KNOWLEDGE LEVEL OF HYPERTENSION AMONG PRE-HYPERTENSIVE MARKET TRADERS IN LAGOS STATE

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ABSTRACT: *Pre-hypertension means borderline hypertension and if unchecked can lead to hypertension and its other consequences. Stressful occupations such as market trading can predispose persons to hypertension disorders due to long work hours, little or no rest and this raised concern for pre-hypertensive traders' routine and their health status. Studies have shown benefits of health-education intervention in enhancing appropriate hypertension prevention information. However, this is limited in Nigeria. Therefore, this research assessed knowledge level of hypertension among pre-hypertensive market traders in Lagos State. Two major markets were surveyed to obtain sample size of 140 traders. By voluntary participation, the pre-hypertensive traders were grouped per market into Intervention Group (IG: 70) and Control Group (CG: 70). The IG was assigned to 6-weeks health education modules on hypertension once weekly for 15 minutes and CG had placebo for same duration. Research instrument with reliability coefficient (0.79) was used to collect data. Response rate was 98.6%. Data were analysed at 5% level of significance. Findings showed the baseline, mean score of knowledge in the IG was 15.37 ± 5.20, and for CG was 15.33 ± 3.93. Comparing the baseline and immediate post-intervention, there was a significant difference in the knowledge mean scores of participants in the IG (20.04 ± 1.54), but, there was a slight decline in the CG 15.32 ± 3.88 at p > 0.05. In conclusion, health-education intervention had positive influence on hypertension-related knowledge of pre-hypertensive traders in Lagos State. It was recommended that health workers should adopt regular market-based health-education programs to promote hypertension prevention*

KEYWORDS: Health-education1, Hypertension Knowledge2, Market traders3, Pre-Hypertensive4.

INTRODUCTION

Background to the Study

Hypertension is a long-term medical disorder in which blood pressure in the arteries remains abnormally high (Naish & Court, 2014) and pre-hypertension is the window period to its manifestation. Majority of the time, high blood pressure is asymptomatic (Ayogu, Ezeh & Okafor, 2021). Nevertheless, persistent, uncontrolled high blood pressure is a major risk factor for cardiovascular diseases, such as stroke, coronary artery disease, heart failure, atrial fibrillation and peripheral arterial disease. It also predisposes to vision loss, chronic kidney disease and dementia (Lackland & Weber, 2015; Mendis, Puska & Norrving, 2011; Hernandorena, Duron, Vidal & Hanon, 2017; Lau, Nattel, Kalman & Sanders, 2017). It accounts for significant cases of premature mortality worldwide (GBD, 2015; Mills et al., 2016).

High blood pressure affects around a billion people worldwide (Adeloye, Aderemi, Thompson, & Obi, 2015; Beaglehole et al., 2011). Africa has a high prevalence of hypertension estimated to be about 57% of adults aged 50 years and above (Bosu, Reilly, Aheto & Zucchelli, 2019). The incidence of hypertension in Nigeria's adult population is rising, and the rate varies year to year and from region to region. Adeloye et al. (2021) set the prevalence at 30.6%, whereas Akinlua et al. (2015) and Ogah et al. (2012) observed HBP prevalence ranging from 2.1 to 47.2 percent in adults and 8–46.4 percent in children (Ogah et al., 2012; Kayima et al., 2013; Akinlua, Meakin, Umar & Freemantle, 2015).

Hypertension is more common in the older population and responsible for the higher incidence of morbidity and death in this age group (Lewington et al., 2002). In addition, in adult populations, demographic factors such as gender, family history of cardiovascular diseases, lifestyle factors such as unhealthy food intake, physical inactivity, tobacco and alcohol use, abnormal serum lipids and lipoproteins, obesity, chronic stress, and insufficient sleep are all strong risk factors for hypertension (Thawornchaisit et al., 2013; Koti & Roetzheim, 2015). However, data suggest that the majority of people with hypertension, particularly the elderly, are unaware, and this increases the risk of serious consequences (Adeloye et al., 2015; Mills et al., 2016). This non-communicable disease accounts for approximately 7.1 million deaths per year, and ranks third in terms of disability adjusted life years (Eze et al., 2020).

