

## Knowledge of Hypertension among the Civil Servants in Oyo State Secretariat, Ibadan, Nigeria

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### Abstract

Hypertension, a pervasive cardiovascular condition, remains a significant public health concern globally. There is strong evidence to suggest that hypertension and its associated complications are major health challenges of the 21st century. This is a disease that imposes on multi-systems. Failure to control hypertension leads to end up with unavoidable complications, including deaths. Understanding the knowledge base is crucial for developing targeted interventions to enhance awareness and promote preventive measures within this specific demographic group. This research paper aimed to evaluate the level of knowledge about hypertension among civil servants in Oyo State, Nigeria. The study utilized a mixed-methods approach, combining the use of clinic registers and interviews, to comprehensively assess hypertension awareness, risk factors, and preventive measures among civil servants. A total of 1124 participants visited the clinic from various Ministries /Departments/Agencies /Parastatals and sectional units within the Secretariat. This approach proved to be highly efficient in terms of time and resources, allowing for the rapid surveying of a large number of participants. However, level of education and knowledge of risk factors significantly influenced awareness of complications at 0.05 using SPSS. The findings of this research have contributed valuable insights for policymakers, and public healthcare professionals and facilitated the development of tailored strategies to mitigate the impact of hypertension within the State workforce. The majority of the respondents knew about hypertension but refused to control the hypertension. On-the-job screening and educative programmes are fundamental ways to improve knowledge about hypertension in the workplace.

**Keywords:** Awareness, Civil Servant, Complications, Gender, High Blood Pressure, Hypertension, Knowledge, Morbidity, Prevalence, Risk, Risk Factors.

### Introduction

Hypertension, commonly known as high blood pressure, is a prevailing health concern with far-reaching implications for individuals and public health systems worldwide. Hypertension or high blood pressure is a serious condition that affects adults and two-thirds of people over 65 years. Blood pressure is the force of blood as it pumps through your arteries. The more blood your heart pumps and the narrower your arteries are, the higher the blood pressure. Normal blood pressure is defined as an average systolic blood pressure of 120mmHg and an average diastolic pressure of

80mmHg. Systolic pressure measures the pressure in arteries when your heart beats. Diastolic pressure measures the pressure between beats.

Hypertension is defined as systolic blood pressure of  $\geq 130$ mmHg and diastolic  $\geq 80$ mmHg by [1]. Due to its symptomless presentation, it remains the most serious of all risk factors for cardiovascular diseases. It is the major cause of premature death globally due to its numerous comorbidities and eventual deleterious effects on vital organs such as the brain, heart and kidneys [2].

In Nigeria, the effective management of hypertension poses a significant challenge,

primarily due to a lack of adequate knowledge regarding its risk factors and associated complications. The consequences of this knowledge gap are profound, as it hampers the timely identification and management of hypertension, leading to an increased burden of preventable health complications. This publication aims to shed light on the critical issue of hypertension knowledge among civil servants in Oyo State, Nigeria. The civil service sector plays a pivotal role in the socioeconomic fabric of the region, and the health of its workforce is of paramount importance. Recognizing the dearth of awareness about hypertension and its ramifications, this study was undertaken to comprehensively assess the knowledge levels of civil servants regarding the risk factors and complications associated with hypertension.

The inadequacy in managing hypertension in Nigeria is, to a large extent, rooted in the lack of understanding about the various factors that contribute to its onset and the potential health complications that may arise if left unaddressed. As such, the primary objective of this research is to identify and analyze the existing gaps in knowledge among civil servants in Oyo State. By doing so, we aim to pave the way for the development of targeted educational interventions and public health messages that can enhance awareness and empower individuals to make informed decisions about their cardiovascular health.

While primary hypertension is deep-rooted in genetic, socioeconomic and environmental factors, secondary hypertension may be due to renal, endocrine and cardiovascular causes [3]. Although hypertension is asymptomatic, it is usually attributed to severe health problems such as congestive heart failure, cardiovascular disease, renal failure, stroke, cognitive decline, dementia and even death [4]; Increased risks of high blood pressure are connected with chronic job strain [5, 6]. In light of the aforementioned context, this study becomes not only pertinent but also imperative. Through a rigorous

examination of the knowledge levels among civil servants, we aspire to contribute valuable insights that can inform evidence-based strategies for improving hypertension awareness, prevention, and management in Oyo State. Ultimately, by addressing these knowledge gaps, we endeavour to foster a healthier and more informed civil service workforce, thereby making a meaningful impact on the overall health landscape of the region.

