NUTRITIONAL STATUS AND THE RISK OF OBESITY AMONG DISTANCE COMMERCIAL DRIVERS IN BIDA NIGER STATE

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ABSTRACT
Poor diet (high consumption of sugar, salt, saturated fat, etc.) and unhealthy lifestyle (smoking, alcohol consumption and physical inactivity) have been identified as major risk factors of cardiovascular diseases and other non-communicable diseases. The study assessed nutritional status and the risk of obesity among distance commercial drivers in Bida motor parks, Niger state Nigeria. A total of 114 registered commercial drivers were selected using systematic random sampling technique. Data were collected using a pre-tested, semi-structured administered questionnaire to obtain information on socio-demographic characteristic and physical activities. Anthropometric measurements (weight, height, waist circumference) were made using standard procedures. Nutrients intakes were estimated using frequency consumption pattern and food habits. Body Mass Index and Waist circumference were calculated and measured respectively and compared with WHO standards. Data were analyzed using descriptive statistics while Pearson product moment correlation/ chi-square were used to establish relationship between variables. The result showed (70.8%) of the respondent were between 20 − 50 years, while 25.1% were 60 years and above. Majority of the respondents (79.8%) are not involved in any physical activities while 20.2% engaged in light activities. Unhealthy eating was recorded .About 39.5% the respondents consumed snacks thrice and more in a week, 40.4% consumed carbonated drinks and 37.7% consumed alcoholic drinks. Also 30.7% preferred snacks to regular food, 73.7% and 52.6% consumed fruits and vegetables respectively. The prevalence of overweight and obesity among the respondents were 63.3% and 5.3% respectively. The mean waist circumference of respondents was 84.4±9.5. High prevalence of overweight and obesity exists among the commercial drivers, hence the need to sensitize them to reduce their energy intake and increase their physical activities in order to modify the risk factors of obesity.

Keywords: Obesity, Nutritional Status, Anthropometry and Commercial drivers.

INTRODUCTION

Nutrition and food science has been recognized in the recent years as the cornerstone of socioeconomic development (Park, 2009). However, adequate nutrition is important for a variety of reasons, including optimal cardiovascular function, muscle strength, respiratory ventilation, protection from infection, wound healing and psychological well-being Adequate nutrition entails a diet that contains the constituents (carbohydrate, fats, proteins, vitamins and minerals) that are required for body building, energy supply, body defense and regulatory functions in accordance with the body need. Intake of nutrients in excess of body requirement is due to poor dietary habit resulting in overweight and obesity.

In Nigeria, the prevalence of obesity among adults has been estimated to range from 8.1% to 22.2% (Chukwunwoye et al., 2013). Recent global figures indicate that the prevalence of obesity is not just a problem of the developed countries but is also on the increase in the developing world. About 65% of the world's population live in countries where overweight and obesity kill more people than underweight (WHO, 2014; Oladoyinbo et al., 2015).

Obesity is rapidly becoming a prominent disease in developing countries like Nigeria, due to increase westernization of societies and change in the lifestyle. The causes of obesity is said to be multi-factorial with a combination of genetics and environmental factors (Rotim et al., 2004) studies have shown that obesity is a predisposing factor to many non-communicable diseases such as hypertension, cardiovascular diseases, coronary heart diseases, arthrosclerosis, certain cancers and a lot more.

According to (Rotimi, et al., 2004,) 79 cases of sudden cardiac deaths in Ile-Ife, Nigeria, was caused by hypertensive cardiovascular disease and was the cause of death in 83.3% of which only 30.3% were previously diagnosed. Similarly, Arodiwe, et al. (2009) reported a case of fatality rate of 435 in 445 Nigeria hypertensive cases that was presented to an urban tertiary hospital, suggesting that hypertension is a major cause of morbidity. Most of these people were ignorant of their sedentary lifestyle and were obese too. The broad objective was to assess the nutritional status and risk of obesity among commercial drivers in Bida local Government Area while the specific objectives was to describe the socio-demographic variables of respondents, asses

the nutritional status of the of the respondents and also assess the physical activity pattern of the respondents.

METHODOLOGY
The study was descriptive and cross-sectional covering major parks in Bida, Niger state.
Study population: The respondents were registered drivers who were identified with a driving license/any other identity in the motor park.

Sampling technique: Systematic random sampling technique was used to select the respondents within the motor parks.

