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An Evaluative Study of Undiagnosed Hypertension and its Risk Factors among Physiotherapists in Kano Metropolis: North Western Nigeria

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ABSTRACT

Hypertension is a major health problem World-wide that causes about 7.1 million death per year and 4.5% of the disease burden which translates to 64 million disability adjusted life years. This study assessed the prevalence of undiagnosed hypertension (HTN) among physiotherapists in Kano Metropolis. The cross sectional survey recruited a total of 30 physiotherapists from Kano Metropolis. The height, body weight, and blood pressure (BP) of the subjects were measured using a standard protocol and recorded. The data obtained were summarized using descriptive statistics of mean, standard deviation, percentages and frequencies; and analysed with inferential statistics of Mann Whitney U to determine gender difference at probability level of 0.05 Using SPSS version 16.0.The result obtained shows that that were 63.3% male and 36.7% female physiotherapist. Only 8 (26.7%) have prior history of HTN and none was having undiagnosed HTN. There was no significant difference in BP between male and male participants. It was concluded that no Physiotherapist in Kano is undiagnosed of HTN and there is no gender difference in their BP, history of HTN and clinic visits.

Keywords: Hypertension, Physiotherapists, Kano Metropolis

INTRODUCTION

Hypertension is one of the leading preventable causes of death (Chobanian *et al.,* 2003). Blood pressures from young adulthood predict the incidence of future cardiovascular events (Vasan *et al.,* 2002). Among young adults (18–39 years), approximately 20% of men and 15% of women have diagnosed Hypertension, with an expected increase in prevalence due to high obesity rates (Tran *et al.,* 2012).

According to the National Health and Nutrition Examination Survey (NHANES), rates of hypertension control have improved. However, as young adults have consistently low prevalence of hypertension control (38%) compared with middle-aged (40–59 years) and older (60 years) adults whose prevalence of Control is 54 and 53 %, respectively (Egan et al., 2010). This is because concerning young adults with uncontrolled hypertension are at risk for chronic kidney disease and premature strokes, particularly in the presence of diabetes (Crew *et al.*, 2010).

According to WHO (1987), Hypertension is the persistent Increase in blood pressure above 180mmHg systolic and 90mmHg diastolic. Blood pressure generally tends to rise with age. Obesity and heredity also play a role in the development of hypertension. The common modifiable risk factors for hypertension are availability and consumption of high fat and adoption of sedentary life style, smoking, alcoholism, stress, etc. These factors are interrelated to each other such that appearance of one factor paves the way for coronary artery diseases. Therefore primary prevention of the occurrence of risk factors and its early diagnosis and treatment can help delay non-communicable diseases and coronary artery diseases (Solanki *et al.*, 1986).

Despite isolated examples of good practice, a truly 'joined-up' approach to tackling hypertension is lacking, particularly around prevention, early Detection and clinical protocols for control. It is therefore critical that Primary care staff and local multi-agency teams work together to establish programmed which not only identify and treat people with hypertension but actively promote healthy lifestyles and implement preventive strategies in order to meet the challenge of tackling hypertension (Brown *et al.*, 2004). Also since the symptoms of persistent increase in Blood pressure is not rarely noticeable, It is important that clinical decisions about whether and how to treat hypertensive patients are based on both their blood pressure level and overall cardiovascular risk – not on blood pressure alone.

Blood pressure (BP) in human populations has a normal distribution. Accordingly, the definitions of "normal" BP and of various forms of hypertension are arbitrary but are needed for practical reasons in the assessment and treatment of patients. Hypertension is defined as a systolic blood pressure (SBP) of 140 mm Hg or greater and/or a diastolic blood pressure (DBP) of 90 mm Hg or greater in persons not taking antihypertensive medication.

