

## Behavioral Skills and Hypertension Prevention Practices among Teachers in Selected Secondary Schools in Sagamu Local Government Area, Ogun State, Nigeria

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### Abstract

The development of chronic illness such as hypertension among individuals in occupations such as teaching has been associated with a high level of stress and sedentary behaviours. This study, therefore, evaluated the behavioural skills and hypertension prevention practices among secondary school teachers in Sagamu Local Government Area of Ogun State, Nigeria. This study adopted a cross-sectional design. A Multi-stage sampling technique was used to select 418 respondents for the study. A validated semi-structured questionnaire was used for data collection. Data collected were analysed using descriptive and inferential statistics at  $\leq 0.05$  level of significance. The mean age of the respondents was  $42.61 \pm 7.79$  years. More than half, 250 (59.8%) of the respondents were females, with the majority 375 (89.7%) being married. A greater proportion 313 (74.9%) of the respondents had Bachelor's degree (B.Sc). While about quarter 105 (25.1%) of them had worked for a period of 6-10 years. Most 299 (71.5%) of the respondents had high behavioral skills towards hypertension prevention. Less than half 192 (45.9%) of the respondents had high prevention practice. Behavioral skills significantly contributed to the prevention practices (Odds ratio= 1.12; CL= 1.05- 1.20;  $p = 0.001$ ). The study revealed that the teachers had high behavioural skills and low hypertension prevention. It is recommended that the state ministry of education through the state ministry of health should conduct a health education program to improve the hypertension prevention practices of teachers.

**Keywords:** Behavioural skills, Hypertension prevention, Teachers, Sagamu.

### Introduction

The global burden of hypertension has been growing over time, largely driven by population growth, changes in lifestyle, and ageing. The number of adults with raised blood pressure (defined as Systolic Blood Pressure (SBP) of 140 mm Hg or higher or diastolic blood pressure (DBP) of 90 mm Hg or higher) increased from 594 million in 1975 to 1.13 billion in 2015, with the increase largely in low- and middle-income countries [1]. Approximately 75% of people with hypertension (1.04 billion) live in low- and middle-income countries [2]. Globally,

Hypertension or High Blood Pressure led to 7.5million deaths, about 12.8% of all death cases recorded [3]. The prevalence of hypertension is highest in the African region, with about 46% of adults aged 25 years and older being hypertensive, compared to 35% in the Americas and other high-income countries and 40% elsewhere in the world [4]. The incidence of hypertension and cardiovascular mortality has been increasing in sub-Saharan Africa over the past few decades [5] and is expected to nearly double by the year 2030 [6].

It was estimated that there were about 20.8 million cases of hypertension in Nigeria among

people aged at least 20 years, with a prevalence of 28.0% and a projected increase to 39.1 million cases with a prevalence of 30.8% by 2030 [7]. A review with wider coverage (1968 -2015) found the overall crude prevalence of hypertension to range from 2.1 to 47.2% in adults and from 0.1 to 17.5% in children depending on the study site, target population, type of measurement, and cut-off value used for defining hypertension [5]. In Southwestern Nigeria, the prevalence of hypertension was estimated to be 55.5% among semi-urban residents [8].

Hypertension is a disease that begins slowly, and someone might have hypertension without manifesting the symptoms, and that is why it is referred to as the “silent killer”. Aside from being a silent killer, hypertension can result into complications, and it is a major risk factor for the development of cardiovascular diseases [9]. However, hypertension is preventable and can be controlled. Prevention of hypertension is effective if its awareness and knowledge of its risk factors are increased, and this could lead to the prevention of its complications. Its management can also lead to a reduced incidence of preventable complications such as stroke, coronary heart disease, and heart failure [10]. The development of chronic illness such as hypertension among individuals in occupations such as teaching has been associated with the high level of stress and sedentary behaviours [11].

