



## Knowledge, Attitude and Practice of Non-pharmacological Management of Hypertension among Hypertensive Patients Attending Kintampo Municipal Hospital

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**Abstract:** Hypertension is a silent killer, responsible for 9.4 million deaths out of the total 17 million attributed to cardiovascular diseases in 2016. It can be prevented or controlled through lifestyle modifications. In recognizing the importance of non-pharmacological approaches in managing hypertension, this study was conducted to assess the knowledge, attitude and practice of non-pharmacological management of hypertension among hypertensive patients attending Kintampo Municipal Hospital. A hospital-based descriptive cross-sectional study design was employed, and a simple random sampling technique was used. A total of 183 participants were included in the study out of the 255 hypertensive patients on the register using Yamane's formula with each respondent administered a closed-ended questionnaire. Data was analyzed using Stata version 15. There was a poor knowledge of hypertension and its non-pharmacological management among respondents. The attitude and practice toward non-pharmacological management of hypertension were negative among the respondents. A chi-square analysis showed a statistically significant association between respondents' knowledge of non-pharmacological management of hypertension and their level of education ( $X^2 [4, N=183] = 8.69, P=0.031, \Phi_c=0.244$ ). The attitude toward non-pharmacological management of hypertension and the age category of the respondents was significantly associated ( $X^2 [3, N=183] = 11.54, P=0.048, \Phi_c=0.498$ ). There was a lack of knowledge regarding lifestyle management among patients with hypertension, which was linked to a low degree of formal education. Negative attitudes and poor practices for the lifestyle

management of hypertension were also due to the lack of knowledge. To ensure adherence to lifestyle modifications, it is necessary to strengthen education on lifestyle management of hypertension at the hypertension clinic among the hypertensive patients.

**Keywords:** Attitude, Hypertension, Knowledge, Lifestyle, Practice, Non-pharmacological.

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## 1. INTRODUCTION

Non-communicable diseases (NCDs) have emerged as a major burden to the world, especially impacting lower- and middle-income countries (LMICs) with the most impoverished and vulnerable being at greatest risk (WHO, 2016). These diseases account for a higher number of disabilities as well as premature deaths in LMICs (WHO, 2016). The World Health Organization (WHO) has classified NCDs into four major groups: Cardiovascular Diseases, Diabetes Mellitus, Cancers and Chronic Respiratory Diseases (WHO, 2016). In the year 2016 alone, NCDs accounted for 40.5million deaths globally out of the 57million deaths, representing 71% of deaths attributable to NCDs. Of all NCD related deaths about 78% and 85% of premature adult deaths occur in LMICs (WHO, 2016; World Health Organization, 2014b) with cardiovascular disease accounting for 17.9 million (44%) (WHO, 2018). Furthermore, NCDs contribute 7% of the global burden of diseases (World Health Organization, 2014a). The probability of one dying from NCD, including cardiovascular disease, specifically hypertension, between the ages of 30 and 70 globally, is 18.3% and as high as 20.6% in Africa (World Health Organization, 2014a).

Hypertension, despite being a cardiovascular disease, is also a significant risk factor for other cardiovascular diseases (WHO, 2016). Out of the 17 million deaths globally linked to cardiovascular diseases in 2016, hypertension was responsible for 9.4 million deaths, representing 55.3% of all deaths due to cardiovascular diseases (WHO, 2013, 2016) even though these deaths were avoidable (World Health Organization, 2014a). The four main modifiable risk factors associated with hypertension are the harmful use of alcohol, physical inactivity, tobacco or tobacco product usage, and unhealthy diet (MOH, 2012; WHO, 2018; World Health Organization, 2014b). The unhealthy diet entails the consumption of animal fats, high salt and sugar intake, inadequate

consumption of fruits and vegetables (MOH, 2012).

