

Incidence of Obesity in Kalabari Kingdom

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Abstract: Background: Information on the incidence of Obesity in western countries has been documented, whereas there is paucity of information in the incidence of obesity in Africa and in Nigeria in particular. This study was done to examine the rate of obesity among men and women in Kalabari between the ages of 12 to 65 with different communities taken as case study. **Materials and Methods:** The Body Mass Index (BMI) which is a ratio of weight per height square of a total of three hundred and four (304) subjects was studied. One hundred and eighty-seven (187) subjects were females while one hundred and seventeen (117) subjects were males. Obesity was measured by body mass index (BMI) with relative weight and height. BMI less than 18.5 was considered as underweight. BMI between 18.5 and 24.9 was considered as normal weight. BMI greater than or equal to 30 was considered as obese. **Results and Discussion:** Obesity increased in all sex and age groups from 12 to 65 years. Of the 104 subjects studied, 149 were considered to be obese. Relating with age group, increase in obesity was generally seen to be more in females than in males. The rate of obesity is highest in women between the ages of 31-40 with a percentage of 18.79, while the rate of obesity is highest in men between the ages of 51-65 with a percentage of 12.75. **Conclusion:** Body mass index, occupational background, eating habit and cultural practice (fattening room practice) have significant impact on increase of obesity.

Keywords: Incidence, Obesity, Weight, Height, Kalabari kingdom.

INTRODUCTION

According to the United State Department of Health and Human Services, National Institute of Health; Obesity can be defined as a condition in which the natural energy reserve, stored in the fatty tissue of humans and other mammals is increased to a point where it is associated with certain health conditions. Obesity is both an individual clinical condition and is increasingly viewed as a serious problem.

Excessive body weight has been shown to predispose cardiovascular diseases particularly; Diabetes mellitus type 11, sleep apnea and osteoarthritis. Generally, an obese person is someone who is very fat, unhealthily fat. Obesity is the nominal form of obese which comes from the Latin wordobesus meaning “stout, fat or plum”. Human cultures, obesity was associated with physical attractiveness, strength and fertility.

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Obesity was considered a symbol of wealth and social status in culture prone to food shortages or famine. Obesity was also seen as a symbol within a system of prestige. "The kind of food, the quantity, and the manner in which it is served are among the important criteria of social class. In most tribal societies, even those with a highly stratified social system, everyone both royalty and the commoners ate the same kind of food, and if there was famine, everyone was hungry. With the ever increasing diversity of foods, personality and taste" (Powdermaker, 2020).

In Modern Western culture, the obese body shape is widely regarded as unattractive. Many negative stereotypes are commonly associated with obese people, such as the belief that they are lazy, stupid and gluttons. Obese individuals face a heavy social stigma. Although Obesity rates are rising amongst all social classes in the world, obesity is often seen as a sign of lower socio-economic status (Greg C, 2003). Obesity in adulthood can lead to a slower rate of career advancement. Most obese people have experienced negative thoughts about their body image, and many take drastic steps to try to change their shape, including dietary control, the use of dietary pills, and even surgery.

Not all contemporary cultures disapprove of obesity. There are many cultures which are traditionally more approving of obesity; these include African, Arabic, Indian, and Pacific island cultures. In recent decades, especially, obesity has become a medical condition in modern western culture. It's even being referred to as an epidemic (Phillips, Stone 2007).

MATERIALS AND METHODS

This work was carried out in Kalabari Kingdom, in the following towns: Abonnema, Iilema, Buguma, Bakana, Obuama (Harry's town), Ido, Degema, Tema, and Krakrama. From these towns a total of three hundred and four (304) subjects, males 117 and females 187 were recruited. Both male and female subjects were selected randomly, between the ages of 12 – 65 years.

MATERIALS

The materials used in the research study are as follows:

- The "HARSON EMPERORS" bathroom weighing scale graduated in kilogram (kg).
- A measuring tape was used to measure the height of the subject. The tape was graduated in meters (m).

OTHER MATERIALS INCLUDE:

- a) Recording papers; For collection of data.
- b) Pen: For writing of data.
- c) Calculator:
- d) A questionnaire

METHODS

PROCEDURE FOR MEASURING HEIGHT

- The subject was asked to stand without shoes on, looking forward
- The tape was used to measure the height of the subject from his foot to his head.
- The height was measured and recorded.
- This was done for two consecutive times and the average was recorded.

