Assessment of Risk Factors For Hypertention in A Rural Community in South-South Nigeria

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Abstract

Background: *Hypertension is an important and often symptomless chronic condition yet implicated as an important cause of various cardiovascular complications; stroke, renal failure, blindness thereby reducing the quality of life and productivity of untreated hypertensives'. Risk factors for hypertension as revealed in literatures include the following- Age, Gender, family history of hypertension, race, high intake of alcohol, physical inactivity, smoking, obesity, high intake of saturated fat, diabetes mellitus etc.*

Objectives of the study: *To assess the prevalence, risk factors for hypertension amongst rural dweller in Etsako West LGA of Edo State. Additionally, the study sought to determine the relationship between basal metabolic index (BMI) and hypertension.*

Methods: *The descriptive cross sectional study was carried out using pre-tested self-administered questionnaires; it was distributed among 350 respondents who were recruited via multistage sampling technique. The blood pressure was measured in the sitting position using the left arm held at the level of the heart. Blood pressure (BP) was measured to the nearest 2 mmHg on two occasions at an interval of 5 minute. The target populations were rural dwellers in South Ibia, Etsako West LGA of Edo State in South –south Nigeria. Variables were entered and analyzed was using SPSS software package. The association between various variables (risk factors, hypertention) were tested using appropriate test of statistics.*

Results: *Majority of the participants were within the age range of 18-27. Out of the 350 respondents 171 and 179 were male and female respectively. The prevalence of hypertension was 31.4% among the study participants. Majority of the respondents had normal body mass index (58.7%), this was followed by pre-obese (18.7%), obese (12.8%) and underweight (9.9%).*

Conclusion: *Early and prompt diagnosis of hypertension is key to prevention and control of its complications. This study emphasized the need to reduce weight through continuous exercise. Also, increased awareness of risk factors among rural dwellers will go a long way in reducing the burden of hypertension and its associated effects.*

Keywords: *Hypertension, Risk factors, rural community, Etsako West, Edo State*

I. Introduction

Hypertension is a chronic non communicable disease, posing a major public health challenge to population in low socioeconomic and epidemiological transition.[1] Currently, clinical criteria for diagnosing hypertension in a patient are generally based on the average of two or more seated blood pressure readings during each of two or more out-patient visits.[2] Hypertension is an important and often symptomless chronic condition yet implicated as an important cause of various cardiovascular complications; stroke, renal failure, blindness thereby, reducing the quality of life and productivity of untreated hypertensives.[1,2-4] Empirical and clinical studies had implicated the following among others as the risk factors for hypertension; Age, Gender, family history of hypertension, race, high intake of alcohol, physical inactivity, smoking, Obesity, high intake of saturated fat, diabetes mellitus.[1]

Furthermore, epidemiological Studies had shown that the prevalence of hypertension is on the increase globally.[3,4-5] World –wide, the prevalence of hypertension is about 1 billion and it accounts for 7.1 million death per year.[4] A WHO statistics report of 2012 reveals that the world wide prevalence of hypertension is 29.2% for males and 24.8% for females.[6] Hypertension was thought to be rare in rural communities; however, hypertension is now shown to be on the increase in rural as well as in urban communities in Nigeria.[7,8] In 2010, a prevalence rate of 32.8% was reported from a study in a rural and semi urban population in Enugu, Nigeria.[9]. Also, in 2010 another cross-sectional community based survey reported a prevalence of 20.8% in the rural community of Egbeda, southwest Nigeria while the prevalence in Ipetumodu, Osun State, Nigeria, was 26.4% for mild hypertension (systolic BP 140/90 mmHg) and 11.8% for moderate hypertension (systolic BP 160/100 mmHg) and that in semi-urban Ile-Ife was 36.6%.[10]

As mentioned earlier, rural areas in Edo State and Nigeria are in transitional phase. This increases the risk of conditions like hypertension in rural areas. However, anecdotal reports have demonstrated the scarcity of these studies in rural areas of developing countries. Against this background, this study was undertaken to study the prevalence and risk factors for hypertension amongst rural dwellers.

II. Material And Methods

The community based cross sectional survey was conducted among individuals in a rural area located in South Ibie, Etsako West Local Government Area of Edo state.

Inclusion Criteria

Only individuals who were 18 years and above; not suffering from other ailments, not on treatment for hypertension and who gave consent for interview and checking of their blood pressure and physical examination were included into the study.

Exclusion Criteria

Known hypertensive's on medication , with other ailment that might affect BP and pregnant women were excluded

Sample size and Sampling Technique

A minimum sample size of 350 was calculated based on the reported prevalence of hypertension rate in Edo state.[11] Multi stage sampling technique was used in recruiting the participants into the study.