Studies have shown that modifying one's lifestyle is a very effective way of managing hypertension (Anowie & Darkwa, 2016; Tesfaye et al., 2015). Due to low awareness of lifestyle management of hypertension among hypertensive patients, the goal of improving the treatment outcomes of hypertension by this intervention has not been leveraged on (Ozemek et al., 2017). As a result, many patients do not adopt or practise this cost-effective approach to managing hypertension (Akonobi & Khan, 2019; El-hay & Mezayen, 2015; Ozemek et al., 2017; Tesfaye et al., 2015). The World Health Organization realizing the crucial role of non-pharmacological management of hypertension and other cardiovascular diseases rolled out what it termed as "best buys" with the primary focus on lifestyle modification of the modifiable risk factors (Institute for Health Metrics and Evaluation, 2018). It is estimated that when countries implement the "best buys" from the year 2018 to 2025, 9.6million premature deaths will be averted, thus significantly contributing to the Sustainable Development Goal (SDG) target 3.4 of reducing one-third of all NCD-related deaths (El-hay & Mezayen, 2015; World Health Organization, 2014b).

Hypertension accounts for 7% of all diseases worldwide and costs LMICs 3.76 trillion annually (WHO, 2016). Globally, for adults 18 years and older, the prevalence rate of hypertension is 22% (972 million population), with a greater prevalence of 31.5% reported among LMICs (Mills et al., 2020). It is worth noting that the Global Burden of Disease, 2017 report indicated that ischemic heart disease and stroke, which hypertension is their risk factor, moved from being the fourth and fifth leading causes of death globally in 1990, to the top positions of first and third, respectively, in 2017 (Institute for Health Metrics and Evaluation, 2018). According to Kearney et al., the prevalence of hypertension in Sub-Saharan Africans aged 20 years and above was 38.2 million (26.9%) for men

and 41.6 million (28.3%) for women in 2000. This is projected to increase to about 73.6 million (27%) for men and 77.1 million (28.2%) for women in 2025 (Kearney et al., 2005). However, in Ghana, the prevalence of hypertension has been consistently high, ranking among the top five diseases in the country for over a decade and accounting for about 5% of all out-patient cases (Ministry of Health of Ghana, 2015). It is also the third most common newly diagnosed outpatient disease among adults in Ghana (Ministry of Health of Ghana, 2015). Bosu reported that the prevalence of hypertension ranges from 19% to 32.8% in rural areas and 25.5% to 48% in urban areas in Ghana (Bosu, 2010). The regional prevalence rate in Brong Ahafo is 11.4%, slightly below the national rate of 12.9%, placing it in the 5<sup>th</sup> position in terms of the regional prevalence (GSS; GHS; ICF International, 2015). In contrast, the prevalent rate in Kintampo is as high as 28.1% according to a study by Dosoo et al (Dosoo et al., 2019). Thus, this study aimed to assess the knowledge, attitude, and practice of non-pharmacological management of hypertension among hypertensive patients attending Kintampo Municipal Hospital.

## **2. METHODS**

### **Study Area**

The study was conducted in the Kintampo Municipal Hospital of the Kintampo North Municipality. The facility started as a clinic in the 1940's by the West African Frontier Force to serve the health needs of the forces as well as the inhabitants of the town. It is located near the geographical center of Ghana. It was upgraded to a District Hospital in 1994 and now a Municipal Hospital. The facility has been credentialed and accredited by National Health Insurance Authority (NHIA) as a Grade C primary hospital with a bed compliment for admission being 143.

### **Study Design**

This is a hospital-based descriptive cross-sectional study that was conducted at the Kintampo Municipal Hospital from June to July 2021.

### **Study Population**

All hypertensive patients seeking health care at the Kintampo Municipal Hospital's hypertension clinic.

### **Inclusion and Exclusion Criteria**

All hypertensive patients who were at least 18 years of age and visiting Kintampo Municipal Hospital's outpatient hypertension clinic within the data collection period were eligible to participate in the study. All in-patient hypertensive patients or hypertensive patients who were receiving other services apart from the hypertension clinic were excluded from the study.

### **Sample Size and Sampling Technique**

A sample size of 183 was used for this study. Yamane formula for sample size estimation was used to select the 183 out of the total number of 255 patients on the hypertension clinic's register at the time of the data collection in addition to a non-response rate of 20% (Yamane, 1967). A 5% margin of error was used. The total sample size calculated was 187, however, 4 respondents did not return their questionnaires. A simple random sampling method was used in selecting the participants. Out of the 64 hypertensive clients that were expected to attend the hypertension clinic weekly, pieces of papers were cut to equal the number that were available. "Yes" was written on 47 pieces of the papers and "No" was written on the rest to correspond with the total number of attendances. The pieces of papers were thoroughly mixed and given to the clients to select one each. Clients who selected "Yes" and consented to participate were recruited for the study. This process was repeated for four conservative weeks until the required sample size was achieved.