## **Methods**

### **Study Setting**

The research on the knowledge of hypertension among civil servants was conducted within the Oyo State Secretariat situated in Ibadan, the capital city of Oyo State, Nigeria. The Oyo State Secretariat serves as a hub for administrative activities, housing various government departments and offices. The civil servants employed in this setting represent a diverse workforce engaged in different sectors of public service within the state.

### **Data Collection Procedure**

In this investigation, the register was designed to collect data from any civil servant who visits the Secretariat Clinic during both the normal routine service and free health mission. The state government carries out quarterly free health missions across the State. The trained data designated officer was employed to gather data on the knowledge of civil servants in the Oyo State Secretariat on hypertension.

A total of 1124 participants visited the clinic from various Ministries /Departments/Agencies/Parastatals and sectional units within the Secretariat. This approach proved to be highly efficient in terms of time and resources, allowing for the rapid surveying of a large number of participants, a notable advantage over a longitudinal study [7]. The utilization of a clinic register offered participants the convenience of completing the

data collection at the office in the Secretariat, eliminating any potential interference from the researcher. This approach minimized social desirability and interview bias, ensuring that responses were reflective of genuine knowledge and perceptions. The data elements, spanning a page, were carefully crafted to delve into the staff's awareness of the risk factors and complications associated with high blood pressure. Additionally, it sought to establish attitudes and practices regarding hypertension. All civil servants who paid a visit to the facility were required to complete the standardized improvised register, which encompassed questions related to demographic variables, risk factors and complications of hypertension, and health habits. This methodological choice was particularly beneficial in reaching individual staff members who might have been challenging themselves to engage in further discussions. The register allowed for flexibility and accessibility, ensuring a more comprehensive representation of the diverse perspectives within the civil servant population. The collected data through this method were subsequently analyzed using both descriptive and inferential statistics. This comprehensive analytical approach aimed to uncover nuanced insights into the knowledge landscape of hypertension among civil servants in the Oyo State Secretariat.

### **Dependents Variables**

The dependent variable in the study is the measure of blood pressure. The patient's blood pressure readings may or may not be affected by the independent variable. It is something that depends on other factors. For Example, a blood pressure reading, or score could be a dependent variable because it could change depending on several factors such as how much sleep you got in the night before you took the rest, or even how hungry you were when you took it. Any civil servant who entered the clinic was screened for blood pressure reading (mm Hg) as well as asked for the risk factors that are

frequently used to detect hypertension among the civil servants in Secretariat.

### **Independent Variables**

The independent variable is the variable the experimenter manipulates or changes and is assumed to directly affect the dependent variable. They are essential to effective experimental design because they allow scientists to identify cause-and-effect relationships. In a controlled experiment, researchers work to minimize or eliminate the potential for external influences so they can make conclusions about how one variable influences another.

The independent variables of the study were:

Socio-demographic characteristics: sex, age, religion, educational status, and location address.

Risk factors: Alcohol consumption, smoking, physical activity, lifestyle and Obesity feeding practices.

Symptoms: Headache, body weakness, pain, blurry, coloured urine, dizziness, heart palpitation and shortness of breath.

### **Ethical Consideration**

This study reviewed adherence to the principles of medical and behavioural science ethics. It was guided by ethical considerations. In addition, institutional ethics approval was obtained from the Ministry of Health of Oyo State. This was in line with the position of the State government on research on health. However, the study obtained the oral consent of the people interviewed before their participation, and where necessary, prior notices were given.

### **Statistical Analysis**

The Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) version 16.0 Statistical software was used for data analysis. A descriptive cross-sectional design such as mean, frequency tables, charts and proportion, was used for data summarization. Inferential statistics was carried out using Chi-square and

binary logistic regression at  $P < 0.05$ . The Chi-square test was used to analyze the relationship between socio-demographic characteristics, risk factors, and hypertension. Variables that are significant on Chi-square and those not significant, but have a P value that was  $< 20\%$  ( $P < 0.2$ ), were selected for binary logistic regression test. Hypertension was defined as Systolic blood pressure (SBP)  $\geq 140$  and/or Diastolic blood pressure (DBP)  $\geq 90$ mm Hg or

currently on anti-hypertensive medication. Data were analyzed using descriptive statistics, Chi-square and binary logistic regression tests at  $P < 0.05$  which revealed the predictors of hypertension.

