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Blood Pressure Status among Registered Commercial Vehicle Drivers in University Of Benin, Edo State, Nigeria

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Abstract
This study was designed to assess the blood pressure status of the campus commercial vehicle drivers in the University of Benin, Edo State of Nigeria, aimed at establishing blood pressure database for instituting intervention programmes for cardiovascular disease prevention. The population of the study was 250 males and a sample size of 154. A descriptive, non experimental design was employed and this research was carried out between Septembers and November, 2014. A total of 154 campus drivers completed an interviewer administered questionnaire/checklist form. A purposive sampling technique was employed. The reliability of 0.74 was established using the test re-test method. Data were analyzed using frequency counts and percentage as well as chi-square to test the hypotheses.. Results revealed that 61% of the respondents had normal blood pressure with ranges of 100/70 to 120/80mmHg systolic and diastolic while 39% of the respondents had abnormal blood pressure ranges of 130/90 to 140/100mmHg. Risk factors such as age and body mass index (BMI) have been found to be significant in the increased blood pressure among drivers. The study also showed that (100%) of the respondents were aware of hypertension. Despite the awareness, 41.6% of the respondents had rarely had a blood pressure check.
Key words: Blood Pressure, Status, Commercial Drivers and Vehicle.

Introduction

Blood pressure (BP) is the force exerted by the blood against any unit area of the blood vessel wall. It is determined by cardiac output and peripheral resistance of the blood vessel. The cardiac output is the stroke volume and heart rate. The peripheral resistance is determined by constriction and dilation of the arterioles. Heart rate or pulse is the speed of the heart beat or pulse measured by the number of contractions of the heart per unit of time, typically, beats per minutes (bmp) (Guyton & Hall, 2006). Blood pressure is the force pressure that carries blood to all parts of the body. A blood pressure reading is the pressure that blood exerts on the wall of artery. The readings are of two parts, systolic which is the first knocking circulation (korotkoff) partly of the heart pumping the blood to the systems and second reading is the disappearance of the sound (the relaxation part of the heart). The blood pressure can be high (hypertension) or low, (hypotension), in either case, none is good for the well being of the human body. Hence, the need for checking of the blood pressure at regular intervals which is only a sure way of knowing the body blood pressure. Health care providers such as the nurses owe the clients the duty of care to check their blood pressure status.

Hypertension seems to represent one of the most formidable dilemma the world has faced in modern times. The importance of this chronic condition needs no emphasis due to its role in causation of coronary heart disease, stroke and other vascular complications. It is one of the major risk factors for cardiovascular mortality, which accounts for 20-50% of all deaths (Park, 2007). Hypertension remains silent; being generally asymptomatic during most of its clinical courses. The disease does immense harm to the body especially damage of target organs end organ. Hence, the term "silent killer" (WHO, 1992)

Although hypertension is a major risk factor for many diseases, there are many risk factors for hypertension itself. Some of these are non modifiable but a large number of them are easily modifiable by appropriate life style modifications (WHO, 1998). Prevalence estimates from several parts of the world indicate that high blood pressure is an important public health issue of global dimensions. The total number of hypertensive cases worldwide is estimated to be 69million and it ranked fourth globally in disease burden (WHO, 1992). The situation continues to worsen as the world's lifestyle drifts towards sedentary. Hypertension is emerging as a major health problem even in developing countries including Nigeria (Obinna & Cletus, 2011). In Africa, the prevalence

of hypertension was highest with 46% for both sexes combined. Both men and women have high rates of increased blood pressure of over 40% (Awasan, Ibrahim, Essien, Yusuf & Okolo, 2014). In Nigeria, the prevalence of hypertension is higher in the urban area with 32.7% than in rural area with prevalence rate of 12.9% (Adediran, Okpara, Adenyin & Simon, 2013).

Statement of the problem

Hypertension is one of the diseases of occupational origin. It is ranked fifth among the most important categories of occupational illnesses as per the report of National Institute of Occupational Safety and Health USA to which it was discovered that the percentage of hypertension increases more when selected occupational groups are screened (Bureau of Labour Statistics, USA, 2011)

Transport personnel, particularly the commercial motor vehicle drivers are one of such occupational groups who are at risk of developing hypertension due to the nature of their profession. They form one of the largest groups that employ personnel of different tribes, various age groups that are subjected to severe stress and strains having irregular hours of duty, having habits like smoking, alcohol intake etc. Once they develop hypertension, they are prone to develop coronary heart disease and stroke thereby putting them and their road users at risk.

