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Full Length Research Paper

Prevalence of Hypertension among Commercial Bus Drivers in Sokoto, Sokoto State Nigeria

Erhiano, E.E[1*]; Igbokwe, V.U[1]; El-Khashab, M.M[2]; Okolo, R.U[3]; and Awosan, K.J[4]

[1]Department of Physiology, Usmanu Danfodiyo University, Sokoto, Nigeria.
[2]Department of Physiology, Bayero University, Kano, Nigeria.
[3]Department of Human Anatomy, Usmanu Danfodiyo University, Sokoto, Nigeria.
[4]Department of Community Medicine, Usmanu Danfodiyo University, Sokoto, Nigeria.

Abstract

Drivers are a group of mentally stressed professionals whose nature of work makes it a risky group in developing hypertension and the impact on them affects not only them but the society at large. Scanty studies on drivers in our environment prompted this work. Our objective was to study the prevalence of hypertension and its risk factors on commercial bus drivers. A cross sectional descriptive study was conducted on 218 commercial bus drivers selected by simple sampling technic between April and July 2013. A proforma was used to collect data on the driver's socio-demographic characteristics, anthropometric measurement and Blood pressure taken. The prevalence of hypertension was 33.5% and is associated with BMI greater than 25kg/m^2 and age greater than 40 years compared to non- drivers working in the same garage with a prevalence of 22.1%. The level of awareness of hypertension is low among the drivers, 21(28.8%) of the hypertensive drivers know they were hypertensive and 12(57.1%) are on treatment. There is need for measures to be taken to safeguard the health of drivers and subsequently the society. Further study on this group of workers is advocated.

Keywords: Hypertension, Commercial bus drivers, Prevalence, Risk factors.

INTRODUCTION

The world prevalence of hypertension is 20% (Albert and Vecihi, 2011) defined by value of ≥140/90mmHg. Hypertension has become a global public health burden: it results in cardiovascular accidents, heart failure, heart attacks, blindness and renal failure.

Nigeria, a developing nation undergoing socio-economic and epidemiological changes, also bears the brunt of this non-communicable disease (NCD) and its burdens. It is estimated that about 57 million Nigerians are hypertensive with many still undiagnosed and that 9.2% of the 22% death from NCD results from cardiovascular deaths (Abonnema foundation communication 2013). Obinna and Cletus (2011) puts the national prevalence of hypertension to be between 12.4% and 34.8%.

In Sokoto, studies of selected populations of teachers and civil servants put its prevalence at 33.3% and 31.9% respectively Awosan et al. (2013$_{a \text{ and } b}$) and among two ethnic communities to be 24.8% Isezuo et al. (2011)

That between 2007 and 2010 four persons die daily from road traffic accidents and that fatigue, driving under influence of alcohol and loss of control accounted mainly for these crashes (Olagungu, Federal Road Safety Corps official publication 2011). World Health Organization (WHO 2004) estimated that road traffic accidents will increase by 65% between 2000 and 2020 but with the figure expected to be as high as 80% in developing countries. Most drivers' behavior such as smoking, alcohol usage and drugs are associated with hypertension. These behaviors contribute to road crashes (WHO, 2004; Evans, 1996).

*Corresponding Author Email: erhianoefe@yahoo.com; Tel: 08033934526

Bus drivers are known to be high risk group for development of hypertension (Raquel *et al.,* 2012; Ismail, 2003; Tuchsen *et al.,* 2006; Sic *et al.,* 2012 and Sato *et al.,* 1999). This may be due to the nature of their profession. They have to cope with the pressure of time, responsibility to passengers' welfare and safety as well as other demands related to passengers' complains (Richter et al., 1998). The health impact of hypertension does not only affect the drivers alone but the community at large, as the community rely on drivers for safe movement of persons and goods from place to place. Review of literature shows paucity of work done on vehicle driving as a mentally stress profession generally in Nigeria let alone commercial bus drivers. It is against this back drop, the asymptomatic and grave (but modifiable) nature of hypertension and the role of drivers in the community that this work was done.