## Results

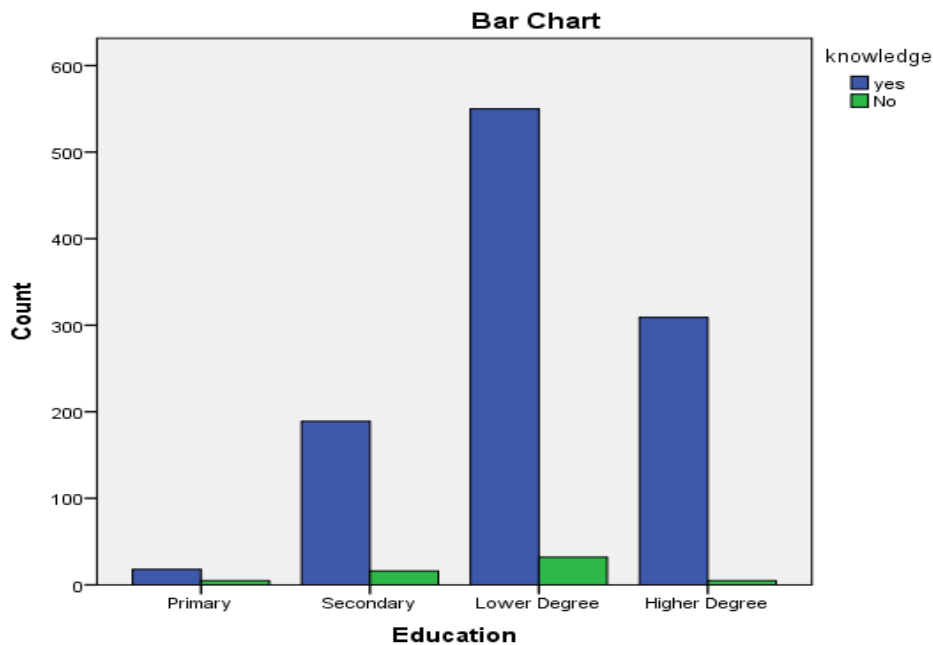
### The Socio-Demographic Characteristics of the Respondents

**Table 1.** Level of Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary	23	2.0	2.0	2.0
	Secondary	205	18.2	18.2	20.3
	Lower Degree	582	51.8	51.8	72.1
	Higher Degree	314	27.9	27.9	100.0
	Total	1124	100.0	100.0	

In terms of education, the sample consists mainly of tertiary-level educated participants. In all, just 23 (2.0%) participants had only primary education, 205 (18.2%) had secondary education, half of the participants (51.8%) had lower tertiary degrees, and the remaining 314 (27.9%) participants had higher tertiary degrees. In addition, 369 (32.8%) of the

samples were collected in 2021 and 755 (67.2%) of the samples were obtained in 2022. The respondent's level of education was statistically significant with hypertension ( $\chi^2 = 24.46$ ;  $df = 12$ ;  $p < 0.05$ ). Respondents with secondary education had the highest prevalence 95.6% (47.3% - Stage 1, 31.7% - Stage 2, and 16.6% - Hypertensive Crisis).



**Figure 1.** Level of Education of Respondents and Knowledge on Hypertension

**Table 2.** Age Group of Respondents and Knowledge of Hypertension

		Knowledge on hypertension		Total
		Yes	No	
Age	20-30	38	2	40
	31-40	150	5	155
	41-50	307	15	322
	51-60	503	28	531
	61-70	45	6	51
	71-80	14	2	16
	81 and Above	9	0	9
Total		1066	58	1124

Table 2 showed that most (47.2%) of the participants were within the age range of 51 and 60, 40 (3.6%) participants were between 20 and 30 years old, 155 (13.8%) participants were between 31 and 40 years, 322 (28.6) participants were between the age range of 41 and 50, 51 (4.5%) were between the age range

of 61 and 70, 16 (1.4%) were between 71 and 80 years old, while the remaining 9 (0.8%) participants were above 81 years of age. In total, 94.8% (1066) of respondents knew hypertension while 5.2% (58) did not know hypertension.

