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The Frequency of Hypertension and Pre-hypertension Among Adults in the Hohoe Municipality of Ghana

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Abstract

Background: Hypertension is a major cause of morbidity and mortality worldwide and is increasingly becoming an important medical and public health issue. This study assessed the frequency of hypertension and pre-hypertension among adults 18 years and above in the Hohoe Municipality.

Method: A population-based cross-sectional study involving 350 adults was used. Information was obtained on background characteristics and risk factors of HPT defined as a systolic BP≥140 mmHg and/or a diastolic BP≥ 90 mmHg. Anthropometric indices and blood pressure were measured following standard procedures. Chi-square and binary logistic regression were used to determine associations between independent variables and hypertension.

Results: Of the 350 adults surveyed, the prevalence of hypertension was 39.4% including those on treatment and pre-hypertension was 25.4%. Respondents aged 40-49, 50-59 and 60 years and above were 3.20, 5.68 and 4.88 times more likely to have hypertension as compared to those aged 40 years or less, (AOR=3.20, p=0.002), AOR=5.68, p<0.001) and (AOR=4.88, p<0.001) respectively. Traditionalists were also 9.40 times more likely to have hypertension as compared to Christians [AOR=9.40, P=0.038].

Conclusions: The prevalence of hypertension was high in the Hohoe Municipality. Four out of 10 adults had hypertension and one out of 4 adults had pre-hypertension. Age and religious affiliation were associated with hypertension. There is the need to intensify education and create awareness about hypertension among the adult population. Periodic screening programmes would be required to identify those with hypertension and pre-hypertension for counselling and referral for treatment and management.

Abbreviations: WHO-AFRO: World Health Origination African regional office; **BP:** Blood Pressure; **HBP:** High Blood Pressure; **HPT:** Hypertension; **SSA:** Sub-Saharan Africa; **DALYs:** Daily Adjusted Life Years; **CVD:** Cardio Vascular Disease; **NCDs:** Non-Communicable Diseases; **OPD:** Out-Patient Department; **WHO:** World Health Organization; **USA:** United States of America; **UK:** United Kingdom; **UHAS:** University of Health and Allied Sciences; **JHS:** Junior High School; **SHS:** Senior High School; **SPH:** School of Public Health; **GHS:** Ghana Health Service; **ERC:** Ethical Review committee; **DHIMS:** District Health Management Information System; **CHPS:** Community-based Health Planning and Services; **EPI:** Expanded Programme on Immunization; **HMHD:** Hohoe Municipal Health Directorate

INTRODUCTION

Hypertension is the commonest cardiovascular disorder and an important worldwide public health challenge affecting at least 20% of the adult population in several countries. It is the primary risk factor for cardiovascular mortality accounting for 20-30% of all deaths [1]. Hypertension is defined as blood pressure (BP) ≥140/90 mm Hg. Persons with BP above optimal levels (a systolic BP ≥140 mm Hg and/or a diastolic BP of ≥ 90mm Hg) are considered as having hypertension [2].

Hypertension is estimated to cause 7.1 million deaths annually, which accounts for 13.0% of the total global deaths and also accounts for 57 million Disability Adjusted Life Years (DALYS) or 3.7% of total DALYS [3]. Hypertension is one of the most important causes of premature death worldwide, killing nearly 9.4 million people every year [4]. It is also the primary risk factor for death responsible for about 1.5 million lives every year in WHO AFRO regions [4].

A study in Ghana indicates that about 19%-48% of Ghanaian adults aged 18 years and above have hypertension and 9% are

suffering from diabetes [5].

Age is one of the non–modifiable risk factors for developing diabetes and hypertension [6]. A study carried out in Saudi Arabia showed that 28.3% of people above 40 years were at a higher risk, though their family history of diabetes and hypertension was not significant [7]. In a separate study, rural communities in Bangladesh experienced a significant increase in the prevalence of hypertension, especially among people between the ages of 41 and 50 [3]. A survey conducted among adults in Accra has shown that BP increases progressively with age [8].

