KNOWLEDGE AND AWARENESS OF LIFESTYLE MODIFICATIONS AS A MEASURE INFLUENCING THE MANAGEMENT OF HYPERTENSION AMONG HYPERTENSIVE PATIENTS AT THE DELTA STATE UNIVERSITY TEACHING HOSPITAL, OGHARA

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Abstract

Background: Millions of people suffer from hypertension; and considering that it poses a significant risk for a number of serious health-related problems (such as stroke, kidney, and heart diseases), lifestyle modifications activities like exercise, healthier diet, and stress reduction has been shown to effectively control hypertension and lower the risk of problems.

Aim: This study examined the knowledge and awareness of the predisposing factors to hypertension as a measure of lifestyle modification influencing the management of hypertension among hypertensive patients.

Materials and Methods: one hundred and fifty (150) hypertensive patients attending Delta State University Teaching Hospital Oghara, Delta State, Nigeria were recruited using a descriptive cross-sectional research design. Data was collected using a questionnaire designed by the researchers. A face-to-face administration of the questionnaire was used. Data was summarized using frequencies and percentages and analysed using the spearman's rank order correlation at p-value significant at <0.05 level.

Results: This study revealed that most participants were knowledgeable about the causes of hypertension and considered stroke as a complication of hypertension. Most participants were aware that a person with hypertension should practice a healthy diet, reduction of chronic stress level and should participate in aerobic exercise, while adopting cessation of smoking as measure for the control hypertension complications. Similarly, most of the respondents accepted the following factors are the influence of lifestyle modifications in the management of hypertension: having enough rest, mild to moderate exercise, low consumption of low salt diet, and high consumption of fruits and vegetables.

Conclusion: Most of the participants were knowledgeable about hypertension and the associated causative factors; and aware of various positive lifestyle modification strategies in the management of hypertension. However, the level of awareness of the respondents still needs to be increased, as it would improve the lifestyle modifications.

Keywords: *Awareness, Hypertension, Lifestyle modifications, Hypertensive patients*

Introduction

Hypertension is a chronic medical condition characterized by elevated blood pressure in the arteries. Blood pressure is the force of blood against the walls of the arteries as the heart pumps it around the body. It is recorded as two values: systolic pressure (the pressure when the heart beats while pumping blood) and diastolic pressure (the pressure when the heart is at rest between beats). Hypertension results if the systolic blood pressure is greater than 140mmHg and diastolic pressure greater than 90mmHg based on the average of two or more accurate blood pressure measurements taken during two or more contacts with a health care provider[1]. A blood pressure of less than or equal to 120/80mmHg is normal, with values of 120 - 129mmHg systolic and 80 - 89mmHg diastolic are prehypertension. Individuals with consistent blood pressure readings of 140 mmHg systolic and 90mmHg diastolic or higher are classified as hypertension. It is important to state that hypertension is a non-communicable disease, which may develop as a result of certain behavioural or lifestyle practices[2]. Hypertension is a leading risk factor for mortality in both developed and developing countries and directly affects 972 million people worldwide; and is a contributing factor for another 370 million with cardiovascular-related diseases[3].

The prevalence of hypertension varies widely, ranging from a minimum of 3.2% to a maximum of 10.1% for children and adolescents, and from a minimum of 21.5% to a maximum of 78.5% for adults[4]. According to a previous study, the predictions of increased prevalence in the future persist and by 2025, up to 1.58 billion adults worldwide are likely to suffer complications of hypertension[5]. The causes of hypertension can be primary or secondary[6]. Hypertension could be primary (high blood pressure from unidentified causes) or secondary (hypertension related to identified causes such as narrowing of the renal arteries, hyperaldosteronism, etc). Invariably, the kind of high blood pressure that typically develops gradually over many years is called primary (essential) hypertension. Many people have high blood pressure for unknown reasons. Conversely, secondary, or non-essential, hypertension is a form of hypertension caused by the consequences of other illnesses. They include; congenital anomalies, pyelonephritis, obstruction in renal artery, acute or chronic glomerulonephritis, aortic stenosis, tumours in the adrenal gland (Pheochromocytoma), Cushing syndrome, hyperthyroidisms, sleep apnea and drugs such as NSAIDs, oestrogen, sympathomimetics, steroids, antidepressants, etc. Developing countries are highly affected by hypertension, of which Nigeria is not exempted[7].

