
**PREVALENCE OF HYPERTENSION AMONG PATIENTS
ATTENDING THE GENERAL OUTPATIENT CLINICS OF A TERTIARY
HOSPITAL IN UYO, SOUTH-SOUTH NIGERIA**

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ABSTRACT

adults, Uyo, Nigeria

Background: Hypertension is an important public health challenge worldwide. It is the most common cardiovascular disease, and the most important modifiable risk factor for cardiovascular, cerebrovascular and renal diseases.

Objective: The aim of the study was to determine the prevalence of Hypertension among adult patients attending the General Outpatient Clinics of the University of Uyo Teaching Hospital

Uyo, South-South Nigeria

Materials and Methods: A cross-sectional study of three hundred and eighty-five (385) adults (18 years and above) attending the General Outpatient Clinic of the University of Uyo Teaching Hospital, Uyo, Nigeria, was carried out between March and June, 2013. The study subjects were administered Semi-structured questionnaires which sought information on socio-demographic characteristics and the presence or absence of hypertension. Data analysis was done using the Statistical Package for Social Sciences (SPSS) version 20.0.

Results: The study subjects consisted of 166 males and 219 females (male: female = 1:1.3). The mean age of respondents was 37.7 years with a standard deviation of 14.4. The overall prevalence of hypertension was 30.1%.

Conclusion: The prevalence of hypertension is high. There is need for continuous public enlightenment on preventive measures by health care givers to reduce the prevalence of this silent but deadly disease.

KEY WORDS: prevalence, hypertension,

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INTRODUCTION

Hypertension is an important public health challenge worldwide.^{1,2} It is the most common cardiovascular disease, and the most important modifiable risk factor for cardiovascular, cerebrovascular and renal diseases.²⁻⁵ Hypertension in adult humans (\geq 18 years) can be defined as the sustained or persistent elevation of blood pressure above 139/89mmHg^{4,5}. It is diagnosed clinically in adults by a measure of blood pressure \geq 140/90mmHg on two or more occasions.^{4,6} The Seventh(7th) Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) further categorizes blood pressure in adult into: normal ($<$ 120/80 mmHg); prehypertension (120/80 mmHg to 139/89 mmHg); hypertension stage 1(140/90mmHg to 159/99mmHg) and hypertension stage 2 (\geq 160/100mmHg).⁶

In more than 95% of cases, a specific underlying cause of hypertension cannot be found.^{4,5} Such patients are said to have essential (idiopathic or primary) hypertension.^{4,5} The pathogenesis of essential hypertension is not clearly understood and the problem is probably multifactorial.^{4,7}

An estimated one billion people around the world have high blood pressure (hypertension), which is a leading risk factor for noncommunicable diseases such as stroke and heart diseases.⁸ Currently, approximately 40% of adults aged 25years and above are affected by hypertension globally.⁸ According to the World Health Organization, 46% of adults in Africa are hypertensive.⁸ A meta-analysis of prevalence rate of hypertension in Nigerian populations showed a minimum prevalence of 12.4% and maximum of 34.8%

with a combined prevalence rate of 22%.⁹

The aim of this study is to determine the prevalence of Hypertension among adult attending the general outpatient (GOP) clinic of the University of Uyo teaching Hospital, a tertiary hospital in South-South Nigeria. This study will add to the existing knowledge of the prevalence of hypertension in various regions in Nigeria, Africa and indeed the world.

METHODOLOGY

The study was conducted in the general outpatient clinic of University of Uyo Teaching Hospital, which is a 300-bed hospital, in the North-Western outskirts of Uyo, the capital city of Akwa Ibom State, in the South-South geo-political zone of Nigeria. The general outpatient (GOP) clinic of University of Uyo Teaching Hospital attends to adult patients (18years and above). These constituted the study population. The GOP clinic has an average monthly attendance of three thousand, one hundred and seventy one (3171) patients.¹⁰ On the average, 59.92% of the patients are females while 40.08% of the patients are males.¹⁰ A total of nine thousand five hundred and thirteen (9,513) patients was expected to register for care during the three months duration of this study.¹⁰ This was a cross-sectional descriptive study on the prevalence of hypertension among adult patients attending the General Outpatients Clinic of the University of Uyo Teaching Hospital, Uyo, Nigeria. The study was carried out between March and June, 2013.

Estimation of sample size

The sample size was determined using the formula shown below¹¹ to be:

$$n = \frac{(Z_{1-\alpha})^2 P(1-P)}{d^2}$$

using P = 34.8% from literature review 9 = 349.59. that is, 350 (to the nearest ten). Ten percent (10%) of the minimum sample size was added to the minimum sample size to compensate for non-response and incomplete responses. The selected sample size was therefore 385 (350 +

35).

Inclusion criterion was all consenting adults aged 18years and above presenting at the General Outpatient (GOP) Clinic; while Exclusion criteria were very ill patients (patients who were too ill to fill the questionnaires or stand for anthropometric measurements) and all pregnant subjects.