One of the vital focuses of the primary prevention of cardiovascular disease has been awareness creation and management or treatment of patients with hypertension. Notwithstanding the prevalence of hypertension and the gravity of its related complications, the number of hypertensive individuals, particularly in SSA and other developing regions is on the high side [9]. The victims of hypertension are unaware of their conditions. This also comes with inadequate treatment of those diagnosed [9]. On awareness level, a study in Cameroon indicated a low awareness rate among the respondents. The study reported that among the participants with hypertension, only 32.5% were aware of their conditions; however, 59.6% were on treatment [10]. A similar study in Nigeria showed awareness rate of 30% among respondents of which 9% were under control [11].

Furthermore, a report in Ghana revealed that among those with hypertension, 22%-54% were aware of their conditions, out of which 7%-31% were on treatment with 0%-13% having their blood pressures under control [12]. A study in northern Ethiopia reported that 64% of participants who were hypertensive had ever taken alcohol before or were still taking alcohol as compared to 28.9% who were non-alcoholics or had never taken alcohol before [13]. Smoking and tobacco use are among the modifiable risk factors that can result in chronic conditions and are mostly prevalent among the adult population. According to American Heart Association, tobacco use can cause a temporal increase in BP and can contribute to damage arteries which can worsen the condition of hypertension [2].

Hypertension in Ghana is the number three killer disease with a high prevalence rate of 30-40% and a major cause of heart failure [14,15]. With the establishment of the hypertension clinic at the Hohoe Municipal hospital in 2012, the information from the District Health Information Management System shows that the number of hypertension cases diagnosed at the Outpatient Department (OPD) is on the increase from 799 cases in 2012 to 4,450 cases in 2015 [16]. Also, from 2012 to 2015, hypertension ranked second among the top ten diseases in the Municipality [17].

Among the top-10 causes of institutional death in the Municipality, Cardiovascular Diseases (CVDs) especially, hypertension ranked 5th [18]. The current study determined the frequency of hypertension and associated risk factors among adults 18 years and above in communities within the Hohoe Municipality.

MATERIALS AND METHODS

Study Area

The study was conducted in the Hohoe Municipality which is one of the 25 administrative Districts/Municipalities in the Volta Region of Ghana. It shares a boundary with Togo on the East, on the Southeast with Afadzato District and the Southwest with Kpando Municipal, on the northwest with Jasikan District and on the North West with Biakoye District. The Municipality has been divided into seven sub-Municipalities namely; Akpafu/Santokofi, Alavanyo, Agumatsa, Lolobi, Gbi-Rural, Likpe and Hohoe. In addition, it has a total of 21 health facilities including one hospital, 14 health centres and 6 Community-based Health Planning and Services (CHPS) compounds providing clinical care, reproductive health and child health services. The Municipal hospital at Hohoe serves as a referral hospital for complicated cases from the health facilities within and outside the Municipality. Some economic activities engaged by the people of the Municipality include agriculture, petty trading, construction and formal sector employment.

Study Population

The study population consisted of adults aged 18 years and above residing in the Hohoe Municipality. Adults who resided in the Municipality (at least a month), not ill, could speak for themselves and consented to participate were included in the study. Adults who did not reside in the Municipality, pregnant women and those who did not consent to participate were excluded from the study.

Study design

A community-based cross-sectional study design was employed. A semi-structured questionnaire was used to collect data on nutritional habit, sedentary lifestyle, socio-demographic characteristics and family history of diabetes and hypertension. The WHO 30 cluster sampling method, which is a commonly used two stage sampling method developed by WHO was used to select the communities and eligible respondents [19].

Sample size determination

The required sample size was determined using a formula by Snedecor and Cochran [20]. The reliability coefficient/z score of 1.96 at 95% confidence level, the margin of error of 5% and prevalence of hypertension among adults as 29.4 % [5] were substituted into the formula to determine a sample size of 319. However, a non-response rate of 10% was added to the minimum sample size, which caused the sample size computed to increase to 350.