It is probable that many hypertensive commercial vehicle drivers are not aware of this disease due to its asymptomatic nature. Those who suffering from the disease may not be aware of the treatment, even those are on treatment may not have attained controlling level particularly in developing countries (Vishnupant, 2003). As a result of this problem, the incidence of cardiovascular diseases has the potentials to overwhelm health care systems especially the nurses who are the primary care givers.

Many studies were conducted in western countries on drivers and conductors; these studies were not conducted specifically on hypertension but on coronary risk factors in general and covering hypertension as a part thereof (Gostavson, Afredsol, Brunnberg, Hamimar & Jakobson, 2012)

Also, very few studies have been conducted on hypertension vis-a-viz commercial vehicle drivers in the Nigeria context. Hence, there is need to assess the blood pressure status of commercial vehicle drivers, to determine their body mass index, enquire if, they are at risk of developing hypertension and their blood pressure monitoring pattern. It was against this backdrop of the importance of high blood pressure (hypertension) among such drivers that prompted this research study.

Purpose of the Study:

The main purpose of the study was to investigate the blood pressure status among campus drivers in Ugbowo Campus, University of Benin, Benin City. Specifically, the study determined
the blood pressure status among the commercial vehicle drivers in University of Benin and the body mass indexes of the commercial vehicle drivers.

Research questions

- What are the blood pressure statuses of the campus commercial vehicle drivers in University Benin?
- What are the body mass indexes the commercial vehicle drivers?

Hypotheses:

- There is no significant relationship between age and blood pressure status of campus commercial vehicle drivers in University of Benin, Benin City.
- There is no significant association between body mass index and blood pressure statuses of campus commercial vehicle drivers in University of Benin, Benin City.

Research Design:

A non-experimental descriptive survey design was used to assess the blood pressure status of registered commercial vehicle drivers in the University of Benin, Ugbowo Campus. This design was used because its major concern was to observe and describe phenomena, as they naturally occurred as well as document the observed phenomena.

The Target population:

The population of the study was made up of all the registered commercial car and bus drivers (both inter and intra campus commercial drivers) in Ugbowo Campus, University of Benin, Information from the secretary of their union showed that there were a total of 250 registered commercial vehicle drivers in the campus (Commercial Driver's Register, Ugbowo Campus, University of Benin).

Sample and Sampling Technique

The sample size was 154 drivers who were purposively selected for the study because of their business nature of work. The sample size was derived using Taro Yamane's formula as shown below;

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = the sample size
N=the finite population
e=level of significance or limit of tolerable error which is 0.05

Hence

$$n = \frac{250}{1 + 250(0.05)^2} = 153.8 = 154$$

Therefore, the sample size is 154

The adoption of this technique is based on the fact that the researcher considered it cheaper and convenient to study the participants with regard to the purpose of the study

Instrument for data collection:

The instrument consisted of standard physiological and biophysical techniques or protocols which involved mercury sphygmomanometer, bathroom weighing scale, meter rule and tape and height platform and self developed questionnaire/checklist.

A standardized instrument of mercury sphygmomanometer was used to measure the blood pressure of each respondent's blood pressure. The weight and height measurements were taken using bathroom weighing scale and meter ruler adopting standard practice of nursing procedure, (Basavanthappa,2009,Douglas,Nicol & Robertson, 2009). These were regulated to zero point as it obtained ratio scale value. The body mass index (BMI) value was determined using the formula BMI=$\frac{mass\ kg.}{heightm\ 2}$.

Questionnaire/Checklist:

A self developed questionnaire/checklist was validated by three experts in health profession before the study. It consisted of three sections which included information on demographic variables, risk factors for hypertension and record space for results from blood pressure recorded in mmHg , height in centimeters (CM) and weight in kilogram (kg) .The instruments used for data collection were pilot-tested using the test re-test method in which the instrument was given to the respondent on two occasions outside the study group and the two scores were computed using Spearman Product Moment and the Correlation coefficient was determined at the level of 0.05 significance with value of 0.7 which is good enough for the study.