Those with a BP of 120-139 mm Hg systolic and/or 80-89 mm Hg diastolic are classified as "pre hypertensive," now known to increase the risk of any cardiovascular disease event by two- to four-fold compared with a normal BP (<120/80 mm Hg) (Hsia, *et al.*, 2007).Older persons, in whom hypertension is both more prevalent and more likely to lead to cardiovascular disease complications, are more likely to have elevations in SBP in the presence of normal DBP. The positive correlation between BP and risk of cardiovascular disease morbidity and mortality is stronger for SBP than for DBP. The prevention, diagnosis, and control of hypertension among workers in the United States remain a challenging public health issue, regardless of health insurance status. Several other factors may affect hypertension control, including clinicians' inadequate knowledge of national hypertension treatment guidelines, insufficient physician-patient communication, and patients' lack of adherence to lifestyle modifications and medications.

It is unknown whether the CVD risk factors especially HTN that were observed among health care workers (HCW) in certain parts of the world are also common among PTs in Kano. Though HCW are very critical and effective in primary prevention of undiagnosed HTN and its risk factors, there is tendency for them to ignore themselves. Therefore the study determined the prevalence of undiagnosed hypertension among physiotherapists in Kano metropolis.

METHODOLOGY

This cross sectional survey involved Thirty (30) purposively sampled physiotherapists from Kano Metropolis. Ethical approval was sought from Kano State Hospitals Management Board, consent of the participants was obtained. The height, body weight, and blood pressure (BP) of the participants were measured using a standard protocol and recorded.

Data collection instrument

1. Stethoscope was used to measure blood pressure.
2. Mercury sphygmomanometer was used to measure blood pressure.
3. Weighting scale (Kg) (Camry Mechanical Personal Scale, Made in China).
4. Measuring Tape (m) (Fiber Glass Butterfly Brand 60 Inc. Made in Shanghai China).
5. Data collection form (Socio-demographic data sheet)

Data collection procedure

Ethical approval was sought from Hospital Management Board, informed consent was given to the participants, and only those that signed participated in the study. The following measurement was taken:

Blood pressure measurement

Use of good pressure measurement technique is essential to the accurate diagnosis of hypertension, including having the participants were asked to sit quietly in a Chair with the back supported for 5minutes before taking the measurement; the correct cuff size with the air bladder encircling at least 80% of the arm, and supporting arm was at the heart level during the cuff measurement (pickgering *et al.*, 2005).

A minimum of two reading will be taken at interval of at least 5 minutes and the average of those readings were taken to represent the participants blood, the blood pressure was measured carefully in both

arm and the arm with the higher pressure Generally was used to make future measurement. An inflatable cuff was wrapped around the arm and a stethoscope was place over the brachial artery at the elbow. The cuff was inflated until the pressure is well above the expected Systolic pressure in the brachial artery (200-220mmHg). The artery was occluded by the cuff, and when no sound is heard by the stethoscope. The pressure in cuff will then be deflated slowly. The point at which a tapping sound was heard below the cuff was the systolic Pressure. As the cuff pressure is lower further, the sound becomes louder , then dull and muffled, finally the sound disappeared ,and the pressure at which the sound Disappear will be diastolic pressure.

The cuff was then be removes from the subjects arm and the blood pressure will then recorded as the systolic and diastolic blood pressure .a subject is said to be hypertensive if his or her blood pressure above 140/90mmHg or higher.

Stature

The height was measured while the subject stand bare-foot with the upper back, Buttocks and heels against the wall, the head was hold erect, and the eyes look forward so that the lower magic of the external auditory canal opening is in frank –fort horizontal Plane. The point of the greatest height to the nearest 0.1cm will mark off on the wall with flexible tape.

Body Mass

Body mass was measured with the subject standing on the portable bath room weighing scale, weight is recorded to the nearest 0.5kg.

Body Mass Index (BMI)

Subject BMI was calculated as weight in kilograms over height in meter squares.

Data Analysis

Data collected was summarized using descriptive statistics of mean, standard deviation, percentages and frequencies. Inferential statistics of Mann Whitney U was used to determine gender difference at probability level of 0.05 using SPSS version 16.0.

RESULT

A total number of 30 participants took part in this study. The result of this study showed that the mean age of the participants was 29.20 years. The main finding showed that their average BMI to be 19.26 K/m^2, Height (1.55m) and Body mass (60.07kg) as presented Table 1.