Studies have also proposed that changes in medication adherence, and lifestyle changes that rely on a thorough understanding of knowledge-based awareness are valuable in the prevention of hypertension and its comorbid conditions (Cohn et al., 2012). Hypertension knowledge and awareness is a strong predictor of hypertension prevention practices, treatment, and medication adherence among hypertensive patients (Cohn et al., 2012; Barr et al., 2014; Chotisiri et al., 2016). Previous studies have reported poor knowledge concerning hypertension and its consequences, the side effects of antihypertensive drugs, poor adherence with drug therapy, erroneous health beliefs, inability to make lifestyle changes, unrealistic treatment expectations and demographic factors as barriers to hypertension prevention and control practices (Odedosu, Schoenthaler, Vieira, Agyemang, & Ogedegbe, 2012; Okwuonu, Ojimadu, Okaka, & Akemokwe, 2014).

Prevalence of hypertension among adults in the informal sector, especially market women in Nigeria is high (Ahaneku et al., 2011; Ulasi et al., 2011; Odugbemi, Onajole & Osibogun, 2012; Ogunmola et al., 2015; Eze et al., 2020). Market traders are at increased risk of high blood pressure as a result of sedentary lifestyle and reliance on salty, fast food at work (Ahaneku et al., 2011; Ulasi et al., 2011; Lucero et al., 2014; Oladoyinbo, Ekerette & Ogunnubi, 2015; Dzhambov & Dimitrova, 2018; Eze et al., 2020). One in four market traders had undiagnosed hypertension with a significantly higher prevalence among older, married and obese traders (Vincent-Onabajo, Adaji & Umeonwuka, 2017). Traders' knowledge of hypertension and the benefits of lifestyle changes appear to be the key to effective hypertension prevention. Hence this study assessed the knowledge level of hypertension among pre-hypertensive market traders in Ajeromi-Ifelodun and Alimosho Local Government Areas of Lagos State.

METHODOLOGY

Research Design

The study, which was part of a larger experimental study of 2 groups - control and experimental, adopted a cross sectional design and the population for the study consisted of traders from selected structured markets in Alimosho and Ajeromi-Ifelodun Local Government Areas of Lagos State.

Inclusion and Exclusion Criteria

The inclusion criteria were adult market traders who are shop owners, members of traders' association and those who offer informed consent to participate. Market traders who are confirmed hypertensive, those that are ill at the time of the research, who are not members of the trader's association, free hawkers, non-shop owners and traders who do not consent to participate in the study were excluded.

Description of the Study Area

Lagos State is the most populous city in Nigeria with an estimated 21 million inhabitants in 2016. Metropolitan areas have emerged on islands, including Lagos Island, and this is protected from the Atlantic Ocean with a sandy tongue. The city extends to the west mainland of the lagoon, with Ikeja, the capital of Lagos, and Agege, more than 25 miles northwest of Lagos Island.

Alimosho local government is the largest LGA in Lagos State and was established in 1945 under Ikeja division. It has six sub-divisions created out along-side Agbado/Oke-odo, Ikotun/Igando, Ayobo/Ipaja, Mosan/Okunola and Egbeda/Akowonjo. The area is rich in culture and festivals such as Egugun, Oro, Igunnu by the dominating Egbados. Yoruba and Pidgin English are the most prominent languages of the Alimosho people.

There are between 70 markets in Alimosho local government. The biggest market is the Ile-Epo market mostly known for perishable or unprocessed food items and processed food items. Other markets are Iyana Ipaja market, Ipaja Market, Ile Baale, Iso Pako, Oja-Oba, Ataapa, Odo Eran, Egbeda, Power-line, Alagutan (motor spare parts), Estate, Water, Atan, Ayobo, Abule Egba

markets while others in the category of small markets are Kola, Agbado, Shasha, and Ikotun markets.

Sample Size and Sampling Technique

The sample size was calculated based on a comparison of two independent means formulae with a standardized effect size of 0.50 and a standard deviation of 5% (Snedecor & Cochran, 1989). The level of significance was set at $p < 0.05$ and a study power of 80% was assumed.

$$n = \frac{2(Z_{\alpha/2}+Z_{1-\beta})2}{(\frac{\mu 1 + \mu 2}{\sigma})2} = \frac{2(1.96+0.84)2}{(0.5)2} = \frac{16}{0.25} = 64.$$

The estimated sample size for each group was 64 giving a total number of 128 participants across the 2 groups. With an addition of 10% for attrition, we arrived at 141 participants.