Sampling method

The WHO 30 Cluster sampling method (two stage) was used to select the communities and participants. Firstly, thirty (30) communities were selected using probability proportional to size. This sampling approach was used to ensure a fair representation

of communities in the Municipality. The sampling procedure involved listing of primary sampling units communities and their population sizes, calculating a cumulative sum of the population size and dividing the total population by 30 clusters (communities) to get the sampling interval (SI). A random selection of the first community was determined by choosing a random number between 1 and SI that corresponded to a cumulative population value. The second community was selected by adding the sampling interval to the corresponding cumulative population of the first community selected. This process was repeated until all the 30 clusters or communities were selected.

Thus, the Expanded Programme on Immunization (EPI) modified cluster sampling was used to select eligible households and participants to interview. The selection of eligible households and participants involved the following steps: each selected community was divided into four sectors, the sectors were assigned numbers and one sector was randomly selected using a simple random sampling technique (lottery), the center of each selected sector was found and a random direction was chosen by spinning a pointed device, the direction of the pointed device was followed and the houses were numbered on pieces of papers from the center to the boundary of the selected sector, the first house was chosen at random between 1 and n (the first house counted from the center to the boundary), this house became the starting point or first house to survey; where there were more than one eligible households in a selected house, only one household was drawn at random and also only one eligible person (pregnant woman) in the household was randomly selected using a simple random sampling technique (balloting). Where there were 4 or more eligible households in a house selected, two households were drawn at random and only one eligible person (adults from 18 years and above) was randomly selected using a simple random sampling (balloting). Where no eligible household was found in a selected house, the next house closest to the previously selected house was selected. This procedure was repeated until the required number of participants was obtained.

Data collection procedure

Data were collected using the WHO Stepwise approach for noncommunicable disease surveillance (Hypertension) on risk factor assessment with particular emphasis on step 3 [21]. Step 1 captured information related to nutritional habit, sedentary lifestyle, sociodemographic characteristics, a family history of diabetes and hypertension with the use of a questionnaire. Step 2 also captured information on weight, height, blood pressure level and BMI (this was done with the use of equipment such as an electronic weighing scale, tape measure and digital blood pressure monitor) including Step 1. In Step 3, the height of the participants was measured with a Stadiometre (SECA Leicester height measure with a fixed footplate and movable headboard, USA) to the nearest 0.1 centimetres. The weight was measured with a digital weighing scale (BednBath model BB-3018A, UK) with participants dressed in light clothing to the nearest 0.1 kilograms. All measurements taken were in accordance with the standard anthropometry guidelines. The blood pressure of participants were measured with the aid of (Omron M2 Basic manufacturing, Omron Corporation, Japan) digital blood pressure monitor. Participants were allowed to rest for 10 minutes before their blood pressure was measured. Blood pressure was measured at one-minute intervals for three times, of which the average reading was recorded.

Classification of Hypertension

Hypertension was classified based on recommended cut-offs [22] 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
Hypertension - Stage II hypertension: Systolic BP > 160 and/or Diastolic BP > 100 mmHg

Classification of physical activity

Physical activity was estimated by quantifying activities such as carrying light loads, washing clothes, brisk walking to the farm or to the market, scrubbing the floor, sweeping the compound and surroundings. Physical activity was re-categorized into a binary variable with 1≥3 days in a week and 2<3 days in a week [23].

Data analysis

Data obtained were entered into EpiData Version 3.1 and exported into Stata/SE version 14.0 for analysis. Categorical variables were reported as proportions. Chi square test was used to determine the association between HPT (dependent) and independent predictors of blood pressure. Multiple logistic regression was used to determine the strength of the association between the dependent and independent variables. A p-value of <0.05 was considered significant at the 95% confidence interval.

Ethical issues

Ethical approval for the study was sought from the Ghana Health Service (GHS) Ethical Review Committee (ERC) with approval number GHS-ERC: 20/10/2016 before the commencement of the study. Permission was also sought from the Hohoe Municipal Health Directorate (HMHD). A written informed consent was obtained from the participants. Participants were also informed that participation was voluntary and they had the right to refuse to participate or withdraw from the study at any time and their decision will not influence the health services provided to them. Participants were informed of the results of their blood pressure readings. However, respondents with raised blood pressure (BP) were advised to attend the nearest hospital or health facility for confirmation and management.