METHODOLOGY

Study design and population

This was a cross-sectional descriptive study conducted among commercial bus drivers in central Motor Park in Sokoto, Sokoto State in North Western Nigeria between April to July 2013. The city has a population of 427,760 by the 2006 National Census (National Population Commission (NPC) 2006). The major ethnic groups are Hausas and Fulanis; others ethnic groups are Yoruba, Ibos, Nupe, Igala, Esan, Urhobos, etc. The people are predominantly farmers, while the rest are civil servants, traders, artisans, drivers and people of other occupations. The central motor park has 6 unions under the state branch of the National Union of Road Transport Workers (NURTW). These are; articulated vehicle drivers, Luxurious bus drivers, long distance car drivers, short distance car drivers, long distance bus drivers and short distance bus drivers. The carrying capacity of these buses ranged from fourteen to eighteen passengers. All commercial bus drivers were eligible to participate in the study except those that have not driven such bus for a year and those that don't resides in Sokoto. The sample size was estimated at 218 using Araoye (2004) formula for calculating sample size for cross sectional descriptive studies, 16% prevalence of Hypertension from a previous study (Satheesh and Veena, 2013), precision level at 5% and anticipated response rate of 95%. The drivers were grouped into long and short distance drivers. There are 95 short distance bus drivers and 310 long distance bus drivers. From the lists provided by the two unions, and by simple proportion 51 and 167 numbers were assigned respectively to the short and long distance drivers groups. The short distance group was further grouped in threes according to their appearance in the drivers' union list while the long distance was grouped in fives.

On the day of data collection any one or two driver(s) in each group of threes that was met and meets the eligibility criteria were enrolled until 51 drivers were enlisted. Similarly any two or three drivers from the group of fives that met the eligibility criteria were enlisted till 167 drivers were enlisted. Also 218 non drivers that runs any sort of business in the garage were randomly recruited into the study. A proforma was used to collect data on the participant's socio-demographic characteristics. Anthropometric and blood pressure measurements were done. The weight of the participants was taken using a portable weighting scale (Hana, China).

Height of the drivers was measured using a standiometer. It has a firm horizontal surface and a vertical surface with calibrations in meter scale to 1.95meters. The driver stands on the horizontal surface with his heel, back and occiput making contact with the vertical surface. The highest point of the head was projected to the scale with a ruler and read as the driver's height in meters. Blood pressure was measured with Accoson Sphygmomanometer (Dekamet MK3, England) and Littman's stethoscope. The Researcher and assistance Researchers collected the data with the help of a member of the drivers' union who interpreted when necessary after pre-training on the objectives and selection of drivers. Ethical clearance was sort and obtained from ethical committee of the College of Health Sciences, Usmanu Danfodiyo University, Sokoto and permission from the drivers' union to carry out the study among its members was also got. Informed consent of the drivers was also obtained.

Data Analysis

Data was analysis using SPSS version 20 computer software. The chi-square test was used to compare differences between proportions and independent t test used for mean. Linear regression statistics was used to determine the variables that predicts hypertension among participants.

RESULTS

The mean age of drivers in this study was 47.48 ± 10.18 years with a range of 21 to 75 years, with a mean duration of years of driving of 24.05 ±10.13 years. Most of the drivers were in the 40 - 59 age groups. One hundred and sixty five (75.7%) of the drivers had only Qur'anic education, only 15 (6.9%) had education above primary school. 208 (95.4%) are Muslims and 98.1% are married as shown in Table 1. The mean age of the control was 47.72±9.6 years with a range of 28 to 70 years and most of the control are in the same age group with the drivers.

Table 1. Socio-demographic profile of participants.