### **Data Collection Procedure**

A structured questionnaire was adapted from Tesfaye et al (2015), Iyalomhe et al (2010), and Anowie and Darkwa (2016). The questionnaire was either self-administered or researcher-assisted for participants who had difficulty understanding certain parts of the questionnaire or those who could not read and write. It was pre-tested at Jema Hospital in the Kintampo South District using 20 respondents.

The questionnaire had five parts. Part one consisted of socio-demographic characteristics of the respondents. Part two contained 10 items on the general knowledge of hypertension. Part three comprised 9 items on the knowledge on non-pharmacological management of hypertension. Part four contained 9 items aimed at assessing the attitude of respondents toward non-

pharmacological management of hypertension. Lastly, part five was made up of 8 questions used to assess the Practice of Non-pharmacological management of hypertension.

### **Knowledge on Non-pharmacological Management of Hypertension**

This section contained Likert scale questions with responses ranging from “strongly disagree” to “strongly agree”. These responses were assigned scores of 1 for strongly disagree to 5 strongly agree, the scores added up to a total score of 50; a total score of 10 to 35 was classified “poor knowledge” whilst a score of 36 to 50 was classified “good knowledge”.

### **Attitudes towards Non-pharmacological Management of Hypertension**

Part four also contained Likert scale questions with responses ranging from strongly disagree to strongly agree; it was assigned scores ranging from 1 for strongly disagree to 5 for strongly agree. The scores summed up to a total score of 45; a total score of 9 to 31 was classified as “negative attitude” towards non-pharmacological management of hypertension whereas a score of 32 to 45 classified “positive attitude” towards non-pharmacological management of hypertension.

### **Practice of Non-pharmacological Management of Hypertension**

This part had questions with Never/Sometimes/Always responses. The responses were assigned scores of 1 for Never, 2 for Sometimes and 3 for Always. The responses summed up to a total high score of 24. A total score of 8 to 16 was classified “bad non-pharmacological management practices” and 19 to 24 was classified as “good non-pharmacological management of hypertension practices”.

### **Data Analysis**

Data from the questionnaire was entered in a Microsoft Excel version 16. It was subsequently checked for accuracy and completeness. The data was appropriately coded in Excel and then imported into Stata version 15 for analysis. Results of the socio-demographic characteristics, variables on knowledge, attitude and practice on

non-pharmacological management of hypertension were summarized and presented in tables. The number of years the respondents were diagnosed with the various comorbidities, the systolic and diastolic blood pressure were summarized using means and their corresponding standard deviations. Chi-square analysis was used to assess the association between the socio-demographic and the aggregated knowledge, attitude, and practice of non-pharmacological management of hypertension. Cramer’s V was used to assess the level of association in the chi-square analysis. P-value of less than 0.05 was considered statistically significant.

### **Ethical Issues**

University of Health and Allied Sciences Research Ethics Committee (UHAS -REC) approved the study with clearance certificate ID number UHAS-REC A.10 [73] 20-21.

## **3. RESULTS**

### **Socio-demographic data**

Table 1 shows the demographic characteristics of the 183 respondents. Majority of the respondents 161(88%) were aged 51 years and above with 22(12%) 50 years and below. The females constituted 93(50.8%). Most of the respondents were married 108(59%), whilst only 10(5.5%) were cohabitating. About half 96(52.5%) of the respondents had no formal education while 10(5.5%) completed Senior High School. The majority 135(73.8%) were Christians, with traditionalists being the minority 7(3.8%). Out of the 183 respondents, 34(18.6%) had comorbidities. Of the 34 respondents who presented with comorbidities, 26(76.5%) had diabetes mellitus, 7(20.6%) of them reported having stomach ulcer, whilst only 1(2.9%) had asthma. The average number of years the respondents had lived with the condition since diagnosis was  $4.3 \pm 2.4$  years. The systolic and diastolic blood pressures of respondents were dichotomized based on gender. The females had an average systolic and diastolic blood pressure of 139.13mmHg and 92.4mmHg respectively compared to the systolic and diastolic blood pressure of the male counterparts 138.8mmHg and 91.9mmHg respectively.