PROCEDURE FOR MEASURING WEIGHT

- The subject was asked to remove shoes or any foot wear, wearing light clothes and with hands on the side.
- The subject was asked to climb on the bathroom weighing scale
- The weight of the subject was measured and recorded.
- This was done for two consecutive times and the average was recorded.

QUESTIONNAIRE: The questionnaire was self-administered.

RESULTS AND ANALYSIS

A sample of three hundred and four (304) subjects were randomly selected, with one hundred and seventeen (177) males and one hundred and eighty seven (187) females. Four (4) of the subjects were underweight, ninety (90) of the subjects were normal, sixty-one (61) of the subjects were overweight and one hundred and forty-nine (149) of the subjects were obese.

Table 1

BMI		NO OF SUBJECTS
<18.5	UNDERWEIGHT	4
18.5-24.9	NORMAL	90
25-29.9	OVERWEIGHT	61
≥ 30	OBESE	149
	TOTAL	304

From the results gotten, it was observed that 1% of the subjects were underweight, 30% were normal, 20% were overweight and 49% obese.

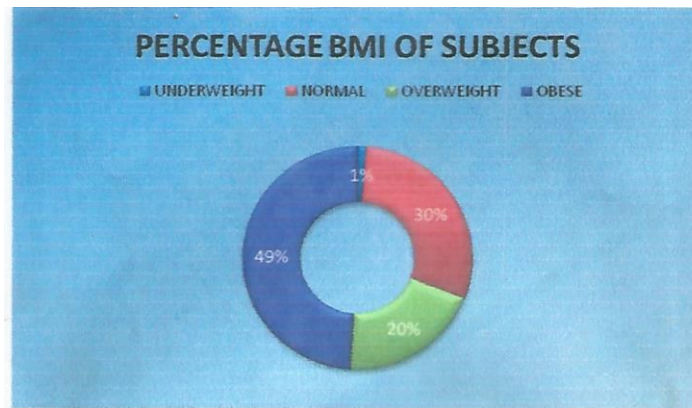


Chart 1: Percentage BMI of participants

STATISTICAL ANALYSIS ONE-WAY ANOVA

For the ANOVA tables, if the calculated F value is \geq the standard F table value, then the test is significant, on the other hand if the calculated value is less than the table value, then the test is “not significant”. The Sig in the tables represent F probability testing at 5% confident limit i.e, a probability of 0.05, thus if the calculated value is less P 0.05, then the test is significant, on the other hand, if the calculated P value is greater than 0.05, then the test is not significant. (Table 2 below). Thus if the F calculated value is \geq the F table value, or if the calculated value is less P 0.05 then reject the null hypothesis and accept the alternative hypothesis i.e the test is significant.

On the contrary, if the calculated F value is less than the standard F table value, or if the calculated P value is greater than 0.05 then accept the null hypothesis, this means the test is not significant.

Null hypothesis (H₀):

This states that there is no significant difference between the mean values of various groups or samples.

Alternative hypothesis (H₁):

This states that there is a significant difference between the mean values of various groups or samples.

Table 2: One way ANOVA: Effect of some parameters on Obesity

		Sum of Squares	Df	Mean Squares	F	Sig.
Effect of Body mass index on obesity	Between Groups	9727.173	3	3242.391	21.431	.0000
	Within Groups	45387.358	300	151.291		
	Total	55114.531	303			
Effect of occupation on obesity	Between Groups	173.214	3	57.738	7.122	.000
	Within Groups	2432.036	300	8.107		
	Total	2605.250	303			
Effect of food on obesity	Between Groups	36.892	3	12.297	46.705	.000
	Within Groups	78.989	300	.263		
	Total	115.882	303			
Effect of genetics on obesity	Between Groups	.538	3	.179	.998	.394
	Within Groups	53.880	300	.180		
	Total	54.418	303			
Fattening room effect on obesity	Between Groups	9.503	3	3.168	15.091	.000
	Within Groups	62.761	299	.210		
	Total	72.264	302			

* The mean difference is significant at the .05 level. Therefore, Body Mass Index (BMI) has effect on Obesity, Occupation has effect on Obesity, Food has effect on Obesity, Fattening room (females) has effect on Obesity but Genetics has no effect on Obesity.

