

## Research Article

# Hypertension among 'Healthy' Health Workers at Aba, South-East Nigeria

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### Abstract

Hypertension is associated with significant morbidity and mortality. It is the main risk factor for other cardiovascular diseases. Paradoxically, a hypertensive person may not be aware of any obvious symptom of the disease. Most health workers are too busy to do regular checks on their health parameters and may be at high risk of complications of hypertension. The need, therefore, to screen this vulnerable group for hypertension cannot be overemphasized. To document the prevalence of hypertension among health workers at a tertiary health institution in Aba, Nigeria. This study was carried out during the 2019 World Kidney Day Celebration at the Abia State University Teaching Hospital, Aba. 'Healthy' Health workers had their biodata, weight, height, BMI and blood pressure measured. These data were recorded in a study proforma, cleaned and analyzed using SPSS 24. There were 139 participants. 95 were females, while 44 were males, giving a M: F ratio of 1: 2.2. The age range was 22 to 74 years with a mean age of 44.5±10yrs. Forty-eight people had HBP giving a prevalence rate of 34.5% for HBP among the health workers. Thirty-five of these hypertensives were females while 15 were males. There was a statistically significant association between hypertension and sex ( $X^2 = 1.4$ ,  $p = 0.000$ ). Although hypertension was highest among 50-59 years age group, followed by those in 40-

49 years age group, there was no significant association between hypertension and age. There was a statistically significant association between hypertension and BMI. ( $X^2 = 139.0$ ,  $p = 0.000$ ). The prevalence of hypertension among health workers was high. These were participants who never knew they were hypertensive. There is need for a high index of suspicion for hypertension among health workers. Again, health programmes intentionally formulated for the health welfare of the workers in our health institutions should be enforced.

**Keywords:** Body mass index; Cardiovascular diseases; Chronic kidney disease; Hypertension

### Introduction

The burden of Hypertension (HBP) and other non-communicable diseases is on the increase globally [1,2]. The estimated pooled prevalence of hypertension is about 30.8% in Africa [3] and 30.0%-31.1% in Sub-Saharan Africa [4, 5]. It is also responsible for more than half of first-time acute stroke in Africa [6]. The prevalence of hypertension is also high among the Nigerian population [2]. Non-communicable diseases, including HBP, have been projected to be a leading cause of morbidity and mortality in Nigeria by 2030 [7,8]. The recent global economic meltdown which is currently complicated by the ongoing covid-19 pandemic has worsened the prevalence of hypertension in society.

Hypertension is associated with significant morbidity and mortality. It is the main risk factor for other Cardiovascular Diseases (CVDs) [2]. CVDs are the leading cause of death globally with an estimated 17.5 million deaths yearly [1,9]. Hypertension is also a leading cause of Chronic Kidney Disease (CKD) worldwide. [10]. However, it is a preventable disease, as well as its complications. The symptoms of hypertension may vary in different individuals, and at times a hypertensive person may not be aware of any obvious symptom of the disease. That is why HBP is occasionally referred to as a 'silent killer'. Because HBP is usually asymptomatic, it can be undiagnosed in many people, who are also unaware of their condition. Measuring the blood pressure, therefore, is the only way to diagnose HBP in a patient. Hypertension is associated with increasing age [11]. This highlights the need for regular blood pressure checks for every adult. Unfortunately, the culture for regular health parameter checks by 'healthy adults' is lacking in developing nations, including Nigeria. The role of regular blood pressure checks in the prevention of complications of HBP cannot be over emphasized. Quite often, healthcare professionals also come down with complications of HBP. This is because they are too busy taking care of patients and they often forget to take care of their own health. A prevalence of 38% was documented for HBP among health care workers in Brazille [12]. Among health care workers in West Africa, the prevalence ranged from 17.5 to 37.5%. [13] In Nigeria, Sumaila et al [14] recorded 26.2% in Dutse, Jigawa state, while Owolabi et al found 20.1% in Delta state [15]. This study was therefore undertaken to document the prevalence of HBP among healthy healthcare professionals at the Abia State University Teaching Hospital (ABSUTH), Aba, Nigeria.

