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AWARENESS OF HIGH BLOOD PRESSURE STATUS, TREATMENT AND CONTROL IN A RURAL COMMUNITY IN EDO STATE.

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ABSTRACT
A cross-sectional study was carried out in Udo, a rural community in Ovia South-west LGA of Edo State to assess the level of awareness of high blood pressure status, treatment and control.
Cluster sampling method was used to select participants and data collection was by researcher administered questionnaire. Blood pressure measurement was by standardized method.
A total of 590 respondents with mean age 30.7 ± 14.6 years participated in the study. The prevalence of hypertension was 20.2% using the WHO/ISH criteria of SBP ≥140 mmHg and/or DBP ≥ 90 mmHg. Twenty two (18.5%) of the hypertensives were aware of their high blood pressure status. Awareness was higher in females, increased with age and decreased with higher educational status. Of those aware of their condition, 77.3% were on treatment and of these, 29.4% had adequate blood pressure control.
This study has revealed a low level of awareness of high blood pressure status and control in this rural community. Therefore, there is urgent need for regular community-based hypertension screening programmes.

Key words: Awareness, Treatment, Control, High blood pressure. *(Accepted 15 September 2006)*

INTRODUCTION
Hypertension is one of the most important causes of cardiovascular morbidity and mortality.[1,2] Prior studies have shown that the proportion of people who are aware of their high blood pressure status is usually low since the condition is often without symptoms. Also, of those who are aware, small proportion are on adequate treatment and control.[3-6]
In the national survey on non-communicable diseases in Nigeria, it was reported that only 33.8% of the hypertensives were aware of their condition and of these, 64% were on treatment.[3]
With the relative lack of symptoms, the required alteration in life long habits (cessation of smoking, alcohol reduction, physical activity and nutritious diet) and life long drug treatment, many people become non-compliant with prescribed management protocol. Therefore in order to keep patients participating in a control programme, they must be given a clear understanding of the rational for every aspect of the therapy.
Previous studies have focused mainly on hospital patients with regards to their level of compliance with treatment and control of hypertension. This present study is community based aimed at determining the level of awareness of high blood pressure status, treatment and control in a rural area since the incidence of hypertension is on the increase even in the rural areas.

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MATERIALS AND METHODS
This was a cross-sectional, descriptive study carried out in Udo a rural community. It is one of the 126 communities in Ovia South-west LGA of Edo state. Udo is about 40 km from Benin-city, the state capital and about 8 km from Iguobazuwa, the local government headquarter. The people are Binis and speak the Edo language. There is a traditional ruling system with the headship being reffered to as 'Iyasere'. The people are mainly engaged in agricultural activities especially crop farming.
The study population included all males and females aged 15 years and above who are resident in the community. Cluster sampling method was carried out (using a quarter as a sampling unit). Two out of the nine quarters were selected by balloting and all males and females 15 years and above in the selected quarters were included in the study.
Structured, researcher-administered questionnaire was the tool for data collection. Interviewers had a common training programme conducted by the principal investigators. The training included standardization of methods of questionnaire administration and measurement of blood pressure. This was to ensure accuracy, reduce inter- and intra-observer errors and ensure comparability of blood pressure and study participant's responses. The sphygmomanometers were all standardized. Blood pressure measurement:

The blood pressure was measured using Accoson mercury sphygmomanometer and for accuracy the following steps were adopted:[7] The individual was rested for at least 5 minutes in a sitting position with the arm rested on a table such that the middle of the right arm was about the level of the heart and any tight clothing removed from the arm. The cuff was inflated, palpating the radial artery and the inflation was continued until 20-30 mmHg above the disappearance of the radial pulse. The stethoscope diaphragm was placed over the brachial artery in the ante-cubital fossa and the cuff deflated, allowing the mercury to fall gradually, about 2 mmHg per second. The first sound (Korotkoff 1) was taken as the systolic blood pressure and the extinction of all sounds (Korotkoff 5) as the diastolic blood pressure. The blood pressure was recorded to the nearest 2 mmHg. Two blood pressure readings were taken at an interval of 15 minutes and the mean of the two readings taken as the individual's blood pressure measurement.Data analysis was by computer using the SPSS statistical package.

RESULTS

The demographic profile of the respondents is shown in Table 1. A total of 590 respondents were involved in the study comprising of 355 (60.2%) males and 235 (39.8%) females. Their mean age was 30.7 $\pm$ 14.6 years.