The predictions of a high and ongoing incidence of hypertension in Africa, especially in rural areas, suggests that it is a major risk factor for cardiovascular disease, including stroke, heart attack, and heart failure[8]. Age-related increases in hypertension are steady. For example, in Africa, the frequency among older people is almost two to four times higher than that of younger adults[9]. Hypertension may not give any symptom, therefore, it is referred to as a "silent killer" Otherwise symptoms such as severe headache, shortness of breath, dizziness, and chest pain, only occurs when blood pressure is already high. If left uncontrolled, hypertension can lead to stroke, dementia, coronary heart disease, kidney failure, and ultimately, sudden cardiac death[3]. Adequate knowledge of lifestyle modifications as preventive and management measures of hypertension is essential in reducing its prevalence, damaging effects, and associated complications[10]. Blood pressure levels can

be reduced with antihypertensive drugs, which are effective in reducing the risk or severity of cardiovascular disease. However, drug therapy is not the only means of preventing and treating high blood pressure. Non-pharmacological approaches have been effective in the prevention and treatment of hypertension. Awareness of the risk factors associated with hypertension, such as obesity, high sodium intake, sedentary lifestyle, and chronic stress, can motivate people to adopt lifestyle modifications.

A good knowledge of the preventive measures of hypertension is vital. Adequate preventive measures for high blood pressure can effectively reduce the risks of stroke and other complications such as myocardial infarction, chronic kidney disease and heart failure[11]. Lifestyle modifications recommended for both the treatment and prevention of hypertension include dietary changes or a healthy diet, increased physical activity, or participation in aerobic exercises such as brisk walking, swimming, or cycling to facilitate weight reduction, moderation of alcohol consumption, and stress management considering that chronic stress contributes to elevated blood pressure. According to Sefah et al.[12], some lifestyles and attitudes which include excessive alcohol consumption, sedentary lifestyles, smoking cigarettes, may contribute to the rising levels of hypertension predisposition. In addition, Adekoya & Sodeinde[3], pointed out that unhealthy lifestyle choices include smoking, drinking alcohol, leading a sedentary lifestyle, having a high level of job strain, poor diet (food containing too much salt and fat), obesity and having a family history of hypertension also makes one prone to the condition[13].

The role of knowledge and awareness is pivotal lifestyle modifications for the management of hypertension. Such a role include; educating patients about the importance of lifestyle modifications, awareness of risk factors associated with hypertension, and access to resources such as educational materials, support groups, and nutritional counselling[14]. Despite the importance of knowledge and awareness, there several challenges and barriers to implementing lifestyle modifications for hypertension management. These may include socioeconomic factors such as limited financial resources, limited social support or encouragement from family members, friends, or community networks, and cultural or traditional dietary preferences[15]. By addressing these factors, people with hypertension can be better equipped to make sustainable lifestyle changes that contribute to improved overall health and well-being[16]. Hence, the conceived need to examine the knowledge of hypertensive patients at the Delta State University Teaching Hospital Oghara on lifestyle modifications as a measure for the management of hypertension.

Materials and Methods
Research Design
A descriptive cross-sectional survey was used. Data was collected about different variables from the sample at one point of time in order to reveal the relationship between these variables, therefore it was considered for this study.

Study Setting
The study was carried out at the Delta State University Teaching Hospital (DELSUTH). Reputably established and accredited, DELSUTH serves as a teaching hospital for Delta State University (DELSU), Abraka. It is situated in Oghara, Ethiope West Local Government Area of Delta State in the South-South region of Nigeria. Initially, the hospital was intended to be an ultramodern, 180 bed specialist facility. Oghara, a town in the Ethiope West Local Government Area, shares borders with the Mosogar Kingdom

to the east via the Ethiope River, Sapele Local Government Area to the south via an adjacent tributary of Ethiope, Delta State to the North via the Osiomo/Ologbo River, and Koko in the Warri North Local Government Area of Delta State to the South-West, Nigeria.[17-18]

Population of the study

The target population covered by this study included hypertensive patients attending DELSUTH, Oghara, Delta State. The average population of patients at the time of the study was 240 hypertensive patients registered at the facility. Information about the participants were obtained from the patients in male and female medical units, out-patient department of the hospital.

