LUTH) Research and Ethics Committee.

RESULTS

The total number of patients approached to take part in the study was 387 patients. However, 349 patients agreed to take part in the study giving a retrieval rate of 90.2%.

Socio-demographic Characteristics

More than half of the population sample was female (179, 51.3%). The mean age was 57.20 ±12.23years while the median and modal ages were 57 years and 60 years respectively. Majority of the respondents were also aged 40 years and above (320, 91.7%). Almost all the respondents had at least primary school certificate (246,93.4%) and more than half had completed tertiary education (192,55.0%). More than half of the respondents had no co-morbidities (191,54.7%) and 39.5% (138) were on other medication apart from their antihypertensive medication. Most of the respondents had been diagnosed with hypertension for a year and more (318,91.1%). More than half of the respondents checked their blood pressure only when they visit the hospital (195,55.9%). Only a small percentage (135,38.7%) had their blood pressure value within the normal and prehypertension ranges based on the last readings.

Knowledge about Hypertension

Based on the total knowledge scores, the respondents had moderate to good knowledge about hypertension (Table 1).

Table 1: Knowledge of Hypertension

Knowledge Category	F (%)	Mean Score
Good	155(44.4)	9.95 ± 0.771
Moderate	118 (33.8)	7.08 ± 0.843
Poor	76 (21.8)	3.78 ± 1.410

Beliefs about medicines

BMQ Specific

The mean score for the necessity scale was 15.52 (S.D 4.010) while that of the concern scale was 14.28 (S.D 3.462). Individual values making up the scales are shown in Table 2.

Table 2: Responses of participants on the Beliefs about Medicines Questionnaire (Specific)

Variable	Agree/ S. Agree	Uncertain	Disagree/ S. Disagree
	F (%)	F (%)	F (%)
Necessity Scale			
My health at present depends on my hypertension medicines.	202 (57.9)	56 (16.0)	91 (26.1)
My life would be impossible without my hypertension medicines	62 (17.8)	87 (24.9)	200 (57.3)
Without my hypertension medication, I would be very ill	151 (43.3)	91(26.1)	107 (30.7)
My health in the future will depend on my hypertension medication.	73 (20.9)	115 (33.0)	161 (46.1)
My hypertension medication protects me from becoming worse.	258 (73.9)	51 (14.6)	40 (11.5)
Concerns Scale			
Having to take my hypertension medication worries me.	131 (37.5)	40 (11.5)	178 (51.0)
I sometimes worry about the long-term effects of my hypertension medication.	179 (51.3)	58 (16.6)	112 (32.1)
My hypertension medication is a mystery to me.	90 (25.8)	81 (23.2)	178 (51.0)
My hypertension medication disrupts my life.	43 (12.3)	57 (16.3)	249 (71.3)
I sometimes worry about becoming too dependent on my hypertension medication.	151 (43.3)	53 (15.2)	118 (33.8)

Key: S. = strongly

BMQ General

The mean score for the overuse scale was 11.77 (S.D 3.239) while that of the harm scale was 11.57 (S.D 3.798). Table 3 below shows the individual values

Adherence Assessment

In the regimen screen, only 35.0% (122) of respondents were adherent while in the belief screens, 57.3% (200) were adherent. Individual values making up the scales are shown in Table 4.

Table 3: Beliefs about Medicines Questionnaire - General

Variable	Agree/Strongly agree	Uncertain	Disagree/Strongly Disagree
	F (%)	F (%)	F (%)
OVERUSE SCALE			
Doctors use too many medications.	128 (36.7)	99 (28.4)	122 (34.9)
People who take medicines should stop their medicines for a while every now and again.	71 (20.3)	98 (28.1)	180 (51.6)

Doctors place too much trust on medicines.	219 (62.8)	82 (23.5)	48 (13.7)
If doctors had more time with patients, they would prescribe fewer medicines.	90 (25.8)	182 (52.1)	77 (22.1)
HARM SCALE			
Most medicines are addictive.	145 (41.6)	123 (35.2)	81 (23.2)
Natural remedies are safer than medicines.	105 (30.1)	96 (27.5)	148 (42.4)
Medicines do more harm than good.	41 (11.8)	105 (30.1)	203 (58.1)
All medicines are poisons.	42 (12.0)	108 (31.0)	199 (57.0)

Table 4: Level of adherence using the Brief Medication Questionnaire

Variable	Characteristics	Frequency	Percentage (%)
Regimen screen	Adherent	122	35.0
	Potentially non-adherent	227	65.0
Belief screen	Adherent	200	57.3
	Potentially non adherent	149	38.7

There was no statistically significant relationship between adherence and socio-demographic variables as age, level of education and duration of disease. Table 5 shows the correlations of the study variables with non- adherence to antihypertensive medications. The level of significance (α) used was 0.05.

Table 5: Associations of study variables with non-adherence

Variables	Pearson's *r*	p-value
SOCIODEMOGRAPHIC VARIABLES		
Age	+0.05	0.353
Level of education	-0.09	0.081
Duration of disease	-0.07	0.224
BELIFS ABOUT MEDICINES VARIABLES		
Necessity scores	-0.21	<0.001*
Concerns scores	+0.13	0.012*
Overuse scores	+0.21	<0.001*
Harm scores	+0.21	<0.001*
KNOWLEDGE VARIABLES		
Total knowledge scores	-0.28	<0.001*

Key: *= statistically significant; n=349; α=0.05; CI=95% Level of significance= 0.05;

DISCUSSION

This study assessed the potential relationship between patient's knowledge of hypertension and beliefs about medicines and adherence in Lagos University Teaching Hospital, Lagos.