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## Methodology

This study was carried out on the 11 of March 2019 during the 2019 World Kidney Day (WKD) Celebration at the Abia State University Teaching Hospital, Aba. This Teaching Hospital is the only tertiary health institution located in the metropolis of Aba, Abia State, Nigeria. ABSUTH serves as a general/referral centre for patients resident in Aba metropolis, adjoining cities and communities in Abia state, including some parts of Akwa Ibom, Rivers and Imo states respectively. As part of the event marking the 2019 WKD celebration, the Renal Team of ABSUTH decided to do some health audit for the health worker in ABSUTH. The ABSUTH Renal team is made up of both the Adult Nephrologists and the Paediatric Nephrologists, together with all cadres of doctors and nurses working with them. One of the packages in the health audit was to check the blood pressure of all the "healthy" health workers in the hospital.

'Healthy' health worker was defined as any staff working in ABSUTH who is not suffering from any known chronic illness, and not a known hypertensive. All adult male and female health workers that presented themselves for the health audit exercise, and gave informed consent, were consecutively enrolled into the study. After documenting the biodata and the work department in ABSUTH for each health worker; their weights and heights were also measured using weighing scales and stadiometers respectively. The Body Mass Index (BMI) for each participant was calculated using the formula:  $BMI = \text{weight (kg)} / \text{height (m)}^2$ . Blood pressure measurement was performed with Mercury Sphygmomanometers, using an appropriate cuff size for arm circumference, weight, height, in a sitting position. Before the blood pressure measurement, the volunteers were at rest for 10 minutes, had not eaten, had not ingested drinks containing alcohol or caffeine and had not smoked for at least 30 minutes before the measurements. Additionally, the volunteers were asked to empty their bladders prior to the measurement. Only medical doctors were allowed to measure the blood pressure of the participants. The age, sex, weight, height, BMI and blood pressure measurements were recorded on the study proforma, after data cleaning. Hypertension (HBP) was defined as blood pressure  $\geq 140/90$  mmHg in line with the Seventh Report of the Joint National Committee on the Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC VII) [16].

A cut off blood pressure of  $\geq 140/90$  was considered as hypertension.

Exclusion Criteria:

1. Health workers under 18 years.
2. Adults who were already diagnosed with hypertension before 2019 WKD.
3. Those with chronic illness.
4. Adults that did not give their consent.

Ethical clearance was obtained from the Ethics Committee of ABSUTH, Aba; before commencing on the study. The data was analyzed using SPSS (Statistical Package for the Social Sciences) software, version 24.0. Frequency tables were generated for all major variables of interest. Categorical variables were presented as percentages, pie charts, while comparisons between such variables were done using the Pearson Chi Square test. Chi Square test was also used to test for significance of association between HBP and other variables like age, sex, and BMI. A confidence interval of 95% was used, and for all analyses, p-value  $< 0.05$  was taken as statistically significant.

## Results

There were 139 participants. 95 were females, while 44 were males (Table 1). This gave an M: F ratio of 1: 2.2. The age range was 22 to 74 years with a mean age of  $44.5 \pm 10$  yrs. Forty-eight people had HBP (Table 2) giving a prevalence rate of 34.5% for HBP among the health workers. Thirty-five of these hypertensives were females while 15 were males (Table 1).

		<140/90	$\geq 140/90$	Total
Sex	F	62	33	95
	M	29	15	44
Total		91	48	139

**Table 1:** Sex distribution of the study population.

Blood Pressure	Frequency (n)	Percent (%)
<140/90	91	65.5
$\geq 140/90$	48	34.5
Total	139	100.0

**Table 2:** The Prevalence of Hypertension (Bp  $\geq 140/90$ ) among the study population.

There was a statistically significant association between high BP and sex (Table 3).

	F	M	Total	X <sup>2</sup>	p
High BP $\geq 140/90$	33	15	48	1.4	0.000
%	66.8	31.2	100		

**Table 3:** Association between HBP and Sex.

Although HBP as highest among 50 – 59 years age group, followed by those in 40-49 years age group, there was no significant association between high BP and age (Table 4).

