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Role of Illness Perception and Medication Beliefs in Medication Adherence among Hypertensive Patients

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ABSTRACT

Objectives: The study aimed to determine the influence of illness perception and medication beliefs on hypertension medication adherence.

Methods: The study was a hospital-based, and cross-sectional study that lasted for 3 months, from March to May 2016. Those included in the study were hypertensive patients aged 18–65 years who had been on hypertensive medications for at least 6 months. Data were obtained using a semi-structured interviewer-administered questionnaire consisting of sociodemographic characteristics, the brief illness perception questionnaire (BIPQ), beliefs about medication (BMQ), and Morisky Medication Adherence Scale.

Results: Out of 400 respondents, 115 (28.8%) had good adherence to antihypertensive medications, and 91 (22.8%) had controlled blood pressure. The median score of timeline of the BIPQ dimension was 6.0 (0.0–10.0) in the adherent group and 4.0 (0.0–10.0) in the non-adherent group (p=0.001). However, consequence, personal control, treatment control, identity, concern, coherence, and emotional representation were lower in the adherent group than non-adherent group (p=0.001, p=0.001, p=0.001, p=0.001, p=0.001, p=0.001, and p=0.001, respectively). The median score of the necessity of the BMQ dimension was 18.0 (11.0–22.0) in the adherent group and 13.0 (5.0–22.0) in the non-adherent group (p=0.001). On the other hand, concern, harm, and overuse were lower in the adherent group than in the non-adherent group (p=0.001, p=0.001, and p=0.001, respectively).

Conclusion: This study showed that having good illness perception and medication beliefs was linked to adherence to treatment in hypertension patients.

Keywords: Beliefs, hypertension, perception, treatment adherence

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INTRODUCTION

Hypertension is a non-communicable disease with the potential to cause heart and kidney diseases, stroke, retinopathy, and peripheral vascular disease.[1] It is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries. Hypertension has been reported as a major challenge in Africa, second only to acquired immune deficiency syndrome.[2]

Globally, the prevalence of hypertension has been increasing, with nearly 1 billion individuals affected, and two-thirds of these live in developing countries.[3] It is reported that one in three adults worldwide has hypertension, with most of them in low- and middle-income countries, to which Nigeria belongs.[1,4] In Nigeria, the prevalence of hypertension is on the increase, with rising trends of sudden cardiac deaths.[5]

The burden of hypertension in Sub-Saharan Africa has been heavy due to the double impact of both infectious and non-communicable diseases, which are highly prevalent in this region.[1] There is an enormous financial burden associated with hypertension since the disease is a lifetime condition that requires management over long periods. Most of the costs of hypertension management and its resultant complications are borne by the individuals through out-of-pocket payments.[6] This economic burden puts a strain on individual resources and a country's health-care system, especially in resource-limited settings like Nigeria. The cost of drugs is an important discriminating factor in making choices about the initiation and maintenance of therapy.

Adherence to medication forms a vital part of managing a chronic disease such as hypertension. The World Health Organization defines adherence to long-term therapy as "the extent to which a person's behavior, that is, taking medication, corresponds with agreed recommendations from a health-care provider."[7] Non-adherence can be intentional and often due to several factors, such as a person's perception of their illness and medication beliefs. On the other hand, the non-intentional type of non-adherence is associated with forgetfulness or poor understanding of counsel from the care provider.

Illness perceptions are the organized cognitive representations that patients have about their illness and are important determinants of patients' health-seeking behavior.[8,9] Harmful medication beliefs, which result in intentional non-adherence to medications, will adversely affect the health outcome of hypertensive patients.[10] Beliefs, when addressed appropriately, create a meaningful and clinically accessible way to improve health-related quality of life in hypertensive patients.

Good medication adherence can be achieved by understanding a patient's illness perceptions and medication beliefs.[6] This process identifies misperceptions and adverse beliefs that can affect medication adherence and help researchers and health-care providers form strategies to tackle them. At the primary care level, hypertension in patients will be controlled, leading to decreased morbidity and mortality.[8] This outcome will improve the quality of life of the patient and reduce the socioeconomic burden on families, communities, and nations. Studies on medication adherence have been done in the South-South of Nigeria, but to the best of our knowledge, there is a dearth of the report on the role of illness perception and medication beliefs in medication adherence among persons with hypertension. The purpose of this study is to assess the role of illness perception and medication beliefs in medication adherence among persons with hypertension.