The prevalence of hypertension in this study population was 20.2% using the WHO/ISH criteria of SBP greater than or equal to 140 mmHg and/or DBP greater than or equal to 90 mmHg. Twenty-two (18.5%) of those who were hypertensive were aware of their high blood pressure status. (Table 2) Females were more aware of their high blood pressure status than the males, (22.6% of females and 17.0% of males) but this difference was not statistically significant, $X^2 = 0.4661$, $p = 0.4948$. This awareness was highest in those 55 years and above (41.7%) and lowest in the age group 15-24 years (0.0%), $X^2 = 17.328$, $p = 0.0006$. Level of awareness was also found to decrease with increasing educational status from 31.8% in those with no formal education to 10.0% in those with tertiary level of education, $X^2 = 5.166$, $p = 0.0755$. (Table 2)Majority of those who were aware 21 (95.5%) were told about their condition by a doctor while only one (4.5%) by a nurse. Also 14 (63.6%) of them go to the hospital regularly for blood pressure check, the males more than the females. All the hypertensives who were aware do not have other ways of checking their blood pressure besides visiting the hospital. In addition, only 3 (13.6%) of them could recall their last blood pressure readings which were normal (less than 140/90 mmHg) as Opposed to 4 (18.2%)of them who also recalled their last blood pressure readings which However was abnormal (greater than 140/90 mmHg). The remaining majority, 15 (68.2%) could not recall their last blood pressure readings.

Overall, 14.3% of all hypertensives (aware and unaware) were on treatment, 12.5% of male hypertensives and 19.4% of female hypertensives ($X^2 = 0.8797$, $p = 0.3483$ (Table 2). Of those aware of their condition, the females (85.7%) had a higher proportion of those on treatment than the males (73.3%), $p > 0.05$. The proportion of all hypertensives on treatment increased with age from 0.0% in those 15-24 years to 33.3% in those 55 years and over. $X^2 = 14.571$, $p = 0.0022$. The proportion on treatment decreased with increasing educational status from 27.3% in those with no formal education to 0.0% in those with tertiary education. $X^2 = 4.347$, $p = 0.1138$. (Table 2)

All those on treatment were on modern drugs. Of these, 8 (47.1%) took their treatment regularly while 9 (52.9%) did not. Males tended to take their treatment more regularly than the females and were also less likely to have problems associated with taking their medications. The various reasons given for not taking their drugs regularly were: lack of funds 9 (77.8%), high cost of drugs 6 (66.7), side effects 3 (33.3%), forgetfulness 2 (22.2%) and difficulty with swallowing the drugs 1 (11.1%).

Only three out of the seventeen on treatment (17.6%) had tried any traditional medications and these were in the form of herbs and onion mixed with honey concoction.Only 4.2% and 29.4% of all hypertensives and treated hypertensives, respectively, had their blood pressure under control, the females more than the males ($P > 0.05$)

Table 1: **Demographic profile of respondents**

Variables	Frequency	Percentage
Age(years)		
15-24	250	42.4
25-34	160	27.1
35-44	96	16.3
45-54	37	6.3
55-64	20	3.4
≥65	27	4.6
Total	590	100.0
Marital Status		
Single	266	45.1
Married	316	53.5
Separated/Divorced	4	0.7
Widowed	4	0.7
Total	590	100.0
Educational Status		
None	58	9.8
Primary	168	28.5
Secondary	323	54.7
Tertiary	41	6.9
Total	590	100.0

Table 2: **Awareness and treatment of high blood pressure status among the hypertensive respondents.**

Characteristics	No.aware (%)	No. treated (%)
All hypertensives (n = 119)	22 (18.5)	17 (14.3)
Sex		
Male (n = 88)	15 (17.0)	11 (12.5)
Female (n = 31)	7 (22.6)	6 (19.4)
p value	0.4948	0.3483
Age group (years)		
15-24 (n = 21)	0 (0.0)	0 (0.0)
25-34 (n = 32)	2 (6.3)	1 (3.1)
35-44 (n = 22)	6 (27.3)	4 (18.2)
45-54 (n = 20)	4 (20.0)	4 (20.0)
≥ 55 (n = 24)	10 (41.7)	8 (33.3)
p value	0.0006*	0.0022*
Educational status		
None (n = 22)	7 (31.8)	6 (27.3)
Primary (n = 41)	9 (22.0)	6 (14.6)
Secondary (n = 46)	5 (10.9)	5 (10.9)
Tertiary (n = 10)	1 (10.0)	0 (0.0)
p value	0.0755	0.1138

