



AN EVALUATION OF THE FREQUENCY AND MANAGEMENT OF HYPERTENSION IN INNER CITY AREAS

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ABSTRACT

Background: The prevalence of hypertension is higher in semi urban communities than in urban centers. **Objective:** An assessment of hypertension prevalence in this locality and the control level of hypertensive individuals is the objective of this study. **Methods:** In this study, interviews are conducted prospectively. Stratified random sampling was conducted across the various compounds to select 400 adults aged 20 and above; a unit of settlement consisting of extended families related by common ancestors. Interviewer-administered demographic, predisposing factor, and medication history questionnaires were self-developed, validated, and tested. Blood pressure, weight, and height measurements were also conducted on respondents. An analysis of the data and the calculation of the Body Mass Index was conducted. **Results:** There was a 100% response rate for the questionnaire distribution that was administered by an interviewer, along with measurements of height, weight, and blood pressure. Among those who responded, the majority were females. Over half the respondents (46.5%) had a BMI higher than normal, with 15.3% (61) having an obese weight ($>30.0\text{kg/m}^2$). Females and males had mean (SD) systolic blood pressures of 133.3 (3.2) mmHg and 127.4 (3.00), respectively. Mean (SD) diastolic blood pressures were 86.2 (1.7) and 83.9 (2.4). 15.0% (60) of those in the community had previous hypertension, of which 13.8% (55) had it diagnosed by then. Among the 46 hypertension cases, 11.5% (46) were Stage I and 3.5% (14) were Stage II. Males were slightly more likely to suffer from hypertension (18.8%) than females (12.5%), with a relative risk (RR) of 1.500 (95% CI 0.9422 to 2.388). According to the survey, 41.6% of participants 40 years and older were hypertensive, including 70.0% (42/60) of hypertensive participants and 10.5% (42/400). There were only 31% (17/55) of previously diagnosed cases of hypertension taking their medication during the survey, 12.7% (07/55) adhered regularly to their medication, and 7.3% (04/55) had adequate control of their blood pressure. Methyldopa was the main agent prescribed to patients, with 22.8% (12/55) taking it either alone or along with amiloride and hydrochlorothiazide. Aspirin, amlodipine, atenolol, nifedipine, and lisinopril are also commonly used by patients. **Conclusion:** A semi urban community has a prevalence of 15.0% hypertension and a prevalence of prehypertension of 23.5%. Patients who were previously hypertensive had poor blood pressure control.

Key Words: Community, Prevalence, Hypertension, Blood Pressure, Semi Urban.p

INTRODUCTION

There are significant direct and indirect costs associated with hypertension, which is a major public health problem [1, 2]. According to estimates, hypertension alone has a direct cost of over NGN450 billion (USD [3] billion) every year [4]. Sudden unexpected natural deaths are also caused by this disease [5, 6]. It is the most frequently diagnosed medical illness

in a study of patterns of cardiovascular disease in many centers [7, 8].

The prevalence of hypertension has been increasing throughout the world. The most cost-effective approach to preventive health is still prevention programmes, especially with poor detectability, treatment, and control, as well as challenges associated with lack of awareness and weak management capacity. In order to



devise effective prevention strategies, precise estimates of hypertension prevalence in the community must be conducted [12]. In addition, epidemiological characteristics must be identified [3].

As the community's urbanization increased, particularly since a university was located in the area, and there was a paucity of published information on hypertension prevalence, this study was designed to determine the prevalence of hypertension in the locality, its epidemiological characteristics, and the extent of blood pressure control.

METHODS

In this study, we are conducting a prospective study. A letter was sent to community leaders and youth leaders from the University introducing the project and requesting their consent. It was explained to the participants what the purpose and procedure were. The door-to-door house survey took place. Based on a 95% confidence level and 5% confidence interval, 384 people were selected as the target population. Population density was used to stratify settlement units into 18 enumeration zones. Each compound randomly selected between 20 and 30 consenting adults aged 20 and over. A total of 200 respondents were enumerated in the remaining thirteen enumeration areas, including 30 each for three very large compounds.