Treatment outcomes have been shown to be strongly related to adherence in chronic disease like hypertension[27]. Good knowledge of disease has also been shown to be a factor in positive treatment outcomes and control[19,28]. In this study, less than half of the respondents had good knowledge about hypertension. This is in agreement to other studies in Nigeria[29-31] where respondents did not have good knowledge nor know the adverse effects of

having high blood pressure. There was a statistically significant relationship between adherence and knowledge ($p<0.005$). The correlation coefficient of adherence and total knowledge of hypertension showed a negative relationship indicating that as knowledge about hypertension increased, the potential for non-adherence decreased which agrees with the study by Boima and colleagues[32]. conducted in Ghana and Nigeria. Poor knowledge may negatively affect patient's lifestyle behaviour inadvertently affecting adherence and blood pressure control[19]. Poor knowledge is a failure of counselling from health care providers as most of the respondents have been on medication for more than 6 months. This gap may be redressed by healthcare workers educating patients about hypertension and such education should be reinforced at the different points of interaction with the patients. This may improve the level of medication adherence and consequently therapeutic outcome.

This study showed that majority of the patients believed that their hypertension medication protected them from becoming worse but did not agree their present or future health will depend on my hypertension medicines. This belief may be related to poor knowledge about hypertensive disease and treatment. About half of the respondents agreed that they worry about the long-term effects of my hypertension medication. Overall, based on the results of the mean scores of the necessity and concerns subscale, even though majority of the respondents believed in the necessity of their medications to maintain their health now and in the future, many also had concerns about the potential negative effects of their hypertension medications. The mean necessity score was however, slightly higher than the mean concerns score indicating the belief that adherence to the medication will promote quick recovery. This is in agreement with other hypertensive and diabetic studies[21,22,33,34]. Hypertension is a chronic illness that requires life treatment. The two major concerns of the respondents were becoming too dependent on medication and the long-term effects. These beliefs allude to an educational gap that healthcare workers need to be aware of so that patient education and intervention address safety and dependency concerns and as a result minimise non-adherence arising from such issues.

The results of the mean scores of the harm subscale showed that the patients had negative views about hypertension medicines as a whole and a tendency to see medicines as fundamentally harmful and addictive poisons. The overuse subscale score also indicated that patients had negative views about prescribed hypertension medicines and the belief that they were overused by physicians. The patients believed that doctors place too much trust on medicines and therefore used too many medications. They also believed that natural remedies were safer than orthodox medicines which is in agreement with a study in Edo State, Nigeria[20]. The use of natural remedies and dietary supplements are increasing globally and they are often used in conjunction with prescribed medicines[35]. This safety of these combinations may be a cause for concern and may inadvertently lead to non-adherence. The patients have to be reassured time and time again that the medications given to them are of benefit to them.

Results from regimen screen of the brief medication questionnaire show that about a third of the respondents were adherent while in the belief screen, over half of the respondents were adherent while the rest were potentially non-adherent. The relationships between adherence and all the subscales of the beliefs about medicines questionnaires: necessity, concerns, overuse and harm were all were statistically significant with p-values of less than 0.05. The results of the study showed a negative correlation between the beliefs of necessity and adherence indicating that as need for

medication increased, the potential for non-adherence decreased. There was a positive correlation between adherence and the concern, harm and overuse of medication subscales indicating that as the beliefs of these subscales increased so did the potential for non-adherence. These findings are in agreement with other studies [20- 22,34]. One of the major barriers leading to poor treatment outcomes in hypertension management is non-adherence[28]. Non-adherence can be affected by behaviour which in turn can be affected by beliefs[16]. Patient's beliefs about how essential the medicines they are using is to their well-being may partially explain levels of adherence[36]. Studies have found that those patients who had negative beliefs toward medications among hypertensive patients and other chronically ill patients significantly but partially explained non-adherence to their treatment regimen[19-22,28,33,37-39]. It therefore becomes important that healthcare providers communicate better when educating the patient about the disease and also address their beliefs about medications. Addressing these beliefs may improve medication non-adherence and consequently therapeutic outcome.

Limitations of the study

The limitations of this study are as follows: Although the sample size was relatively large, the study is not representative of Nigerian hypertensive patients. The selection method may be inclusively biased as it utilized a non-probability sampling method. As such caution should be taken in generalising the findings in this study. Self -reports method was used to assess the brief medication questionnaire. This method relies on the honesty of the respondent and is to recall bias.

CONCLUSION

This study showed that the patients had inadequate knowledge about hypertensive diseases and medications which influenced adherence negatively. There was a positive association between the beliefs about the necessity of their medication and adherence but a negative one between the beliefs of concern, harm and overuse and adherence. There is a need for healthcare providers to establish intervention strategies to educate patients on hypertension disease and medications as well as address beliefs of patients. This may improve non adherence and consequently impact treatment outcome.

ACKNOWLEDGEMENTS

Special thanks go to the nurses and medical staff in the cardiology clinic of the Lagos University Teaching Hospital, Idiaraba, Lagos

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