

## Prevalence of overweight and obesity among adult student in an university in Port Harcourt Metropolis, Nigeria

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### Abstract

Obesity has been declared a global epidemic and linked to many nutritional related diseases in developing nations. This cross sectional study was carried out to assess the prevalence of obesity among students in Rivers State University. A total of 200 adult students were randomly selected during the study. A validated and pre-tested self-administered questionnaire was used to obtain information on socio-demographic characteristics and dietary practices. Anthropometric measurements of weight and height were taken. The body mass index (BMI) were calculated. Data was analyzed using frequencies, means and percentages. The result shows 2% underweight, 41% normal weight, 36% overweight and 21% obese. Overweight and obesity rate were high, low physical activity and alcohol consumption was high.

**Keywords:** obesity, overweight, students, body mass index

### Introduction

Obesity is characterized by accumulation of excess body fat and could be defined in terms of body mass index (BMI) greater than 30kg/m<sup>2</sup> (WHO, 2004) [13]. BMI is a tool for indicating weight status of an individual and is used to estimate underweight, normal weight, overweight and obesity. As BMI increases, the risk for some health diseases also increased.

Obesity is a major malnutrition problem characterized by a mismatch between energy intake and energy expenditure. (Cataldo, et al, 1989). Obesity has become a major public health problem both in developed and developing countries (WHO, 2011) [15] studies have reported significant increases in the prevalence of overweight and obese individuals in developing countries (Popkin, 1998; Mann, 2002) [11,9].

The problem of overweight are increasing even in countries where hunger is endemic like Nigeria. In urban areas, the problem is because of the change in lifestyle and food habits. Consumption of more calories than expended lead to overweight - westernization and urbanization are among the main reasons for this energy imbalance in the Africa (Benkeser et al., 2012). Urbanization and westernization lead to decreased physical activity, increased food supply, which include access to high caloric fast foods and sugar sweetened beverages (fattening foods) (Duda, et al, 2007), mostly seen in the university composes.

Obesity has been associated with several non-communicable diseases such as hypertension, diabetes, several types of cancer and cardiovascular disease as well as increased morbidity and mortality among adults (Bakeri, et al., 2005). In Nigeria, the prevalence of overweight and obesity are on the increase. Bakari et al (2007) [4] in their study in Northern Nigeria reported obesity rate of 11.2% for males and 22.0% for females. Wordu (2020) [14], in a study conducted in Port Harcourt market women reported obesity rate of 41.6%.

The ongoing nutritional transition in Africa is likely to pose a major public health challenge with a significant proportion of adults becoming overweight. This will have a grave

Consequences on the economic and social development of our society. This study therefore, was designed to assess the prevalence of obesity among university adult students in Rives State University.

### Materials and Methods

The study was cross-sectional and descriptive in design. The study was conducted in Port Harcourt local government area in Rivers State, site of the Rives State University.

### Study Population

This included healthy students who are registered in five faculties in Rivers State University. The faculties include, science, management science, agricultural science, engineering and education. The students who participated on the study were aged twenty years and above.

### Sampling Procedure

The study population consisted of 200 apparently healthy adult males and females in the faculties. A sample size of 200 respondents was calculated as follows (Areoye, 2004) [3].

$$n = \frac{Z^2 P(100 - P)}{x^2}$$

Where Z = 95% confidence interval taken as 1.96%  
P = the proportion of factor under investigation.  
100 - P is the proportion of those not obese  
X = 5% margin of error.

### Data collection procedure

Standard questionnaire was administered with the following sections.

- Socio-economic and demographic data.
- Anthropometric measurements.
- Food consumption practice.

**Ethical consideration**

The study protocol and letter of recommendation was submitted to the university authority for approval. And approval was made.

**Socio-demographic characteristics**

Information on the demographic characteristics of the respondents was collected using the following; age, educational level and sex.

**Anthropometric measurements**

Weight were measured by digital scales to the nearest 0.01kg. Subjects were weighed with light cloth on them with an empty stomach, height 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 recorded with subjects taking in a deep breath for maximum measurement.