*** Statistically significant**

DISCUSSION

All the respondents were 15 years and above with a mean age of 30.7 ± 14.6 years. This is close to the national average as demonstrated in the 1991 national census (31.6 ± 14.1 years.[3]

The level of awareness of high blood pressure was low as only 18.5% of all hypertensives were aware of their condition. This level of awareness is even lower than that reported in the Nigerian national survey[3] where 33.8% of hypertensives were aware of their high blood pressure status but is similar to that observed in Tanzania where less than 20.0% of hypertensives were aware of their condition.[4] This low level of awareness could be due to the relative absence of symptoms in hypertension until the late stages when complications set in and the patients present at the health facility for these symptoms. Hypertension may then be diagnosed incidentally.

The level of awareness was observed to increase with age and this is in agreement with reports from several studies.[3,8-9] This higher awareness in the older agegroup could be attributed to the fact that this group may have more frequent contacts with health facilities for other illnesses, hence have more opportunities for casual blood pressure checks.

Females were more aware and this is in agreement with findings from other studies.[3,8-10] This may also be related to the differences in their health seeking behaviour since females are more likely than males to present at the hospital for ill health and also because of their more frequent contacts with the health facility (antenatal care, family planning clinics and the well woman clinics), hence, a greater opportunity for casual blood pressure screening.

The level of awareness was surprisingly found to be inversely related to the level of education. This is in contrast to findings by the Hypertension Study Group in Bangledesh, though this was among the elderly.[11] This unusual finding could be due to the tendency of those with higher educational level to be more preoccupied with other matters such as their jobs so that they do not have time for regular blood pressure checks.

The rate of treatment of hypertension was low in this study population as only 14.3% of all hypertensive were on treatment. However, when only those aware of their condition were considered, 77.3% of them were on treatment. This low rate of treatment could be due to the fact that there was also a low level of awareness of high blood pressure status since awareness is a prerequisite for treatment. Other possible factors which may be associated with it are lack of motivation to take drugs daily for life as well as inability to experience instant symptomatic relief due to the relative absence of symptoms. Even among those who were motivated, adverse drug effects and lack of funds, (considering the high cost of drugs) as also shown in this study had a negative impact on treatment.

The female respondents had higher treatment rates. This agrees with reports from several documented studies.[9,12-15] Since the females were also more aware of their condition, expectedly, they had higher treatment rates. A higher treatment rate was observed in the older age group as has been reported in previous studies.[9,16,17]

Contrary to expectations, a higher level of treatment was observed in those with lower educational status. The inverse relationship documented in this study may be related to the higher level of awareness of high blood pressure status among those in the lower educational status.

The level of blood pressure control was poor in this study population. Control was better among the females even though the males took their treatment more regularly and were less likely to have problems with taking their treatment. This is similar to reports from several other studies.[5,13-14,18-19] The possibility that the females will more readily admit to having problems associated with taking their treatment should be considered. This could be because males are more likely to tolerate side effects of drugs or less willing to admit to having them. Also, males may be

more empowered financially and so can afford their treatment more than the females. Several factors were identified in this study that could contribute to the poor rate of control of hypertension in this study population. The low level of awareness of high blood pressure status, poor compliance to treatment associated with high cost of drugs/lack of funds, adverse effects of drugs, forgetfulness and difficulty with swallowing. It could also be due to different degrees of knowledge about treatment guidelines for hypertension among health care providers. It was also noted that all the hypertensives were on drug treatment only. None of them were on non-pharmacological treatment such as diet or lifestyle modification, for example, smoking cessation, moderation in alcohol intake and engaging in physical activities that has been shown to be adjuvant to adequate blood pressure treatment and control.[20-22] In conclusion, this study has revealed a low level of awareness of high blood pressure status, treatment and control of hypertension in this rural community. Therefore, there is need for the local health authorities to carry out regular community-based hypertension screening programmes and awareness campaigns to highlight the importance of regular blood pressure checks, risk factor avoidance and compliance to prescribed treatment. Also the government should take definite steps to reduce the costs of drugs.