Sample Size

$$n = \frac{N}{1 + N(e)^2} \quad n = \frac{162}{1 + 162(0.05)^2} = 112$$

n is the sample size
e is the desired level of precision at 5%
N is the total population (162) (Glen, 1992)
Therefore, the total sample size were 162 respondents

Sampling Procedure: The sample size was proportional to the population density (Gay and Diehl, 1992) of the registered drivers who were identified with a driving license/any other identity in the motor park.

Table 1: Motor parks, their Population and Sample Size Survey

Name of motor parks	Drivers population	Sample size
Low cost garage	16	12
Ilorin garage	27	19
EtsuYahaya parks	79	56
NSTA Garage		23
Etsu Usman		15
Total		**162**

A total of 114 registered commercial drivers were selected using systematic random sampling technique.

Data Collection Procedure: Standard questionnaire was administered with the following sections.
a) Socio-demographic characteristics
b) Physical activity level of the respondents.
c) Food habits/ Frequency consumption pattern
d) Anthropometric measurements

Socio-demographic and economic characteristics: Information on socio-demographic characteristics of the respondents was collected using the following age, educational level of the respondents, marital status, religion and ethnic group.

Physical Activity: Respondents filled out behavioural diaries for the last 7 days as baseline. The physical activity measure was modeled after the Bouchard Three-Day Physical Activity Record (Bouchard, et al., 1993; Bratteby, et al., 1997; Wickel, et al., 2006). The measure was adapted as follows: respondents filled out the measure for7 days and reported moderate to-vigorous physical activity.

Food Habits/ Frequency Consumption Pattern: This often shows the number of times the respondents consume meals. The instrument was designed for research purpose to standardize the collection of dietary intake data for large epidemiological Studies. It can have 60-126 food/beverage items that it queries a person on regarding type of food eaten

Anthropometry Measurement: Weights were measured by digital weight scales to the nearest 0.01kg. Subjects were weighed with light cloth on them with an empty bladder, preferably at the same time of the day (Han and Lean, 2001). Heights were measured by height-meter to the nearest 0.05cm, which was calibrated by meter rule before use. Respondents were encouraged to stretch upwards by applying gentle pressure at the mastoid processes and height is recorded with subjects taking in a deep breath for maximum measurement (Han and Lean, 2001) Body mass Index was determined by dividing the weight of each subject in kilogram by her height in metre square.

$$BMI = \frac{Weight\ (kg)}{Height\ (m)^2}$$

Waist and Hip circumferences were measured midway between the lower rib margin and iliac crest, with a horizontal tape at the end of gentle expiration, with feet kept 20—30 cm apart. Subjects were asked not to hold in their stomach (Han and Lean, 2001).

Ethical Consideration: The study protocol and letter of recommendation was submitted to the authority of the Local Government Area as well as the leaders of the Motor Parks. Individual consent from the selected respondents was also obtained, before initiation of the study in the respective Parks.

Statistical Analysis: The data was entered into the computer for analysis using Statistical Package for Social Sciences (SPSS) software, version 20.0. The data generated were subjected to descriptive statistics such as (means, standard deviations, percentages and frequencies). The association between observed parameters was determined using students chi-square. Spearman correlation was used to determine relationships among variables.

RESULTS
Table 2 shows the educational level of the respondents, 52.6% attained secondary school and

12.3% of the respondents are illiterates. 78.9% of the respondents are married, 11.4% singles and 9.6% divorced respectively. 72.8% practice Islam as religion while 27.2% are Christians, the predominant tribe in this study area is Nupe 38.6%, 28.9% are Gbagyi while 32.5% are other tribes.

Table 2: Socio-Demographic Characteristics of the Respondents

Variables	Frequency (F)	Percentage (%)
Age		
20-30	20	17.6
31-40	75	65.8
41-50	10	8.8
51-60	9	7.8
Total	**114**	**100**
Educational level		
No Education	14	12.3
Primary School	24	21.1
Secondary School	60	52.6
Tertiary institution	16	14.0
Total	**114**	**100.0**
Marital status		
Single	13	11.4
Married	90	78.9
Divorced	11	9.6
Total	**114**	**100.0**
Religion	**(f)**	**(%)**
Christianity	31	27.2
Islam	83	72.8
Traditional	0	0.0
Total	**114**	**100.0**
Ethnic group		
Nupe	44	38.6
Gbagyi	33	28.9
Others	37	32.5
Total	**114**	**100.0**

Table 3 shows the BMI classification of the respondents as 32.5% were normal while 62.3% and 5.3% were overweight and obese respectively.