Sampling Technique

A three-stage sampling technique was used to select market traders into the study. In stage one, 2 LGAs, Alimosho and Ajeromi-Ifelodun LGAs were randomly selected out of the 20 LGAs in Lagos State. Next was stage two, where one large market in each of the selected LGAs, Ile-epo Oke Odo market in Alimosho LGA (comprising 1954 shops) and Alayabiagba market in Ajeromi-Ifelodun LGA (comprising of 801 shops) were purposively selected. Aside their large sizes, these markets were selected because of the size of their markets and that there is remarkable multiple ethnic group representation of possible participants and they also contained more merchants as compared with the other. Systematic random sampling techniques were employed to recruit participants from their shop. A sampling interval of 19 was computed and the first shop was selected in a ballot between numbers 1 to 19. One eligible trader was recruited from each shop. Where there were more than one eligible persons.

Instrumentation

The instrument was a validated, structured questionnaire. This was used to collect data on participants' demographic characteristics, hypertension related knowledge, motivation, prevention and self-care practices (behavioral skills). The instrument was drafted in English language, translated to Yoruba and Pidgin language for people who cannot read or understand English language and it was interviewer (research assistant) administered. The instrument was used to rate baseline, immediate post-intervention measures, and impact evaluation of the intervention.

The instrument had four sections, namely sections A, B, C, D and E.

Section A: Socio-demographic characteristics of the participants which include age, gender, level of education, religion, marital status, systolic and diastolic BP, weight and height. The BP levels were measured from the right and left arms of the subjects in a sitting position by the nurses/CHEW at the study site. The BP was measured twice with a maximum of 10 minutes interval. The systolic BP (SBP) and diastolic BP (DBP) were recorded using Electronic sphygmomanometers. The participants blood pressure levels were then classified as follows: normal: SBP < 120 mmHg and DBP < 80 mmHg; PreHT: SBP 120–139 mmHg and/ or DBP 80–89 mmHg; hypertension: SBP ≥

140 mmHg and/or DBP ≥ 90 mmHg. The participants receiving antihypertensive treatment will be considered to have hypertension and excluded from the study.

Section B: Hypertension knowledge was being measured using 11 items with a response format of Yes and No. The 11 questions were questions about the meaning of hypertension; questions about causes and risk factors for hypertension, also about signs and symptoms and blood pressure measurement and its interpretation. Others were about hypertension complications, and blood pressure management and control. Each correct response was allotted 1 mark while an incorrect answer had 0 allotted. The knowledge index ranging from higher scores indicating greater hypertension knowledge.

Section C: Motivation towards hypertension prevention will be assessed using 20 items. The response format was based on Likert scale of strongly agree (2 points), agree (1 point), disagree (0 point), and strongly disagree (0 point).

Section D: Behavioral skills towards hypertension prevention was assessed using 5-items. The response format was based on Likert scale of 100% confident (3 points), fairly confident (2 points), barely confident (1 point) and not at all (0 point).

Section E: Prevention of hypertension contained 8 questions that focused on four domains such as routine blood pressure check, regular physical activity, abstinence/reduction in use of substance, and healthy diet.

Validity and Reliability of Instrument

This instrument was reviewed by the researcher's supervisor and some other academics in the field of public health. The validity of the contents of the questionnaire was determined by consultation of relevant literature and previous research works to ensure that items adequately measure the constructs of the study. Additionally, a total of twenty draft questionnaires were pre-tested among traders with similar socio-demographic characteristics with the study participants in the Ipodo market to confirm clarity and comprehension of the instrument. Feedback from the pilot study was incorporated into the instrument.

Construct Validity: The development of the questionnaire items was structured based on the objectives of the study and the conceptual framework of the study. Test retest was done. This was done by administering the questionnaire twice to 20 traders similar to the study participants in Ipodo market in Ikeja. The coefficient reliability was determined using IBM SPSS software version 22. A Cronbach's α score of 0.80 with a range of 0.79 – 0.87 was obtained.