RESULTS

A total of 350 respondents aged 18 years and above were surveyed. The mean age of the respondents was 40.4± 14.5 years. Approximately half (50.6%) of the respondents were below the age of 40 years and a slight majority were males (51.3%). About

2.6% of the respondents had no formal education. Most, 28.6% were traders and the majority, 61.7% were married. The majority (89.7%) of the respondents were Christians and most (53.7%) were residing in rural areas (Table 1).

In assessing lifestyle characteristics of respondents on hypertension, it was observed that 88.6% of them were non-smokers and 41.1% were current alcohol consumers. Concerning fruit intake, 34.9% of the respondents took fruits once in a week.

Respondents were also asked about the oil they usually consume and most, 47.7% indicated that they consume both vegetable and palm oil. More than half, 68.9% of the respondents consumed salt in moderation (did not add extra salt when food was ready for consumption).

Also, in terms of physical activity, the majority, 53.1% of the respondents engaged in physical activity almost every day. Also, most, 35.7% of the respondents had a family history of HPT. With regards to BMI, the majority of the respondents, 58.0% were normal (Table 1).

Frequency of Hypertension

Figure 1 shows the frequency of HPT based on the classification by the American Heart Association.

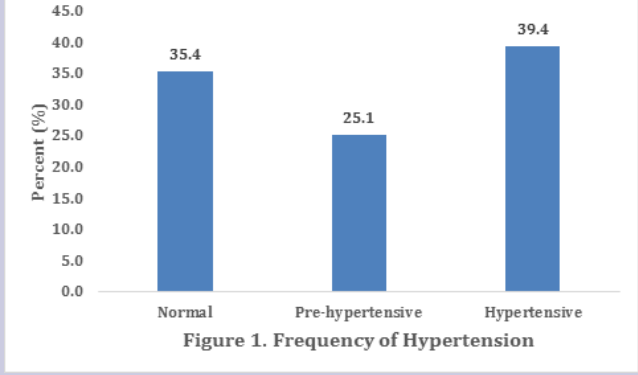

Figure 1: Frequency of Hypertension

Out of the 350 respondents, the prevalence of HPT was 39.4% and pre-hypertensive was 25.5%. There were significant associations between age, marital status, sex of respondents and HPT status (χ^2 =38.45, p<0.001), (χ^2 = 23.46, p<0.001) and (χ^2 = 4.64, p=0.031) respectively. There was a significant association between salt intake and HPT status (χ^2 = 11.29, p= 0.004).

There was also a significant association between BMI and HPT status (χ^2 = 21.58, p<0.001).

Factors associated with hypertension

Table 2 summarizes the results of the adjusted logistic regressions. Respondents aged 40-49 years were 3.20 times more likely to develop HPT as compared to those aged less than 40 years [AOR=3.20 (95% CI: (1.56, 6.61); p=0.002]. Also, respondents aged 50-59 and 60 years and above were 5.68 and 4.88 times more likely to develop HPT as compared to those aged less than 40 years [AOR= 5.68 (95% CI: (2.69, 12.02); p<0.001] and [AOR=4.88 (95% CI: (2.09, 11.35); p<0.001] respectively.

Traditionalists were 9 times more likely to have HPT as compared to Christians [AOR= 9.04 (95% CI: (1.13, 78.34); p=0.038].

DISCUSSION

Hypertension is a common and important public health problem across the globe with a consistent rise in prevalence. This could be attributed to the unclear symptoms experienced by people with hypertension as well as being a major predictor of cardiovascular (CV) morbidity and mortality. Findings from this study revealed an overall prevalence of hypertension including those on treatment to be 39.4%. This is consistent with a systematic review conducted in Ghana which showed that the prevalence of HPT among adults ranged from 19% to 48% in both urban and rural communities [12]. Also, a population based survey conducted in Ghana revealed the prevalence of hypertension ranging from 19.3% to 54.6% in 2012 [24]. Similarly, a study conducted in the Hohoe Municipality among traders revealed the prevalence of hypertension to be 48.7% [25]. A much higher prevalence of 50.9% was reported in Likpe sub-Municipality [26].