Sample and sampling technique

The sample size for this study was calculated using the Taro Yamane method described as follows;

$$n = \frac{N}{1 + N(e)^2}$$

Where; n is the sample size, N is the population size, and e is the level of precision that is usually 0.10, 0.05, or 0.01 (i.e. 10%, 5% or 1%). Using a level of precision of 5% and the population size of 240

$$n = \frac{240}{1+240\,(0.05)^2} = 150$$

Hence, the sample size for this study is 150 patients. A purposive sampling technique was used to recruit the participants.

Instrument for data collection

Data as obtained using a structured questionnaire designed by the researchers. The items in the questionnaire were generated according to the objectives set for the study. For the purpose of this study, the questionnaire was constructed in four (4) sections. Section A contains sociodemographic data, Section B contains data on knowledge of hypertension, Section C contains data on level of awareness of lifestyle modifications and section D contains data on the various lifestyle modifications used by hypertensive patients.

Validity of the instrument

To ensure valid results, the instrument was validated for face and content validity by experts who were staff of the Department of Measurement and Evaluation, Delta State University, Abraka. Face validity, which is a form of self- evident measure, was used to make sure the questionnaire was appealing to sight and it was presentable to the respondents irrespective of the format. The validity of the content was determined to ensure that the questionnaire measures what it should measure. The final draft of the questionnaire was administered to the participants.

Method of data collection

A face-to-face method of data administration of the questionnaire was used. The researchers went to the hospital, met with the respondents, and distributed the questionnaires to them after informing them about the study and obtaining consent to participate. The researcher administered questionnaires allowing a period of 30 minutes to 1 hour to fill the questionnaires before the same was retrieved from them. The data collection process lasted for a period of one week to allow the researcher to cover all participating subjects.

Ethical considerations

Ethical approval was obtained from the Ethical Review Committee of the DELSUTH, Oghara to carry out this study with permit number; HREC/PAN/2022/041/0537. The distribution of the questionnaire to the

respondents was made after the objective of the study was explained to gain informed consent. Anonymity, privacy, and confidentiality were maintained throughout the study.

Data analysis

Findings are presented using percentages, frequency distribution, and tables. The formulated hypothesis was tested using Spearman's rank order correlation at the p< 0.05 level of significance.

Results

From table 1 below, most of the respondents (40 or 26.6%) were 60-69 years old; 80 (53.3%) of the respondents were Christians, 60 (40%) were females, and 80 (53.3%) were Urhobo, 5 (3.3%) were Igbo, 15 (10%) were Hausa, and 10 (6.6%) were Yoruba, while 40(26.7%) were from other tribes. With respect to marital status, 90 (60%) were married, 25 (16.7%) were singles, 20 (13.3%) were widowed, and 15 (10%) were divorced. Based on educational background, most (46.7%) of the respondents had at least a secondary school education while 30 (20%) had no formal education; 45 (30%) of the respondents were self-employed, with 55 (36.6%) being farmers.

As shown in table 2, The majority of the respondents (69.3%) had adequate knowledge that hypertension is sustained elevated blood pressure; 88 (58.6%) of the respondents had agreed that consumption of high salt diet causes hypertension. Similarly, most respondents (69.3%) agreed that consumption of high fat causes hypertension; while 80 (53.3%) of the respondents agreed that lack of exercise causes hypertension. Furthermore, 50 (33.3%) recognized stroke as a complication of hypertension compared to majority that did not recognize stroke as a complication 100 (66.7%). In the same vein, 42 (28%) of the respondents accepted that hypertension

cannot be cured compared to 108 (72%) that felt it can be cured.

From Table 3 it can be observed that most of the respondents (85.3%) were aware that a person with hypertension should practice a healthy diet; while 100 (66.7%) were aware that hypertensive patients should participate in aerobic exercise. Also, most of the respondents (61.3%) were aware that cessation of smoking help control hypertension complications; 78 (52%) were aware that chronic stress contributes to elevated blood pressure; while 102 (68%) were aware hypertensive patients should eat low salt diet. Additionally, 90 (60%) were aware that hypertensive patients should moderate their alcohol consumption.