Data Collection

Data collated and analyzed using IBM Statistical Package for Service Solution (IBM SPSS) version 22.0 and set at $P < 0.005$. Computed data was then subjected to descriptive (means, standard deviation, standard error) statistical analyses.

The prepared instrument was administered to each of the participants by the researcher and the research assistants. Required data were filled in as appropriate by the participants and/or research

assistants and collected by the researcher and research assistants. Also, the participant's blood pressure and body mass index reading were taken and recorded.

Data Analysis

The data obtained were screened by looking at each item on each questionnaire to ascertain that the respondents answered them correctly and, in some cases, where-by no response were given, the items were treated as missing variables. The data obtained from completed copies of the questionnaire were collated and analyzed using IBM Statistical Package for Service Solution (IBM SPSS) version 22.0 and set at $P < 0.005$. Computed data was then subjected to descriptive (means, standard deviation, standard error) statistical analyses. Also, the information obtained was summarized and presented in tables. Each construct of the questionnaire was coded along the appropriate ranking scale. Maximum point-scales were generated for each construct to measure the stated research variables; mean scores were computed.

Table 1: Statistical Analysis

S/N	Objectives	Statistical Method
1	Socio-demographic characteristics	Frequency table, simple percentage count
2	Assess the level of knowledge of hypertension among the market traders.	Means, standard deviation
3	Determine the level of motivation (attitude) towards hypertension prevention among the market traders	Means, standard deviation
4	Assess the level behavioral skills of hypertension among the market traders.	Means, standard deviation
5	Determine the level of preventive practice of hypertension among the market traders.	Means, standard deviation

Ethical Consideration

Ethical approval was obtained from Babcock University Health Research Ethics Committee (BUHREC). Participation was completely voluntary or optional without cohesion and the traders were informed that they were at liberty to decline to participate or withdraw from the study with no consequences to them. Written informed consent was obtained after thorough explanation given and understanding established. Confidentiality was assured to the participants. Personal identifiable information like name was not included except for information needed for identification of participants such as shop address and phone numbers that were to be coded for reference purpose. The participants were offered free blood pressure check, height, weight and

Body Mass index screening. No incentive or compensation for participating in the study. Also, there was an explanation that no identified or associated risks in participating in the study.

Informed consent

The purpose of the study, content benefits, and risk of the study were explained to the participants. Informed consent was obtained before recruiting the participants and administering the questionnaire.

RESULT AND DISCUSSION OF FINDINGS

Socio-Demographic Characteristics of the Participants

As shown in Table 2 below, the result of the findings showed that the mean age of the participants in the both groups were 44.91±8.82 and 44.37±8.80 years. There were more females in both groups - 40 (57.1%) and 37 (52.9%). Forty 28 (40.0%) and 24 (34.3%) respectively of the participants in both groups had tertiary education. Majority of the participants were married – 79% (56%). The result of the findings also showed that Christianity was the dominant religion in both groups 81 (58.6%). Only a few of the participants in the intervention group 6 (8.6%) and the control group 8 (11.4%) were extremely obese. Both groups are considered comparable when looking at socio-demographic characteristics.

Table 2: Socio-demographic Characteristics of the Participants

Variable	Kinds	Intervention group (n= 70)		Control group (n=70)		χ2	P
		F	%	F	%		
Age	30-40	26	37.1	27	38.6	0.35	0.84
	41-51	25	35.7	27	38.6		
	52-62	19	27.1	16	22.9		
Mean ±SD		**44.91±8.82**		**44.37±8.80**			
Gender	Male	30	42.9	33	47.1	0.26	0.73
	Female	40	57.1	37	52.9		
Educational level	No education	18	25.7	19	27.1	0.52	0.91
	Primary	11	15.7	12	17.1		
	Secondary	13	18.6	15	21.4		
	Tertiary	28	40.0	25	34.3		
Marital status	Married	41	58.6	38	54.3	1.48	0.69
	Single	13	18.6	10	14.3		
	Widowed	9	12.9	13	18.6		
	Divorced	7	10.0	9	12.9		

Religion	Christian	41	58.6	40	57.1	0.42	0.81
	Islam	27	38.6	29	41.4		
	Others	2	2.9	1	1.4		
BMI	Underweight	1	1.4	2	2.9	5.30	0.38
	Normal	24	34.4	14	20.0		
	Overweight	16	22.9	14	20.0		
	Obesity class 1	15	21.4	18	25.7		
	Obesity class11	8	11.4	14	20.0		
	Extreme obesity	6	8.6	8	11.4		