OBESSE SUBJECTS

Of the one hundred and forty-nine (149) obese subjects (49%), 48 (32.21%) are males, while 101(67.78%) are females. Looking at the factors causing obesity in the 149 subjects:

OCCUPATION

Table 3 below shows the frequency of occupation practiced by the obese subjects, with trading as the most practiced occupation, followed by business, then worker (civil servants, brokers, marketers etc), then student, house wife, self-employed, retiree, fishing,

driving, applicant, politician, NYSC, force, farming, and finally banking.

Table 3: Frequency of Occupation

Occupation	Frequency	Percentage
Trading	67	44.9%
Business	20	13.4%
Worker	18	12.0%
Student	17	11.4%
Housewife, self-employed, retiree	14	9.3%
Fishing	3	2.0%
Driver	2	1.3%
Applicant	2	1.3%
Politician	2	1.3%
NYSC	1	0.7%
Force	1	0.7%
Farmer	1	0.7%
Banker	1	0.7%
Total	149	100%

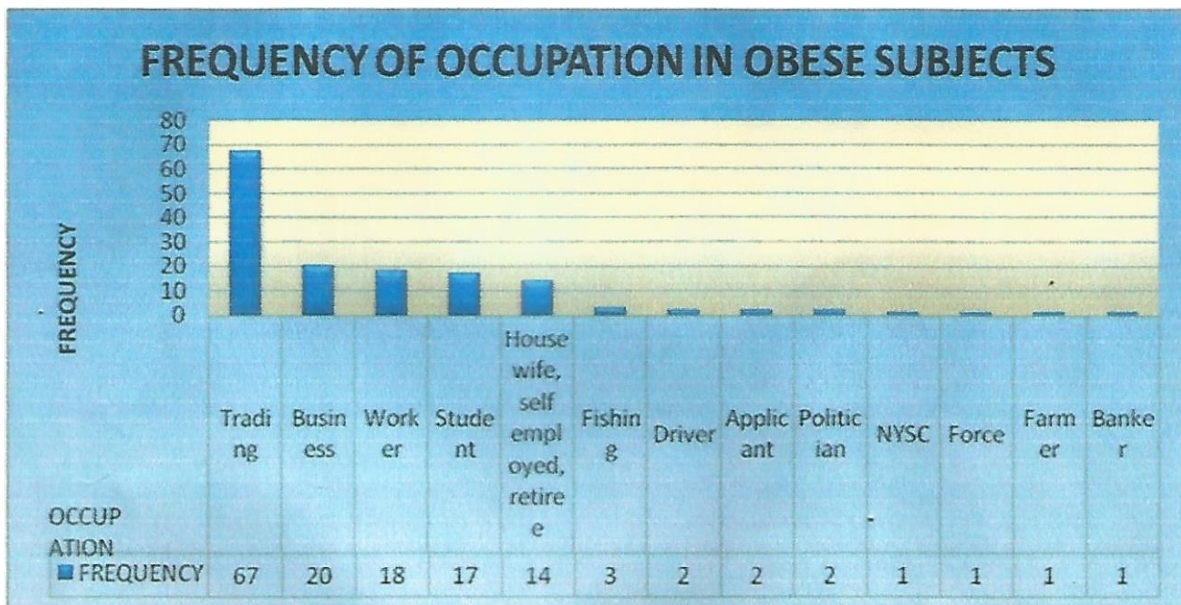


Chart 2: Frequency of occupation in obese subjects

FOOD

Carbohydrate is the most eaten food among the Kalabari people. Table 4 below, shows that one hundred and seventeen (117) obese subjects (78.5%) eat more of

carbohydrates in their meals. It also shows twenty one (21) obese subjects (14.1%) eat approximately both carbohydrate and protein, and eleven (11) subjects (7.4%) eating more protein in their meals.