Table 1: Descriptive characteristics of the variable

Variables	M±SD	Range
Age	29.20±2.80	13.66-23.75
BM	60.07±6.06	50.00-76.00
BMI	19.29±2.15	1.30-1.83
Stature	1.55±0.13	25.00-35.00

Key: BM (Body Mass); BMI (Body Mass Index) M (Mean) SD (Standard deviation)

Table 2: Frequency distribution of the demographic variables

Variables		N	%
Gender	Male	19	63.3
	Female	11	36.7
Occupation	Civil servant	30	100
BP	110/70mmHg	7	23.3
	110/80mmHg	10	33.3
	120/80mmHg	8	26.7
	120/90mmHg	5	16.7
Marital status	Single	16	53.3
	Married	14	46.7
HTN Diagnosis	Yes	8	26.7
	No	22	73.3
clinic visit for BP cheek	Year 2014	11	36.7
	Year 2013	6	20.0
	Year 2012	5	16.7
	Year 2011 below	8	26.7

The table above revealed that about 63.3% of the participants are males. It was found that participants' BP is within the normal range. Majority of them (53.3%) are singles. Eight (26.7%) have prior history of hypertension.

Key: BP (Blood Pressure); HTN (Hypertension); N (Frequency distribution); % (Percentage)

Table 3: Frequency distribution of risk factors of hypertension

Variable		N	%
HBP in family	Yes	19	63.3
	No	11	36.7
Heart failure	Yes	2	6.7
	No	28	93.3
Stroke	Yes	15	50.0
	No	15	50.0
Kidney failure	Yes	5	10
	No	25	90
Ischemic disease	Yes	3	10
	No	27	90
Peripheral disease	Yes	4	13.3
	No	26	86.7
Diabetes in family	Yes	13	43.3
	No	17	56.7
Sudden death	Yes	10	33.3
	No	20	66.7

In the table above, 63.3% of the participants have family history of hypertension, 43.3 have family history of diabetes and 50% have family history of stroke.

Key: HBP (History of blood pressure); N (Frequency distribution); % (Percentage)

Table 4: Frequency distribution of the modifiable risk factors variables

Variables		N	%
Eating fruit day	Not taking	1	33.0
	Once per day	7	23.3
	Twice per day	9	30.0
	More twice	13	43.3
Eating vegetable day	Not taking	1	3.3
	Once per day	5	16.7
	Twice per day	8	26.7
	More twice	16	53.3
Meal not prepare home	Not taking	22	73.3
	Once per day	4	13.3
	Twice per day	1	3.3
	More twice	3	10.0
Adding salt	Not taking	25	83.3
	Once per day	3	10.0
	Twice per day	1	3.3
	More twice	1	3.3
History of smoking			
Variables			
History of smoking	Yes	2	6.7
	No	28	93.3
Currently smoking	No	30	100
Smoking daily	Yes	2	6.7
	No	28	93.3
Cigarette smoking per day	No	30	100

The table above shows that about 43.3% of the participants take fruit more than 2 times daily, 53.3 percent take vegetables more than 2 times daily and 83.3% of the participants reported that they never add salt into a cooked meal. Only 2 participants (6.7%) have history of smoking, but none of them is currently smoking.

Key: N (Frequency distribution); % (Percentage)

Table 5: Mann-Whitney test showing gender difference of history of hypertension

Variables	N	Mean	Sum of rank	U	P
Gender				88.50	0.37*
Male	19	16.35	310.50		
Female	11	14.05	154.50		

The table above revealed that there is no significant gender difference in the history of hypertension (P>0.05)
Key: * not significant; U (Mann Whitney u value); P (P value)

Table 6: Comparisons of prevalence high blood pressure among male and female participants

Variables	Gender			
B-CODE	Male	Female	Z	P
	Median(iqr)	Median(iqr)	-2.189	0.029
	3(2)	2(1)		
HTN Diagnosis	Male	Female	Z	P
	Median(iqr)	Median(iqr)	-0.899	0.369
	2 (0)	2(1)		
Clinic visit	Male	Female	Z	P
	Median(iqr)	Median(iqr)	-0.449	0.654
	2(3)	2(2)		
Systolic HTN	Male	Female	Z	P
	Median(iqr)	Median(iqr)	-0.555	0.579
	1(20)	1(10)		
Diastolic HTN	Male	Female	Z	P
	Median(iqr)	Median(iqr)	-0.939	0.348
	80(0)	80(10)		