Body mass index was

$$BMI = \frac{weight (kg)}{height (m)^2}$$

**Statistical Analysis**

The data was entered into the computer for analysis using statistical package for social science (SPSS) software, version 20.0. The data generated were subjected to descriptive statistics such as (means, standard deviations, percentages and frequencies).

**Results**

Table 1 shows socio-demographic characteristics of the respondents. More than half of them (65.0%) were females, and many of the subjects (37.0%) were in the age range of 26-30 years. Twenty percent (24.0%) of them were in 400 level in the university.

**Table 1:** Socio-demographic characteristics of the subjects

Variable	Frequency	Percentage
Sex		
Male	70	35
Female	130	65
Total	200	100
Age (yrs)		
20 – 25	84	42
26 – 30	74	37
31 – 35	42	21
Total	200	100
Educational levels		
100	32	16
200	34	17
300	42	21
400	48	24
500	44	22
Total	200	100
Faculties		
Science	42	21
Management	36	18
Agricultural science	56	28
Engineering	22	11
Education	44	22
Total	200	100

Table 2 shows the food consumption profile of the subjects. Majority of them (65.0%) ate 3 times a day. Nearly all of the respondents (98.0%) consumed one form of alcohol or the other twice a week. Likewise, consumption of soft drink was high (68.0%). Majority (92.0%) consumed snacks. More than half (57.0%) visit fast food place regularly. Majority (62.0%) never involved in regular exercise.

**Table 2:** Food consumption profile of the participants

Variable	Frequency	Percentage
Number of meals eaten per day		
One	80	40
Two	48	24.0
Three	130	65.0
➤ Three	16	8.0
Consumption of any form of alcohol at least twice a week		
Yes	196	98.0
No	4	2.0
Takes soft drink regularly		
Yes	136	68.0
No	64	32.0
Visit fast food regularly		
Yes	114	57.0
No	86	43.0
Do exercise regularly		
Yes	76	38.0
No	124	62.0

Table 3 shows nutritional status of the respondents using body mass index. More than quarter of the respondents (36.0%) were overweight while (21.00) of the were obese.

**Table 3:** Nutritional status of the respondents using body mass index

Variable	Frequency	Percentage (%)
Underweight (18.5kg/m <sup>2</sup> )	4	2
Normal weight (18.5 – 24.9kg/m <sup>2</sup> )	82	41
Overweight (25.0 – 29.9kg/m <sup>2</sup> )	72	36
Obese (30.0 kg/m <sup>2</sup> )	42	21
Total	200	100

**Discussion**

The study sought to assess nutritional status and risk of obesity among adult students at Rivers State Univeristy in Port Harcourt Local government by determining socio-demographic, anthropometric and dietary intake of the respondents. The university campus is an educational environment that can predispose individuals to obesity and overweight, mainly due to the sedentary nature and enhance access to fast food (Afolabi, et al, 2004) [2].

Obesity is considered a major risk factor for Type 2 diabetes mellitus and hypertension as reported by Mugharbel and Mowafer (2003) and Waghmare, et al, (2012) [12].

Obesity is an inflammatory condition, this predisposes the students to increased risk of metabolic syndrome and other chonic inflamatoxy diseases such as rheumatoid arthritis, antherosderosis and some cancer.

Consumption of snacks high instructed fat could lead to deposition of dietary fat in the fat stores of the adipose tissues and thus increase the chances of an individual getting overweight and obesity.

Numerous studies reported that 25 to 65% of Nigerians were physical inactive and involve less in regular exercise (Abukabari, et al; 2008).

The increased BMI, snacking and sedentary lifestyles all

play significant roles in the development of obesity seen in the study population. In conclusion, the rate of overweight and obesity were high, low physical activity level and sedentary lifestyles were observed among respondents, and the food profile of the respondents. The findings from this study have suggested that obesity among university students in this environment is associated with low physical activity level and sedentary lifestyle observed among respondents are risk factors for chronic non-communicable diseases. There is a need for nutritional education and counseling during orientation of both old and fresh students indicating the risk of overweight and obesity.

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