Table 4: Frequency of the Most Eaten Food

Food	Frequency	Percentage
More Protein	11	7.4%
More Carbohydrate	117	78.5%
Approx. equal carbohydrate and protein	21	14.1%
Total	149	100

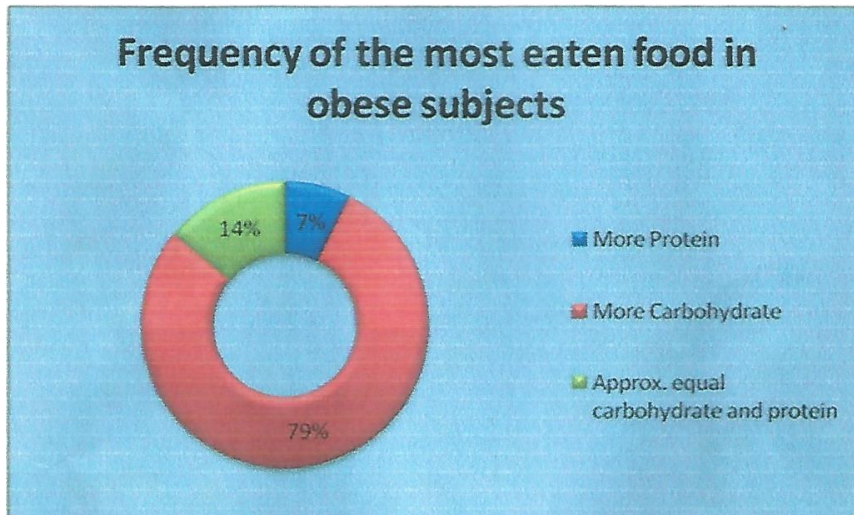


Chart 3: Frequency of the most eaten food in obese subjects

OBESE RELATIVES

A lot of the obese subjects have relations that are obese, but a few of them don't have obese relatives (Table 5). A hundred and five (105) of the obese subjects

(70.5%) have relatives that are obese as well; while forty-four (44) of the obese subjects (29.5%) do not have relatives that are obese.

Table 5: Frequency of Obese Relatives

Obese Relatives	Frequency	Percentage
YES	105	70.5%
NO	44	29.5%
TOTAL	149	100

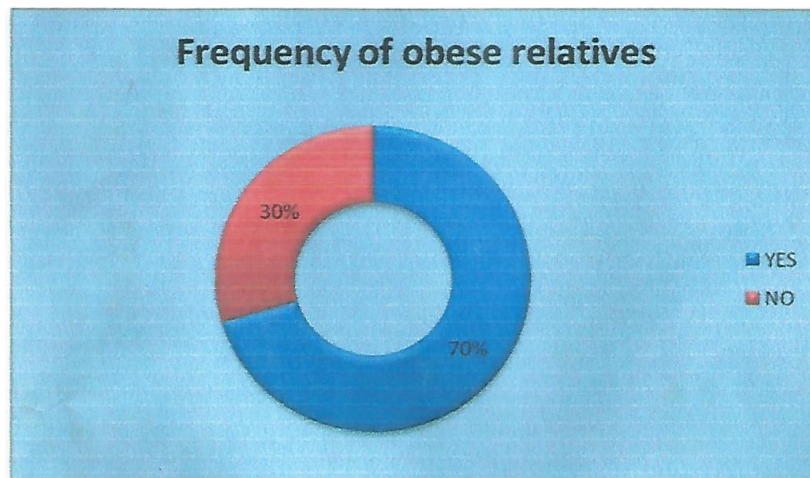


Chart 4: Frequency of obese relatives

FATTENING ROOM

Fattening room visits is one of the major cultures of the Kalabari women, as earlier seen in chapter one, females especially the married females visit the fattening room and spend between 3-4 months after the

birth of each of their children. Table 6 shows that fifty-eight (58) female subjects (57.4%) have visited the fattening room, and forty-three (43) female subjects (42.5%) havenot visited the fattening room.

