



## Lifestyle and cardiovascular risk factors among hypertensives and the use of antihypertensive medication in Lagos, Nigeria

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### KEYWORDS

Lifestyle,  
cardiovascular,  
risk factors,  
hypertension,  
antihypertensive  
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### ABSTRACT

#### Background

The aim of the study was to determine the lifestyle and cardiovascular risk factors among hypertensives and the use of antihypertensive medication in Lagos, Nigeria.

#### Methods

Two hundred and fifty consecutive patients who were attending the outpatients' clinic cardiology unit of the medical department of Lagos University Teaching Hospital, Lagos, Nigeria were recruited into the study. Self-administered questionnaire was used to collect data from the participants.

#### Results

The mean age of the respondents was 53.9 ± 12.1 years. Forty-six percent were males and 54% females. Some of the participants indulged in unhealthy lifestyle such as daily smoking of cigarettes (5.0%) and alcohol consumption (10.8%). Some of the participants (45.3%) carry out physical exercises such as walking (71.0%). A large number of the participants (84.0%) believed that hypertension can be controlled. Half of the respondents (50%) had used medication for one to five years. Close to half of the participants (48.2%) stopped taking their medication because they experienced side effects in the past while 24.8% claimed they stopped their use of medication because they could not afford the drugs.

#### Conclusion

There is a need for public health experts to carry out educational campaigns to increase awareness on the implications of negative lifestyle and cardiovascular risks factors of hypertension, compliance and complications of hypertension. Clinicians should also consider the financial status of their patients in prescribing antihypertensive drugs to enable affordability.

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### INTRODUCTION

Published evidence showed that low and middle-income countries are experiencing epidemiological transitions from communicable diseases such as HIV/AIDS and tuberculosis to non-communicable chronic diseases such as hypertension and diabetes.<sup>1-2</sup> Hypertension which is one of the non-communicable physical conditions has been

considered a global public health challenge and identified as the highest risk factor for cardiovascular morbidity and mortality.<sup>3-4</sup> Previous authors have demonstrated that between 50% and 75% of patients diagnosed with or receiving treatment for hypertension do not have adequate control of their blood pressures.<sup>5-6</sup> The identified factors that were implicated for the increase in prevalence rates of non-communicable diseases

including hypertension in low and middle-income countries include rising sedentary habits, obesity, increasing alcohol intake and cigarettes smoking, rapid urbanization, civilisation and ever-increasing salt intake.<sup>2,8</sup>

Similarly, previous studies have shown that hypertensive patients in developing countries do not fully understand the role of adequate medication compliance and how poor compliance could lead to organ damage or why they have to go for frequent visit to the clinic for checkups.<sup>2,9</sup> In one study by Sabate<sup>10</sup>, hypertensive patients' compliance with medication therapy ranged between 50% and 70%. In another study from Oshogbo, Nigeria, 54% of the respondents incorrectly identified the heart as the injured organ during Stroke<sup>11</sup>.

However, reviewed literature showed that in most countries only about 50% of those who are hypertensive were aware of their conditions and less than 50% of those who were aware were found to be receiving adequate treatment.<sup>2,12-13</sup> Previous studies have also shown that the prevalence of hypertension has been observed to be on the increase globally and the overall global prevalence among adults was recently estimated to be 26.6% in men and 26.1% in women<sup>14-15</sup>.

Recent Nigerian literature also indicated that the prevalence of hypertension was on the increase and the recorded prevalence rates ranged from 20-25%.<sup>16</sup> In the same vein, previous studies from Nigeria also showed that over 4.3 million Nigerians above the age of 15 years were classified as being hypertensive.<sup>2,12</sup> Likewise, in Nigeria, the lifestyle, knowledge, attitude and practice of the use of hypertensive medications were observed to be poor. Previous study showed that only 33.8% of Nigerian hypertensives surveyed were aware of their hypertensive conditions.<sup>17-18</sup>

Reduced level of education, poor lifestyle, illiteracy and poverty were demonstrated to be associated with poor awareness and control of hypertension in developing countries.<sup>19</sup> This study therefore set out

to investigate the lifestyle and cardiovascular risk factors among hypertensives and the use of antihypertensive medication in Lagos, Nigeria.