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REFERENCES

1. **Akinkugbe OO.** World epidemiology of hypertension in blacks. In: Hall WD, Saunder E and Shulma NB (Eds). Hypertension in blacks. Chicago Yearbook Medical Publishers, 1985; 3-16

2. **Williams GH.** Hypertensive vascular disease. In: Fauci AS, Braunwald E, Isselbacher KJ, Wilson D and Martin JB (Eds). Harrison's Principle of Internal Medicine. 14th Edition. London, McGraw-Hill. 1998; 1384.

3. **Akinkugbe OO (Ed).** Non-communicable diseases in Nigeria, Series 4. Final report of a National survey. Federal Ministry of Health and Human Services, Lagos. 1997; 12-41

4. **Edwards R, Unwin N, Mugusi F et al.** Hypertension prevalence and care in an urban and rural area of Tanzania. J Hypertens. 2000 Feb; 18(2): 145-52

5. **Jones D W, Kim J S, Kim S J et al.** Hypertension awareness, treatment and control rates for an Asian population: results from a national survey in Korea. Ethn. Health 1996 Sept; 1(3): 269-73

6. **Aubert L, Bovet P, Gervasoni JP et al.** knowledge, attitudes and practices on hypertension in a country in epidemiological transition. Hypertension, 1998 May; 31(5): 1136-45

7. **Akinkugbe OO (Ed).** Non-communicable diseases in Nigeria, Series 1. Federal Ministry of Health and Human Services, Lagos. 1992; 1-12

8. **Echeverr'ia RF, Camacho RO, Carbajal HA et al.** Knowledge and treatment of hypertension in La Plata, Argentina. Medicina. (B Aires) 1989; 49(1): 53-8

9 **Puras A, Sanchis C, Artigao LM, Divison JA.** Prevalence, awareness, treatment and control of hypertension in a Spanish population. Eur. J Epidemiol. 1998 Jan; 14(1): 31-6

10. **De Barker G, Myny K, De Henauw S et al.** Prevalence, awareness, treatment and control of arterial hypertension in Belgium. J Hum. Hypertens. 1998 Oct; 12(10): 701-6

11 Hypertension Study Group. Prevalence, awareness, treatment and control of hypertension among the elderly in Bangledesh and India: a multicentre study. Bulletin of the World Health Organization, 2001; 79: 490-500

12 **Failde I, Balkau B, Costagliola D et al.** Arterial hypertension in the adult population of Guadeloupe and associated factors in subjects of African origin. Rev. Epidemiol. Sante Publique, 1996 Oct; 44(5): 417-26

13. **Satish S, Stroup-Benham CA, Espino DV et al.** Under-treatment of hypertension in older Mexican Americans. J Am. Geriatr. Soc, 1998 Apr; 46(4): 405-10

14 **Degoulet P, Menard J, Vu HA et al.** Factors predicting attendance at clinic and blood pressure control in hypertensive patients. BMJ, 1983; 287: 88-93

15. **Flack JM, Novikov SV, Ferrario CM.** Benefits of adherence to antihypertensive drug therapy. Eur. Heart J, 1996; 17(Suppl. A): 16-20

16. **Daniel DE, Rene AA, Daniels VR.** An explanation of patient compliance- fact or fiction? Natl. Med. Assoc. 1994; 86: 20-5

17. **Gandhi S, Santiesfeban H.** Resistant hypertension. Postgradute Medicine, 1996 Oct; 100(4): 97-108

18. **Sulbaran T, Silva E, Calmon G, Vegas A.** Epidemiologic aspects of aerterial hypertension in Maracaibo, Venezuela. J Hum. Hypertens. 2000 Apr; 14(Suppl.1): 86-9

19 **Keil JB, Weinricil MC, Keil BW.** Hypertension in a population sample of female Punjabi Indians in Southall. J Epidemiol. Comm. Health 1980;34: 45-7

20. Hypertension Prevention Trial Research Group. The Hypertension Prevention Trial: three-year effect of dietary changes on blood pressure. Arch. Intern. Med. 1990; 150: 153-162

21. Treatment of Mild Hypertension Research Group. The treatment of mild hypertension study: a randomized, placebo-controlled trial of a nutritional-hygienic regimen along with various drug mono-therapies. Arch. Intern. Med. 1991; 151: 1413-23

22. **Mertens IL, Van-Gaal LF.** Overweight, obesity and blood pressure: the effects of modest weight reduction. Obes. Res, 2000 May; 8(3): 270-8