Data Collection/Analysis

Data were collected using a pre-tested interviewer administered questionnaire to elicit socio-demographic information including age, gender, smoking and alcohol consumption. Medical histories such as prior knowledge of blood pressure status, family history of hypertension, use of drugs were also elicited by the questionnaire. Anthropometric measurement (height and weight) and blood pressure measurements were also carried out with standard equipments and recorded in the questionnaire. The BMI was calculated and recorded also in the questionnaire. The responses were collected, collated and analysed with SPSS 16. Differences in demographic characteristics between participants were analysed using the Chi-square test. The student t-test was also used to compare the age distribution of males and females. A p-value of less than 5% was considered statistically significant.

Ethical considerations

Ethical approval was obtained from the Ambrose Alli University ethics committee

III. Results

Demographic characteristics

A total of 366 questionnaires were distributed among the respondents but only 350 responded, given a response rate of 96%. Majority of the respondents (35.2%) were within the age of 18-27 year while ages 28-37, 38-47, 48-57, 58-67 and 68 years and above account for 18.8%, 17.1%, 13.0%, 5.5% and 10.4% respectively. Regarding gender, the female respondents (51.8%) were more than male respondents (48.2%). Regarding ethnicity, most (97.1%) of the respondents were Etsako. Concerning level of education, 44.0% had primary level of education while 28.9%, 20.9% and 6.3% had secondary, tertiary, and none respectively. Regarding occupation, most (30.2%) were farmers (see Table 1).

Prevalence of hypertension

The overall prevalence of hypertension in the study was 31.4% (see Figure 1). Steady increase in the prevalence of hypertension along increasing age groups was noticed in this study. This association was found to be highly significant (P<0.00001) see Table 2. Thirty four percent of those with a positive family history of hypertension were hypertensive compared with 65.79% of those who are normotensive but with a family history of hypertension. Also, 33.33% of those with no family history of hypertension where hypertensive compared to 66.67% of those without a family history of hypertension are normotensive (see Table 3). The prevalence of hypertension among those who consumed alcohol is 36.36% while the prevalence of hypertension among those who do not consume alcohol is 29.28%. OR=1.38 but this was not statistically significant (Table 4). Also, the prevalence of hypertension was higher among smokers (36.54%) compared to non smokers (31.27).the odds of smokers developing hypertension was 1.27 . (see Table 5).

Relationship between BMI and Hypertension

Table 6- it can be inferred that the prevalence of hypertension increases with increasing BMI. This relationship was found to be significant, P= 0.00102

Table 1: Socio-Demographic Characteristics Of Respondents

| Variables	Frequency	Percent (%)
AGE GROUP (YEARS)		
18-27	122	35.2
28-37	65	18.8
38-47	59	17.1
	45	13.0
58-67	19	5.5
≥68	36	10.4
GENDER		
Male	171	48.9
Female	179	51.1
TRIBE		
Etsako	340	97.1
Idoma	4	1.1
Others	6	1.8
MARITAL STATUS		
Single	75	21.6
Married	235	67.5
Divorced	2	.6
Widow	36	10.3
LEVEL OF EDUCATION		
Primary	154	44.0
Secondary	101	28.9
Tertiary	73	20.9
None	22	6.3
OCCUPATION		
Farmer	104	30.2
Trader	76	22.1
Student	81	23.5
Artisan	59	17.2
Others	24	7.0
RELIGION		
Christian	107	30.9
Muslim	232	67.1
Others	7	2.0
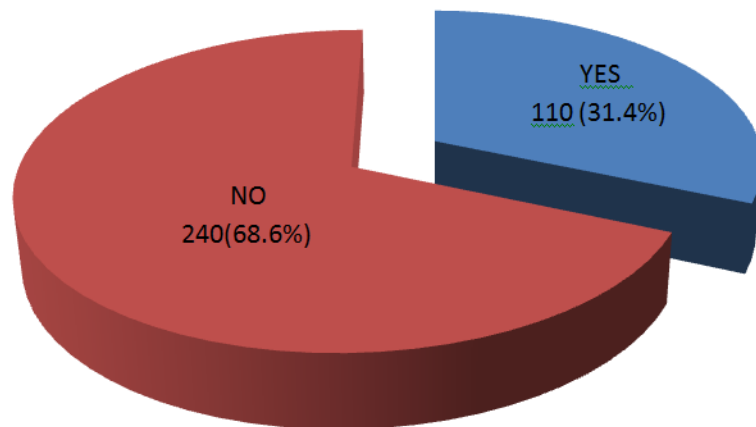
Fig 1: The Prevalence Of Hypertension