Method of Data Collection:

The researchers with the help of a trained assistant administered the questionnaire/checklist, measured height, weight and blood pressure of the respondents. The respondents' blood pressures were taken twice with the systolic and diastolic pressures measured in mmHg to ensure consistency, one hundred and fifty four (154) questionnaires forms were documented.

Method of data analysis:

The results were presented in frequency counts and percentages. Chi-square analysis at 0.05 level of significance was used to test the relationship between independent and dependent variables. Results were presented as follows:-

Results:

The results were presented in tables 1-6 and figure 1&11.

Table 1. Distribution of respondents according to blood pressure status

Status of BP	Blood Pressure Systolic	Blood Pressure Diastolic	Frequency	%
Normal BP	110-120mmHg	70-80mmHg	94	61
Abnormal BP	130-140 mmHg	90-100mmHg	60	39
Total			**154**	**100**

Table 1 shows that BP systolic of 110-120 and diastolic of 70 - 80mmHg recorded higher frequency of 94 (61%), than the systolic of 130-140mmHg and diastolic of 90-100mmHg with frequency of 60 (39%). A bar graph was further used to buttress the results as in fig. 1.

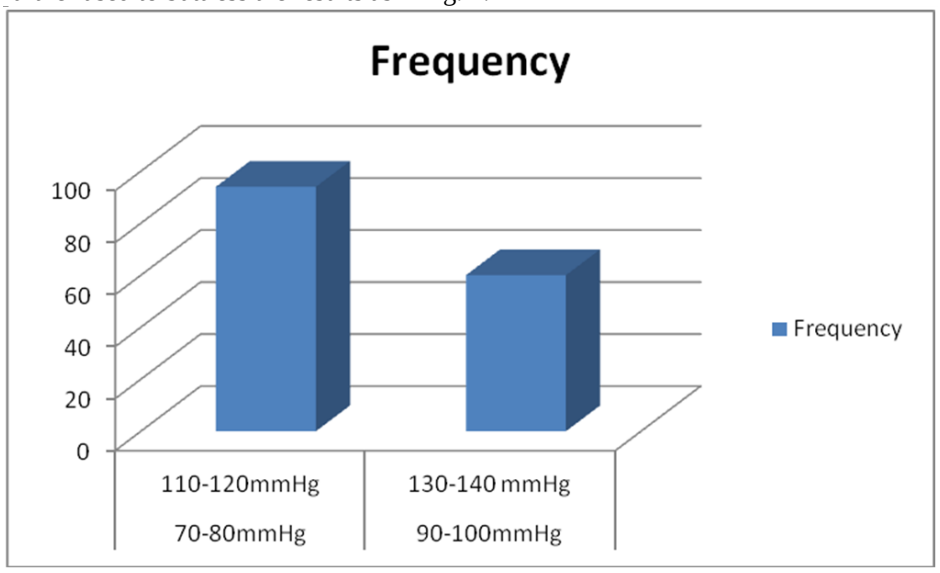

Figure1: Showing Blood Pressure Status of the Campus Drivers.

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Table 2. Distribution of respondents according to their body mass index

Body Mass Index	Frequency	%
Below 24.9 (normal)	61	40
25-29.9 (over weight)	53	34.4
30 and above (obese)	40	2.6
Total	**154**	**100**

Table 2 shows that BMI of 24.5 recorded the highest frequency of 61 (40%), followed by 25-29.9 with frequency of 53 (34.4%) and the least being 30 and above with frequency of 40(2.6%). These results were buttressed through bar graph presentation in fig.11.