The table above shows that there is no significant difference in systolic blood pressure, diastolic blood pressure, numbers of clinic visits and hypertension diagnosis between male and female participants.
Key: B-CODE (Blood Pressure code); HTN (Hypertension); Iqr (inter quartile range)

DISCUSSION

This study found that over sixty percent of the participants are males and majority of them have a normal body weight (BMI). This suggests that most of the physiotherapists in Kano are neither overweight nor obese. Furthermore, it was found in this study that majority of the participants' blood pressure is within the normal range. This implies that most of the physiotherapists in Kano are not hypertensive. The possible reason for this result could be because most of them are aged below 30 years and blood pressure increases with ageing and increased peripheral resistance. This finding is in line with that of Egan et al (2010) that young adults have consistently low prevalence of hypertension compared with middle-aged (40–59 years) and older (_60 years) adults whose prevalence is 54 and 53%.

Another possible reason for the normal blood pressure could be because many of them are neither obese nor overweight. The finding that 26.7% of the participants were once diagnosed with hypertension but not having high blood pressure during the course of this study means that those hypertensive physiotherapists are regular on their medication. This also in line of Must et al (1999)Among overweight and obese patients, the prevalence of hypertension has been reported to be around 50% and to increase further with higher grades of obesity. Expert et al (1996) on the other hand, almost 70% of hypertensive patients have been reported to be overweight, with more than 30% being obese. Lloyd-jones et al (2000) previous population-based studies suggest that the probability of insufficient blood pressure (BP) control in obese patients is about 50% higher than in hypertensive patients with normal weight.

Yet, little is known about the prevalence and control of hypertension in overweight and obese primary care attendees.

Another interesting finding in this study is that though many of the participants have family history of hypertension, diabetes and stroke, but many of them are never hypertensive. The possible reason could be because most of them take fruit and vegetable more than 2 times daily and more than three quarter of them reported that they never add much salt into a cooked meal. Nestle et al (1999) while the consumption of fruit and vegetables has been widely believed to promote good health, evidence related to their protective effect has only been presented in recent years.

Another reason could be that except for some very few, almost all of them have no history of smoking. Shinton et al (1989) studies have shown cigarette smoking to be an independent risk factor for stroke, after adjusting for age and hypertension, epidemiological evidence suggests that smoking is causal because risk increases for smokers versus nonsmokers independently of other risk factors, because a dose-response relationship exists, and be- cause risk decreases after smoking cessation. Healthy eating and avoiding smoking is one important way of preventing hypertension. This research has one limitation in this regard, because it does not consider the amount of exercise of physical activity they perform. Regular exercise is important in maintenance of normal body weight prevention of hypertension. Vasan et al (2002) Aerobic exercise plays an important role in BP control, and patients should be vigorously encouraged to exercise. Blood pressure drops of about 5–7 mmHg can be obtained with exercise which may reduce the need for medication. Exercise is a low cost option and also has other significant health benefits. For most hypertensive patients, exercise is quite safe but caution is required for those with identified cardiac risk factors. A clinical exercise physiologist can help educate these patients about their health condition and prescribe a program of suitable exercise.

Finally this study found that there was no significant gender difference in the history of hypertension, measured systolic blood pressure and diastolic blood pressures, Pobee et al (1993) Hypertension prevalence was slightly higher in males than in females up to the 35–44 year age group, after which there was a crossover, when it was slightly higher in females than in males. There was a positive correlation between BMI and BP in the overall sample.

CONCLUSION

It was concluded that no Physiotherapist in Kano is undiagnosed of HTN and that there is no gender difference in their BP, history of HTN and clinic visits.

RECOMMENDATION

Based on the findings of the study, the following recommendations are made:

1. Further research should be carried out with higher number of participants to include more females during data collection to overcome gender barriers due to refusal of female participant to take their body stature values, blood pressure and weight.

2. Further research should involve older participants as they may show a clear picture on cardiovascular diseases.

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