Hypertension prevalence from this study is higher compared to the national prevalence of some African countries. Studies conducted in Burkina Faso [27] and Mali [28], observed 18% and 26.7% national prevalence of hypertension respectively. In Cameroon, the nationwide prevalence of hypertension was reported to be 31.0% [29], 36.7% in urban communities in Togo and 15% in urban communities in Nigeria [30]. However, the prevalence of hypertension in the current study is relatively lower compared to the prevalence in other developing countries. In Bangladesh and India the prevalence of hypertension reported was 65% [31]. The differences in the prevalence could be attributed to the different geographical locations. The varied prevalence rate of hypertension among different populations is dependent on inherent, lifestyle or behavioral and some environmental factors [32]. The strength of this study is the identification of risk factors for hypertension. In this study, the likelihood of being hypertensive increases with an increase in age. Adults between the ages of 40 and 49 were 3.20 times more likely to have hypertension. Moreover, adults 60 years and above were 4.88 times more likely to have HPT compared to adults less than 40 years. This is supported by a study conducted in 2017 in Burkina Faso where age was found to be associated with hypertension regardless of location [27]. Plausible reasons to this similarity could be identified from two different perspectives. Firstly, increasing age subjects the blood vessels to a reduction in elasticity leading to a buildup of blood pressure. Secondly, behavioral factors such as the consumption of alcohol could be a major determinant for the increased prevalence. Advancing age increases one's risk of lifestyle risk factors including the adoption of "western-type" diet and sedentary lifestyles. This leads to fat accumulation in the blood vessels predisposing respondents to Cardiovascular Diseases (CVDs) [33]. The current study has revealed that 49.7% of adults were either current or

ex-consumers of alcohol. Participant's occupation could also be a driving force for an increase in the prevalence. The majority of the adults were traders. This put them at risk of an increase in BP as the running of day to day activities may not allow them to eat on time and also prepare their own food, which compelled them to eat already prepared food by the road side.

Traditionalists in this study were 9 times more likely to be hypertensive compared to Christians. This is due to the increased involvement of churches and mosques in healthcare where initiatives are taken to intensify periodic education on lifestyles diseases thereby increasing knowledge and awareness on hypertension as compared to shrines.

Table 1: Background and lifestyle characteristics of the respondents

	Frequency [N=350]	Percent (%)
Mean age (se)	40.4 (14.5)	
Age group		
< 40 years	177	50.6
40-49 years	63	18
50-59 years	60	17.1
60+ years	50	14.3
Sex of respondent		
Male	180	51.4
Female	170	48.6
Level of education		
Never	78	22.6
JHS	145	41.4
SHS	95	27.1
Tertiary	31	8.9
Occupation		
Unemployed	32	9.1
Farming	86	24.6
Trading	101	28.9
Artisan	82	23.4
Civil servants	49	14
Marital status		
Single	100	28.6
Married	216	61.7
Divorced	15	4.3
Widow	19	5.4
Religious affiliation		
Christian	314	89.7
Muslim	31	8.9
Traditional	5	1.4
Location		
Urban	162	46.3
Rural	188	53.7
Family history of HPT or DM		
No	102	29.1
Yes	125	35.7
Don't know	123	35.1

	Frequency [N=350]	Percent (%)
Smoking status		
Never smoked	310	88.6
Ex-smoker / Current smoker	40	12.4
Alcohol intake		
Never drink	176	50.3
Current drinker	144	41.1
Ex-drinker	30	8.6
Fruit intake		
1 day per week	122	34.9
2 days per week	61	17.4
3 days per week	81	23.1
4 or more days per week	86	24.6
Oil consumption		
No intake	8	2.3
Vegetable oil	109	31.1
Palm oil	66	18.9
Both vegetable and palm oil	167	47.7
Salt intake		
Low	58	16.6
Moderate	241	68.9
High	51	14.6
Moderate physical activity		
1 day	41	11.7
2 days	29	8.3
3 days	41	11.7
4 days	53	15.1
All days	186	53.1
BMI		
Underweight	26	7.4
Normal	203	58
Overweight	89	25.4
Obese	32	9.1

Table 2: Association between Background and lifestyle characteristics and the odds of hypertension