Table 4 showed the result of lifestyle modifications used by respondents including the influence of some lifestyle modifications. While 60 (40%) of the respondents rejected the use herbs and routinely consume alcohol to control their blood pressure, 102 (68%) accepted that having enough rest helps to control their blood pressure. Also, 100 (66.6%) of the respondents sometimes eat low or no salt diet to reduce complications. Most of the respondents accepted that the following factors may influence lifestyle modifications in the management of hypertension: having enough rest (128, 85.3%), mild to moderate exercise (102, 68%), low consumption of low salt diet (102, 68%), and high consumption of fruits and vegetables (90, 60%) while 40(26.62%) accepted that cessation of smoking was not influenced.

Table 5 presents the correlation between level of awareness of lifestyle modifications and knowledge of lifestyle modifications in the management of hypertension. The results revealed that the two variables were positively and significantly correlated (p<0.0001).

Table 1: Sociodemographic characteristics of the respondents

Variables	Frequency	Percentage (%)
Age (years)		
20-29	10	6.6
30-39	25	16.7
40-49	15	10
50-59	35	23.3
60-69	40	26.7
70-79	25	16.7
Total	**150**	**100**
Religion		
Christianity	80	53.3
Muslim	5	3.3
Traditionalist	35	23.3
Others	30	20
Total	**150**	**100**
Gender		
Male	90	60
Female	60	40
Total	**150**	**100**
Tribe		
Urhobo	80	**53.3**
Igbo	5	3.3
Hausa	15	10
Yoruba	10	6.6
Others	40	26.7
Total	**150**	**100**
Marital status		
Married	90	60
Single	25	16.7
Divorced	15	10
Widowed	20	13.3
Total	**150**	**100**
Level of Education		
Primary	35	23.3
Secondary	70	46.7
Tertiary	15	10
No formal education	30	20
Total	**150**	**100**
Profession		
Employed	50	33.3
Self employed	45	30
Students	20	13.3
Unemployed	35	23.3
Total	**150**	**100**
Occupation		
Trader	45	30
Farmer	55	36.6
Business	50	33.3
Total	**150**	**100**

Table 2: Knowledge of hypertension among respondents

Variables	YES		NO	
	Frequency	Percentage	Frequency	Percentage
Hypertension is sustained elevated blood pressure	104	69.3%	46	30.7%
Hypertension is caused by consumption of high salt diet	88	58.6%	62	41.4%
Hypertension is caused by smoking	88	58.6%	62	41.3%
High fat consumption can cause hypertension	104	69.3%	46	30.7%
Lack of exercise is a cause of hypertension	80	53.3%	70	46.7%
Stroke is a complication of Hypertension	50	33.3%	100	66.7%
Hypertension cannot be cured	42	28%	108	72%

Table 3: Level of awareness of lifestyle modifications among respondents.

Variables	YES		NO	
	Frequency	Percentage	Frequency	Percentage
A person with Hypertension should practice a healthy diet	128	85.3%	22	14.7%
Hypertensive patients should participate in aerobic exercise	100	66.7%	50	33.3%
Cessation of smoking help control hypertension complications	92	61.3%	58	38.7%
Chronic stress contributes to elevated blood pressure	78	52%	72	48%
Hypertensive patients should eat low salt diet	102	68%	48	32%
Hypertensive patients should moderate their alcohol consumption	90	60%	60	40%

Table 4: Lifestyle modifications used by Respondents

Variables	YES		NO	
	Frequency	Percentage	Frequency	Percentage
I take herbs to control my blood pressure	60	40%	90	60%
I have enough rest to control my blood pressure	102	68%	48	32%
I routinely consume alcohol to control my blood pressure	60	40%	90	60%
I sometimes eat low or no salt diet to reduce complications	100	66.6%	50	33.3%
Influence of lifestyle modifications in Hypertension management				
Does enough rest lower your blood pressure?	128	85.3%	22	14.2%
Does mild to moderate exercise help control your blood pressure?	102	68%	48	32%
Did routine consumption of low salt diet lower your blood pressure?	102	68%	48	32%
Did Cessation of smoking help control your blood pressure?	40	26.6%	110	73.4%
Did high consumption of fruits and vegetables help lower your blood pressure?	90	60%	60	40%

Table 5: Correlation between the level of awareness of Lifestyle modifications and knowledge of lifestyle modifications in the management of hypertension.

