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## RESEARCH ARTICLE

# PREVALENCE OF HYPERTENSION AMONGST ADULTS IN UMUNNEOCHI LOCAL GOVERNMENT AREA OF ABIA STATE, NIGERIA: A SURVEY

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**ABSTRACT**

The prevalence of hypertension amongst adults in Umunneochi Local Government Area (LGA) of Abia State, Nigeria, predisposing factors and its relationship with age and gender was studied. The research design adopted was a cross-sectional descriptive study, in which one thousand and three (1003) adults comprising of 286 males and 717 females, aged 30 years and above, who presented themselves for a free medical outreach, were screened for the prevalence of hypertension. The study period was between January and December, 2013. Data collected were ages in years, sex and blood pressure values. Diagnosis of hypertension was based on the blood pressure threshold of 140/90 mmHg, set by the International Society of Hypertension. Hence, Individuals whose resting blood pressure values were above 140/90 mmHg, were considered hypertensive. Oral interviews bordering on lifestyle, culture and diets were also used to generate data on the predominant risk factors in the study area. Results obtained indicated that out of the 1003 persons involved in the study, 608 (60.62%) were found to be hypertensive and comprised of 183 (63.98%) males and 425 (59.27%) females. Rise in prevalence rate was also found to increase with age, attaining peak values at ages 60-69. Dietary predisposing factors identified included high salt intake, saturated fat, carbohydrates and junk foods while lifestyle factors included tobacco, alcohol, stress and poverty. We hereby conclude that the prevalence rate of hypertension in Umunneochi Local Government Area of Abia State, Nigeria is high and calls for urgent attention to avoid reaching a pandemic state.



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## INTRODUCTION

Hypertension appears to be in the lead of all cardiovascular diseases and it is no more news that across the globe its prevalence rate has achieved a pandemic state. It is estimated that globally, hypertension accounts for over 20% of deaths each year (Ijioma and Emelike, 2014) and may rise to a staggering percentage of 29.40 by 2025, if not adequately checked (Adediran *et al*., 2013). Nigeria is not left out of the scourge, as the number of hypertensive individuals has been reported to be on the increase (Ulasi *et al*., 2010, Ekwunife *et al*., 2011, Adeniran *et al*., 2013). Abia, one of the Nigerian states is also having a fair share of the impact of hypertension, with upsurge in the number of people with hypertension duly reported (Aheneku *et al*., 2011, Ogah *et al*., 2012, Ogah *et al*., 2013).

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Several studies have indeed been carried out on hypertension, with the results identifying clinical conditions such as intracerebral infarction, coronary heart disease, myocardial infarction, cerebro-vascular accident (stroke), renal failures, retinopathies of the eye, increased target organ damage, tissue death etc to be strongly associated with the disorder. Possible causes and risk factors of hypertension have been reported to include high cholesterol level, high salt intake, low potassium, calcium and magnesium levels, some medications and lifestyle factors including lack of physical exercise, excessive smoking, excessive consumption of alcohol, stress, anxiety, obesity, sedentary lifestyle (Ogah *et al*., 2013, Anderson *et al*., 2008, Gyamlani and Geraci, 2007). To prevent damage to the blood vessels and its resultant complications, several medicines including angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor blockers, diuretics, beta blockers, calcium channel blockers and a variety of alternative medications have been employed to contain the disease, with much more still needed if significant success is to be recorded. Despite several reports on the increasing risk factors for non communicable

diseases including hypertension, Nigeria does not have current and reliable population based data on the burden of these risk factors, to guide programs targeted at controlling the disease. In fact, the last survey on non-communicable diseases in Nigeria was in 1997, since then only little attempt has been made as a follow up survey (Akinkugbe, 1997). Apart from the fact that Abia state was not even included in the 1997 National Survey on non-communicable diseases, there is no published data on the prevalence of hypertension in Umunneochi Local Government Area, especially as it pertains to its determinants and other cardiovascular risk factors in the population. This current study was therefore designed to investigate the prevalence of hypertension and its associated cardiovascular risk factors in the LGA.

## MATERIALS AND METHODS

The research design adopted was a cross-sectional descriptive study. One thousand and three (1003) adults comprising of 286 males and 717 females, aged 30 years and above in Umunneochi Local Government Area of Abia state, who presented themselves for a free medical outreach were screened for the prevalence of hypertension. The study period was from Janaury to December, 2013. Data collected were ages in years, sex and blood pressure values. Blood pressure for each participant was determined using Sphygmomanometers and stethoscopes in accordance with standard procedures and precautionary measures. Blood pressure for each subject was taken three times within an interval of 2 minutes and mean values were evaluated. Diagnosis of hypertension was based on the blood pressure threshold of 140/90 mmHg set by the International Society of Hypertension. Hence, Individuals whose resting blood pressure values were above 140/90 mmHg were considered hypertensive. Oral interviews bordering on lifestyle, culture and diets were also used to generate data on the predominant risk factors in the study area. Ethical approval for the work was obtained from the Ethics Committee of the Government House Clinc, Umuahia, Abia state, Nigeria.