**Table 1: Demographic characteristics of the respondents**

Variables	Parameter	Frequency(n=183)	Percentage (%)
Age (years)	50 years and below	22	12.0
	51 and above	161	88
Gender	Female	93	50.8
	Male	90	49.2
	Single	24	13.1
Marital Status	Married	108	59
	Divorced	9	4.9
	Widow/widower	32	17.5
	Cohabitation	10	5.5
Educational Status	No formal education	96	52.5
	Primary level	34	18.6
	Junior High Level	23	12.6
	Senior High level	10	5.5
	Tertiary	20	10.9
Religious Status	Christian	135	73.8
	Moslem	41	22.4
Comorbidity	Traditional	7	3.8
	Yes	34	18.6
Specific comorbidities	No	149	81.4
	Diabetes mellitus	26	14.3
	Asthma	1	0.5
	Gastric Ulcer	7	3.8
No. of years with the condition (mean±sd)			4.3 ± 2.4
Systolic blood pressure(mmHg) (mean±sd)	Female		139.1±5.6
	Male		138.8±7.1
Diastolic blood pressure(mmHg) (mean±sd)	Female		92.4±4.4
	Male		91.9±4.1

**Knowledge on non-pharmacological management of hypertension**

The composite responses of all the parameters of the knowledge on non-pharmacological management of hypertension from the 183 respondents showed that, 173(95%) [95% CI 90.1 – 97.0] had poor knowledge on non-pharmacological management of hypertension whilst 10(5%) [95% CI 3.0 – 9.9] had good knowledge on the non-pharmacological management of hypertension (Table 2).

**Table 2: Knowledge on non-pharmacological management of hypertension**

Variable	Frequency, N=183(%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Which of the following can negatively affect high blood pressure?</b>					
Salt intake	35(19.1)	45(24.6)	28(15.3)	61(33.3)	14(7.7)
Alcohol consumption	35(19.1)	49(26.8)	30(16.4)	35(19.1)	34(18.6)
Consumption of saturated fat	22(12)	49(26.8)	34(18.6)	63(34.4)	15(8.2)



Physical inactivity or sedentary lifestyle	28(15.8)	51(27.9)	55(30.1)	45(24.6)	4(2.2)
Smoking or tobacco usage	40(21.9)	51(27.9)	26(14.2)	47(25.7)	19(10.4)
Optional/intermittent intake of vegetable	30(16.4)	50(27.3)	48(26.2)	53(29)	2(1.1)
Seasonal consumption of fruits	20(10.9)	35(19.1)	53(29)	67(36.6)	8(4.4)
Putting up of body Weight	30(16.4)	37(20.2)	29(15.8)	67(36.6)	20(10.9)
Defaulting blood pressure medication intake	38(20.8)	45(24.6)	31(16.9)	46(25.1)	23(12.6)
Skipping routine medical (Blood Pressure) Check-up	37(20.2)	49(26.8)	17(9.3)	69(37.7)	11(6)

### Attitude towards non-pharmacological management of hypertension

The aggregated score of attitudes for each respondent indicated that, 98% [95% CI: 94.3 – 99.2] had a negative attitude towards non-pharmacological management of hypertension, on the other hand 2% [95% CI: 0.8.2 – 5.7] had positive attitude towards the non-pharmacological management of hypertension (Table 3).

**Table 3: Attitude on non-pharmacological management of hypertension**

Variable	Frequency, N=183(%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Which of the following do you think should be integrated with drug management of hypertension?</b>					
Reduction of Salt Consumption	42(23)	50(27.3)	14(7.7)	67(36.6)	10(5.5)
Reduction or cessation of bouillon cubes	36(19.7)	50(27.3)	19(10.4)	59(32.2)	19(10.4)
Joining of keep fit clubs for regular exercise	43(23.5)	65(35.5)	29(15.8)	40(21.9)	6(3.3)
Daily consumption of fruits	50(27.3)	54(29.5)	26(14.2)	49(26.8)	4(2.2)
Reduction of alcohol consumption	47(25.7)	53(29)	19(10.4)	51(27.9)	13(7.1)
Daily or frequent consumption of vegetable	46(25.1)	56(30.6)	20(10.9)	53(29)	8(4.4)
Promotion of consumption of unsaturated fat	40(21.9)	52(28.4)	16(8.7)	66(36.1)	9(4.9)
outright cessation of tobacco usage or smoking	49(26.8)	63(34.4)	26(14.2)	27(14.8)	18(9.8)
Brisk walking or regular physical at least 30minutes a day for at least 4 times in a week	53(29)	59(32.2)	25(13.7)	42(23)	4(2.2)