Variables	N	Mean	Std	Std Error	r-cal	DF	p-value
Level of awareness of lifestyle modification	150	0.3413	0.23235	0.01897	0.0810	148	0.0001*
Knowledge of lifestyle modification	150	0.3840	0.20921	0.01708			

Discussion

The sociodemographic characteristics explored revealed that a higher proportion of the respondents were in the age range of 60-69 years, while the least represented age group was 20-29 years. Majority of the respondents were Christians. This could be attributed to the fact that the study location used is predominated by Christians. The majority of the respondents were from Urhobo ethnicity. Delta State University Teaching Hospital is in the Oghara community and majority of the residents and the nearby communities are Urhobo speaking communities and most participants were married, which could be attributed to the age range of the majority of participants in this study. Most of the respondents only attained secondary education, followed by those who attained primary education, and the least attained their tertiary education. Most of the respondents were farmers, followed by into business and trading. 60% of the respondents were male, 40% were female. Yang et al.[11], identified male sex as one of the main determinants of the value high blood pressure. From this study, 33.3% of the respondents were employed, 30% were self-employed, 23.3% were unemployed, and 13.3% were students. A previous study has equally reported that lifestyle practices such as high job pressure, environmental and mental stress, equally make one prone to the condition[3,19].

In the present study, most of the respondents have adequate knowledge about the concept and causes of hypertension. For example, most respondents accepted that consumption of high fat causes hypertension (69.3%), lack of exercise causes hypertension and stroke as a complication of hypertension. This is consistent with a previous study that reported that 54.2% of participants in their study did not know the reasons or consequences of hypertension. Likewise, 52.5% of patients whose blood pressure was not under control did not know the causes or complications of hypertension[20]. In the present study, the level of awareness of lifestyle modifications in the management of hypertension among respondents was high. Majority of the respondents, 65.85% were aware of lifestyle modifications in hypertension management while 34.14% were not aware. This agrees with an existing study that reported that healthy lifestyle behaviours play significant role in the control of hypertension among adult hypertensive patients[21]. The results of this study also showed that those who were aware, but not using any antihypertensive medications are able to control their level of blood pressure better than those using medications. This study attests that the level of awareness about lifestyle modifications is important in the management of hypertension. The study conducted by Modey et al.[20], concluded that increased physical activity, abstaining from alcohol and cessation of smoking, increased intake of fruits and vegetables, and reduced intake of carbohydrates, meat, and fat have a positive influence on blood pressure control. As such, modifying factors play a key role in complementing pharmacotherapy in hypertension control[21].

The results of the present study on the influence of lifestyles changes in the management of hypertension which include; 128(85.3%) respondents answered yes to the question 'did having enough rest help lower your blood pressure?', 102(68%) answered yes to the question 'does mild to moderate exercise help control your blood pressure?', 90(60%) also answered yes to the question 'does consumption of fruits and vegetables help lower your blood pressure?'. The results of the present study showed some positive influence of lifestyles in the management of hypertension. Alhalaiqa et al.[22] in a study of adherence to lifestyle modification factors among hypertensive

patients stated that addressing behavioural risk factors (physical inactivity, high blood sugar increased cholesterol levels, obesity, exposure to stress, and poor stress management) has a positive influence on preventing and controlling hypertension. Also, Buda et al.[23], stated that lifestyle modifications through changes in eating patterns, abstinence from alcohol, weight management, smoking cessation and regular physical activity are part of important and effective treatment strategies for hypertension.

Conclusion

This study has shown that most of the respondents have good knowledge of hypertension, and are aware of lifestyle changes and its influence. Most of the respondents also practiced various lifestyle modifications. Also, a large percentage of the participants are aware of various positive lifestyle strategies in the management hypertension. However, the level of awareness of the respondents still needs to be increased as it would improve the lifestyle modifications that they use.

Conflict of interest

No conflict of interest.

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