Age Group	<140/90	$\geq 140/90$	Total
18 - 29	8	3	11
30 - 39	25	7	32
40- 49	31	13	44
50-59	24	21	45
60 - 69	3	2	5
70 - 80	0	2	2
Total	91	48	139

**Table 4:** Association between HBP and Age P = 0.204.

There was a statistically significant association between high BP and BMI (Table 5). More than 50% percent (54.2%) of those with HBP are either overweight or obese.

## Discussion

There are wide variations in the Prevalence of adult HBP from different studies in the world, Nigeria inclusive. This is because of the various age ranges targeted in such studies because of the different cut-off marks used in defining hypertension. Our high prevalence of 34.5% is in consonance with the study from São Paulo, Brazil [12], where 38% of health workers who were unaware of their BP status

BMI	<18.5	18.5-24.9	25-29.9	>30	Total	X2	p
High BP ≥140/90	1	21	17	9	48	139.0	0.000
%	2.1	43.8	35.4	18.8	100		

**Table 5:** Association between HBP and BMI.

were found to be hypertensive. In a systematic review of publications on HBP among workers in West Africa, from 1980 to 2014, it was found that the prevalence of HBP ranged from 17.5 to 37.5% among health care workers in that study [13]. These studies buttress the fact that there is a high prevalence of HBP among health workers. In a similar study in Jigawa, Northwest Nigeria, a prevalence rate of 26.2% was documented [14]. This could be explained by variations in body mass index, socio-cultural factors, and environmental differences, all of which have been shown to significantly affect BP globally [17,18,19]. High prevalence of hypertension among health workers could be due to sedentary but busy lifestyle, self-negligence, and stress.

Generally, the trend of HBP has been on upward trend for decades now. Adeloye et al [3] observed that pooled prevalence of hypertension increased from 8.6% over the period 1970–1979 to 22.5% over the period 2000–2011 [20]. It will not be a surprise that rise in BP in the face of worsening global economy, may also affect health care workers [21]. That HBP is more prevalent in male, than females in this study concurs with similar findings across the globe [12,15,17-19, 22, 23]. This could be attributed to the societal socio-economic roles assigned to men in the home where they must provide most of the finances for family maintenance [21,22]. Again, risk taking behaviors like smoking and alcoholism which are more prevalent in male are associated with hypertension [15,21].

Although it has been shown that blood pressure readings increase with age [1,12,13,14], the peak of HBP in this index study is among the middle age group (50-59 years). Our study population is health workers, who are majorly middle-aged men and women. The Nigerian civil service retirement age is 60 years. Majority of the active workforce in most institutions in the country are therefore, the younger and middle-aged class, while older workers above 60 years are fewer. This is reflected in our study population age distribution. However, there was no significant association between age and HBP. BMI is significantly associated with HBP in this study. This agrees with previous work [12-14,24,25]. Sedentary lifestyle, poor social life, lack of exercises and inactivity predisposes health workers to overweight especially women. The need for health workers to check their blood pressure regularly amidst busy work schedule cannot be over-emphasized.

## Conclusion

The prevalence of hypertension among health workers was high. These were participants who never knew they were hypertensive. There is need for a high index of suspicion for hypertension among health workers. Again, health programmes intentionally formulated for the health welfare of the workers in our health institutions should be enforced.

## Limitation

This study was possibly limited by a couple of factors. First, we did not analyze the effect of the different work departments on blood

pressure, ie pattern of BP among the different departments of the hospital represented in the study population. A second limitation was that we did not analyze the effect of non-payment of salaries and rising insecurity in the country on blood pressure of health workers. These will be updated in future research.

## Funding

None

## Competing interest

Authors have nothing to declare.

## Author's contribution

1. N C conceived and designed the manuscript, helped in acquisition of data, analysis and interpretation of data, writing of the manuscript, and gave final approval of the version to be published.
2. C J A contributed to the design of the manuscript, interpretation of the analyzed data, writing of the manuscript, revision of the manuscript and gave final approval of the version to be published.
3. OUN contributed to the design of the manuscript, interpretation of the analyzed data, and revision of the manuscript and gave final approval of the version to be published.
4. MON contributed to the design of the manuscript, interpretation of the analyzed data, and revision of the manuscript and gave final approval of the version to be published.

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