A questionnaire was pretested and validated by the researcher. Furthermore, we also asked about clinical characteristics related to epidemiology, including demographics, predisposing factors, and prior diagnoses of hypertension. Moreover, there were fields for capturing measurements of blood pressure, weight, and body mass index.

In addition to measuring blood pressure, height, and weight, the interviewer administered the questionnaire to the participants.

To obtain height without shoes, we used a wooden platform and a height rule to measure weight using a bathroom weighing scale (Hamson Scale). An individual's Body Mass Index (BMI) is determined by dividing his or her weight in kilograms by his or her height in meters. In order to measure participants' blood pressure (BP), an Omron MX2 Basic electronic blood pressure monitor (Omron Healthcare Co LTD, China) was used. The MX2 Basic's standard cuff measures 145 cm x 480 cm and fits arms ranging from 23 to 32 cm in circumference. BP electronic monitor (Medicare instrument (WUXI) LTD, China) was validated using a sphygmomanometer with stethoscope and inflatable cuff for adults. Every three minutes, both the left and right arms were measured. The first reading was discarded in order to calculate the mean of the two last readings. The same procedure was followed twice during the two-week

period. Patients with systolic and diastolic blood pressures over 140 mmHg as well as those taking hypertension medications were considered hypertensive. As per the seventh Joint National Committee on Preventing, Detecting, Evaluating and Treating High Blood Pressure (JNCVII) and the guidelines of the World Health Organization, individuals should strive to meet this blood pressure threshold. Completing questionnaires and entering the data into a computer were the methods used to collect the data. The data were presented using a descriptive statistical analysis. The Chi square test was used to analyze categorical data. Male and female blood pressure values were compared using the student-t test. P-values less than 0.05 were considered statistically significant at 95% confidence intervals.

RESULTS

A total of 400 participants participated in this study, of which 240 (60%) were females, of which 10.8% (n=43) were pregnant. A wide range of ages were represented among the participants, ranging from 20 to 60 years of age. There were 37 percent of civil servants (n=149) and 18.5% of traders. A total of 63 percent (n=251) of the respondents were married. Females had an average systolic blood pressure of 127.4 (SD=3.0) mmHg and males had an average systolic blood pressure of 133.3 (SD=3.2), respectively, while males had an average diastolic blood pressure of 86.2 (SD=1.7) and females had an average diastolic blood pressure of 83.9 (SD=2.4). The overall variation in blood pressure between male and female participants was very significant ($p < 0.0001$). For more information, please refer to Tables 1 and 2. Only 48.5% of the participants had a body mass index within the normal range of 18.5-24.99 kg/m². Obesity was observed in 15.3%. A detailed breakdown can be found in Table 3.

Females (12.5%) had a higher prevalence of hypertension than males (18.8%); $P=0.0889$, relative risk (RR)=1.500, risk difference (RD)=0.06250 [95%CI 0.0089:0.1339]. Males and females differ significantly ($p < 0.0001$) when the pre-hypertensive group is included in the hypertensive proportion; RR=1.800 (95%CI 1.407:2.303), RD=0.5250 (95%CI 0.4445:0.6039). Hypertension was found to be prevalent in 15 percent of the population (60%), out of which 13 percent (55%) had been previously diagnosed. Details can be found in Table 2. There were only 31% (17/55) of previously diagnosed hypertensive cases taking their medications during the survey, and only 12.7% (7/55) of them were taking their medication regularly, with adequate blood pressure control achieved in just 7.3% (04/55) of the cases.

41.6% (42/101) of participants in the survey aged 40 and older had hypertension, and 70.0% (42) had hypertension in general. In this study, 13.3% (08) of



participants had isolated systolic hypertension and 25.0% (15) had isolated diastolic hypertension. In addition to methylopa as monotherapy and co-amilozide (moduretic) treatment, there were 21.8 % (12/55) of patients who were taking drugs. In addition to lisinopril, propranolol, amlodipine, atenolol, nifedipine, and low dose aspirin, patients also take lisinopril, propranolol, amlodipine, atenolol, and nifedipine.

