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Full Length Research Paper

Prevalence and awareness of hypertension and pre-hypertension among traders in Hohoe Municipality, Ghana

Fafali BANI[1], Peace NYAVOR[1], Isaac AGBEMAFLE[1], Wisdom TAKRAMAH[1], Eric AGBOLI[1], Elvis TARKANG[1], Mohammed TAKASE[2] and Margaret KWEKU[1]*

[1]School of Public Health, University of Health and Allied Sciences, Ho, Volta Region, Ghana.
[2]School of Biological Sciences, University of Cape Cast, Central Region, Ghana.

*Corresponding author. E-mail: margaretkweku069@gmail.com

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Hypertension (HPT) is an important cause of morbidity and mortality worldwide and it is now emerging as a public health problem in sub-Saharan Africa. This study reports on prevalence and its awareness of HPT among traders in Hohoe Municipality (HHM). This was a population-based cross-sectional study carried out in 2015 involving 328 traders (18-65 years) using a random cluster sampling technique. A pre-tested, semi-structured questionnaire was used to obtain information on background characteristics, awareness and predictors of HPT. Anthropometric indices, blood pressure and random blood sugar (RBS) were measured following standard procedures. Chi-square was used to determine associations between independent variables and HPT (dependent variable). Means in quantitative variables were determined using t-test. Overall prevalence of HPT including those on treatment was 43.3%. At the time of the survey, HPT prevalence was 28.4%, Pre-hypertension (Pre-HPT) was 33.8% and normal Blood pressure (BP) was 37.8%. Out of the 28.4% of the traders who were aware they have HPT, only 13.1% could control their BP. Also, of the 28.4% traders who had high BP during the survey, 15.3% were not aware that they have hypertension. Increasing age, obesity, overweight, high WHR and marital status of traders were independently associated with HPT. Prevalence of HPT and Pre-HPT was very high among the traders' population. Uncontrolled and undiagnosed HPT was also very high. Targeted periodic screening and creation of awareness on HPT and Pre-HPT are needed to enhance the prevention and control of HPT.

Key words: Prevalence, hypertension, pre-hypertension, traders, awareness, Hohoe Municipality, Ghana.

INTRODUCTION

Hypertension (HPT) is an important cause of morbidity and mortality worldwide. World Health Organization (WHO) defined HPT as a systolic blood pressure (BP) equal to or above 140mmHg and/or diastolic BP equal to or above 90mmHg (WHO, 2013a). The overall prevalence of HPT (including those on medication for high blood pressure) in adults aged 25 years and above was about 40% in 2008 (WHO, 2010). The global prevalence of HPT among the adult population is expected to increase from 26% (972 million) in 2000 to 29% (1.56 billion) by 2025 with associated cardiovascular complications (Kearney et al., 2005; Mensah and Bakris, 2011).

Hypertension, which was considered to be non-existent in most African societies, is now emerging as a public health problem in sub-Saharan Africa. Both men and women have high rates of BP in the Africa region, with prevalence rates over 40% (WHO, 2013b). Reports from rural Thailand observed high BP in more than 27% of the population, with 15% being hypertensive and 12% being pre-hypertensive (Mayo et al., 2010). In Nigeria, the prevalence of hypertension was found to be 32.5%. It was also found that HPT was high among traders (51.0%), more females than males (20.0% vs. 12.5%)

were affected and 25.0% were either overweight or obese (Mbah et al., 2013).

In Ghana, HPT is an important public health problem in urban areas and even in the poorest rural communities (Awuah et al., 2014). A BP survey of 20 rural Ghanaian villages in 1973 found prevalence of 2-5% and concluded that HPT was not a significant health problem in rural Ghana (Pobee et al., 1977). However, a study of two urban communities and one rural community has shown prevalence of 28.4% (Amoah, 2003). A systematic review on HPT in Ghana from 1977 to 2009 revealed that the prevalence of HPT ranged from 19 to 48% (Bonsu, 2010). Another study in Adansi-South of Ghana found 27.1% prevalence of HPT and it affected adults aged between 40 and 59 years. Elevated body mass index (BMI) was also identified as the main risk factor of HPT (Duah et al., 2013). A cross sectional study in four rural communities in the Ga District of Ghana, showed that risk factors associated with high BP included increasing BMI, increased salt consumption, family history of hypertension and excessive alcohol intake (Addo et al., 2012).