Socio-demographic profile	Drivers	Non-Drivers	p values
Age group A (in years)	**Frequency (%)**		
20-29	8(3.7%)	23(10.6%)	
30-39	39(17.9%)	40(18.3%)	
40-49	66(30.3%)	50(22.9%)	
50-59	84(38.5%)	102(46.8%)	
60-69	15(6.9%)	2(0.01%)	
70-79	6(2.8%)	1(0.01%)	
Marital status			
Single	4(1.9%)	28(12.8%)	χ^2 =19.43
Married	214(98.1%)	190(87.2%)	p<0.001
Educational level			
None	2(0.9%)	88(40.4%)	
Qur'anic school only	165(75.7%)	125(57.3%)	
Primary school	36(16.5%)	5(2.3%)	χ^2 =126.13
Secondary school	15(6.9%)	0(0%)	p<0.001
Religion			
Christianity	10(4.6%)	20(9.2%)	χ^2 =3.58
Islam	208(95.4%)	198(90.8%)	p=0.058
Age group B (in years)			
20-39	47(21.6%)	48(22%)	χ^2 =0.013
40-79	171(78.4%)	170(78%)	p=0.908

Table 2. Prevalence of Hypertension, Awareness and Treatment.

Drivers		Non-Drivers		p-value
Hypertension	**Normal**	**Hypertension**	**Normal**	**χ^2 =8.426**
73(33.5%)	145(66.5%)	46(21.1%)	172(78.9%)	p=0.004
Awareness		Awareness		χ^2 =1.799
21(28.8%)		30(65.2%)		p=0.018
Treatment		Treatment		χ^2 =2.158
12(57.1%)		20(66.7%)		p=0.142

Table 3. Prevalence of Hypertension in the Overweight/Obese

	Drivers		Non-Drivers		P-value
	HTN	**Total**	**HTN**	**Total**	
	in class		in class		
Underweight	2(18.2%)	11	1(7%)	14	
Normal weight	24(21.6%)	111	30(21.4%)	140	
Overweight	25(43.9%)	57	12(30%)	40	
Obese	22(56.4%)	39	5(20.8%)	24	χ^2 =8.426
Overweight+Obese	47(64.4%)				p =0.016

The prevalence of hypertension were 33.5% and 21.1% respectively for drivers and non-drivers. Table 2 above.

Hypertension were more prevalent in the overweight and obese and as well as the elderly participants. Tables 3 and 4.

The prevalence of hypertension were not influenced by indulgence in cigarette smoking, alcoholic consumption, fatty food and exercise. Table 5 below.

BMI of 25kg/m^2 and above predicted hypertension as well as age 40 years and above as shown in Table 6 among drivers. This was not the case with non-drivers. Table 7.

Table 4. Prevalence of Hypertension in the elderly

Age (in years)	Drivers		Non-Drivers		p-value
n(%)	no in class	n(%)	no in class	n(%)	
20-29	0(0%)	8	3(13%)	23	
30-39	2(5.1%)	39	6(15%)	40	
40-49	25(37.9%)	66	10(20%)	50	
50-59	35(41.7%)	84	25(24.5%)	102	
60-69	7(46.7%)	15	1(50%)	2	χ^2 =24.732
70-79	4(66.7%)	6	1(100%)	1	p<0.001

Table 5. Prevalence of Hypertension in relation to modifiable risk factors

Modifiable factors	Drivers N=73		Non-Drivers N=46	
	Indulgers	Non-indulgers	Indulgers	Non-indulgers
Smoking	13(17.8%)	60(82.2%)	10(21.7%)	36(78.3%)
Alcohol	4(5.5%)	69(94.5%)	8(17.4%)	38(82.6%)
Fatty food	49(67.1%)	24(32.9%)	28(60.9%)	18(39.1%)
Exercise	34(46.6%)	39(53.4%)	26(56.5%)	20(43.5%)