### Practice of non-pharmacological management of hypertension

The composite score on the practice of non-pharmacological management of hypertension revealed that 67% [95% CI: 60.0 – 73.7] of the respondents had bad practice of the non-pharmacological management of hypertension, whilst 33% [95% CI: 26.3 – 40.0] had good practice (Table 4).

**Table 4: The practice of non-pharmacological management of hypertension**

Variable	Frequency, N=183(%)		
	Never	Sometimes	Always
Salt Reduction	43(23.5)	80(43.7)	60(32.8)
Consumption of adequate vegetable	56(30.6)	62(33.9)	65(35.5)
Weight reduction	61(33.3)	83(45.4)	39(21.3)
Daily or frequent Fruit intake	69(37.7)	58(31.7)	56(30.6)
Reduction Alcohol consumption	54(29.5)	69(37.7)	60(32.8)
Cessation of tobacco usage or smoking	56(30.6)	54(29.5)	73(39.9)
Use of low fat non -diary product	48(26.2)	65(35.5)	70(38.3)
Regular physical exercise at least 30 minutes per day for 4 or more days a week	55(30.1)	70(38.3)	58(31.7)

**Chi square and level of significance between independent and dependent variable**

Table 5 shows there is a significant association between educational status of the respondents and non-pharmacological knowledge of hypertension 10.94(0.027), as well as a significant association between age category of the respondents and their attitude towards the non-pharmacological management of hypertension 11.541(0.048) (Table 5).

**Table 5: Chi square and level of significance between independent and dependent variable**

Socio-demographic	Non-pharmacological knowledge X <sup>2</sup> (p-value)	Attitude towards non-pharmacological measures X <sup>2</sup> (p-value)	Practice of non-pharmacological measure X <sup>2</sup> (p-value)
Age	0.99 (0.644)	<b>11.54 (0.048)</b>	2.60 (0.646)
Gender	1.84 (0.152)	0.00 (1.000)	0.22 (0.753)
Marital status	1.04 (1.000)	2.84 (0.658)	4.75 (0.314)
Educational status	<b>10.94 (0.027)</b>	1.57 (0.920)	4.97 (0.293)
Religious status	4.81 (0.098)	0.17 (1.000)	1.21 (0.569)
Comorbidities	0.91 (0.398)	0.93 (0.594)	0.93 (0.544)

**4. DISCUSSION**

This study aimed to determine the knowledge, attitude, and practice of non-pharmacological management of hypertension among hypertensive patients attending Kintampo Municipal Hospital. This study found that majority of the respondents were females. This is similar to the findings of Tesfaye et al. (2015). They attributed this observation to the women being physically inactive and their susceptibility to stress and work burden. The majority of the respondents were married people. Consistent with social causation theory, marriage provides opportunity for improvement in the socio-economic status of individuals since they would get financial support from their partners. This increases their affordability, hence potentially causing them to eat “hypertogenic” diets which are erroneously

branded as “rich food” therefore predisposing them to hypertension (Tuoyire & Ayetey, 2019).

It was revealed that the majority of the respondents (95%) demonstrated poor knowledge on non-pharmacological management of hypertension. These findings agree with Anowie and Darkwa (2016) who found 95% of the respondents had poor knowledge on hypertension. Most of the respondents disagreed or were neutral with the non-pharmacological (lifestyle) measures of controlling hypertension. The number of respondents who agreed or strongly agreed with the non-pharmacological measures when asked which of the following negatively affected blood pressure as shown in table 2 reported; too much salt intake (41%), use of alcohol (37.7%), consumption of saturated fat (42.6%), physical