	Normal N=[212]	Hypertensive N=[138]	Total N=[350]	Chi-square (p-Value)	COR (95% CI) p-value	AOR (95% CI) p-value
Age group						
< 40 years	140 (66.0)	37 (26.8)	177 (50.6)	52.95 (<0.001)		
40-49 years	30 (14.2)	33 (23.9)	63 (18.0)		4.16 (2.25, 7.68) <0.001	3.20 (1.56, 6.61) 0.002
50-59 years	23 (10.9)	37 (26.8)	60 (17.1)		6.09 (3.23, 11.48) <0.001	5.68 (2.69, 12.02) <0.001
60+ years	19 (9.0)	31 (22.5)	50 (14.3)		6.17 (3.14, 12.14) <0.001	4.88 (2.09, 11.35) <0.001
Sex of respondent						
Male	121 (57.1)	59 (42.7)	180 (51.4)	6.86 (0.009)		
Female	91 (42.9)	79 (57.3)	170 (48.6)		1.78 (1.15, 2.75) 0.009	1.46 (0.85, 2.92) 0.145
Level of education						
Never	43 (20.3)	36 (26.1)	79 (22.6)	10.89 (0.012)		
JHS	91 (42.9)	54 (39.1)	145 (41.4)		0.71 (0.41, 1.24) 0.225	0.71 (0.36, 1.41) 0.327
SHS	66 (31.1)	29 (21.0)	95 (27.1)		0.52 (0.28, 0.98) 0.042	0.91 (0.42, 1.98) 0.808
Tertiary	12 (5.7)	19 (13.8)	31 (8.9)		1.89 (0.81, 4.41) 0.141	1.67 (0.59, 4.71) 0.331
Occupation						
Unemployed	24 (11.3)	8 (5.8)	32 (9.1)	5.63 (0.229)		
Farming	51 (24.1)	35 (25.4)	86 (24.6)		2.06 (0.83, 5.11) 0.119	0.99 (0.33, 3.05) 0.997
Trading	55 (25.9)	46 (33.3)	101 (28.9)		2.51 (1.03, 6.11) 0.043	1.12 (0.38, 3.32) 0841
Artisan	54 (25.5)	28 (20.3)	82 (23.4)		1.56 (0.62, 3.99) 0.347	0.69 (0.23, 2.09) 0.516
Civil Servants	28 (13.2)	21 (15.2)	49 (14.0)		2.25 (0.84, 5.99) 0.105	1.22 (0.37, 3.97) 0.742
Marital status						
Single	82 (38.7)	18 (13.0)	100 (28.6)	35.36 (<0.001)		
Married	117 (55.2)	99 (71.7)	216 (61.7)		3.85 (2.17, 6.86) <0.001	1.76 (0.87, 3.56) 0.116
Divorced	9 (4.2)	6 (4.4)	15 (4.3)		3.04 (0.96, 9.61) 0.059	2.19 (0.54, 8.84) 0.269
Widow	4 (1.9)	15 (10.9)	19 (5.4)		17.08 (5.07, 57.59)<0.001	3.80 (0.89, 16.23) 0.071
Religious affiliation						
Christian	191 (90.1)	123 (89.1)	314 (89.7)	0.90 (0.637)		
Muslim	19 (9.0)	12 (8.7)	31 (8.9)		0.98 (0.46, 2.09) 0.960	0.55 (0.20, 1.51) 0.247
Traditional	2 (0.9)	3 (2.2)	5 (1.4)		2.33 (0.38, 14.14) 0.358	9.40 (1.13, 78.34) 0.038
Location						
Urban	97 (45.8)	65 (74.1)	162 (46.3)	0.06 (0.805)		
Rural	115 (54.3)	73 (52.9)	188 (53.7)		0.95 (0.62, 1.46) 0.805	
Smoking status						
Never smoked	188 (88.7)	122 (88.4)	310 (88.6)	0.09 (0.956)		
Current smoker	7 (3.3)	4 (2.9)	11 (3.1)		0.88 (0.25, 3.07) 0.842	
Ex-smoker	17 (8.0)	12 (8.7)	29 (8.3)		1.09 (0.50, 2.36) 0.831	
Alcohol intake						
Never drink	99 (46.7)	77 (55.8)	176 (50.3)	2.77 (0.096)		
Current drinker/ Ex-drinker	113 (53.3)	61 (44.2)	174 (49.7)		0.77 (0.49, 1.21) 0.258	0.61 (0.34, 1.08) 0.091