Table 6. Predictors of hypertension among drivers

Odds ratio p values 95%CI			
Age (40yrs and above vs below 40yrs)	4.189	<.001	.166 to .460
BMI (25kg/m^2 and above vs below 25kg/m^2)	3.863	< .001	.122 to .375
Smoking (Smokers vs Non-smokers)	-.081	.935	-.150 to .138
Alcohol (indulgers vs Non-indulgers)	.613	.541	-.190 to .361
Fatty food intake (indulgers vs Non-indulgers)	1.076	.283	-.061 to .206
Exercise (indulgers vs Non-indulgers)	-.603	.547	-.159 to .084

Table 7. Predictors of hypertension among non-drivers

Odds ratio p values 95%CI			
Age (40yrs and above vs below 40yrs)	- .320	.749	- .158 to .114
BMI (25kg/m^2 and above vs below 25kg/m^2)	- .910	.364	- .092 to.250
Smoking (Smokers vs Non-smokers)	-4.068	<.001	-.536 to -.186
Alcohol (indulgers vs Non-indulgers)	-1.368	.173	-.504 to .091
Fatty food intake (indulgers vs Non-indulgers)	- .567	.571	-.247 to .137
Exercise (indulgers vs Non-indulgers)	3.064	.002	.094 to .434

DISCUSSION

The prevalence of hypertension in this study was 33.5% much lower than the findings of Lakshman et al. (2014) of 41.3% in south India. Our findings of prevalence of 33.5% among drivers was close to that found by Marcinkiewicz and Szosland (2010) in Poland of 36.7%, Raquel et al. (2012) of 38.2% and 38.7% Ismail (2003), but much higher than that of Joshi (2008) in Belgaum of 23.8% and 16% of Satheesh and Veena (2013). The other study on transit vehicle operators that deals with hypertension in this environment was that done by Ofuya (2007) on commercial motorcyclist reported a prevalence of 16%.

The job of professional driving (commercial) encourages patronage of fast food vendors/ restaurants leading to consumption of high energy dense food and drinks this alone and or in combination of lack of physical activities could lead to higher body mass index (BMI); and several studies including Lakshaman et al.

(2014) have shown that higher BMI has positive correlation with incidence of hypertension.

This prevalence might appear to reflect the prevalence of hypertension in Sokoto as Awosan et al. ($2013_{a \text{ and } b}$) demonstrated a prevalence of 33.3% among teachers and 31.9% among civil servants in the state or the global increase in the incidence of hypertension as a result of increase urbanization, industrialization and change in life style.

The factors associated with hypertension in this study were age and increase body mass index (BMI) of above 25kg/m^2. There was a steady rise in the prevalence of hypertension as the age class increases. In the age class of 50 to 59 years 41.7% were hypertensive, in the next class of 60 to 70 years it rose to 46.7% and in the last class of 70 to 79 years it rose to 66.7%. These findings tend to agree with Chobanian et al. (2003) as cited by Brian (2006) that hypertension affects all age groups and becomes common at age 60 years and above and in this age group about 50% are hypertensive.

BMI of above 25kg/m^2 in this study was found in regression analysis to predict hypertension and that 47(64.4%) of the drivers that were hypertensive had BMI greater than 25kg/m^2. Marcinkiewicz and Szosland (2010) and Satheesh and Veena (2013) also demonstrated a strong association of increasing BMI and increasing age with Hypertension.

Virdis et al. (2010) found positive association between smoking and hypertension. Miller et al. (2005) found a positive association between alcoholic consumption and hypertension while Fagard and Cornelissen (2007) found a negative association between exercising and hypertension. This study however found no association between smoking, alcoholic consumption and exercising with hypertension.

The level of awareness of hypertension is low among the drivers generally, but 28.8% (21/73) of the hypertensive drivers know they were hypertensive of which 12(57.1%) are on treatment.

CONCLUSION

There is high prevalence of hypertension in this group of drivers and the risk factors are age over forty years (not a modifiable risk factor) and overweight and obesity (modifiable risk factor to a large extent)

RECOMMENDATION

Considering the prevalence of hypertension in this study, there is need for measures to improve the state of health of drivers. A further study on this group of workers is advocated.

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