Ethical clearance

Ethical clearance was sought for and received before commencement of the study from the University of Uyo Teaching Hospital Research and Ethical Committee.

Procedure

A Proforma - a semi-structured questionnaire seeking information on socio- demographic data, symptom counts and duration of illness. The proforma were interviewer administered to patients who were not literate enough to fill them by themselves. A manual mercury (ACCOSON) sphygmomanometer was used to measure the blood pressure of respondents in millimeters of mercury (mmHg) to the nearest 2mm of mercury. A pretest was done to validate and check for missed errors in the proforma semi-structured questionnaire. The proforma (semi-structured questionnaire) was administered to all consenting eligible respondents by the researchers.

Sampling method

A systematic sampling technique was used for this study. The sampling interval (K) was calculated using the formula: $K = N/n$

Where

N = Estimated population size for study period
(Average monthly clinic attendance = 3,17110

Duration of the study = 3 months

Therefore; $N = 3 \times 3,171 = 9,513$

n = Calculated sample size = 385

Therefore, $K = N/n = 9,513 / 385 = 24.7 = 25$

The first subject was selected by simple random sampling from the first twenty-five patients presenting at the General Outpatient Clinic, who meet the inclusion criteria (by

balloting of the first subject from the first twenty-five patients on the daily attendance register). Subsequently, every twenty fifth (25th) patient was selected until the required sample size was obtained, provided he/she met the inclusion criteria. An average of seven (7) subjects were recruited daily.

frequencies and percentages (%) of categorical variables were determined. Inferential statistics such as the chi-square (χ^2) test and odds ratio were employed for comparing differences in proportions or groups. The level of statistical significance was set at $P < 0.05$.

DATA ANALYSIS

Data entry and analysis was done using the Statistical Package for Social Sciences (SPSS) version 20.0. Descriptive statistics such as mean and standard deviation was used to analyse continuous variables. The

RESULTS

A total of three hundred and eighty-five (385) subjects were recruited for the study. The results obtain from this study are shown below:

The socio-demographic distribution of the

TABLE 1: SOCIO-DEMOGRAPHIC DISTRIBUTION OF THE RESPONDENTS IN THE STUDY

Variables	Frequency			Statistical indices
	Male n (%) (n=166)	Female n (%) (n=219)	Total n (%) (n=385)	
Age group				
Less than 20	5 (3.0)	2 (0.9)	7 (1.8)	t-test=-0.0879 df= 383 P value0.930
20-29	64 (38.6)	85 (38.8)	149 (38.7)	
30-39	35 (21.1)	51 (23.3)	86 (22.3)	
40-49	18 (10.8)	25 (11.4)	43 (11.2)	
50-59	27 (16.3)	32 (14.6)	59 (15.3)	
60 and above	17 (10.2)	24 (11.0)	41 (10.7)	
Mean (SD)	37.7 (14.8)	37.8 (14.1)	37.7 (14.4)	
Marital status				
Single	84 (50.6)	82 (37.4)	166 (43.1)	P value<0.0001+
Married	79 (47.6)	89 (40.6)	168 (43.6)	
Separated	0 (0.0)	4 (1.8)	4 (1.0)	
Widowed	3 (1.8)	44 (20.1)	47 (12.2)	
Residence				
Rural	63 (38.0)	85 (38.8)	148 (38.4)	P value =0.863
Urban	103 (62.1)	134 (61.2)	237 (61.6)	
Level of education				
No education	0 (0.0)	8 (3.7)	8 (2.1)	P value =0.033+
Primary	20 (12.1)	35 (16.0)	55 (14.3)	
Secondary	74 (44.6)	83 (37.9)	157 (40.8)	
Tertiary	72 (43.4)	93 (42.5)	165 (42.9)	
Religion				
Christianity	164 (98.8)	218 (99.5)	382 (99.2)	P value=0.185
Islam	2 (1.2)	0 (0.0)	2 (0.5)	
Others	0 (0.0)	1 (0.5)	1 (0.3)	
Occupation				
Unemployed	37 (22.3)	63 (28.8)	100 (26.0)	P value =0.006+
Unskilled	58 (34.9)	99 (45.2)	157 (40.8)	
Semi- skilled	29 (17.5)	19 (8.7)	48 (12.5)	
Skilled	42 (25.3)	38 (17.4)	80 (20.8)	

+ Significant P value

study is shown in table 1. The study subjects consisted of one hundred and sixty-six (43.1%) males, and two hundred and nineteen (56.9%) females (male: female = 1:1.3). The mean age of the study subjects was 37.7 years with a standard deviation of 14.4 (37.7±14.4 years). The mean age of the male respondents was 37.7 years with a standard deviation of 14.8 (37.7±14.8 years), while the mean age of the female respondents was 37.8 years with a standard deviation of 14.1(37.8±14.1 years). The difference was not statistically significant (t-test = -0.0879, df = 383, P=0.930).