## MATERIALS AND METHODS

This study was a descriptive and cross-sectional survey. Consecutive patients attending the Cardiology Unit clinic of the Department of Medicine of the Lagos University Teaching Hospital, Lagos, Nigeria between May and December 2009 were invited to take part in this study. The inclusion criteria were; a) hypertensive patients above the age of 18 years b) invited patients must have been diagnosed as having essential hypertension by a consultant cardiologist c) the patients must have been on prescribed antihypertensive medications for more than one year d) the patients must be literate enough to understand the administered questionnaires. A total of 250 patients met these inclusion criteria.

The approval to carry out the study was obtained from the Research and Ethics Committee of the hospital. Written informed consents were also sought from every participant that took part in this study. The invited participants were asked to complete self-administered questionnaires that were in two parts. The first part collected socio-demographic details such as age, sex, educational levels, marital status and employment status while the second part of the questionnaire collected data on the knowledge of risk factors, lifestyle and the use of antihypertensive medication among the participants.

The questions that were formulated in the questionnaire were crafted in simple English to encourage understanding and participation of the participants. Closed-ended questions with two answering choices such as "yes" and "no" were the options made available to the participants. A pre-test was conducted before the commencement of the study by administering the questionnaires on a random sample of the patients attending the cardiology clinic to check the levels of acceptance

and understanding of the questionnaires. The participants who took part in the pre-test study were not invited to take part in the subsequent study.

### Data Analysis

Data collected were analyzed using commercially available statistical package SPSS version 16 (SPSS, Chicago, IL, USA). Proportions and percentiles were calculated from categorical variables. Descriptive, minimum, maximum, mean and standard deviations were applied during the analysis. Pearson's Chi-square test was used to assess relationships and statistical significance between categorical variables. P value < 0.05 was considered to be significant (95% confidence level). The results were displayed in tables at the results section.

## RESULTS

The mean age was 53.97 ±12.13 years and their

ages ranged from 19 to 87 years. More than half of the participants were 47–60 years. Among the respondents, 46% were males and 54% were females.

About two thirds (73.7%) were married, 5.8% were single and 10.0% were separated or divorced, while 12.8% were widows. About 2.4% of the patients had no formal education, 10.1% had up to primary education and 32.4% had not more than secondary education, whereas more than half 55.1% had tertiary education.

As regards employment status, 19.2% were unemployed and majority of them (77.5%) were employed and only 3.3% were students. Some of the participants indulged in unhealthy lifestyle such as smoking 10 (5.0%) and alcohol consumption 26 (10.8%). Some of the participants carry out physical exercises 117 (45.3) while a majority of the participants 133 (53.2%) do not carry out any form of physical exercises as shown in Table I.

**Table I: The social habits and lifestyles of participants**

Variable	Frequency	percent
<b>Cigarette smoking</b>		
Smoke cigarette	10	5
Does not smoke	240	95
<b>Alcohol Intake</b>		
Drinks alcohol	26	10.8
Does not drink alcohol	224	89.2
<b>Engagement in Physical activities</b>		
Yes	117	45.3
No	133	54.7
<b>Type of physical exercise often engaged in (at least once a week)</b>		
None	133	53.2
Walking/Jogging	88	35.2
Cycling	15	6.0
Other sports such as Tennis/billiards/ Swimming	8 6	3.2 2.4

Similarly, many of the participants claimed that they were aware of hypertension and their sources of awareness varied from friends, peers, seminars, through mass media to health workers. However, more than half of the respondents 130 (53.6%) got to know about hypertension through medical doctors as shown in Table II.

**Table II: Sources of awareness and information on hypertension**

Source	Frequency	Percent (%)
Friends /Peers	51	20.4
Health Magazines	26	10.4
Mass media		
(Radio/TV/Newspaper)	15	6.0
Traditional Healer	5	2.0
Seminar/Workshop	3	1.2
Nurse	17	6.8
Medical Doctor	130	52.0
At work	3	1.2

Table III showed the knowledge of prevention of hypertension. Among the participants, 200 (80%) believed that it can be prevented with healthy diet and 169 (67%) by avoiding excessive salt.

**Table III: Knowledge of prevention of high blood pressure**

PREVENTION OF HIGH BLOOD PRESSURE	YES (%)	NO (%)
Avoid excessive salt	169 (67.6)	91 (36.4 )
Maintain a healthy body	152 (60.8)	108 (43 .2)
Lose weight when overweight	130 (52.0)	120 (48.0)
Avoid excessive alcohol intake	117 (46.8)	133 (53.2)
Increase your level of daily physical activity	109 (43.6)	141 (56.4)
Stop smoking	101 (40.4)	149 (59.6)
Eat a healthy diet	200 (80.0 )	50 (20.0 )

As regards the participants' attitude to hypertension, 294 (77.6%) knew that hypertension could be symptomless, some of the participants 175 (70%) believed that hypertension could be cured, however,

a large majority 237 (94.8%) believed that hypertension can only be controlled with medications and lifestyle adjustment as reflected in Table IV.