	Normal N=[212]	Hypertensive N=[138]	Total N=[350]	Chi-square (p-Value)	COR (95% CI) p-value	AOR (95% CI) p-value
Fruit intake						
1 day per week	78 (36.8)	44 (31.9)	122 (34.9)	4.62 (0.202)		
2 days per week	42 (19.8)	19 (13.8)	61 (17.4)		0.80 (0.42, 1.55) 0.510	
3 days per week	46 (21.7)	35 (25.4)	81 (23.1)		1.35 (0.76, 2.39) 0.307	
4 or more days per week	46 (21.7)	40 (28.9)	86 (24.6)		1.54 (0.87, 2.70) 0.131	
Oil consumption						
No intake	5 (2.4)	3 (2.2)	8 (2.3)	0.79 (0.852)		
Vegetable oil	64 (30.2)	45 (32.6)	109 (31.1)		1.17 (0.27, 5.15) 0.834	
Palm oil	38 (17.9)	28 (20.3)	66 (18.9)		1.23 (0.27, 5.57) 0.790	
Both vegetable and palm oil	105 (49.5)	62 (44.9)	167 (47.7)		0.98 (0.23, 4.26) 0.983	
Salt intake						
Low	25 (11.8)	33 (23.9)	58 (16.6)	8.88 (0.003)		
High	187 (88.2)	105 (76.1)	292 (83.4)		0.43 (0.24, 0.75) 0.003	0.52 (0.26, 1.04) 0.066
Moderate physical activity						
1 day	23 (10.6)	18 (13.0)	41 (11.7)	12.21 (0.016)		
2 days	13 (6.1)	16 (11.6)	29 (8.3)		1.57 (0.60, 4.10) 0.354	
3 days	21 (9.9)	20 (14.5)	41 (11.7)		1.22 (0.51, 2.90) 0.658	
4 days	27 (12.7)	26 (18.8)	53 (15.1)		1.23 (0.54, 2.79) 0.620	
All days	128 (60.4)	58 (42.0)	186 (53.1)		0.58 (0.29, 1.15) 0.121	
Family history of HPT or DM						
No	58 (27.4)	44 (31.8)	102 (29.1)	5.85 (0.054)		
Yes	69 (32.5)	56 (40.6)	125 (35.7)		1.07 (0.63, 1.81) 0.802	
Don't know	85 (40.1)	38 (27.6)	123 (35.1)		0.59 (0.34, 1.02) 0.058	
BMI						
Normal	135 (63.7)	68 (49.3)	203 (58.0)	16.77 (0.001)		
Underweight	20 (9.4)	6 (4.4)	26 (7.4)		0.59 (0.23, 1.55) 0.289	0.44 (1.44, 1.37) 0.159
Overweight	45 (21.2)	44 (31.8)	89 (25.4)		1.94 (1.17, 3.22) 0.010	1.53 (0.84, 2.77) 0.164
Obese	12 (5.7)	20 (14.5)	32 (9.1)		3.31 (1.53, 7.16) 0.002	2.15 (0.84, 5.50) 0.109

LIMITATION

The frequency of hypertension was based on a mean of three blood pressure measurements at one sitting and this may have affected the overall prevalence of hypertension in this study. Information on lifestyles was obtained from the respondents but not observed and this could affect the outcome of the current study.

CONCLUSION AND RECOMMENDATION

Four out of 10 adults in the Hohoe Municipality have HPT, while 1 out of 4 adults have pre-hypertension. Increasing age and religious affiliation were independently associated with hypertension. Screening programmes to help identify those with HPT and pre-hypertension for a referral to the hypertension clinic for counselling, treatment and management would be required. Health education and promotion on hypertension should be intensified to create awareness among the general population by nutrition and health promotion officers in the Hohoe Municipality.

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DISCLOSURE

The authors declare no conflicts of interst.

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