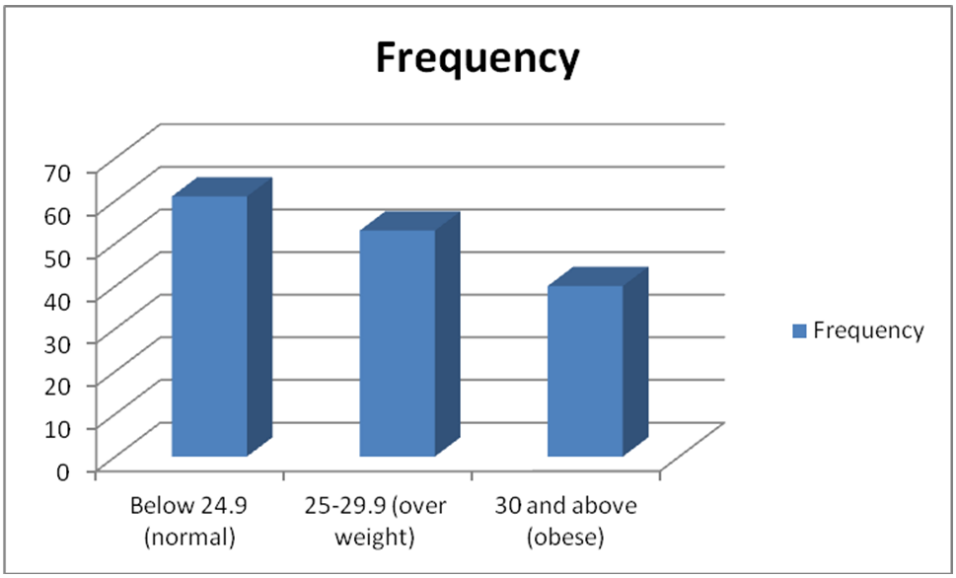

Figure11: Showing Body Mass Index of the Campus Drivers.

Table 3 Distribution of respondents according to blood pressure monitoring pattern

Blood pressure monitoring pattern	Frequency	%
Monthly	14	9.1
Every six month	41	26.6
Yearly	34	22.1
Rarely	65	42.2
Total	**154**	100

Table 3 shows that rarely recorded the highest frequency of 65 (42.2%), followed by every six month with frequency of 41 (26.6%) and the least being monthly frequency of 14 (9.1%).

Table 4 Distribution of respondents according to who monitors the blood pressure

Who checks your pressure?	Frequency	%
Doctor	17	11
Nurse	99	64.3
Chemist	27	17.5
Family member	11	7.2
Total	**154**	100

Table 4 shows that Nurse recorded the highest frequency of 99 (64.3%), followed by chemist with frequency of 27 (17.5%) and the least being family member with frequency of 11(7.2%).

Testing of the Hypotheses

There is no significant relationship between age and blood pressure status

Table 5: Chi-Square analysis of the relationship between age and blood pressure status.

Age * BP Status							
	Blood Pressure Status		Total	Test Values		Degree of Freedom	Asymptotic Significance (2sided)
Age	110/70-120/80 Normal BP.	130/90-140/100 Abnormal BP.		Chi-Square	Correlation		
30-39	40	8	48	35.557	.460	3	.000
40-49	32	10	42				
50-59	15	20	35				
60>	7	22	29				
Total	94	60	154				

Calculated x^2 =35.55, df =3, tabular x^2 = 7.82 at P-value = 0.05

Table 5 shows that the Chi-square value of 35.55 was greater than the critical value of 7.82 at 3 degrees of freedom and P-value of 0.05. Therefore, there is evidence to suggest that there were influences of age on the blood pressure statuses. Hence, the Chi-square was statistically significant and the null hypothesis was rejected. The alternative hypothesis which stated that there was a significant relationship between age and blood pressure status among campus drivers in University of Benin, Benin City was accepted. In addition, there were 0.460 correlations which implies positive gross association between age and blood pressures in terms of direction using Cohen correlation guideline of 1988.

Table 6: Chi-Square of the relationship between body mass index and blood pressure status.

Body Mass Index	Blood Pressure Status		Total	Test Values		Degree of Freedom	Asymptotic Significance (2sided)
	110/70-120/80(Normal)	130/90-140/100(Abnormal)		Chi-Square	Correlation		
<24.5(normal)	40	8	48	31.2	.430	2	.000
25-29.5(Over Weight)	32	10	42				
30>(Obese)	23	41	64				
Total	95	59	154				

Calculated x^2 =31.2, df =2, tabular x^2 = 5.99 at P-value = 0.05

Table 6 shows that the Chi-square value of 31.2 was greater than the critical value of 5.99 at 2 degrees of freedom and P-value of 0.05. Therefore, there is evidence to suggest that there are influences of body mass index on their

blood pressure statuses. Hence, the Chi-square was statistically significant and the null hypothesis was rejected. The alternative hypothesis which states that there is a significant relationship between body mass index and blood pressure status among campus drivers in University of Benin, Benin City was accepted. In addition, there were 0.430 correlations which implies positive gross association between body mass index and blood pressures in terms of direction using Cohen correlation guideline of 1988.