Eighty-four out of one hundred and sixty-six males (50.6%) were single, while eighty-two out of two hundred and nineteen females (37.4%) were single. Seventy-nine (47.6%) males were married, while eighty-nine (40.6%) of the females were also married. None of the males (0.0%) were separated, while four (1.8%) females were separated. Three (1.8%) of the males were widowed, compared to forty-four (20.1%) females who were also widowed.

None (0.0%) of the males had no education, while eight (3.7%) females had no education at all. Twenty (12.1%) males had only

primary education, while thirty-five (16.0%) females also had only primary education. Seventy-four (44.6%) males had up to secondary education, while eighty-three (37.9%) females had up to secondary education. Seventy-two (43.4%) males had tertiary education, while ninety-three (42.5%) females also had tertiary education.

Thirty-seven (22.3%) males were unemployed, while sixty-three (28.8%) females were unemployed. Fifty-eight (34.9%) men were unskilled workers, while ninety-nine (45.2%) women were unskilled workers. Twenty-nine (17.5%) men were semi-skilled workers, while nineteen (8.7%) women were semi-skilled workers. Forty-two (25.3%) men were skilled workers, while thirty-eight (17.4%) women were also skilled workers.

Summarily, Table 1 shows that the male and female respondents differed significantly in marital status, level of education and occupation. There were no statistically significant differences in age, residence and religion between the male and female respondents.

Table 2 shows the prevalence of hypertension

TABLE 2: PREVALENCE OF HYPERTENSION IN STUDY SUBJECTS

Variables	Respondents		Total n (%) (N=385)	Statistical indices
	Male n (%) (n=166)	Female n (%) (n=219)		
Hypertensive	52 (31.3)	64 (29.2)	116 (30.1)	$\chi^2=0.1981$ df = 1 P value =0.656
Non-hypertensive	114 (68.7)	155 (70.8)	269 (69.9)	
Systolic pressure				$\chi^2=0.261$ df = 1 P value =0.871
High	36 (21.7)	46 (21.0)	82 (21.3)	
Normal	130 (78.3)	173 (79.0)	303 (78.7)	
Diastolic pressure				$\chi^2=0.0296$ df = 1 P value =0.863
High	41 (24.7)	43 (19.5)	84 (21.8)	
Normal	125 (75.3)	176 (80.4)	301 (78.2)	

in the study subjects. A total of 116 respondents were found to be hypertensive giving an overall prevalence of 30.1%. The prevalence of hypertension among the male respondents was 31.3%, while it was 29.2% among their female counterparts. The

difference was not statistically significant ($\chi^2 = 0.1981$, P- value =0.656). Table 2 also shows that the systolic and diastolic blood pressure, as at the day they came to the clinic, showed no statistically significant differences between the sexes.

DISCUSSION

The overall prevalence of hypertension in this study was 30.1%. This compares favourably with findings from other studies.^{9,12,13} Ekwunife et al, in a meta-analytic study in 2011, reported a maximum prevalence of 34.8% in Nigeria.⁹ Ulasi et al in their study in South-Eastern Nigeria in 2010 reported an overall prevalence of hypertension of 32.8%.¹² Sola et al, in a recent study in 2013, reported a prevalence of 32.9% among urban dwellers in Nigeria.¹³ The study by Ulasi et al was in a semi-urban area in South-East Nigeria, and it was population-based. Stratified random sampling technique was used and the sample size was 1,458. The study by Sola et al was in an urban area in Nigeria like this study, but it was community-based. Stratified random sampling technique was used, but the sample size was only 229.

However, there are other studies which reported much higher and lower rates than that obtained in this study.^{14,15,16} Asekun-Olarinmoye et al in a recent community-based study in a rural area in South Western Nigeria reported a prevalence of 13.16%.¹⁷ Akpa et al in their study in Port Harcourt metropolis of the south-south region of Nigeria reported a prevalence as high as 40.82%, whereas studies conducted in the rural areas of the same region (South-South Nigeria) at about the same period by Onwuchekwa et al and Andy et al reported prevalence of 18.3% and 23.6% respectively.^{14,15,16} The studies with much lower prevalence rates than that obtained in this study were done in rural areas, while the ones with much higher prevalence rates were done in larger cities.

The reason for the higher prevalence of hypertension in urban areas in Nigeria is the same as for other countries in Africa and developing world. The increased prevalence in urban areas, like in other countries in Africa, is strongly linked to changes in individual's and societal lifestyle like reduced physical activity, excessive alcohol and cigarette consumption and adoption of "Western" diets high in salt, refined sugar and unhealthy fats and oils, and lower fruits

consumption.^{18,19}

Like in most of the studies done in Nigeria, the prevalence of hypertension in this study was more in males (31.3%) than in females (29.2%), even though this was not statistically significant.^{9,12,15} This study was a hospital-based study therefore its findings cannot be generalized to the community.

In conclusion, hypertension remains an important public health problem world over. It is a leading risk factor for non-communicable diseases such as stroke and heart disease. The high prevalence rate observed in this study further emphasizes the need for continuous public health enlightenment on preventive measures such as dietary and lifestyle modification as well as routine screening of family members of hypertensive patients to reduce the prevalence of this silent but deadly disease.

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