METHOD

The study was a hospital-based, and cross-sectional study, conducted at the University of Port Harcourt Teaching Hospital, Rivers State, Nigeria and lasted for 3 months from March to May 2016. The study population were hypertensive patients receiving care at the hospital. Those included in the study were hypertensive patients aged 18–65 years who had been on hypertensive medications for at least 6 months. Those excluded were very ill hypertensive patients, that is, people who needed urgent or emergent medical care.

Based on the data obtained from a previous study on medication adherence, a sample size of 400 was calculated with a confidence interval of 95% and relative precision of 5%.[11] A systematic sampling technique, a type of probability sampling method, was used in the recruitment of the respondents. The first hypertensive patient recruited into the study was selected by simple random sampling through ballot method from among the first five known hypertensive patients. Subsequently, every fifth known hypertensive patient who presented to the clinic and consented to the study was recruited within the planned period of the study.

Data were obtained using a semi-structured interviewer-administered questionnaire consisting of sociodemographic characteristics, the validated brief illness perception questionnaire (BIPQ), beliefs about medication (BMQ), and Morisky medication adherence scale (MMAS-4).

The MMAS-4 measures both intentional and unintentional adherence based on forgetfulness, carelessness, stopping the medication when feeling better, and stopping when feeling worse.[8] One (1) point was assigned for a "no" answer while zero (0) point was assigned for a "yes" answer, with higher scores indicating high medication-taking adherence behaviors. According to MMAS-4 scores, *MMAS4* ≥3 was accepted as adherence and *MMAS* score <3 non-adherence.

BIPQ has eight dimensions through which a patient's cognitive and emotional ideas about their disease are measured.[9] It included consequences, timeline (acute-chronic), personal control, treatment control, identity (symptoms), concern about the illness, coherence of the illness, and emotional representation. The brief BIPQ, therefore, consists of eight questions measuring along these dimensions, and the answers are rated on a Likert scale from 0 to 10 to assess each dimension, where higher scores indicate stronger perceptions along that dimension.

The BMQ is in two parts, namely, specific and general.[10] The BMQ-specific is further divided into specific as necessity and concern themes. Each theme has questions with scores ranging from 5 to 25, where higher scores denote higher beliefs. The BMQ-general is also divided into the general as harm and the overuse themes. Each theme has questions with scores ranging from 4 to 20, and a high score signifies a patient's view that medications are harmful and overused.

The data were analyzed using SPSS version 22 for windows (SPSS, Chicago, IL, USA). The descriptive data were expressed as frequency, percentage, and median with minimum and maximum values. The Kolmogorov–Smirnov test was used to test the normality of the data set. The Mann–Whitney U-test was used to compare the difference between the adherent and non-adherent groups. A p-value <0.05 was considered significant for all statistical analyses.

RESULTS

A total of 400 respondents participated in this study. The study had a female population of 282 (70.5%), and those married were 261 (65.3%). Those with tertiary and secondary levels of education were 142 (35.4%) and 141 (35.3%), respectively. Regarding religion and social class, 385 (96.3%) were Christians, 134 (33.5%) were in social class II (intermediate grade public servants), 125 (31.3%) were in class IV (unskilled), and 12 (3.0%) in class I (senior grade public servant). Concerning income, 261 (65.2%) of the respondents had a monthly income of 50,000 Naira and below, while 110 (27.5%) earned from 51,000 to 100,000 Naira. Only 29 (7.3%) respondents earned more than 100,000 Naira.

Of the respondents, 115 (28.8%) of the respondents had good adherence to antihypertensive medications. In this study, 91 (22.8%) of the patients had blood pressure under control. The distribution of adherence status among the respondents is shown in Figure 1.