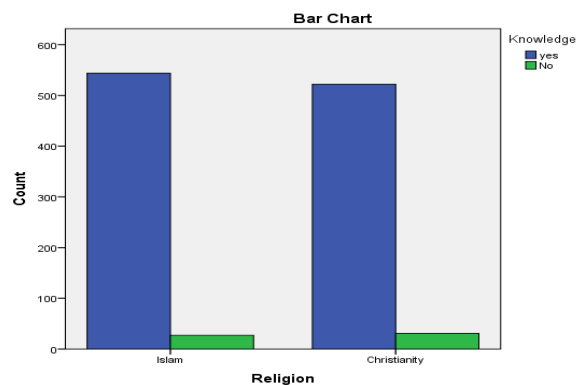
**Table 3.** Religion of Respondents and Knowledge of Hypertension

		Knowledge on hypertension		Total
		Yes	No	
Religion	Islam	544	27	571
	Christianity	522	31	553
Total		1066	58	1124

The above showed that participants were almost perfectly distributed according to religion, there were 571 (50.8%) Muslim

respondents and 553 (49.2%) Christians. 95% of respondents who practice Islam religion knew about hypertension while 5% did not

know. 98% of respondents who practice the Christian religion knew hypertension while 2% do not know about hypertension.



**Figure 2.** Religion of Respondents and Knowledge of Hypertension

### Awareness of the Risk Factors in Hypertension

The respondents have more knowledge of the risk factors attributed to hypertension but has no relative impact among civil servants. With this risk factors knowledge, the prevalence of hypertension was still very high. Table 4 shows a chi-square analysis summary of the association between reported risk factors and hypertension readings of participants. Most of the study participants 681 (60.6%) reported

no risk factors, 155 (13.8%) reported that they were stressed/fatigued, 99 (8.8%) reported having pain/infection, 60 (5.3%) participants reported that they were not very physically active, 56 (5.0%) participants were overweight/obese, 42 (3.7%) participants reported high salt intake and lastly, 31 (2.8%) reported that they drink/smoke. Prevalence of hypertension was highest among obese participants at 96.4% (17.9% - Stage 1, 48.2% - Stage 2, and 30.4% - Hypertensive

**Table 4.** Table Showing Risk Factors and Knowledge in Hypertension

		Knowledge in hypertension		Total
		Yes	No	
Risk Factors	None	642	39	681
	Overweight/Obese	54	2	56
	High Salt Intake/Dietary	37	3	40
	Not Physically Active/Sleepiness	58	2	60
	Alcohol/Smoking	30	1	31
	Eye Problem	7	0	7
	Stress/Fatigue	149	6	155
	Pain/Inflammation/Infection	86	5	91
	Abnormal Cholesterol	2	0	2
Difficulty in Breathing/Palpitation/Chest Pain	1	0	1	
Total		1066	58	1124

<b>Chi-Square Tests</b>			
	<b>Value</b>	<b>Df</b>	<b>Asymptotic Significance (2-sided)</b>
Pearson Chi-Square	2.921 <sup>a</sup>	9	.967
Likelihood Ratio	3.540	9	.939
Linear-by-Linear Association	.809	1	.369
N of Valid Cases	1124		

a. 10 cells (50.0%) have expected count less than 5. The minimum expected count is .05.

Respondents who consume alcohol/smoke had the next highest prevalence at 93.5% (19.4% - Stage 1, 38.7% - Stage 2, and 35.5% - Hypertensive Crisis). Presence of pain/infection categorizes the group with the third highest prevalence at 89% (30.3% - Stage 1, 38.3% - Stage 2, and 20.2% - Hypertensive Crisis). Next were respondents that go through great amount of stress/fatigue at 85.1% (28.4% - Stage 1, 37.4% - Stage 2, and 19.4% - Hypertensive Crisis). Being physically inactive and high intake of salt led to the lowest prevalence among the participants at 85% (36.7% - Stage 1, 31.7% - Stage 2, 16.7% - Hypertensive Crisis) and 83.4% (23.8% - Stage 1, 40.5% - Stage 2, 19.0% - Hypertensive Crisis) respectively. Chi-square analysis revealed that the presence of risk factors was significantly associated with hypertension ( $\chi^2 = 162.25$ ;  $df = 24$ ;  $p < 0.01$ ).