**Table IV: Attitude to high blood pressure**

Attitude	Yes %	No%
Hypertension can be symptomless (in late adult life)	294 (77.6)	56 (22.4)
High blood pressure can be cured	175 (70.0)	75 (30.0)
Hypertension can only be controlled for as long as the medications/lifestyles adjustment measures required for the treatment are adhered to	237 (94.8)	13 (5.2)

Table V showed that half of the participants 125 (50%) had used medication for more than 5 years while 71 (28.4%) and 54 (21.6%) had used medication for a period of 1 to 5 years and less than one year respectively.

With regards to the length of time the medication would need to be taken, more than half of the participants 133 (53.2%) claimed that this will be until their doctors say they are healthy, 23 (9.2%) mentioned that it could take forever, while 70 (20%)

claimed that they really do not know. Many of them 231 (92.4%) claimed that when they miss a single dose, they take their medication as soon as they remember.

More than half of them 128 (51.2%) claimed they stopped taking their medication because of their side effects while 62 (24.8%) claimed they stopped their use of medication because they could not afford the drugs.

**Table V: Response pattern to respondent's practice of the use of Antihypertensive Drugs**

Variable	Frequency	Percent (%)
<b>Duration of Drug Use</b>		
Less than 1 year	43	30.9
1 –5 years	71	51.1
More than 5 years	25	18.0
<b>Length of time drug is envisaged to be taken</b>		
Forever	23	9.2
Until Doctor says am healthy	133	53.2
For Sometime	24	9.6
I don't know	70	28.0
<b>When I miss a single dose, I take it as soon as I remember</b>		
Yes	231	92.4
No	19	7.6
<b>Stoppage of medication because of the side effects</b>		
Yes	89	35.6
No	122	48.8
<b>Stoppage of medication because the drugs are expensive</b>		
Yes	62	24.8
No	188	75.2

## DISCUSSION

This study was a cross-sectional descriptive survey carried out to determine the lifestyle and cardiovascular risk factors among hypertensives and the use of antihypertensive medication among a group of hypertensive patients in Lagos State. The findings of this study showed that majority of the participants were middle aged and 54% were women. These findings appear to be in agreement with the impression that hypertension is more common in women than men after age 45-50 yrs.<sup>20</sup> Seventy-four percent of the participants (55.1%) had attained tertiary education. Previous studies have shown that hypertensive patients who were educated were likely to use their medications as prescribed than uneducated patients.<sup>21</sup> This probably explains why some authors prefer that hypertensive patients must continuously be educated about their conditions to further enhance general understanding of antihypertensives.<sup>21-23</sup> These results also showed that only a minor proportion of the participants indulged in unhealthy lifestyle such as smoking (4.1%) and alcohol consumption (10.8%). The literature had demonstrated that individuals who smoked cigarettes and drank alcohol are likely to be predisposed to risk factors of hypertension.<sup>2,16</sup>

Thus, it may be deduced that participants from this study were probably conscious of these risk factors of hypertension. Likewise, some of the participants carry out physical exercises (45.3%) but more than half of them (54.7%) did not engage in physical exercises. This finding implied that more than half of the participants were sedentary. This finding can be compared to that of Bener<sup>22</sup> who noted that obesity was pronounced in individuals who rarely carry out physical activity and that such people are likely at of developing hypertension. Similarly, a large majority of the participants claimed to be aware of hypertension and their sources of awareness varied from friends, peers, seminars through mass media to health workers. However, more than half of the participants (53.6%) got to know about hypertension through medical doctors.

Of the total participants, 80% believed that it can be prevented by indulging in healthy diet and many of them (67%) also believed that it can be prevented by avoiding excessive salt.

Thus, it appeared that many of the participants had good knowledge of prevention of risk factors for hypertension. However, the acquisition of this knowledge might have been through frequent hypertensive clinic attendances. The results of this study also showed that majority of the respondents (77.6%) knew that hypertension can be symptomless. This may somehow explains why it may be difficult for hypertensive patients to continue to take medications for perceived illness that is symptomless. As regards the cure of hypertension, some of the respondents (70%) mentioned that hypertension can be cured while a large majority (94.8%) stated that hypertension can be controlled with medications and lifestyle adjustment.