Studies have shown prevalence of HPT between 25 and 48%, using the threshold of 140/90 mmHg with the prevalence higher in urban populations than in rural populations (Bosu, 2010). Reports have also shown higher prevalence among women (29.5%) compared to male (27.6%) (Amoah, 2003). It has been found that in the Ashanti Region of Ghana, that the prevalence of HPT was 29% and Pre-hypertension (Pre-HPT) was 40% (Agyemang and Owuau-Dabo, 2006). In Accra, Ghana, HPT prevalence was 34 and 15% had been previously diagnosed with HPT (Aryeetey and Ansong, 2011). It was found in rural communities in the Ga District of Ghana that the levels of hypertension detection, treatment and control were generally low with control rates ranging from 1.7 to 12.7% (Addo et al., 2012).

A recent study in Ghana found 28.3% overall prevalence of HPT in three communities and the prevalence was higher among men (31.0%) than women (25.6%). Over a third of the study population was either overweight or obese (Ama de-Graft et al., 2014).

Studies have shown that awareness about HPT is low (Myo et al., 2010). In Ghana, reports have shown that many Ghanaians living with HPT are not aware that they have the condition (Cappuccio et al., 2004). Statistics from the Ghana Health Service (GHS) show an increase in the rate of diagnosing HPT in public health facilities. In 1988, 49,087 cases of HPT were reported in Ghana and this rose to 505,180 in 2007 (GHS, 2008).

In the Hohoe Municipality, hypertension is ranked among the top ten diseases and it accounted for about 29% of all hospital admissions in 2013 (HMHD annual report, 2013). Outpatient Department (OPD) records on HPT at the Hohoe municipal hospital were in 2010 (582), 2011 (441), 2012 (799) and 2013 (2,713) (HMHD annual report, 2014). This study was set out to access the prevalence of HPT and Pre-HPT and also determine awareness and predictors of HPT among traders in Hohoe.

MATERIALS AND METHODS

Study site

The study was carried out in the Hohoe Municipality, one of the twenty-five administrative districts in the Volta Region of Ghana. The Municipality is located in the central part of Volta Region with a population of 167,743 people, in which 48.1% were male and 51.9% were female (2010 population census). Hohoe is the Municipal capital with a population of 63,000 people. The municipality covers an area of 1,403 sq. km and has been divided into 7 sub-Municipalities namely Hohoe, Gbi-Rural, Alavanyo, Agumatsa, Likpe, Akpafu/Santrokofi and Lolobi Sub-municipalities. The municipality is bounded to the North by Jasikan District, North-west by Biakoye District, West and South-west by Kpando Municipality, South by Afadjato South District and East by Republic of Togo. The main economic activity is farming and about 55% of the population grow cash crops such as cocoa, maize, cassava, rice, yam and vegetables whilst trading forms about 25%, livestock rearing 15% and other industrial activities represent 5%. The major ethnic groups in the Municipality are Ewes, Akpafu/Lolobi, Santrokofi and Likpe. There are 21 health facilities in the Municipality comprising of Municipal hospital (1), health centres (14), Reproductive Child Health (RCH) (1) and Community-Based Health Planning and Services (CHPS) compounds (5) (HMHD annual report, 2014).

Study design

This was a cross-sectional study carried out in April, 2015 among 328 traders in Hohoe, the capital of the Municipality. A pre-tested, semi-structured questionnaire, modified from the WHO STEPwise approach to non-communicable disease risk factor surveillance (STEPS) was used to obtain information on the socio-demographic characteristics and anthropometric indices.

Study population

The study population was traders (defined in the study as people selling in shops, market and those moving around to sell their wares), who were aged 18 to 65 years, resident in the Municipality for at least three months and consented to participate. Traders not resident in the Municipality, pregnant, and could not give consent were excluded.

Sampling

A multi-stage sampling technique was used to select the communities and the participants. This included stratified sampling, thus the names of all the communities within Hohoe were listed to form a sampling frame of clusters stratified into strata (urban and suburban) based on the population density. The corresponding total population was noted per strata to enable proportionate calculation of the population. The names of the communities were written on pieces of paper and folded, then grouped into corresponding strata and shaken to ensure they mixed well. Using lottery method, three persons were blinded and they randomly selected one community from each stratum. Individual units were interviewed in the selected communities. Systematic sampling technique was used to select every k^{th} unit starting with a unit which corresponds to the number r chosen at random from 1 to k, where "k" is an integer such that $k \approx N/n$. A list of traders including market women and shop owners was obtained from the Hohoe Municipal Assembly. The sampling procedure is denoted as follows; r, r+k, r+2k, ... r+(n-1)k. Thus, this procedure was repeated until the sample size required was obtained.