It has been observed that some of the teachers only go to classes when they have teaching periods with the students only and spend the rest of the school hours sitting in the office, thus contributing to non-adequate physical activity, and physical inactivity is one of the risk factors for hypertension. Fasoro reported that 100% awareness of hypertension among teachers in Ekiti state South-western Nigeria, did not automatically translate to adequate prevention of hypertension [11].

Behavioural skills are skills required for performing a given health behaviour. An individual may have a good knowledge and

perception which in turn motivate the individual to perform a recommended healthy behaviour; but the individual may lack the skills to perform the recommended behaviour(s). Fisher et al., while explaining behavioural skills as one of the constructs of Information Motivation Behavioural-Skills Model posited that enhancing an individual’s objective skills and increasing self-efficacy can facilitate behavioural change [12]. Since having the skills to perform behaviour is related to the actual practice of the behaviour, possessing behavioural skills can be used to predict the actual practice of the behaviour.

Though studies related to teachers’ knowledge, attitude, perception on hypertension has been conducted [13, 14], others focused on prevalence, determinants, and risk factors of hypertension among traders [15, 16]. However, the behavioural skills and practices relating to hypertension prevention have not been adequately explored in Ogun State. When an individual has adequate knowledge and good perception of a disease, but lacks behavioural skills required for health behaviour, then practice of such a behaviour would appear difficult. Therefore, this study assessed the behavioural skills and hypertension prevention practices among teachers in selected secondary schools in Sagamu Local Government Area of Ogun State, Nigeria.

## **Material and Methods**

This study adopted a descriptive cross-sectional design conducted among 16 secondary schools in Sagamu Local Government Area, where the Yoruba people are the ethnic majority. Sagamu is one of the major towns in Ogun state, home to over 250,000 residents, as at the last population census and projected to have a population of over 355,900 by 2021. The participants included secondary school’s teachers in both public and private schools. The sample size of 380 was determined using Lesile Kish formula, assuming a confidence level of 95%, 5% absolute precision, and prevalence of

55.5% from a previous study [8]. However, to allow for non-responders, the total sample size used was 418.

A multistage sampling technique was used in the selection of the study participants. The first stage involved the random selection of 5 public and 11 private secondary schools. The second stage involved the proportionate allocation of the sample size according to the estimated density of the 16 schools. Remo secondary school being the school with the highest density, was allocated with 12.7%, Remo divisional high school 10.5%, Muslim high school 7.6%, Kawefunmi School 7.4%, Christ the Redeemer college 7.3%, Methodist comprehensive college 7.2%, Ofin high school 7.0%, Great scholar international school 6.4%, Pride of faith academy 5.0%, Makun high school 5.5%, Topmost college 4.5%, Solid rock girls academy 4.4%, Thames valley college 4.0%, Regal College 3.6%, Remo Methodist high school 3.6%, and Oak Height College 3.2%. The third stage involved the random selection of teachers in the selected schools.

A validated questionnaire was used to collect information on socio-demographic characteristics of the teachers, their behavioural skills, and hypertension prevention practices. The respondents' behavioral skills towards hypertension prevention were assessed on a 15-point rating scale. Various questions bothering on respondents' confidence in keeping routine appointments, engaging in various physical activities, quitting certain behaviors, among other questions, were asked. Behavioural skills were graded into good, fair, and poor based on assigned scores; good being (11-15), fair (6-10), and poor (0-5). Also, the respondents'

hypertension prevention practices were assessed on a 24-point rating scale. Various statements bothering on routine blood pressure check-ups, involvement in physical activities, food preferences amongst others, were asked to know respondents' lifestyle practices towards hypertension prevention. Hypertension prevention practices were graded into good, fair, and poor based on assigned scores; good being (17-24), fair (9-16), and poor (0-8).