Knowledge Level of Hypertension

As shown in Table 4.2 below, the participants' level of knowledge of hypertension was measured on a 21-point rating scale and categorized into low, moderate, and high at the baseline. The intervention group had a mean score of 15.37 ± 5.20, while the control group had a mean knowledge score of 15.33 ± 3.93. More than half of the participants in both groups had a high level of knowledge, 38 (54.3%) and 46 (65.7%) in the experimental and the control group respectively. The mean score of the intervention and the control groups were compared using an independent sample t- test at the baseline. The result revealed that there was no statistically significant difference in the mean score obtained by the two groups.

Table 3: Knowledge Level of Hypertension

Variable	Category	Intervention group		Control group		t-test	P
		F	%	F	%		
Knowledge	Low	6	8.6	3	4.3	0.02	0.98
Measured on a 21-points rating scale	Moderate	26	37.1	21	30.0		
	High	38	54.3	46	65.7		
Mean score		**15.37±5.20**		**15.33±3.93**			

Participants' Motivation towards Hypertension Prevention

As shown in Table 4.3 below, the participants' motivation towards hypertension prevention was measured on a 40-point rating scale and categorized into low and high. The mean motivation score was 16.06 ± 7.60 and 17.99 ± 5.50. Most 101 (71.6%) of the participants had low motivation towards hypertension prevention. The mean motivation score of both groups was compared using an independent sample t-test. The result of the analysis showed that there was no statistically significant difference in the motivation score of the two groups.

Table 4: Participants' Motivation towards Hypertension Prevention

Variable	Category	Intervention group		Control group		t-test	P
		F	%	F	%		
Motivation measured on a 40-points rating scale	Low	55	78.6	46	65.7	-1.74	0.08
	High	15	21.4	24	34.3		
Mean score		**16.06±7.60**		**17.99±5.50**			

Participants' Behavioral Skills towards Hypertension Prevention

As shown in Table 4.4 below, participants' behavioral skills concerning hypertension prevention was measured on a 15-point rating scale and categorized into low and high. There was a mean behavioral score of 10.57±3.74 and 10.26±3.25 in both groups. Majority of the participants, 101 (71.6%) had high behavioral skills towards hypertension prevention. The participants mean behavioral scores were compared between both groups using an independent sample t-test. The result of the analysis showed that there was no statistically significant difference in the mean behavioral score between the two groups.

Table 5: Participants' Behavioral Skills towards Hypertension Prevention

Variable	Category	Intervention group		Control group		t-test	P
		F	%	F	%		
Behavioral skills measured on a 15-points rating scale	Low	13	18.6	16	22.9	0.51	0.61
	High	57	81.4	54	77.1		
Mean score		**10.57±3.74**		**10.26±3.25**			

Level of Participants' Preventive Practices towards Hypertension Prevention

As shown in Table 4.5 below, the participants' preventive practices against hypertension were measured on a 24-points rating scale and categorized into **low** and **high**. The participants in both groups had a mean preventive practice score of 12.14±5.60 and 13.83±5.07. Less than half 64 (45.3%) of the participants had low preventive practices against hypertension. The mean preventive practices of the two groups were compared using an independent sample t-test. There was no statistically significant difference in the mean score of the two groups.

Table 6: Level of Participants' Preventive Practices towards Hypertension Prevention

Variable	Category	Intervention group		Control group		t-test	P
		F	%	F	%		
Preventive practices measured on a 24-points rating scale.	Low	41	58.6	23	32.9	-1.87	0.06
	High	29	41.4	47	67.1		
Mean score		**12.14±5.60**		**13.82±5.07**			

CONCLUSION AND RECOMMENDATIONS

This study discovered that market traders have insufficient knowledge and poor hypertension prevention behaviors. The market leaders should partner with health workers to promote market sensitization efforts, screening programs, non-pharmacological lifestyle adjustments, such as improving physical activity levels and promote healthy diets. Health workers are to embark on regular health-education and sensitization for pre-hypertensive traders to prevent worsening of their blood pressure status.

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