Table 3: BMI Classification of Respondents

Variables	(F)	(%)
Underweight $<18.5 kg/m^2$	0	0
Normal $18.5-24.9 kg/m^2$	37	32.5
Overweight $25.0 – 29.9 kg/m^2$	71	62.3
Obese I $30.0.39.9 kg/m^2$	6	5.3
Obese II $\geq 40 kg/m^2$	0	0
Total	**114**	**100.0**

WHO, 2006 Classification

Table 4 shows the mean anthropometry indices of respondents which revealed mean height of

170.5 ± 4.7 m, weight of 76.2 ± 6.7 kg, BMI of 25.7 ± 2.0 and waist circumference to be 84.4 ± 9.5cm respectively.

Table 4: Mean and Anthropometric Measurement of the Respondents

Variables	Range	Mean ± S.D
Height(m)	157 – 181	170.5 ±4.7
Weight(kg)	58 – 92	76.2 ± 6.7
BMI	20 – 30.5	25.7 ± 2.0
Waist circumference (cm)	60 – 104	84.4 ± 9.5

Table 5 shows distance travelled in BMI of respondents. More than average 57.9% are short distance drivers with 38.6% overweight, 16.7% normal and 2.6% obese grade I respectively. Average distance was 10.5% with 5.3% normal, 4.4% overweight and 0.9% obese grade I while 31.6% are long distance travelers with 19.3% overweight, 10.5% normal, and 1.8% obese grade I

Table 6 Shows the Food Habits of respondents based on meals scheduled as breakfast, lunch and dinner. It also revealed a large number of respondents 50.9% eat heavy meal at dinner.

Table 7 shows the frequency consumption patterns of respondents on how often respondents consume a particular food a day or in a week, which consist of Fruits, Vegetables, Alcoholic drinks and Snacking.

Table 8: Shows transport pattern of the respondents. Few (4.3%) of the respondents always go to work place with public transport, 14.1% always walk to work place while 6.2% always go to work place with personal car. About 13.2% go to work on public transport while 4.3% use personal car and 3.5% usually walk. Occasionally, 14.9% uses public transport, 8.8% by personal car while 2.6% walk.

Table 9 Shows positive correlation ($r^2=0.011$) between BMI and frequency of eating which is significant at ($P<0.05$), also positive correlation ($r^2=0.011$) between BMI and food habit which is significant at ($P<0.05$) but there was a negative correlation ($r^2=-0.087$, $P<0.05$) between distance travelled and food habit as well as distance travelled with alcohol consumption at ($r^2=0.089$, $P<0.05$) respectively.

DISCUSSION
Majority of the respondents (65.8%) were within the age range of 31-40. This shows that most of the drivers were still young. About 52.6% were not highly educated since majority of them had secondary education as their highest academic

Table 5: Distance travelled and their calculated BMI.

Variables	Underweight F (%)	Normal F(%)	Overweight F (%)	Obese I	Obese II	Total
Short distance	-	19(16.7)	44(38.6)	3(2.6)	-	66(57.9)
Average	-	6(5.3)	5(4.4)	1(0.9)	-	12(10.5)
Long distance	-	12(10.5)	22(19.3)	2(1.8)	-	114(100.0)

Table 6: Daily Food Habits of Respondents

	Meal schedule		
Variables	Breakfast F(%)	Lunch F(%)	Dinner F(%)
Bread and Tea	36(31.6)	-(0.0)	6(5.3)
Pap	36(31.6)	-(0.0)	-(0.0)
Fura da Nono	-(0.0)	17(14.9)	1(0.9)
Rice and Bean	20(17.5)	35(30.7)	48(42.1)
Carbonated soft drinks	2(1.8)	25(21.9)	1(0.9)
Tuwo/Pounded Yam, Eba, Amala, Semolina, Yam Potage in a day	20(17.5)	37(32.5)	58(50.9)

Table 8: Physical activity Using Transport Patterns of the Respondents

Transportation	Always F (%)	Usually F (%)	Occasionally F (%)	Never or Rarely F (%)
Private vehicle	7(6.2)	5(4.3)	10(8.8)	92(80.7)
Public vehicle	5(4.3)	15(13.2)	17(14.9)	77(67.6)
Walking	16(14.1)	4(3.5)	3(2.6)	91(79.8)