Data obtained were entered and analyzed using IBM SPSS for Windows Version 23 (IBM Corp, Armonk, NY, USA). Data were presented in tables. Categorical variables were summarized using frequency and percentages. Continuous variables were summarized using means and standard deviations. Binary logistics was used to determine the association between participants' behavioural skills and hypertension prevention practices. A p-value less than 0.05 were considered as statistically significance.

## **Results**

### **Socio-demographic Characteristics of the Respondents**

The mean age of the respondents was  $42.61 \pm 7.79$  years, and less than half 198 (47.4%) of the respondents were between the age range of 40- 49 years. More than half 250 (59.8%) of the respondents were females, with the majority 375 (89.7%) being married. The majority, 311 (74.4%) of the respondents, were of Christians. A greater proportion, 313 (74.9%) of the respondents, had a Bachelor's degree (B.Sc). About a quarter 105 (25.1%) of the respondents had worked for a period of 6-10 years. (See Table 1).

**Table 1.** Socio-Demographic Characteristics of the Respondents

Socio-demographic variable for consideration	Respondents in this study, N = 418	
	Frequency (n)	Percentage (%)
<b>Age in (years) Mean age <math>\pm</math>SD 42.61<math>\pm</math>7.79</b>		
20-29	24	5.7
30-39	105	25.1
40-49	198	47.4
50-59	91	21.8
<b>Gender</b>		
Male	168	40.2
Female	250	59.8
<b>Marital status</b>		
Married	375	89.7
Single	33	7.9
Widowed	6	1.4
Divorced	4	1
<b>Academic qualification</b>		
NCE	59	14.1
BSc	313	74.9
Postgraduate	46	11
<b>Work experience</b>		
1-5years	53	12.7
6-10years	105	25.1
11-15years	95	22.7
16-20years	99	23.7
20 years and above	66	15.8
<b>Religion</b>		
Christianity	311	74.4
Islam	93	22.2
Others	14	3.3

### Respondents' Behavioral Skills towards Hypertension Prevention

Among the respondents (4.1%) were confident in keeping routine appointments for blood pressure monitoring. A small proportion, 33 (7.9%), of the respondents, were confident of quitting or reducing smoking tobacco to prevent

hypertension, while another 7.9% of the respondents were confident of limiting their alcohol consumption to 1 drink per day for women and 2 drinks per day for men. About 5.3% of the respondents were confident that they could maintain a healthy diet that is low in fat, cholesterol, salt, and high in fruits & vegetables. (See Table 2).

**Table 2.** Respondents' Behavioral Skills towards Hypertension Prevention

Behavioural skills variable for consideration	Respondents in this study, N = 418			
	100% confident	Fairly confident	Barely confident	Not at all
I am confident I can keep to a routine appointment for blood pressure monitoring.	17 (4.1)	153 (36.6)	231 (55.3)	17 (4.1)
I am confident I can engage in 30-60 minutes physical activity most days of the week	51 (12.2)	136 (32.5)	218 (52.2)	13 (3.1)
I am confident I can quit or reduce smoking tobacco to prevent hypertension	33 (7.9)	66 (15.8)	283 (67.7)	36 (8.6)
I am confident I can limit alcohol consumption to 1 drink per day (for women) and 2 drinks per day (for men)	33 (7.9)	70 (16.7)	247 (59.1)	68 (16.3)
I am confident I can maintain a healthy diet that is low in fat, low in cholesterol, low in salt and high in fruits and vegetables	22 (5.3)	106 (25.4)	273 (65.3)	17 (4.1)

Furthermore, respondents' behavioral skills mean score was  $11.90 \pm 3.07$ . This was categorized into low (0-5), moderate (6-10), and high (11-15). The majority of the respondents, 299 (71.5%), had high behavioral skills towards hypertension prevention while about a quarter

105 (25.1%) of them had moderate behavioral skills towards hypertension, and only a few 14 (3.3%) of the respondents had low behavioral skills toward hypertension prevention. (See Table 3).