### Statistical Analysis

Results were expressed as mean ± standard deviation (SD). Students's t-test at 95% level of significance was used to compare means. Computer software package, SPSS version 17 was employed.

## RESULTS

### General prevalence of hypertension in Umunneochi LGA and its relationship with gender

Out of the 1003 persons involved in the study, 608 representing 60.62% were found to be hypertensive while the remaining 395 (39.38%) persons had normal blood pressure. The number of males in this sample size was 286, of which 183 (63.98%) were found to be hypertensive, while the remaining 103 (36.02%) had normal blood pressures. The female proportion of the 1003 persons examined in the LGA was 717, out of which 425 representing 59.27% were hypertensive, while the remaining 292 (40.73%) were normal.

### Age related prevalence of hypertension in Umunneochi LGA of Abia state

Results obtained reveal a progressive rise in blood pressure with increasing age, with individuals of ages 30-39 having the least mean systolic blood pressures (149.80± 12.80), while those of age 90 and above had the highest mean values (164. 20±8.42). The prevalence rate however did not follow the same trend with age versus the systolic blood pressures, as the prevalence rate increased from ages 30 and above, attaining peak values at ages 60-69 with a prevalence rate of 60.53% and then began to fall with those of ages 90 and above having the least prevalence rate of 12.5% (Table 1).

### Percentage affirmative responses to oral interview on the common hypertension risk factors in Umunneochi LGA of Abia state

Following oral interviews, the identified prevalent risk factors of hypertension in Umunneochi LGA as affirmed by the respondents include high consumption of carbohydrate and palm oil which recorded maximum percentage scores, followed by local delicacies and saturated fat intake. Also prevalent in the area is the consumption of junk food and high salt intake. Identified lifestyle factors include alcohol and soft drinks consumption, stress and inadequate exercise. Others are the consumption of different forms of tobacco products. Poverty, illiteracy and poor health care were also affirmed to be high in the area, while many of the dwellers are of low socio-economic status (Table 2).

## DISCUSSION

Results of this study have shown that hypertension is prevalent in Umunneochi LGA of Abia state, Nigeria with an overall prevalence rate of 60.53% and occurred most amongst subjects of ages 60-69 years. The males were found to have a higher prevalence rate (63.98%) than the females which had 36.02% prevalence rate. The mean systolic blood pressure were found to be increasing with age. The prevalence of hypertension in Umunneochi LGA of Abia state is suggestive of the prevalence level in most rural communities in Nigeria and Africa by proxy. Gibbs *et al*., (1999), had reported a high prevalence of hypertension and its associated complications amongst people of African descent when compared to other races, a result which was consistent with the findings of Balogun and Ladipo, (1988), who in their report had stated that hypertension remains the most common cardiovascular disease amongst black

Africans and a major cause of morbidity and mortality in Nigeria. A rising prevalence rate of hypertension in most rural communities in Nigeria had also been reported (Adediran *et al*., 2013). Several factors can be implicated in the prevalence level of hypertension as observed in Umunneochi LGA of Abia state. The consumption of diets containing high amounts of salt, saturated fats, carbohydrates and palm oil is popular in the area. These substances also constitute major parts of junk foods and local delicacies in the area. High salt intake has the tendency to cause retention of fluid (water) in the body leading to increased

**Table 1. Prevalence of hypertension in Umunneochi LGA and its relationship with age**

| Age in years | Number screened | Number with hypertension | % with hypertension | Mean systolic Blood pressure (mmHg) |
|---|---|---|---|---|
| 30-39 | 74 | 6 | 8.11 | 149.80± 12.80 |
| 40-49 | 186 | 39 | 20.97 | 158.65± 16.10 |
| 50-59 | 248 | 66 | 26.61 | 154.60± 18.08 |
| 60-69 | 304 | 184 | 60.53 | 153.43± 10.30 |
| 70-79 | 145 | 61 | 42.07 | 157.59± 11.90 |
| 80-89 | 38 | 13 | 34.21 | 160.30± 12.90 |
| 90 + | 8 | 1 | 12.50 | 164. 20±8.42 |