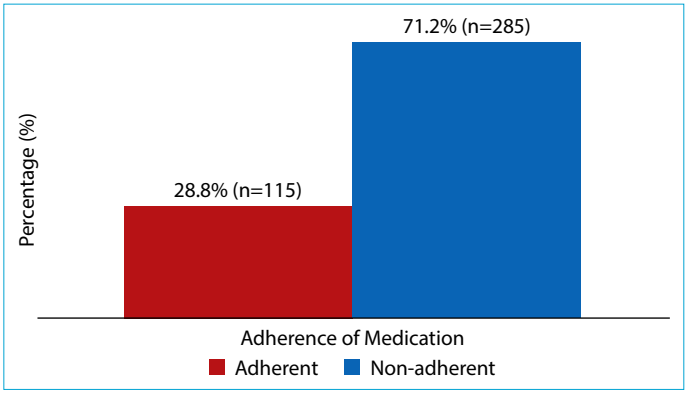

Figure 1. Distribution of adherence status among the respondents.

The median scores of consequence, personal control, treatment control, coherence, and emotional representation of the BIPQ dimension were lower in the adherent group than non-adherent group (p=0.001, p=0.001, p=0.001, p=0.001 and p=0.001, respectively). BIPQ dimensions according to adherent and non-adherent to medication are summarized in Table 1.

The median scores of concern, harm, and overuse of the BMQ dimension were lower in the adherent group than non-adherent group (p=0.001, p=0.001 and p=0.001, respectively). BMQ dimensions according to adherent and non-adherent to medication are summarized in Table 2.

DISCUSSION

In this study, there was a difference in the median scores of all dimensions of illness perception between those who were adherent. This result shows the importance of considering these parameters in the evaluation of patients with hypertension. It was supported by a previous study done in Northern Taiwan among hypertensive patients, which showed that those with a good perception of hypertension had better medication adherence.[12]

In this study, those who were adherent were noted to perceive their illness as not having serious consequences. Patients who feel unburdened with their illness are more likely to use their medications with ease and decrease the likelihood of undue consequences from the illness leading to good medication adherence. The finding in this study was similar to that observed by Žugelj et al., who found no relationship between illness consequences and medication adherence.[13] This may have been due to the study population, which consisted mostly of adolescents. Younger persons may not view illness consequences as older adults with hypertension.

The perceived duration of hypertension may have an impact on medication adherence, as in this study, where those who were adherent had a higher median score in comparison to those who were non-adherent. This agrees with a similar study carried out among 114 hypertensive patients attending a general outpatient clinic in a Nigerian tertiary hospital.[14] A patient who viewed their condition as long-term rated their medication for hypertension as necessary, thus buttressing the relationship between illness timeline and medication adherence.

Surprisingly, the controllability (personal and treatment control) illness perception dimension was worse among the adherent group in this study. This contrasted with the findings in other studies, but agreed with a study by

Table 1. BIPQ dimensions according to adherent and non-adherent to medication

	Adherent (n=115)	Non-adherent (n=285)	p
BIPQ dimension			
Consequence	4.0 (0.0–9.0)	7.0 (1.0–53.0)	0.001
Timeline	6.0 (0.0–10.0)	4.0 (0.0–10.0)	0.001
Personal control	2.0 (0.0–8.0)	5.0 (1.0–10.0)	0.001
Treatment control	2.0 (0.0–9.0)	6.0 (1.0–10.0)	0.001
Identity	5.0 (1.0–10.0)	7.0 (2.0–10.0)	0.001
Concern	5.0 (0.0–10.0)	7.0 (3.0–10.0)	0.001
Coherence	3.0 (0.0–8.0)	6.0 (1.0–66.0)	0.001
Emotional representation	4.0 (0.0–9.0)	7.0 (2.0–46.0)	0.001

BIPQ: Brief illness perception questionnaire.
Data are presented as median (min-max).
Mann-Whitney U test.

Table 2. BMQ dimensions according to adherent and non-adherent to medication

	Adherent (n=115)	Non-adherent (n=285)	p
BMQ dimension			
Necessity	18.0 (11.0–22.0)	13.0 (5.0–22.0)	0.001
Concern	14.0 (6.0–19.0)	18.0 (9.0–24.0)	0.001
Necessity-concern differential	4.0 (8.0–12.0)	5.0 (13.0–9.0)	0.001
Harm	9.0 (4.0–17.0)	15.0 (6.0–19.0)	0.001
Overuse	10.0 (5.0–19.0)	13.0 (3.0–20.0)	0.001

BMQ: Beliefs about medication.
Data are presented as median (min-max).
Mann-Whitney U test.