There were 39 overweight or obese patients out of 60 hypertensive patients. Underweight, overweight, obesity class I, obesity class II, and morbid obesity exhibited a consistent gradient of hypertensive population

proportions from 0.0% to 10.8% in normal BMI and 16.7%, 18.4%, 40.0% and 62.0%, respectively, in overweight, obesity class I, obesity class II, and morbid obesity. Males (34.8%) were more likely to be overweight or obese (52.0%) than females (52.0%).

A very strong association was found between civil service and trading, both of which accounted for 61.7% of hypertensive individuals. For civil servants (n=60) and traders (n=60), it was 46.7% and 15.0%, respectively. There are also risks associated with family history, smoking, alcoholism, and diabetes. The details of Table 4 can be found there.

Table 1: Responses from a semi urban community are categorized by age and hypertension type

Age (Years)	Sex of Respondent			Hypertension Type			
	Male N (%)	Female N (%)	Total N (%)	ISH N (%)	IDH N (%)	Systolic/Diastolic N (%)	Total N (%)
20-30	57 (14.3)	127 (31.8)	184 (46.0)	0 (0.0)	1(1.6)	6 (10.0)	7 (11.7)
31-40	56 (14.0)	59 (14.8)	115 (28.8)	2 (3.3)	5 (8.3)	6 (10.0)	13 (21.6)
41-50	17 (4.3)	27 (6.8)	44 (11.0)	2 (3.3)	5 (8.5)	7 (11.7)	14 (23.3)
51-60	18 (4.5)	13 (3.3)	31 (7.8)	4 (6.6)	3 (5.0)	7 (11.7)	14 (23.3)
>60	12 (3.0)	14 (3.5)	26 (6.5)	0 (0.0)	1 (1.6)	11 (18.3)	12 (20.0)
Total	160 (40.0)	240 (60.0)	400 (100.0)	8 (13.3)	15 (25.0)	37(61.7)	60 (100.0)

Table 2: The prevalence of BMI and hypertension in semi urban areas

BMI (kg/m ²)	Normal BP N (%)	Hypertension N (%)	Stage I Hypertension N (%)	Stage II Hypertension N (%)	Total N (%)
<18.5	16 (4.0)	3 (0.8)	0 (0.0)	0 (0.0)	19 (4.8)
18.5-24.99	126 (31.5)	47 (11.8)	15 (3.8)	6 (1.5)	194 (48.5)
25.0-29.99	77 (19.3)	28 (7.0)	14 (3.5)	7 (1.8)	126 (31.5)
30.0-34.99	20 (5.0)	11 (2.8)	6 (1.5)	1 (0.3)	38 (9.5)
35.0-39.99	6 (1.5)	3 (0.8)	6 (1.5)	0 (0.0)	15 (3.8)
>40	1 (0.3)	2 (0.5)	5 (1.3)	0 (0.0)	8 (2.0)
Total	246 (61.5)	94 (23.5)	46 (11.5)	14 (3.5)	400 (100.0)

n²): Underweight < 18.5, Normal weight =18.5-24.99, Overweight = 25.0-29.99, Obesity Class I= 30.0-34.99 Obesity Class II = 35.0-39.99, Morbid Obesity= ≥40.

re: Normal BP (mmHg)= <90-119/60-79, Pre-Hypertensive ≥120-139/80-89, Stage I Hypertension= 140-159/90-99, Stage II Hypertension= ≥ 160/100