Table 2: Distribution Of Subjects Based On Blood Pressure And Age

Hypertensive			**Normotensive**		
n	(%)	n	(%)		Test /p-value
18-27	18	(14.8)	104	(85.2)	
28-37	16	(24.6)	49	(75.4)	
38-47	20	(33.9)	39	(66.1) p=0	X^2=64.546208 p=0.00001
48-57	16	(35.6)	29	(64.4)	
58-67	17	(89.5)	2	(10.5)	
≥ 68	23	(63.9)	13	(36.1)	

Table 3: Distribution Of Subjects According To Blood Pressure-Status And Family History

	Hypertensive		Normotensive		
	n	(%)	n	(%)	Test/p-value
Yes	13	(34.21)	25	(65.79)	
No	23	(33.33)	46	(66.67)	X^2=0.1544 p=0.925673
I don't know	56	(31.46)	122	(68.54)	

Table 4: Distribution Of Subjects According To Blood Pressure-Status And Alcohol Consumption

	Hypertensive		Normotensive		
	n	(%)	n	(%)	Test/p-value
Yes	32	(36.36)	56	(63.63)	,
No	65	(29.28)	157	(70.72)	X^2=1.471116 p-value=0.225

Table 5: Distribution Of Subjects According To Blood Pressure-Status And Smoking

	Hypertensive n(%)		Normotensive n(%)	Test/ p value
SMOKERS	19	(36.54)	33(63.46)	
NON SMOKERS	91	(31.27)	200(68.73)	X^2=0.561779 p=0.453544

Table 6: Distribution Of Subjects According To Blood Pressure-Status And Bmi

BMI (Kg/m^2)		Hypertensive		Normotensive		Test/p -value
		n	(%)	n	(%)	
	<18.5	5	(14.71)	29	(85.29)	
	18.5-24.9	58	(29)	142	(71)	
	25.0-29.9	21	(32.81)	43	(67.19)	X^2= 20.5, p=0.001021
	30.0-34.9	19	(55.88)	15	(44.12)	
	35.0-39.9	6	(60)	4	(40)	
	>40.0	0	(0.0)	0	(0.0)	

IV. Discussion

Following the JNC-7 and WHO definition of hypertension, the prevalence of hypertension in this study was 31.4%. The figure is higher compared to was reported among the Ibibio/Anangs Efiks and the Obolos where the prevalence of hypertension was less than 25%.[12] The prevalence in this present study is also higher than the prevalence reported in other previous works.[13,14,15,16,17] However, the prevalence in this study was lower compared to other studies..[11,18] Furthermore, a work done in Uganda reported a prevalence of 30.4% which is comparable with this study.[19] Our findings therefore confirm the growing concern about hypertension as a public health problem in rural community in Nigeria.

This study showed that prevalence of hypertension increases with advancing age. This association was found to be highly significant (P< 0.00001). The finding was consistent with the reports from earlier studies where increasing prevalence rate of hypertension is associated with increasing age.[14,15,20-22]. Hence, this study showed that increasing age is a risk factor for developing hypertension.Furthermore, it was revealed that the prevalence of hypertension was higher among those with positive family history of hypertension, smoking and drinking of alcohols. However, these relationships were not statistically significant. However, our findings were similar to those reported in other studies.[19, 23-25]Majority of respondents from this work had normal body mass index. This compares with a work carried out in Osun state which reported a that 19.6% of their respondents had a BMI of 25-29.9, (pre-obese), while 11.5% of the respondents had a BMI of 30 and above.[13] Our study showed that the prevalence of hypertension increases with increasing BMI. This was found to statistically significant(p= 0.00102). This was comparable with the study done in Nigeria, which reported a significant association between hypertension and obesity as defined by BMI. (OR 2.12, 95% CI 1.26-3.54, P=0.004).[20] This findings was further buttressed by a study conducted in three urban and rural communities in Ethiopia, Indonesia and Vietnam where it was stated that hypertension increases with increase BMI quintile.[26]

Conclusion/Recommendations

The prevalence of hypertension in our study was 31.4%. There was a significant relationship between increasing age, BMI and hypertension. Also, the study revealed that there is high prevalence of hypertension among individuals with family history of hypertension and those smoking and taking alcohol, however, these relationships were not statistically significant. Based on the aforementioned, there is need to have a dedicated Local Government Health program focusing solely on prevention of hypertension in rural communities and these program should include health education, screening and treatment of hypertension. More studies are required to be conducted among rural dwellers to assess other key determinants and preventive measures of hypertension.

Conflict Of Interest
None identified in this study

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