Sample size determination

The required sample size was determined using a sample size calculation formula obtained from a book entitled Biostatistics for Health Science Students: lecture note series (Degu and Tessema, 2005). Z score of 1.96 at 95% confidence level, margin of error of 5% and proportion of 40% were entered into the formula to determine a minimum sample size of 316. However, a non-response rate of 5% was applied to the minimum sample size which had been increased to 326 traders.

Data collection

A pre-tested, semi-structured questionnaire was used to obtain information on the socio-demographic characteristics and awareness about hypertension. Data was collected through one-on-one interview. Arterial blood pressure and anthropometric measurement of height, weight, hip and waist circumference were also measured. Qualified health personnel were trained to assist in the data collection. Data quality control was ensured by calibrating all data collection tools for measurements before use.

Blood Pressure measurement

Arterial blood pressure was measured at rest using a digital sphygmomanometer MOTECH™®TrueScan™ (Digital/Automatic Blood Pressure Monitor, Germany) Repeated measurements were taken in triplicate at five minutes interval, and the average of the two nearest measurements was recorded to the nearest 1 mmHg.

Blood glucose level measurement

Capillary blood (10 µl) of the traders were obtained after pricking the ethanol-cleaned fingertip with a sterile lancet and the blood obtained was used to determine their blood glucose level using a glucometer (ONETOUCH UltraEasy bloedglucosemeter, UK). Random Blood Sugar (RBS) was obtained from the traders since they had already eaten before the interview. All measurements were recorded to the nearest 0.1 mmol/L. Aseptic techniques were ensured during and after the procedure to prevent infection.

Anthropometric measurements

Weight measurements were taken with an electronic bathroom weighing scales (Seca Personen wage Clara 803 Medical Scales and Measuring Systems, Hamburg, Germany). Weight was taken with participants wearing light clothing without shoes and values obtained were recorded to the nearest 0.5 kg. Height of the traders was measured with a stadiometer while standing upright to the nearest 0.1 cm. Waist Circumference (WC) and Hip Circumference (HC) was measured to the nearest 0.1 cm using an inextensible tape measure and the measurements were done at the naval region for WC and at the level of the greater trochanter for HC.

Classification of HPT

Hypertension was classified based on recommended cut-offs (WHO, 2016) as follows:

Normal (Systolic BP <120 and Diastolic BP <80 mmHg);
Pre-hypertension (Systolic BP = 120-139 and/or Diastolic BP = 80-89 mmHg);
Hypertension- Stage I hypertension (Systolic BP = 140-159 and/or Diastolic BP = 90-99 mmHg) and **Stage II hypertension** (Systolic BP > 160 and/or Diastolic BP > 100 mmHg).

Statistical analysis

Data was entered and analysed using the statistical package for social sciences (SPSS) version 20. After data entry, data cleaning and validation was done to ensure data quality before analysis was carried out. Data was analyzed using SPSS version 20.0 (Chicago, USA). Body mass index (BMI) was calculated based on WHO criteria as weight (kg) divided by height squared (m^2). Waist-to-Hip Ratio (WHR) was calculated by dividing WC by HC. BMI and WHR were classified based on WHO

(1995) recommendations. RBS was based on recommended cut-offs (≥11.0 mmol/l) (WHO, 2016). Frequencies and percentages were used to summarize categorical variables (sex, educational background, ethnicity, religion) whilst means and standard deviations were used for continuous variables (BMI and BP). Chi-square analysis was used to test for the association between HPT and background characteristics. The dependent variable was HPT with two levels: Normal and high BP. Independent variables used in the model included background characteristics such as age, sex, educational level, marital status and business location. Other independent variables were ever been diagnosed hypertensive. The statistical significance was set at p-value < 0.05.