**Table 3.** Categorization of Respondents Behavioral Skills on Hypertension Prevention

Respondents Category	Mean $\pm$ SD	Frequency (n)	Percent (%)
Low (0-5)	11.90 $\pm$ 3.07	14	3.3
Moderate (6-10)		105	25.1
High (11-15)		299	71.5
<b>Total</b>		<b>418</b>	<b>100</b>

### Respondents' Hypertension Prevention Practices

Few 62 (14.8%) of the respondents always performed routine blood pressure check-ups. A small proportion of 32 (7.7%) of the respondents always performed 30-60 minutes of physical activity most days of the week. A little above a quarter 119 (28.5%) of the respondents had never eaten fats from chicken, beef, pork or from any other type of meat. Less than half 101 (24.2%) of the respondents always avoided or

reduced tobacco smoking to prevent hypertension. Less than half 114 (27.3%) of the respondents consumed alcohol with 1 drink per day for women and 2 drinks per day for men. Few 72 (17.2%) of the respondents had never added salt in their food once it is served. A small proportion 44(10.5%) of the respondents always consumed a diet containing adequate fruits and vegetables daily. Few 49 (11.7%) of the respondents always maintained a diet that is low in fat, cholesterol, and salt (See Table 4).

**Table 4.** Respondents' Hypertension Prevention Practices

Prevention practices variable for consideration	Respondents in this study, N = 418			
	*NA (%)	**R (%)	+O (%)	++A (%)
I perform routine blood pressure check-up	92 (22.0)	179 (42.8)	85 (20.3)	62 (14.8)
I perform 30-60 minutes physical activity most days of the week (For example, walking, running, swimming, housework, yard work, weight training, dancing, cycling etc)	90 (21.5)	123 (29.4)	173 (41.4)	32 (7.7)
I do not eat fats of chicken, beef, pork, or fats from any other meat	119 (28.5)	116 (27.8)	92 (22.0)	91 (21.8)
I avoid or reduce tobacco smoking to prevent hypertension	56 (13.4)	51 (12.2)	210 (50.2)	101 (24.2)
I limit alcohol consumption to 1 drink per day (for women) or 2 drinks per day (for men)	48 (11.5)	61 (14.6)	195 (46.7)	114 (27.3)
I add salt to my food once it is in my plate	55 (13.2)	72 (17.2)	269 (64.4)	22 (5.3)
Daily, I consume a diet that contains adequate fruits and vegetables	78 (18.7)	146 (34.9)	150 (35.9)	44 (10.5)
I maintain a diet that is low in fat, low in cholesterol and low in salt	72 (17.2)	108 (25.8)	189 (45.2)	49 (11.7)

\*NA= Never, \*\*R= Rarely, +O= Occasionally, ++A= Always

Furthermore, respondents' mean prevention practices score and standard deviation was 15.34±4.95. This was categorized into low (0-8), moderate (9-16), and high (17-24). Less than half 192 (45.9%) of the respondents had high prevention practices while one hundred and

eighty-four (44.0%) of the respondents had moderate hypertension prevention practices, and only a few 42 (10.0%) of the respondents had low hypertension prevention practices (See table 5).

**Table 5.** Categorization of Respondents Level of Prevention Practices

Respondents' prevention practice category Mean ±SD 15.34±4.95	Frequency (n)	Percent (%)
Low (0-8)	42	10
Medium (9-16)	184	44
High (17-24)	192	45.9
<b>Total</b>	<b>418</b>	<b>100</b>

### Association between Behavioral skill and Hypertension Prevention Practices

Binary logistic regression was used to examine whether behavioral skills were associated with the likelihood of engaging in preventive practices towards hypertension. As

shown in the Table 6 below, behavioral significantly contributed to the prevention practices (Odds ratio= 1.12; CL= 1.05- 1.20;  $p = 0.001$ ). The behavioral skills odds ratio of 1.125 suggests that for every increase in behavioral skills, respondents were 1.125 times more likely to engage in preventive practices.