Žugelj et al. which found that those who were adherent to their medications were those who had lower scores in the personal control dimension.[9,13,15] Controllability denotes an individual's perceived efficacy in controlling their illness and the benefits of treatment. This requires self-will and self-efficacy. Those adherents in this study may have had poor controllability, because they were not self-willed but were more agreeable and able to cooperate with their health-care providers, whereas those who were overconfident were less agreeable and more unlikely to cooperate with their healthcare providers. However, it seems adherence to therapeutic regimens may be enhanced by improving a sense of controllability.[16]

In the identity subscale of illness perception, lower median scores were noted in the adherent group compared to the non-adherent group. This implied that those who felt fewer symptoms were more likely and happy to use their medications. Patients who experience more symptoms associated with their illness (hypertension) may feel too ill to use their medications and have a weaker sense of control over their illness resulting in poor medication adherence. This is in agreement with a previous study carried out in Hong Kong among adult hypertensives.[17]

Regarding the concern dimension in this study, lower median scores were noticed among the adherent group in comparison with the non-adherent group. This agreed with the findings from a meta-analysis and also an independent study carried out in New York City.[10,18] Patients who have concerns about potential adverse effects of medication are likely to be non-adherent. This may be due to previous experiences or possible wrong information from informal sources.

Coherence is a measure of patients' understanding of their health condition and was surprisingly noticed to be significantly higher among those who were non-adherent to their anti-hypertensive medication, unlike a previous study.

[19] This may imply the possible use of alternative therapies. Besides, the chronic nature of hypertension could make individuals get used to their illness, with the potential to neglect their medications.

Emotional response to a health threat can have a negative or positive relationship with medication adherence. This study revealed lower median scores for the emotional subscale among those that are adherent, denoting that they were more able to handle their emotions without allowing them to hinder their medication-taking behavior. These responses include worry, depression, anger, anxiety, and fear related to the illness, which may contribute toward a tendency to non-adherence. Other researchers have also corroborated this result.[13,19] In this study, the median of adherence and non-adherence was statistically significant for all factors of the BIPQ dimension.

A stronger belief in the necessity of medications was been shown to be associated with positive medication adherence in this study, as noted in other studies.[18,20] This reflects their need to stay healthy and the survival instincts inherent in every human being.[20] This finding, however, differed from a study in the Netherlands.[21] Diverse cultural values, which can impact the way in which individuals interact with the health-care system, may explain this difference.

The median scores of the concern, harm, and overuse belief subscales in this study were found to be higher among the non-adherent group. This agreed with the findings in other studies.[18,20,22] This may be attributed to previous unpleasant experiences with medications, distrustful attitude toward their drugs, different sociocultural practices, or due to the use of alternative medicines. The difference between the median of adherence and non-adherence was significant for all factors of the BMQ dimension.

This study has many limitations. The hospital-based nature of the study restricts the sample to patients presenting for treatment in the hospital, thus limiting the generalizability of this study. Furthermore, the cross-sectional design of this study limits any causal inference from anticipated associations as a time sequence relationship cannot be determined.

CONCLUSION

In this study, a good perception of illness relates to medication adherence in a positive way. Furthermore, this study has brought to the limelight the import of medication beliefs in relation to antihypertensive medication adherence. Therefore, to offer wholesome care to patients living with hypertension, consideration should be given to these aspects.

Disclosures

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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Ethics Committee Approval: The approval for the research was obtained from the University of Port Harcourt Teaching hospital, Rivers state, Nigeria, Ethical Review Board (Approval date: September 14, 2015, and Approval number: UPTH/ADM/90/S.II/VOLX/729). Informed consent was sought and obtained from each study participant.