Table 7: Food Frequency Consumption Pattern of Respondents

Variables	(F)	(%)
Fruits		
None	0	0
Once	0	0
Twice	30	26.3
Thrice/above	84	73.7
Total	**114**	**100**
Vegetables		
None	0	0
Once	15	13.2
Twice	39	34.2
Thrice/above	60	52.6
Total	**114**	**100.0**
Alcohol consumption		
Yes	43	37.7
No	71	62.3
Total	**114**	**100.0**
How often		
None	71	62.3
Once	17	18.9
Twice	19	16.7
Thrice/above	7	6.1
Do You Snack		
Yes	**98**	**86.0**
No	**16**	**14.0**
Total	**114**	**100.0**
How often		
None	**14**	**12.3**
Once	**36**	**22.8**
Twice	**29**	**25.4**
Thrice/above	**45**	**39.5**
Total	**114**	**100.0**

Table: 9: Correlation between BMI, Frequency of eating and Food Habit and also Correlation between distance travelled, Alcohol consumption and Food Habit

BMI	Pearson Correlation (r^2)	P=Value
Frequency of eating	0.011	P<0.05
Food habit	0.011	
Distance Travelled	Pearson correlation (r^2)	P<Value
Alcohol Consumption	-0.087	P<0.05
Food habit		

Significant at p<0.05

qualification this may affect their level of understanding in terms of nutritional education. Most 78.9% of the respondents were married but only few (9.6%) were divorced. However, most of the respondents eat away from their homes. Today, many fast food restaurants and food hawkers are being established in most developing countries including Nigeria. Most of their foods and snacks are made up of saturated fats and cholesterol. Meanwhile, as the financial status improves, the respondents tend to opt for non-healthy foods (Allagoa *et al.*, 2013).

This present study recorded high rate (62.3%) of overweight amongst respondents while (5.3%) were obese using WHO, BMI classification (WHO, 2006). However, the high rate of overweight recorded and lack of rigorous physical activity, as (79.8%) of respondents found in this study never or rarely take a walk as a form of exercise is an open

door to obesity if not well managed. Increased obesity rates are explained by dietary changes and increased inactivity, especially among low-income groups who improve their incomes but predominantly buy high fat, high carbohydrate and energy-dense foods (Uauy *et al., 2001)*, this findings correspond with that of Roger *et al*., (2008) in the North-West Province of South Africa where they investigated the association between measures and determinants of obesity in Africans. They found that physical inactivity showed the strongest association with measures of obesity in their study. Various studies reported that 25-65% of Nigerians are physically inactive (Abubakari *et al.,* 2008; Ekpenyong *et al.,* 2012) and involve less in regular exercises/sport (Akarolo-Anthony and Adebamowo, 2012).

Some of the respondents ate more carbohydrates, fats and oil, protein foods and their snacking rate was found to be high compared to their intake of fruits and vegetables. Meanwhile, those who took more of these energy foods developed overweight as a result of lack of regimented activities and the only form of physical activity of respondents recorded in this study is walking some distance to their various parks. There was also established relationship between BMI, frequency of eating and food habit of the respondents which was significant (r^2=0.011, at p<0.05, and r^2=0.011 at p<0.05 respectively) and the distance traveled and their food habit is negatively correlated at (r^2= -0.089, p<0.05). The association established could be attributed to consumption of high calorie diets/snacking coupled with low level of physical activities, as all the respondents attested that aside the driving routine, they are not involve in any other physical activity/sporting exercise.

CONCLUSION AND RECOMMENDATIONS
In this study, a high prevalence of poor dietary intake and unhealthy lifestyle was recorded among respondents. A high prevalence 62.3% of overweight was recorded which may probably degenerate to obesity. However, 5.3% of obesity was recorded in these findings. Therefore, it is recommended that there should be health education programs for enlightenment by Non-Governmental Organization (NGO) or health authority of government at either state or local level to promote healthy lifestyle and eating habits especially among this occupational group (commercial driving). Also, considering the increased nutritional health risk associated with the commercial driving, it is of importance not only to the health and safety of the drivers, but also to the whole population which uses their services. There is an urgent need to create awareness targeting this particular group, sensitizing them on the need for proper nutritional habit. Finally, the Federal government, Food agency, NAFDAC and other organizations that are much concerned with the healthy living, healthy lifestyle and healthy eating habits of the nation should team up together and fight against poor nutrient content of fast foods.

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