

# Prevalence and Associated Risk Factors of Hypertension among Adeleke University Lecturers, Ede, State of Osun, Nigeria

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## ABSTRACT

**Background:** Hypertension has become a global health importance being the fact that it is deadly especially when it is asymptomatic. The prevalence and risk factors of hypertension among lecturers has not been fully documented. This study was aimed to determine the prevalence and associated risk factors of hypertension among Adeleke University Lecturers Ede, Osun State.

**Method:** This was a cross-sectional study. Simple random sampling was used to select 104 lecturers who participated in the study. Blood pressure measurement was taken to determine the prevalence of hypertension among the participants, a structured interviewer administer questionnaire was used for data collection. Data was analysed Statistical Package for Social Sciences (SPSS) version 23, Statistical significance was set at  $p < 0.05$ .

**Results:** The prevalence of hypertension was 6.7%. Higher odds of being hypertensive were found in age (40-49 years) and overweight/obese. Factors that are significantly associated with hypertension are Body Mass Index ( $P = 0.002$ ), history of hypertension ( $P = 0.036$ ), walking per kilometre (exercise) ( $P = 0.012$ ), and adding of salt ( $P = 0.001$ ).

**Conclusion:** The prevalence of hypertension was lower among the studied participants. Compulsory routine and constant seminars or health education on lifestyle changes for prevention and proper control of hypertension should be of importance among lecturers.

**Keywords:** Prevalence, Hypertension, Risk factors, Lecturers

## INTRODUCTION

Hypertension is of global public health importance due to the fact that it can be deadly, especially when it is asymptomatic. The incidence of hypertension and cardiovascular mortality has been growing in sub-Saharan Africa over the past few decades (Ataklte *et al.*, 2015) and is expected to almost double by way of the year 2030 (Damasceno *et al.*, 2009). The

greater the BP, the more the likelihood of a cardiac attack, cardiac failure, stroke and renal illness (Ezekwesili *et al.*, 2016).

Hypertension is now a pandemic in West Africa with significant levels, not only in the urban populations, but also rural populations and marginalised groups (Abdu *et al.*, 2013). Hypertension prevalence is said to be on the rise, which affects a significant number of people in Nigeria. Adeloje *et al.*,

(2015) figured that there existed approximately 20.8 million cases of hypertension in Nigeria between the minimum age of 20 years, with a prevalence of 28.0% and it is expected to rise to 39.1 million cases with a prevalence of 30.8% by 2030. Hypertension holds a greater link and causal connection with five specific behaviors: tobacco smoking, excessive consumption of alcohol, physical inactiveness, unhealthful foods (high consumption of salt and inadequate consumption of fruits and vegetables) and obesity resulting from urbanization in developing nations (Vijver *et al.*, 2013).

Hypertension is Nigeria's most well-known non-communicable disorder and its problems account for about 25% of city clinic emergency clinical admissions in the country (Ajayi *et al.*, 2016). Base on evidence it shows that hypertension is a multifactorial condition influenced by many risk factors including genetic, sociodemographic, and behavioral factors (Adeniyi *et al.*, 2016).

The teaching profession is highly stressful occupation due to enhanced psychosocial stress at the work place, lecturers are under intense pressure of work with little time to care for their bodily needs. Also, there is scarcity of data on prevalence of hypertension and associated risk factors among the study population, hence the aim of the study was to determine the prevalence of hypertension and associated risk factors among Adeleke University lecturers. The findings of the study will assist in developing effective institutional based intervention for the prevention and control of hypertension.

## METHODOLOGY

The study was carried out at Adeleke University Ede, State of Osun, Nigeria. Adeleke University is a private university and a faith-based institution situated in Ede Osun State Nigeria. Adeleke University has been in existence since 2011.

The sample size was calculated using Cochran formula, because it allows for the

calculation of an ideal sample size and a total of 104 was used for the study.

Lecturers were selected for the study using simple random sampling. The list of lecturers available was collected from each faculty officers and the participants were selected randomly from the list provided for each department. The names were numbered and the odd numbers were selected as participants for the study.

The tool used for the research was structured interviewer administered questionnaire which comprises of two sections. Section A consist of socio-demographic variables and anthropometric measurements of the respondents and section B consists of the risk factors of hypertension.

Blood pressure was measured using automatic sphygmomanometer and the cuff was attached to the left arm of all the participants in a sitting position after allowing the participants rest for at least 5 minutes and their blood pressure was measured at two different intervals. The participants were said to be hypertensive if their systolic is  $\geq 140$  mmHg and/or the diastolic is  $\geq 90$ mmHg.

Weight in kilogram was determined using bathroom weighing scale and stadiometer was used to determine the height of respondents in meter. Body mass index (BMI) was calculated as

$$BMI = \frac{Weight (kg)}{Height (m^2)}$$

The questionnaires used were properly checked for completeness by the researcher and was later coded and entered into IBM SPSS version 20.0 software. Univariate analysis was carried out, descriptive statistics such as mean was used to summarize the data. Bivariate analysis such as Chi square test was used to identify the factors associated with hypertension. Also, multivariate analysis was used to determine the final confounding significant predictors of hypertension. Frequency tables were further used to present the results. The

significance level was set at  $p < 0.05$  for all statistical associations.