inactivity or sedentary lifestyle (26.8%), smoking or tobacco usage (36.1%), intermittent intake of vegetables (30.1%), seasonal consumption of fruits (50%), putting up of body weight (47.5%), defaulting on blood pressure intake (37.7%), and skipping routine blood pressure check-up (43.7%). The poor knowledge in the specific lifestyle management can be attributed to the poor educational status, and generalized health education given at the out-patient hypertension clinic, rather than client-specific education on hypertension and its management. The result shows that the responses in agreement with the various parameters were all below 50%, this finding confirms similar finding by Anowie and Darkwa (2016) who reported in their study that 73% did not know that physical inactivity can increase the risk of hypertension, 67.8% lacked knowledge on contribution of too much intake of alcohol to the risk of hypertension. The study further confirms findings of Iyalomhe and Iyalomhe (2010) which reported that only (42%) of the respondents knew the risk factors (non-pharmacological factors) of hypertension such as too much intake of alcohol, smoking, and obesity. The finding however contradicts that of Tesfaye et al. (2015) in their article on similar subject matter who found out that there was higher knowledge among the respondents with regards to the non-pharmacological management of hypertension. The findings of Tesfaye et al. (2015) is not surprising as only 18.3% of the respondents had no formal education, compared to 52.5% reported in this study.

A chi-square analysis of the non-pharmacological knowledge and the independent variables as shown in table 5 reveals that there is a statistically significant moderate (Cramer's  $V= 0.244$ ) association between the educational level of respondents and the knowledge on non-pharmacological management of hypertension  $X^2(4, N=183) = 8.69, P=0.031, \Phi_c=0.244$ , the other predictors did not show any significant association. This finding agrees with the findings of Anowie and Darkwa (2016). It is therefore not surprising to see a clear correlation between the low educational level of the respondents and poor knowledge on non-pharmacological management of hypertension. The finding however contradicts findings of Tesfaye et al. (2015) whose chi-square analysis did not find a significant association

between educational level of respondents and lifestyle management of hypertension. The attitude of the respondents towards non-pharmacological (lifestyle) management of hypertension is largely negative (98%). This is not surprising considering the fact that the respondents had low level of education, and poor knowledge on hypertension in general as well as non-pharmacological management of hypertension. Attitude certainly is shaped by knowledge and limited knowledge has a negative consequence on attitude. This finding agrees with the finding of a study conducted by Institute for Health Metrics and Evaluation (2018), and Tuoyire and Ayetey, (2019). Moreover, the finding on the attitude is in perfect agreement with the finding of a similar study in Cape Coast metropolis by Anowie and Darkwa (2016) who reported 98% of the respondents showed a negative attitude towards non-pharmacological management of hypertension.

The finding of this study on the attitude towards non-pharmacological management of hypertension reveals that less than half of the respondents exhibited positive attitude towards the specific lifestyle management of hypertension: reduction of salt consumption (42.1%), cessation or reduction in the use of bouillon cubes (42.6%), daily consumption of fruits (29%), regular exercise (25.1%), reduction of alcohol consumption (35%), frequent consumption of vegetables (33.3%), consumption of unsaturated fat (41%), cessation of smoking or tobacco usage (24.6%), and physical activities including brisk walking (25.1%). The attitude of respondents should be influenced positively by knowledge on the subject matter; it is therefore not surprising that the majority of respondents have a negative attitude towards lifestyle management of hypertension as most of the respondents have low knowledge on the lifestyle management of hypertension, of which education level is a key association. This negative outcome confirms the findings of Iyalomhe and Iyalomhe (2010) whose study revealed the following interesting results: too much salt intake (81.5%), take plenty vegetable (21.3%), take plenty fruits (22.2%), do regular exercise (9.3%) among others. The study also contradicts the findings of Ekoru et al. (2019).