Ethical considerations

Ethical approval for the study was sought from the Ghana Health Service (GHS) Ethical Review Committee (ERC) with an ID number GHS-ERC: 10/04/15. Permission was also sought from the Hohoe Municipal Health Directorate (HMHD) of the GHS. Each respondent was informed prior to the interview that they are under no obligation to take part, they can withdraw at any time and that all answers will be treated with paramount confidentiality. All the traders who agreed to be part of the study signed an informed consent form before being interviewed and blood sample taken. Persons with high BP were asked to go to the HPT clinic at the Municipal hospital for further investigations and care.

RESULTS

Table 1 summarizes the background characteristics of the traders (respondents). Overall, three hundred and twenty-eight (328) traders were surveyed. Most respondents aged between 30-59 years with majority 100 (30.5%) were aged between 40-49 years, 89 (27.1%) were between 30-39 years, and 75 (22.9%) between 50-59 years. Only 34(10.4%) were between 18-29 years and 30(9.1%) were 60 years and above. Of the 328 traders, 50 (15.2%) of them did not have any formal education. The highest level of education attained by most traders was JHS/Middle school 189 (57.6%), followed by primary school 53(16.2%). Only 31(9.5%) of the respondents had SHS and 5(1.5 %) had tertiary education.

Most respondents 200(61.0%) were married or co-habiting with their partners with majority residing in the urban settings. This is followed by those divorced 53(16.2%), widowed 45(13.7%) and single 30(9.1%). Majority of the respondents 264(80.5%) were Ewes followed by the Guans 23(7.0%) and Akans (5.2%), with15(4.6%) from the northern part of Ghana. Over 90% of the respondents 301(91.8%) were Christians, 22(6.7%) were Muslims and 4(1.2%) were traditionalist. Majority 202(61.8%) of the respondents conduct their trade in the market, 60(18.3%) were in stores, 28(8.6) were selling at home and 33(10.1%) move from house to house. The rest 4(1.2%) combine their trading locations.

Table 1. Background characteristics and location of respondents (N=328).

Characteristics	Frequency N= (%)
Sex	
Male	47(14.3)
Female	281(85.7)
Age group	
18-29	34(10.4)
30-39	89(27.1)
40-49	100(30.5)
50-59	75(22.9)
60 & above	30(9.1)
Educational Level	
None	50(15.2)
Primary	53(16.2)
JHS/middle	189(57.6)
SHS	31(9.5)
Tertiary	5(1.5)
Marital status	
Married/co-habiting	200(61.0)
Single	30(9.1)
Divorced	53(16.2)
Widowed	45(13.7)
Ethnicity	
Ewe	264(80.5)
Akan	17(5.2)
Ga/Dangbe	3(0.9)
Guan	23(7.0)
Northerner	15(4.6)
Others	6(1.8)
Religion	
Christianity	301(91.8)
Islamic religion	22(6.7)
Traditionalist	4(1.2)
Others	1(0.3)
Business location	
Store	60(18.3)
Market	202(61.8)
house to house	33(10.1)
Home	28(8.6)
Others	4(1.2)

Prevalence of Hypertension

Table 2 shows that out of the 328 traders surveyed,

Table 2. Prevalence and awareness of hypertension among traders (N=238).

Variable	Blood Pressure Status		Total N (%)
	Normal BP n (%)	High BP n (%)	
Blood pressure level	235 (71.6)	93 (28.4)	328 (100
Mean BP (SD)			
Systolic BP (mmHg)	125.7(18.7)	136.7(18.7)	131.2 (18.7)
Diastolic BP (mmHg)	82.9(11.9)	85.7(11.6)	84.3 (11.8)
Awareness of blood pressure status			
Known (Aware)	50 (15.3)	43 (13.1)	93 (28.4)
Unknown (Not aware)	185 (56.4)	50 (15.3)	235 (71.6)

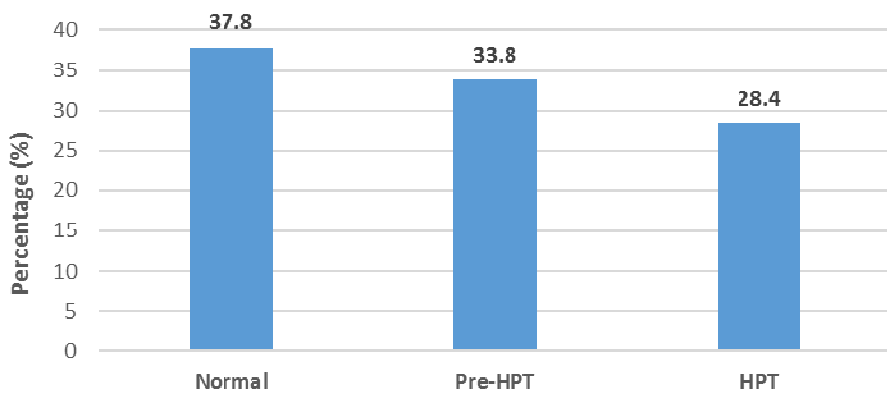

Figure 1. Blood pressure status of respondents.