**Table 6.** Logistic Regression Predicting the Likelihood of Preventive Practices of Hypertension

	B	S. E	Wald	Df	Sig	Exp (B)	95% C.I. for Exp (B)	
							Lower	Upper
Behavioural Skills	0.118	0.035	11.475	1	0.001	1.125	1.051	1.204
Constant	-0.441	0.414	1.132	1	0.287	0.643		

## Discussion

This study assessed the behavioural skills and hypertension prevention practices among teachers in selected secondary schools in Sagamu Local Government Area of Ogun State, Nigeria.

The respondents were between the ages of 20 and 59 years and had a mean age and standard deviation of  $42.61 \pm 7.79$  years. This finding is like the result of [17]., in Chennai city of India, and the age group corresponds to the study of [18] in Uganda. The similarity may be because this is the age of productivity.

The current study revealed a higher proportion of female to male ratio, which is like the findings of [13] in Ekiti State but was different from the result of [18] in Uganda. The difference observed in the gender distribution might be due to different study locations. Most of the respondents had a first degree (BSc), in line with the reports of [13, 19]. Contrary to this report on educational status was the study of [20]., in Iran, where they reported that only 15.7% of their population had the first-degree BSc. The difference may also be as a result of different study location.

The current study showed that the respondents had high behavioral skills. This might be due to the fact that most of the respondents were knowledgeable about hypertension. The result reported in this current study, sharply contrasted with the result of [21] in India. The findings of this study suggest that teachers in Sagamu LGA can confidently keep routine appointments for blood pressure monitoring. Also, lifestyle changes such as diet modification and exercising have been highlighted as some of the skills the teachers can

adopt to prevent or manage hypertension. Fisher & Fisher explained that behavioral skills are the necessary skills to facilitate behaviour change [12]. Though the level of behavioral skills was high among the teachers in this study area, the observation may not translate to a high practice level based on the relationship behavioural skills have been reported to have on the actual behavior change. The skills will be influenced by the teachers' knowledge and perception towards hypertension. The finding of this study highlights the statistical relationship between the behavioral and prevention practices. The behavioral skills odds ratio of 1.125 suggests that for every increase in behavioral skills, respondents were 1.125 times more likely to engage in preventive practices.

There are reportedly strong relationships between behavioural lifestyle factors such as unhealthy diets, physical inactivity, excessive weight gains, and the risk of developing hypertension.

A large proportion of risk factors associated with hypertension are preventable. As far as the preventive practices are concerned, about two-thirds of the teachers in this study reported that they performed routine blood pressure checkups. This rate was higher than the rate reported by [22] in rural South-western Nigeria. This disparity could be due to the nature of respondents. [22] conducted the study among rural dwellers while this study was conducted among teachers who constitute part of the community elites. Only a few of the teachers reported adding salt to their meals after cooking had been done. Regarding the consumption of foods low in fats, vegetables, and fruits, the proportion was high but can be improved. This indicates that more education regarding the

impact of nutrition needs to be conducted, especially among the at-risk groups such as teachers. Poor prevention practices may lead to high risks of hypertension as well as a higher chance of other terminal health conditions among teachers. This may adversely affect their productivity and impair their ability to live a normal life as well as deliver a proper education in school.

## Conclusion

The results of this study, therefore, indicate an urgent need for comprehensive health education for teachers, as they indirectly predispose to hypertension due to their behavioral skills. In Nigeria, teachers represent a large part of the workforce, and there has become a need to develop strategies that improve their healthcare options. Awareness should be raised about the harmful effects of an unhealthy diet, physical inactivity, and excessive salt consumption

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among adults in Nigeria. Therefore, the establishment of a system for the early detection of hypertension, along with the promotion of lifestyle intervention programs that focus on a healthy diet and regular physical activity that helps reduce the overall complications associated with hypertension.

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## Competing Interests

The authors declare that they have no competing interests.

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