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REFERENCES

1. Adeoye AM, Adebiyi A, Tayo BO, Salako BL, Ogunniyi A, Cooper RS. Hypertension subtypes among hypertensive patients in Ibadan. Int J Hypertens 2014;2(1):2014–6. [CrossRef]
2. Ogah OS, Rayner BL. Recent advances in hypertension in sub-Saharan Africa. Heart 2013;99(19):1390–7. [CrossRef]
3. Van de Vijver S, Akinyi H, Oti S, Olajide A, Agyemang C, Aboderin I, et al. Status report on hypertension in Africa-Consultative review for the 6th Session of the African Union Conference of Ministers of Health on NCD's. Pan Afr Med 2014;16(1):80–8. [CrossRef]
4. James PA, Oparil S, Carter BL, Cushman WC, Dennison-Himmelfarb C, Handler J, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the Eighth Joint National Committee (JNC 8). JAMA 2014;311(5):507–20.
5. Mills KT, Bundy JD, Kelly TN, Reed J, Kearney PM, Reynolds K, et al. Global disparities of hypertension prevalence and control: a systematic analysis of population-based studies from 90 countries. Circulation 2016;134(6):441–50. [CrossRef]
6. Okwuonu CG, Ojimadu NE, Okaka EI, Akemokwe FM. Patient-related barriers to hypertension control in a Nigerian population. Int J Gen Med 2014;7(3):345–8. [CrossRef]
7. Suleiman IA, Amogu EO, Ganiyu KA. Prevalence and control of hypertension in a Niger Delta semi urban community, Nigeria. J Pharm Pract 2013;11(1):24–8. [CrossRef]
8. Brown MT, Bussell JK. Medication adherence: WHO cares? Mayo Clin Proc 2011;86(4):304–14. [CrossRef]
9. Broadbent E, Wilkes C, Koschwanez H, Weinman J, Norton S, Petrie KJ. A systematic review and meta-analysis of the Brief Illness Perception Questionnaire. Psychol Health 2015;30(11):1361–85. [CrossRef]
10. Horne R, Chapman SC, Parham R, Freemantle N, Forbes A, Cooper V. Understanding patients' adherence-related beliefs about medicines prescribed for long-term conditions: a meta-

analytic review of the Necessity-Concerns Framework. PloS One 2013;8(12):e80633.
11. Akpa M, Agomuoh D, Odia O. Drug compliance among hypertensive patients in PortHarcourt, Nigeria. Niger J Med 2005;14(4):55–7. [CrossRef]
12. Hsiao CY, Chang C, Chen CD. An investigation on illness perception and adherence among hypertensive patients. Kaohsiung J Med Sci 2012;28(8):442–7. [CrossRef]
13. Žugelj U, Zupančič M, Komidar L, Kenda R, Varda NM, Gregorič A. Self-reported adherence behavior in adolescent hypertensive patients: the role of illness representations and personality. J Pediatr Psychol 2010;35(9):1049–60. [CrossRef]
14. Akintunde A, Akintunde T. Antihypertensive medications adherence among Nigerian hypertensive subjects in a specialist clinic compared to a general outpatient clinic. Ann Med Health Sci Res 2015;5(3):173–8. [CrossRef]
15. Norfazilah A, Samuel A, Law P. Illness perception among hypertensive patients in primary care centre UKMMC. Malays Fam Physician 2013;8(3):19–22.
16. Petrie KJ, Jago LA, Devcich DA. The role of illness perceptions in patients with medical conditions. Curr Opin Psychiatry 2007;20(2):163–7. [CrossRef]
17. Lo SH, Chau JP, Woo J, Thompson DR, Choi KC. Adherence to antihypertensive medication in older adults with hypertension. J Cardiovasc Nurs 2016;31(4):296–300. [CrossRef]
18. Rajpura JR, Nayak R. Role of illness perceptions and medication beliefs on medication compliance of elderly hypertensive cohorts. J Pharm Pract 2014;27(1):19–24. [CrossRef]
19. Kucukarslan SN. A review of published studies of patients' illness perceptions and medication adherence: lessons learned and future directions. Res Social Adm Pharm 2012;8(5):371–82. [CrossRef]
20. Buendía JA. Attitudes, knowledge and beliefs of patient about anti-hypertensive drugs. Biomedica 2012;32(4):578–84.
21. de Vries ST, Keers JC, Visser R, de Zeeuw D, Haaijer-Ruskamp FM, Voorham J, et al. Medication beliefs, treatment complexity, and non-adherence to different drug classes in patients with type 2 diabetes. J Psychosom Res 2014;76(2):134–8.
22. Phillips LA, Diefenbach MA, Kronish IM, Negron RM, Horowitz CR. The necessity-concerns framework: A multidimensional theory benefits from multidimensional analysis. Ann Behav Med 2014;48(1):7–16.