143(43.6%) (Including those 50(15.3%) on treatment and have their BP under control), had HPT. However, the overall high BP prevalence at the time of the survey was 93(28.4%). The mean Systolic BP was 131.2±18.7 and diastolic was 84.3±11.8 mmHg. Among respondents with normal BP the mean systolic BP was 125.7±18.7 mmHg and diastolic was 82.9±11.9. The mean systolic pressure among those with high BP was 136.7±18.7 and diastolic was 85.7±11.6 mmHg (±18.7/11.6).

Table 2 shows that 93(28.4%) of the respondents were aware that they were hypertensive (have been diagnosed of HPT) while 235(71.6) were not aware of their status. Among respondents who were aware of their status, 50(15.4%) out of 93 had their BP under control (normal BP) while 43(13.1%) still had high BP. Out of the 235 traders who did not know their BP status, 50(15.3%) had high BP.

Classification of Blood Pressure

Figure 1 shows the classification of BP among respondents according to WHO and ISH, 2003 classification, as well as the prevalence of hypertension among traders in the Hohoe Municipality. Approximately 28.4% of the traders had HPT (defined as: Systolic BP≥140 mmHg and, Diastolic≥90 mmHg), 33.8% had pre-HPT (defined as: Systolic BP = 120-139 and/or Diastolic BP = 80-89 mmHg), whilst 37.8% normal BP.

Anthropometric and biochemical indices of traders

Majority of the traders were overweight; 103(31.4%) or obese 136(41.5%). More than half of the traders had 213(64.9%) high central adiposity (high WHR). Of the 328 traders surveyed 23(7.0%) had high RBS level (Hyperglycemia) (Table 3).

Awareness of hypertension status

Table 2 shows that 92(28.3%) of the respondents were known hypertensive. However at the time of the study, 50(15.3%) of the traders had their BP under control (normal BP) and less than halve 43(13.1%) had high BP.

Out of the 235(71.6%) who said they were not known hypertensive and have never been diagnosed of high BP,

Table 3. Anthropometric and biochemical indices of traders.

Variable	Blood Pressure Status		Total n=328
	Normal BP N=235	High BP n=93	
Body Mass Index			
Underweight	2(0.9)	0(0.0)	2(0.6)
Ideal weight	87(37.0)	0(0.0)	87(26.5)
Overweight	96(40.9)	7(7.5)	103(31.4)
Obese	50(21.3)	86(92.5)	136(41.5)
Waist-to-Hip Ratio			
Central adiposity	144(61.3)	69(74.2)	213(64.9)
Normal WHR	91(38.7)	24(25.8)	115(35.1)
Blood Glucose Level			
Normal	216(91.9)	89(95.7)	305(93.0)
Hyperglycemia	19(8.1)	4(4.3)	23(7.0)

Table 4. Association between Blood pressure status in relation with demographical Characteristics and Life style.

Variable	Blood Pressure status				χ^2	P- Value
	Non- Hypertensive	Pre- Hypertensive	Hypertensive	Total		
Age group						
18-29	21(6.4)	9(2.7)	4(1.2)	34(10.4)		
30-39	41(12.5)	32(9.8)	16(4.9)	89(27.1)		
40-49	23(7.0)	39(11.9)	38(11.6)	100(30.5)	32.58	<0.001
50-59	18(5.5)	30(9.1)	27(8.2)	75(22.9)		
60 and above	7(2.1)	15(4.6)	8(2.4)	30(9.1)		
Sex						
Male	15(4.6)	16(4.9)	16(4.9)	47(14.3)		
Female	95(29.0)	109(33.2)	77(23.5)	281(85.7)	0.91	0.635
Level of education						
None	14(4.3)	19(5.8)	17(5.2)	50(15.2)		
Primary	17(5.2)	23(7.0)	13(4.0)	53(16.2)		
JHS/MSLC	71(21.6)	66(20.1)	52(15.9)	189(57.6)		
SHS	7(2.1)	15(4.6)	9(2.7)	31(9.5)		
Tertiary	1 (0.3)	2(0.6)	2(0.6)	5(1.5)	5.67	0.684
Marital Status						
Married	68(20.7)	74(22.6)	58(17.7)	200 (61.0)		
Single	17(5.2)	9(2.7)	4(1.2)	30 (9.1)		
Divorced	15(4.6)	26(7.9)	12(3.7)	53 (16.2)		
Widowed	10(2.8)	16(4.9)	19(5.8)	45 (13.7)	15.35	0.018