blood volume and sometimes oedema resulting to the development of hypertension (Das *et al*., 2005). Jian *et al*., (2008) had reported that long term high salt intake caused hypertension and decreased renal expression of vascular endothelial growth factor in Sprague-dawley rats. Although the exact mechanism by which high salt intake causes hypertension remains elusive, the effects of salt on the renal angiotensine system has in most cases been implicated in salt induced hypertension and remains a key factor in most essential hypertension (Drenjanceric *et al*., 2010). High consumption of saturated fats is a major cause of hyperlipidaemia which in turn predisposes arteriosclerosis and heart diseases. Arteriosclerosis is established to be a major player in the development of hypertension (Akah *et al*., 2009; Sembulingam and Prema, 2010). The prevalence rate of hypertension in Umunneochi LGA of Abia State may therefore be traced to the high consumption of saturated fat and salt by the rural dwellers. In fact a local delicacy in the area popularly called Nsisa in their local dialect is usually consist of sliced, boiled cassava, palm oil, congealed with high amounts of potash, with added salt and other spices. Sometimes high saturated animal fat could be used for the preparation of the delicacy.

The food usually goes with palm wine and is served several times in between meals in a day. An objective analysis of the delicacy indicated high carbohydrate, high saturated fat, cholesterol and high sodium which are all risk factors in the development of hypertension (Chung, 1991). There is however no evidence to support the claim that palm oil can cause hypertension. The use of tobacco (cigarette and snuff) is also common in the area and may have contributed to the increasing number of hypertensive individuals in the area. The relationship between tobacco smoking and several cardiovascular diseases including hypertension has been established. Virdis *et al*., (2010) reported that smoking cigarette and other forms of tobacco causes impairment of endothelial function, arterial stiffness, inflammation, lipid modification as well as alteration of antithrombotic and prothrombotic factors. It has also been reported that cigarette smoking exerts hypertensive effect mainly through the stimulation of the sympathetic nervous system (Virdis *et al*., 2010). Recently, there seem to be a running argument on the actual effect of tobacco on the blood pressure with an area of thought being of the view that it raises the blood pressure, while another upholds that it rather lowers blood pressure. This discrepancy can be cleared with proper understanding of the pharmacology of tobacco. Initially, a vasoconstriction mediated by nicotine causes acute but transient increase in systolic blood pressure. This phase is followed by a decrease in blood pressure as a consequence of depressant effect of nicotine. At the same time the inhaled carbon monoxide acts on the arterial wall causing some form of structural alterations which eventually favors the development of hypertension (Aurelio, 2011). Indeed several reports have identified the cardiovascular system as one of the major target organs for smoking. Leone, (2012) in his study found out that nicotine from tobacco triggers cardiovascular responses through sympathetic stimulation and direct and mediated catecholamine release. In addition, it stimulates the release of norepinephrine from the hypothalamus and antidiuretic hormone from the pituitary gland as well as chemoreceptors in the carotid arteries which may lead to rise in blood pressure. Tobacco smoking has also been thought to initiate cardiovascular dysfunction including hypertension, by increasing inflammation thrombosis, oxidation of low density lipoprotein cholesterol and increasing oxidative stress (John and Rajat, 2004). Lack of physical exercise and high body calorie resulting from carbohydrate, alcohol and soft drink intake has been identified as more risk factors in the development of hypertension. These factors predispose to obesity and may cause hypertension. Frank *et al*., (2012) had established a strong relationship between lack of exercise and hypertension.

**Table 2. Percentage affirmative responses on common hypertension risk factors in Umunneochi LGA of Abia state**

| Risk factors | Percentage affirmation |
|---|---|
| DIET | % |
| High salt intake | 90 |
| High saturated fat | 95 |
| High carbohydrate | 100 |
| Palm oil | 100 |
| Junk food | 90 |
| Local delicacies | 95 |
| LIFESTYLE | % |
| Tobacco use (Cigarette) | 55 |
| Tobacco use (Snuff) | 70 |
| Alcohol consumption | 85 |
| Soft drink consumption | 90 |
| Stress | 85 |
| Exercise | 90 |
| Socio-economic factors | 95 |
| Poverty | 95 |
| Illiteracy | 90 |
| Poor health care | 95 |

Although the mechanism through which alcohol causes hypertension is not fully known, it remains true that alcoholics are high susceptible to the disease.

Globally it is estimated that about 16% of all cases of hypertension result from high intake of alcohol, with each 10 grams of alcohol thought to increase blood pressure by 1mmHg (Puddey and Beilin, 2006).

**Conclusion**

The results of this study have shown that the rate at which people develop hypertension in Umunneochi Local Government Area of Abia State, Nigeria is on the increase and may reach pandemic level if not checked. The disease is related to age with individuals between 60 and 69 being the worst hit. Predisposing factors are both dietary and lifestyle in nature. Results obtained also tend to agree with existing literature on the prevalence and causative factors of hypertension in other parts of Africa.

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