### **Awareness on the Knowledge in Hypertension**

The figure showed that 25 participants which represents 2.2% of the study participants had blood pressures in the normal range (less than 120mmHg and less than 80mmHg), 79 participants which represents 7.0% of the study participants had blood pressures in the prehypertensive range (120-139mmHg/80-89mmHg), 536 participants which represents 47.7% of the study participants had blood pressures in the Stage 1 hypertensive range (140-159mmHg/90-99mmHg), 337 participants which represents 30.0% of the study participants were in the Stage 2 hypertensive range (160-179mmHg/100-109 mmHg), and the remaining 147 participants which represents 13.1% of the study participants were in the hypertensive crisis range (180mmHg and higher/110mmHg and higher).

**Table 5.** Reading on HTN and Knowledge on Hypertension

		<b>Knowledge on hypertension</b>		<b>Total</b>
		<b>Yes</b>	<b>No</b>	
Reading on HTN	Less than 120 and less than 80 (Normal)	25	0	25
	120-139 or 80-89 (Prehypertension)	74	5	79
	140-159 or 90-99 (HBP Stage 1)	508	28	536
	160-179 or 100-109 (HBP Stage 2)	319	18	337
	180 and higher or 110 and higher (Hypertensive Crisis)	140	7	147
<b>Total</b>		<b>1066</b>	<b>58</b>	<b>1124</b>

<b>Chi-Square Tests</b>			
	<b>Value</b>	<b>Df</b>	<b>Asymptotic Significance (2-sided)</b>
Pearson Chi-Square	1.655 <sup>a</sup>	4	.799
Likelihood Ratio	2.931	4	.569
Linear-by-Linear Association	.028	1	.867
N of Valid Cases	1124		
a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.29.			

## Discussion

The study delved into the awareness of hypertension among civil servants in the Oyo State Secretariat, Ibadan. The findings revealed that 35% acknowledged smoking as a risk factor for hypertension, with 38% agreeing but not strongly. Similarly, a comparable percentage believed that excessive alcohol intake could contribute to elevated blood pressure. Only 28% considered hypertension to be hereditary. Additionally, 32% strongly believed that elderly individuals were prone to hypertension due to age, with 41% agreeing, albeit not strongly. Despite the study being conducted in a government office setting, there was a noticeable lack of awareness about hypertension risk factors, echoing previous studies indicating insufficient knowledge in various populations [8-12].

Within the civil servant population, hypertension was perceived as a serious health concern. Approximately 84% expressed concern about stroke as a potential complication, while around 80% strongly agreed that hypertension could lead to a heart attack and, ultimately, death. These perceptions contrasted with findings in New Delhi [11] where some participants were aware but did not believe that hypertension led to complications, potentially influenced by socioeconomic factors.

A study in New Delhi by [11] revealed inadequate awareness of hypertension and its consequences among migrants. In Nigeria, [12] identified a poor perception of hypertension and lifestyle modification measures but noted

enthusiasm for adopting preventive measures. Previous research [13] has established a positive relationship between socioeconomic status and hypertension knowledge.

The study suggested that education positively impacts knowledge about hypertension risk factors and complications [14]. However, [15] cautioned that awareness does not necessarily indicate a comprehensive understanding of the condition. The study proposed educational programs within the Oyo State Secretariat to enhance positive health behaviours, aligning with initiatives such as the National High Blood Pressure Education Program in the USA. Research indicates that over 75% of Americans are aware of the link between hypertension, strokes, and heart disease [16]. In the meantime, one of the cornerstones to achieving positive health behavior towards hypertension is through public education. This calls for compulsory on-the-job screening and educative programmes in the form of seminars and conferences for all categories of staff. Other studies [1, 17, 18] emphasize the positive relationship between education and hypertension knowledge. Ref. [19] found that educational materials positively impacted knowledge about hypertension.

## Conclusion

In conclusion, among civil servants in the Oyo State Secretariat, there is a full knowledge about hypertension complications, but they didn't believe awareness of risk factors and attitudes toward hypertension are lacking. Ref. [20] concluded that the majority of the respondents had a fair knowledge about



complications of hypertension. However, knowledge about the risk factors and attitude toward hypertension was poor which brought to a high rate of hypertension. Further qualitative research may be needed to explore the underlying reasons for negative health behaviours specifically within this population. Public education, through on-the-job screenings and targeted educational programs is crucial for fostering positive health behavior, motivation, and productivity in the government office setting. Relevant departments within the state secretariat should collaborate to address this imperative high prevalence among civil servants.

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## Conflicts of Interest

The authors declare no conflict of interest.

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