Discussion

This study revealed that all participants (campus commercial vehicle drivers) totaling 154 were males with a mean age of 48.9. The number of drivers with abnormal blood pressure status in the study were 60 (39%), translating it to 1 out of 5 drivers having abnormal BP. This is in contrast to a study carried out among male drivers in USA where a lesser percentage (25.3%) was recorded (Mormort, 2012). Other figures closer to the result of this study were obtained in studies carried out in Iran (42%) (Malinauskiene, 2003). This study also corroborates with prevalence of hypertension in Nigeria conducted by Okechukwu, et al., (2012), with overall prevalence of hypertension which ranged from 8 – 46.4%. While this proportion may appear small, it is however significant because they are the ones at high risk of a preventable sudden cardiovascular disease such as stroke.

The blood pressure monitoring of the participants were poor, with the majority of the drivers (both hypertensive and non-hypertensive) 64(41.6%) rarely checking their blood pressure. This finding is similar to that of Tobin et al., (2013) with 30% of the respondents who have never had their blood pressure checked. One of the reasons for not checking blood pressure was lack of time. Indeed commercial vehicles drivers are very mobile people operating long hours with little rest period in between. Lack of adequate sensitization and health information about the implications of the disease (hypertension), may also have contributed to this poor health seeking behavior, Despite the demand of their job, they should be educated on the importance of regular medical checkups like blood pressure monitoring. Besides, their poor educational background (primary/non)112(72.7%) and large family size, an indicator of an individual's underdevelopment could account for rare BP checkups. In monitoring of their blood pressures, nurses, 99 (64.3%) were mostly patronized, probably, because of the proximity to tertiary health institution located where they operate.

The high blood pressure in this study was found to be significantly associated with age and BMI. This is similar to what was found in USA (Shaper et al., 2010), Nigeria (Okechukwu, et al., 2012) and Thailand (Das et al, 2013). The study on association of risk factors of hypertension, lifestyle risk factors for hypertension, has been found to have high prevalence among drivers (Siedlecka, 2013). One of such risk factors found in this study was obesity which contributed as much as 93(55%); other studies that documented obesity among drivers were Shaper et al., (2010), Isaac et al., (2011) and Das et al., (2005).

It is interesting to note that all the participants were aware of hypertension being a persistent increase in blood pressure and mass media were the principal sources of information to the respondents; 81(52.6%). This is in contrast to the lesser role played by health care workers, (Nurses), who should be the custodians of information on hypertension. These findings were in consistent with similar study conducted in the south-south region of Nigeria by Tobin et al., (2013) with frequency of 112 (100%) of the respondents been aware of hypertension and 54 (57%) of the respondents got the information from the mass media. This study is also similar to the study conducted in Karnataka, Bangalore, India among drivers and conductors by Joshi et al., (2012) where all the 400 (100%) respondents were aware about hypertension and 210 (53.6%) indicated that the source of information was mass media. Hypertension has been identified as a significant risk factor for cardiovascular disease among drivers by Neri & Soares, (2011) as well as (Michael & Zoloth, (2010).

Conclusion and Recommendations

The researchers concluded from these findings that, risk factors such as age and body mass index are significant to high blood pressure, and the drivers were rare to checking their blood pressures. Hence, there was an urgent need to intensified awareness campaign targeting this occupational group not only those working in the University of Benin, but to the larger population out there because of their poor educational and health information backgrounds.

Nurses and public health providers should utilize more of the media in dissemination of health education messages on hypertension as a larger number of people would be reached through this medium. This becomes more important when one considers the fact that practitioners of traditional medicine frequently besiege media stations, marketing their herbal products and disseminating, often times, incorrect information about diseases that are usually dreaded by the public like hypertension.

It is also recommended that the following should be noted by not only the drivers but all and sundry.

- The health workers especially the nurses who are the primary care givers, should be the custodians of information about hypertension.

- Individuals should endeavour to practice health seeking behaviours to help one in modifying disease risk factors which are modifiable and preventable such as hypertension.
- When one discovers an abnormal persistent increase in blood pressure following regular blood pressure monitoring, health service should be sought for immediate evaluation and treatment. Hence, this will help to curtail the high prevalence of hypertension in our community and the society at large.

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