A chi-square analysis of the attitude as a dependent variable against the independent variables shows that there is a statistically significant moderate (Cramer's  $V=0.498$ ) association between attitude towards the non-pharmacological management of hypertension and age categories of the respondents  $X^2(3, N=183) = 11.54, P=0.048, \Phi_c=0.498$ . Age category is therefore a positive predictor of lifestyle management of hypertension, this confirms the findings of Tesfaye et al. (2015) whose study revealed that age is a significant predictor of lifestyle modifications: salt intake ( $X^2 = 24.92, P=0.002$ ), alcohol consumption ( $X^2 = 18.62, P=0.017$ ), except physical exercise ( $X^2 = 13.77, P=0.088$ ), and smoking ( $X^2 = 10.94, P=0.205$ ). Even though the practice of non-pharmacological management of hypertension has been found to reduce blood pressure among people who adhere to the various non-pharmacological measures (Abdul Rashid et al., 2011), the finding shows that the practice of non-pharmacological management by the respondents was very low (33%). The finding is in agreement with (Mills et al., 2020). Although the finding on the practice of non-pharmacological management is more encouraging compared to that of the attitude of the respondents towards the same. The study confirms a similar finding of a study conducted in Kintampo by Dosoo et al. (2019) which reported that the prevalence of hypertension was high due to bad lifestyle. Mills et al., also concluded in their study that even though lifestyle and pharmacological treatment of hypertension was available, the use of lifestyle in managing hypertension was low (Mills et al., 2020). The negative lifestyle practices can be in part attributed to the low knowledge and the higher illiteracy rate (Bakker et al., 2017). Enabling factors such as parks, gymnasium centers, and pedestrian walkways on the roads are not much available in the Kintampo township and therefore do not provide any enabling environment for exercise or rigorous physical activity (Bakker et al., 2017).

The respondents who always practised the lifestyle modification intervention were consistently below 50% for all the parameter: salt reduction (32.8%), consumption of adequate vegetable (35%), weight reduction (21.3%), daily fruit intake (30.6%), reduction of alcohol

consumption, cessation of smoking (39.9%), use of low fat non-dairy product (38.3%), and regular exercise (31.7%), the findings confirms that of Tesfaye et al. (2015) whose study on Knowledge, Attitudes and Practice of Non-pharmacological Therapy among hypertensive Patients in Bishoftu, Ethiopia revealed that 90% consumed too much salt, 88.3% irrationally used alcohol, 46.7% engaged in smoking or tobacco usage, and 50% engaged in exercise.

## 5. LIMITATIONS

- Most of the respondents were not lettered as such the questions had to be interpreted to them by third parties (researcher, friends or family members), this could affect the response if the interpreter introduces his/her own bias.
- The use of descriptive cross-sectional studies does not allow for determination of causes and effect relationship between the variables under study or generalization of results.
- The use of questionnaire to elicit a response did not allow researchers to get the lived experience of the respondents as qualitative study would have afforded.

## 6. CONCLUSION

There is high diabetes comorbidity among the respondents, compared to other chronic diseases, thus, all hypertensive clients should be screened for diabetes and vice versa to inform therapeutic decision. Majority of the respondents had no formal education; this significantly affected the non-pharmacological knowledge of the respondents. The attitude and practice of the non-pharmacological management of the respondents were equally poor. This can also be linked to the poor knowledge on lifestyle management among the respondents. The poor attitude toward the non-pharmacological management was significantly associated with age. To promote adherence to lifestyle management of hypertension, age-appropriate education on it should be intensified at the outpatient hypertension clinic. Also, newly diagnosed hypertensive patients should be referred to a nutritionist or a dietician for dietary counselling before the commencement of anti-hypertensive medications.

## 7. RECOMMENDATIONS

From the findings of the study, the following recommendations are made:

1. With higher hypertension and diabetes comorbidity, management should revise the current hypertension management protocol to include automatic referral of all hypertensive patients for blood sugar test (random or fasting) to rule out diabetes mellitus or diagnose it early to ensure effective management of the hypertension.
2. The municipal assembly headed by the Municipal Chief Executive, and management of Ghana Education Service in the municipality should put measures in place to ensure that all school going children get access to formal education, which would have a long-term beneficial effect on the knowledge of hypertension and empower them on prevention or better adherence to lifestyle management of hypertension in later years.
3. The Health Promotion Unit of the Institutional Public Health Unit of the Hospital should include lifestyle management of hypertension to their educational plan and consistently educate hypertensive patients on it for a positive attitudinal change.
4. The physiotherapists in the facility should be brought in by the management of the hospital to design, educate and train the aged on the physical activities that they can engage in as the study shows a significant association between attitude towards the lifestyle management and age.
5. Further research on the link between marriage and hypertension is recommended, not only for the Kintampo municipal hospital but the country as a whole.

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