Table 3: A semi urban community's hypertension prevalence and risk factors

Observed Risk factor	Normal BP N (%)	Hypertension N (%)	Stage I Hypertension N (%)	Stage II Hypertension N (%)	Total N (%)
Smoking	32 (8.0)	18 (4.5)	5 (1.3)	2 (0.5)	57 (14.3)
Obesity	27 (6.8)	16 (4.0)	17 (4.3)	1 (0.3)	61 (15.3)
Family history of hypertension	55 (13.8)	25 (6.3)	14 (3.5)	3 (0.8)	97 (24.3)
Alcoholic drink	68 (17.0)	71 (17.8)	26 (6.5)	10 (2.5)	175 (43.8)
Contraceptive drugs	10 (2.5)	9 (2.3)	3 (0.8)	0 (0.0)	22 (5.5)
Diabetes mellitus	1 (0.25)	5 (1.3)	4 (1.0)	2 (0.5)	12 (3.0)



DISCUSSION

A prevalence of 16.0% for males and 12.0% for females was estimated for the southern Ijaw community, out of which 1.2% were newly diagnosed [9,10]. As opposed to the south western region, where the prevalence rate is 21% and 36.6% [3, 12]

It could be caused by a number of factors. This study center, in particular, may have a lower prevalence. The community has some things in common with rural settings, such as the lack of stress compared to an urban study center. Hypertension rates are lower in rural areas, and diet is also suspected to be a contributor. This community reports that plantain is the most popular staple food, being consumed roasted or in a porridge form, commonly called "kekefiya" by locals. It has been reported that fish and plantains affect blood pressure differently. In this area, the riverine communities are primarily fishermen; oil exploration has greatly affected their traditional livelihoods. The amount of fish they consume makes them the largest consumers of fish oil. A type of omega-3 fatty acid found in fish oils is the long-chain polyunsaturated eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). American Heart Association recommends fish oil supplements or fish high in polyunsaturated omega-3 fats. As a standalone food, plantains can also be beneficial for hypertensive patients. The compound has been shown to reduce oxidative stress as well as arteriosclerosis and hypertension. Potassium content is particularly beneficial to those suffering from hypertension.

Moderate alcohol consumption can also contribute to a low prevalence rate of hypertension, as moderate alcohol consumption has beneficial effects on blood pressure. The dangers of excessive alcohol consumption should still be cautioned against by alcoholics with prehypertension.

There is a need for greater enlightenment on drug and non-drug therapy among participants with previously diagnosed hypertension. Diabetes and hypertension are chronic disease conditions that are known to suffer from poor medication adherence [28]. There are a number of factors that can make adherence to medications difficult, including side effects, poverty, inadequate knowledge, and a lack of understanding of the implications.

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As earlier cited and reported, the higher prevalence rate of hypertension in semi-urban populations is consistent with age being a risk factor [3, 12]. Despite representing a smaller population as a fraction of the total, males are more likely to suffer from high blood pressure, in most categories, than females. A similar finding by Adedoyin *et al.* [12], in accordance with earlier studies, showed that the prevalence was higher among females. Furthermore, sedentary lifestyles and inclinations toward western diets are more prevalent among civil servants and market women and men. Among market women, hypertension predominates at 42% [15]. It was also observed that the hypertensive population proportions increased with increasing BMI in each of the BMI groups, suggesting weight reduction programs and avoiding unnecessary weight gain through a healthy diet are appropriate non-drug and preventive measures for hypertension prevention. It is possible to carry out further research on the staple food in this study center and the state, which is plantain in combination with fish as it relates to hypertension, and to adopt it globally if necessary.

There are several limitations to the study, including a relatively small sample size and sampling of one town outside the largest in Southern Ijaw Local Government Area and the second largest in Bayelsa State. Ijaw nation and south-south Nigeria should be treated with caution when generalizing the results. Due to some participants' inability to speak English fluently, pidgin English and interpreters were used to minimize communication problems. The Ijaw tribe is represented by a very small percentage of participants, particularly students. Nonetheless, as this study is based primarily on community members, most of the participants are of Southern Ijaw origin, which reflects the semiurban population as a whole.

CONCLUSIONS

A suburban community has a hypertensive prevalence of 15.0% and a prehypertensive prevalence of 23.5%. Patients with previously hypertensive blood pressure are less likely to maintain optimal blood pressure control.



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