The immediate advantage of this attitude is that majority of the respondents in the study group had a high tendency to comply with their hypertensive therapy. A large number of respondents (50%) had used medication more than five years and (53.2%) of the participants claimed that they will have to use their medications until the doctor says they are healthy. Some previous studies on chronic physical diseases indicated that the longer the duration of the disease, the more patients complied with prescribed medication.<sup>23-24</sup> This attitude probably explains that denial of hypertension may have reduced, and many of them have accepted to comply with treatment after years of suffering from the disease. Nonetheless, about half (51.2%) of the participants claimed they stopped their medications because of the side effects of the drugs. This observation was similar to the findings of a study in the United States, that found an association between non-compliance and the experience of adverse drug effects.<sup>25</sup> In the same vein, some of them (24.8%) claimed that they stopped taking their medications because they could not afford the drugs. This finding also showed that cost of the

hypertensive medications may sometimes be responsible for the patients' poor use of antihypertensives. This finding appears to be in agreement with previous studies on association between poverty and hypertensive drug use.<sup>2,13,19</sup> In this light, it is therefore necessary that clinicians should be aware of their patient's economic status before prescribing antihypertensive for them.

Clinicians were also advised to prescribe effective, affordable, once or twice daily medications or sustained-release formulations for hypertensive patients to further improve adherence among hypertensive patients.<sup>13,23</sup> Nonetheless, other identified factors that may affect use of antihypertensives in our study location include the traditional beliefs that hypertension could be caused by supernatural attacks from enemies, evil spirits or food poisoning<sup>13,19</sup>. These negative perceptions were documented to also influence illness behaviour, pathway to care and the use of hypertensive medications among hypertensive patients. Iyalomhe and Iyalomhe<sup>13</sup> and Oke and Bandele<sup>19</sup> reported that anxiety, depression, poverty, fear of premature death, fear of dependence of hypertensives, beliefs that hypertension can be cured by spiritual or traditional means and the unpleasant side effects of the medications were some observed factors that affect the attitude and the use of antihypertensives.

As regards the attitude towards management of hypertension, continuous effective management of hypertension have been documented to be possible through changes in lifestyle and pharmacotherapy. The observed lifestyle changes that were documented to reduce the risk of hypertension include avoidance of salt intake, reduction of alcohol intake, stopping cigarettes smoking, and the control of obesity through regular physical activities.<sup>26-27</sup> The electronic and print media should be encouraged to increase awareness, risk factors and compliance among hypertensives in the general population through frequent communications of the need to comply with hypertensive medications<sup>23</sup>. Some previous authors however, suggested the

inclusion of "heart health education programme" in the curriculum of primary, secondary and tertiary institutions.<sup>2,23</sup> Other relevant preventive actions such as frequent public screening of workers at their various places of work and initiation of heart health clubs at organisational levels should be carried out by management authorities of organisations with potentials of risk factors for hypertension.<sup>28-30</sup> However, the limitations of this study include its moderate sample size, thus its findings may not be applicable to all parts of the country. There are no validated or standardised instruments available in Nigeria for measuring knowledge, attitude, practice and risk factors of hypertension; thus, the questionnaire used to collect data in this study was designed by a public health expert in collaboration with the cardiologist who are experts in the field of hypertension using models from existing literature. We therefore recommend that future studies should be carried out with larger sample sizes in multi-centres locations. Nonetheless, it is believed that the results of this study will provide information for public health experts to further carry out suggested awareness programmes on hypertension.

## Conclusion

This study aimed at determining the lifestyle and cardiovascular risk factors among hypertensives and the use of antihypertensive medication. The findings of this study showed that some participants indulged in unhealthy lifestyle such as smoking of cigarettes and alcohol consumption. Some of them carried out physical exercises such as walking. Majority of the participants believed that hypertension can be controlled. About half of the respondents had used medication for one to five years and about one third of the participants did not comply with medications because they experienced side effects of the medications while some claimed they could not afford the drugs.

It is hereby suggested that public health experts should continuously carry out educational campaigns to increase awareness on the implications of negative lifestyle and cardiovascular risks factors, compliance and complications of

hypertension. Clinicians should also consider the financial status of their patients in prescribing antihypertensive drugs to enable affordability. Prescribing an effective, inexpensive and once daily medication with minimal side effects will improve patients' compliance considerably.

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