50(15.3%) of them had high BP while 185(56.4%) of them had normal BP. There was a significant relationship between ones prior knowledge of their BP status and current status. The difference is a statistically significant (χ^2 =19.02, p<0.001).

Table 4 shows that majority 235(71.6%) of the respondents had normal BP, whiles the rest 93(28.4%) were hypertensive. Ages of traders between 40-49 years were most affected 38(11.6%) followed by 50-59 age group 27(8.2%). There was a significant association between age and hypertension (χ^2 =32.58, p<0.001). There was also a significant association between marital status, number of children a participant had and HPT. Hypertension was higher among married traders 58(17.7%) compared to those who were single 4(1.2%), divorced 12(3.7%) or widowed 19(5.8%) (χ^2 =8.49, α=5% and a p-value=0.018). There was no significant association between gender, educational level and HPT.

Table 5. Anthropometric indexes (BMI/WHR), awareness and blood sugar level in relation to blood pressure.

Variable	Blood Pressure Status Normal BP N=235 n (%)	High BP N=93 n (%)	Total N=328 N (%)	chi-square	p-value
Body Mass Index (BMI)					
Underweight	2(0.6)	0(0.0)	2(0.6)	140.24	<0.001
Ideal weight	87(26.5)	0(0.0)	87(26.5)		
Overweight	96(29.3)	7(2.1)	103(31.4)		
Obese	50(15.2)	86(26.3)	136(41.5)		
Waist-to-Hip Ratio (WHR)					
Central adiposity	144(43.90)	69(21.0)	213(64.9)	4.88	0.027
Normal WHR	91(27.7)	24(7.3)	115(35.1)		
Previous hypertension status					
Known (Aware)	50(15.3)	43(12.9)	92(28.4)		
Unknown (Not aware)	183(56.4)	50(15.3)	235(71.6)	19.022	<0.001
Blood Glucose Level					
Normal	216(65.9)	89(27.1)	305(93.0)	1.4632	0.226
Hyperglycemia	19(5.8)	4(1.2)	23(7.0)		

Table 6. Correlation between systolic and diastolic blood pressure and body mass index and waist to hip ratio.

Variable	BP systolic		BP diastolic	
	r*	p-value	r*	p-value
BMI	0.94	<0.001	0.81	<0.001
WHR	0.14	0.012	0.10	0.058

* Pearson product moment correlation coefficient

Although female traders 77(23.5%) had HPT more than their male counterparts 16(4.9%), the difference was not statistically significant (χ^2 = 0.87, p=0.349). Hypertension was more prevalent among traders with JHS/Middle school education 52(15.9%) compared to those with no formal education 17(5.2%) and those with tertiary education 2(0.6%). However, the difference was not statistically significant (χ^2 = 1.57, p=0.814).

Predictors of Hypertension

There was a significant association between traders who were obese 86(26.3%) and overweight 7(2.1%) and HPT compared to none among those with ideal weight and underweight (χ^2 = 140.2, p<0.001) as shown in Table 5. Also HPT was more prevalent among traders with central adiposity based on their Waist-to Hip Ratio (WHR) 69(21.0%) compared to those with normal WHR 24(7.3%) (χ^2 = 4.88, p=0.027). There was a statistically significant association between BMI and BP status and Waist and hip ratio and BP status (χ^2=140.24; p<0.001; α=0.05) and (χ^2=4.88; p=0.027; α=0.05) (Table 5).