Ethical approval was obtained to carry out the research from Adeleke University Ethical Clearance Committee. Written Informed consent was obtained from the participants and assured confidentiality was given base on their responses and the opportunity to withdraw from the research was also permitted. Those with high blood pressure were informed verbally and also written down and they were later referred for further treatment and management.

## RESULTS

### Socio-demographic characteristics of the participants

Table 1: Socio-demographic characteristics of the participants.

Variables	Frequency (N =104)	Percentage (%)
<b>Sex:</b>		
Male	64	61.5
Female	40	38.5
<b>Age in years:</b>		
20-29	23	22.1
30-39	41	39.4
40-49	29	27.9
50 and above	11	10.6
<b>Mean age</b>	26	
<b>Level of Education:</b>		
BSc.	11	10.6
Masters	64	61.5
Doctorate	29	27.9
<b>Marital Status:</b>		
Single	10.6	21.2
Married	61.5	76.0
Divorced	2.9	2.9
<b>Religion:</b>		
Christian	92	88.5
Muslim	9	8.7
Others	3	2.9
<b>Monthly Income:</b>		
90,000-110,000	28	26.9
>120,000	76	73.1

A total number of 104 respondents took part in the study. The mean age of the respondents was 26 years with and (39.4%) seen to be in the 30-39 years age group. Majority of the respondents (61.5%) were males. Over 79(76.0%) were married while 64(61.5%) of the respondents had their

master's degree. Over 26(25.0%) and 26 (25.0) were lecturer I and II respectively. Majority of the respondents 92(88.5%) are Christian. (Table 1)

### Prevalence of hypertension among participants

From this study carried out, the overall prevalence of hypertension was 6.7% as presented in figure 1. The result indicated higher prevalence for male 61.5%, when compared to female: 38.5%. The mean Systolic Blood Pressure (SBP) and Diastolic Blood Pressure (DBP) of participants were 151.3mmHg and 92.8mmHg respectively.

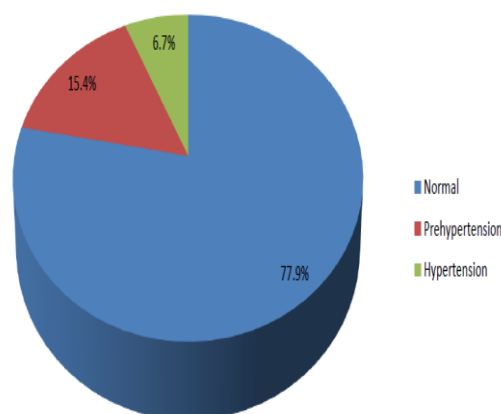


Figure 1: Prevalence of hypertension among respondents in Adeleke University.

### Prevalence of Hypertension

All	Frequency	Percentage (Prevalence)	Total
<b>Total</b>	<b>7</b>	<b>6.7%</b>	<b>104</b>

### Prevalence of Hypertension by Gender

Sex	Frequency	Percentage (Prevalence)	Total
Male	7	10.9%	64
Female	0	0	40
<b>Total</b>	<b>7</b>	<b>6.7%</b>	<b>104</b>

### Prevalence of Hypertension by Age-group

Age-group	Frequency	Percentage (Prevalence)	Total
20-29	0	0	23
30-39	6	14.6%	41
40-49	0	0	29
50 and above	1	9.1	11
<b>Total</b>	<b>7</b>	<b>6.7%</b>	<b>104</b>

## Prevalence of Hypertension by Relationship between risk factors and hypertension

Table 2: indicate a significant relationship between the risk factors and hypertension.

Variables	Total	Normal	Prehypertension	Hypertension	P-value
<b>BMI</b>					<b>0.002*</b>
Normal	68(65.4%)	59(56.7%)	4(3.8%)	5(4.8%)	
Overweight	35(33.7%)	22(21.2%)	11(10.6%)	2(1.9%)	
Obese	1(1.0%)	0(0.0%)	1(1.0%)	0(0.0%)	
<b>Ever been told you have high blood pressure?</b>					<b>&lt;0.001*</b>
Yes	18(17.3%)	1(1.0%)	11(10.6%)	6(5.8%)	
No	86(82.7%)	80(76.9%)	5(4.8%)	1(1.0%)	
<b>BP history in the family</b>					<b>0.036*</b>
Yes	21(20.2%)	15(14.4%)	2(1.9%)	4(3.8%)	
No	83(79.8%)	66(63.5%)	14(13.5)	3(2.9%)	
<b>Means of transportation?</b>					<b>0.785</b>
Walking	3(2.9%)	2(1.9%)	1(1.0%)	0(0.0%)	
Public transport	51(49.0%)	41(39.4%)	6(5.8%)	4(3.8%)	
Personal car	50(48.1%)	38(36.5%)	9(8.7%)	3(2.9%)	
<b>Walked kilometres per day (Average)</b>					<b>0.012*</b>
<1/2km	31(29.8%)	25(24.0%)	5(4.8%)	1(1.0%)	
1km	55(52.9%)	42(40.4%)	10(9.6%)	3(2.9%)	
1-3km	14(13.5%)	13(12.5%)	0(0.0%)	1(1.0%)	
3-5km	4(3.8%)	1(1.0%)	1(1.0%)	2(1.9%)	
<b>Other forms of sport?</b>					<b>0.540</b>
Yes	72(69.2%)	56(53.8%)	10(9.6%)	6(5.8%)	
No	32(30.8%)	25(24.0%)	6(5.8%)	1(1.0%)	
<b>Adding salt to food while eating.</b>					<b>&lt;0.001*</b>
Yes	6(5.8%)	2(1.9%)	1(1.0%)	3(2.9%)	
No	94(90.4%)	75(72.1%)	15(14.4%)	4(3.8%)	
Once in a while	4(3.8%)	4(3.8%)	0(0.0%)	0(0.0%)	