Correlation between blood pressure and body mass index and waist-to-hip ratio

Pearson product moment correlation coefficient was computed to measure the strength and direction of the relationship between BP systolic and diastolic vs. BMI, and BP systolic and diastolic vs. WHR. Table 6 shows that there is a strong positive linear relationship between BP systolic and BMI which is statistically significant (r=0.94, p<0.001, α=0.05). Even though the table also shows a statistically significant relationship between BP systolic and Waist to Hip Ratio, there is a very weak positive linear relationship (r=0.14, p=0.012, α=0.05). A strong positive linear relationship could also be established between BP diastolic and BMI which is also statistically significant (r=0.81, p<0.001, α=0.05). However, a very weak linear relationship could be observed between BP diastolic and Waist to Hip Ratio (WHR) (r=0.10, p=0.058, α=0.05). Since all the correlation coefficients computed are positive, the variables (BP systolic vs. BMI, BP systolic vs. WHR, BP systolic vs. BMI and BP systolic vs. WHI) are directly related (Table 6).

DISCUSSION

Hypertension is an important cause of morbidity and mortality worldwide. The key findings of this study show an overall prevalence of 28.4% HPT cases among traders in Hohoe, the Municipal capital. This finding is similar to what was found by Amoah (2003) of two urban communities and one rural community where HPT prevalence was 28.4%. The findings of this study agree with that of de Graft et al. (2014), in which the prevalence of HPT at the time of the survey was 28.4%. In our study the overall prevalence including those on treatment was 43.3%. This also agrees with findings by Bonsu (2010), which revealed that the prevalence of HPT ranged from 19 to 48%. The high prevalence of HPT in this study group may be explained in part by their sedentary lifestyle, since most traders sit in one place and conduct their businesses and do not have regular exercise. Also these traders spend most of the day at the market/shops and therefore depend on food vendors and fast food for most of their meals. The food from these sources is usually salt laden to improve taste.

According to Asekun-Olarinmoye et al. (2013), a significant association existed between age older than 40 years and having HPT. This study also found that the prevalence of HPT increases with age, with the highest prevalence among the age group of 40-49 (11.6%). Aryeetey and Ansong (2011) found statistically significant associations between HPT and being married (43%). This study also revealed that HPT was significantly higher among married traders (17.7%) with a p-value of 0.037.

Similar to the findings of a cross-sectional study by Amoah (2003) in Ghana which concluded that there was high prevalence of HPT among women (29.5%) when compared with men (27.6%), the findings of this study did not find any significant difference between women (23.5%) and the men (4.9%) (p=0.635). This could however be attributed to the limited number of male traders in the study.

The findings of the study revealed that 33.8% of the traders were pre-hypertensive, apart from the 28.4% who were hypertensive, which implies that many more of the traders were at risk of becoming hypertensive in the nearest future if nothing is done about the situation. This is similar to findings by Agyemang and Owuau-Dabo (2006), who reported 40% prevalence Pre-HPT and 29% HPT in the Ashanti Region, Ghana. As per WHO and ISH, 2003 classification of HPT, we found 37.8% normal blood pressure, 33.8% Pre-HPT and 28.4% HPT. The mean BP calculated was 126.1/82.9 with a deviation of ±18.8/11.9 for systolic /diastolic BP respectively.

Seedat (2000) and Singh et al. (2000) indicated that the prevalence of HPT is increasing rapidly because of increasing longevity and the continuous effect of risk factors such as unhealthy diet, obesity and physical inactivity. Again though the exact cause of HPT is unknown, several risk factors have been highly associated with the condition: smoking, obesity, sedentary lifestyle, high salt intake and lack of physical activities (Mayo Foundation for Medical Education and Research, 2014). Interestingly, our study found age, overweight, obesity, high WHR and marital status as risk factors associated with HPT.

Conclusion and recommendation

The prevalence of HPT among traders in this study was 28.4%, and a higher prevalence (33.8%) of Pre-HPT. Most (15.3%) of the traders with HPT were unaware of their hypertensive status. The findings from this study show that general knowledge on HPT, its severity, risk factors and prevention is high among traders but this did not influence the outcome of traders BP. Therefore, health education needs to be intensified among the population sub-group as a crucial weapon in reducing the prevalence of HPT. It is also essential to provide information about how to control HPT. Quite substantial (15.3%) traders are walking about without knowing their BP status, and may only become aware when complications set in. Henceforth, large scale population screening for HPT is warranted and adequate BP control is imperative to mitigate the mortality and morbidity associated with HPT. During screening programs, information must be provided to alert people to seek timely medical attention as needed to reduce complications associated with HPT.

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