Note: \* means there is significant relationship

Table 3: Multivariate Analysis of the Risk Factors of Hypertension (Logistical Regression model)

Variables	Exp(B)	Significant	95%CI	
			Lower	Upper
<b>Age</b>				
20-29	Reference			
30-39	7.097	0.071	0.0846	59.540
40-49	9.900	0.037	1.150	85.237
>50	8.250	0.085	0.0786	91.259
<b>BMI</b>				
Normal	Reference			
Overweight	0.153	<0.001	1.581	1.581

## DISCUSSION

From the study, the overall prevalence of hypertension amongst the participants was 6.7%. The prevalence found in this study was much lower than the 21.3% reported in Port-Harcourt, South-South Nigeria (Ordinoha, 2013) but very close to the study conducted in among lecturers in Mbarara Uganda in which prevalence was found to be 7.7% (Amanyire et al., 2019). In contrast, a higher prevalence of 52% among lecturers in Dhaka, Bangladesh (Barua et al., 2018), and 44% at Hawassa University in Ethiopia (Esaiyas et al., 2018). The lower prevalence of hypertension found in this study may be due to the fact that the participants exhibited good health-seeking behavior and good lifestyle.

Based on the bivariate analysis, relationship between hypertension and the risk factors were found to be significant among the lecturers with regard to the age, BMI, history of hypertension, kilometers walked per day, and adding salt while eating. From the bivariate analysis, it was found that family history of hypertension was associated with hypertension. Many studies from different countries have shown that hypertension can be associated with family history (Ranasinghe et al., 2015). This result also correlates with the one of the study carried out by Miao et al., (2015) in which it was found that there is a positive association of family history with possible development of hypertension.

In this study significant relationship was also reported between the kilometers walked per day and hypertension. Walking is a form of exercise which has a great benefit in the reduction and prevention of hypertension. A study carried out by Simona et al., (2018) found significant reduction in systolic blood pressure (SBP) among large group of sedentary adults.

Adding salt to food while eating has been found to be significantly associated with

hypertension. Some studies have shown that long-term reduction of sodium in diet decreases blood pressure level in patients with either prehypertension or hypertension and also reduce the risk of cardiovascular diseases (Aburto *et al.*, 2013).

In this study, further analysis (multivariate analysis) was carried out to determine whether the likelihood of being hypertensive is influenced by the identified independent variables. The results indicated that only age and BMI were significant predictors of being hypertensive among the lecturers. Considering other independent variables, relationships (as in family history of hypertension) were found to be non-significant.

Based on the multivariate analysis, the age of respondents (40-49years) was significantly associated with hypertension in this study (OR: 9.900;95% CI= 1.150-85.237;p-value=0.037). This suggests that those who are between 40-49years were nine times more likely to be hypertensive. These findings can be compared with other studies that have found an increased age to be a risk factor for hypertension among school teachers (Barua *et al.*, 2018 and Esiayas *et al.*, 2018).

This study also shows that 34.7% of the participants were either overweight or obese (OR: 0.153;95% CI=1.581-11.005;p-value=<0.001) which was significantly associated with hypertension i.e those who are overweight/obese are more likely to be hypertensive This is much lower compared to 80% found in the Port-Harcourt study (Ordinoha, 2013) and the 46.5% recorded in Dhaka, Bangladesh (Barua, *et al.*, 2018). The prevalent overweight/obese among the lecturers in this study (based on their BMI) was due to the fact that 30.8% of the participants do not participate in other forms of physical activity. Although being overweight or obese has been established in so many studies to be a risk factor of developing hypertension and other non-communicable diseases. A study conducted by Farihaet *et al.*, (2019) reported that there

was significant association between overweight-obesity and hypertension.

## CONCLUSIONS

The prevalence of hypertension was 6.7% among the study participants, risk factors associated with hypertension are; age and BMI these are the two major risk factors that influence being hypertensive. Compulsory routine and constant screening of lecturers for hypertension should be carried out in the institution. This will allow for early detection, control, management and treatment of any lecturer found to be hypertensive. Also, seminar or health education should be carried out regularly in the institutions for better understanding of what hypertension is, the possible risk factors and measures that should be taken to manage and/or prevent it.

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**Ethical Approval:** Approved

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