Table 6: Frequency of Obese Relatives

Fattening Room Visits	Frequency	Percentage
YES	58	57.4
NO	43	42.5
TOTAL	101	100

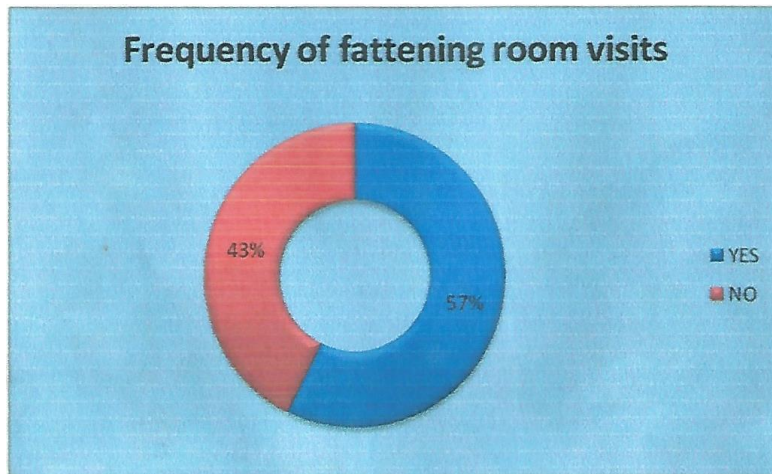


Chart 5: Frequency of fattening room visits

RELATING AGE WITH OBESITY

It was observed that subjects of different age ranges have obesity. From the Table7 below, it could be seen that females between the ages of 31-40 are more obese having a rate of 18.8% while females between the age of 12-20 are the least obese having a rate of 8.1%. From chart 6, it is seen that the rate of obesity is highest between the ages of 31-40, followed by 51-65 years, then 41-50 years, 21-30 years and finally between ages 12-20.

It could be seen also that males between the ages of 51-65 are more obese having a rate of 17.4%, while there are no obese males between the ages of 12-20 with a rate of 0.0% (Table 7). The rate of Obesity in kalabari is highest in males between the ages of 51-65, followed by ages 31-40, then ages 21-30, ages 41-50, and finally ages 12- 20. (See chart 7).

Table 7: Relating Age with Obesity

Age (Years)	Rate Of Obesity				Total
	Female	Percentage	Male	Percentage	
12-20 years	12	8.1%	-	0.0%	12
21-30 years	15	10.1%	10	6.7%	25
31-40 years	28	18.8%	14	9.4%	42
41-50 years	20	13.4%	5	3.4%	25
51-65 years	26	17.4%	19	12.8%	45



Chart 6: Age range of obese females

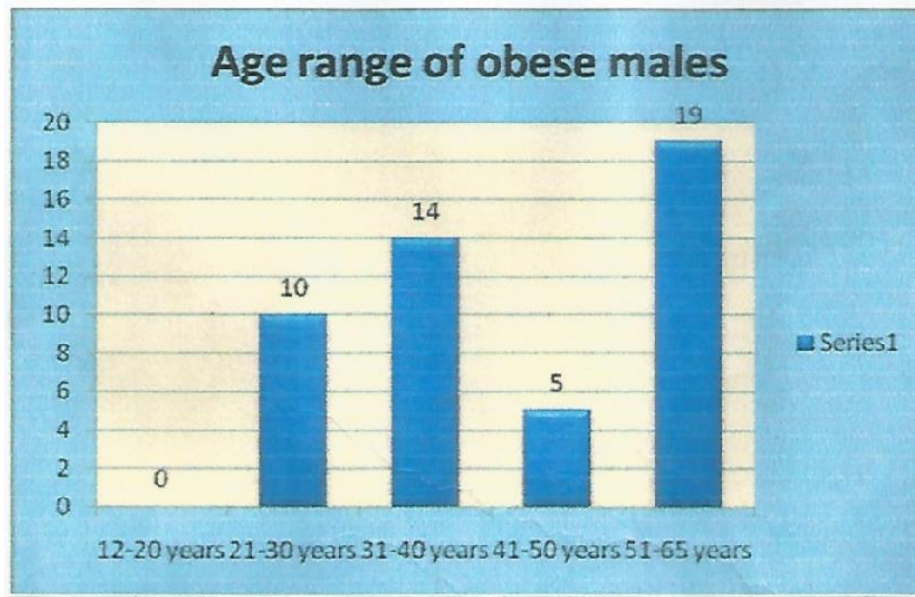


Chart 7: Age range of obese males

DISCUSSION AND CONCLUSION

Of the 304 subjects used for the study, it was discovered that 1% was underweight, 30% were normal, 20% were overweight, and 49% were obese.

From the result, 8.1% females in Kalabari between the ages of 12-20 are obese compared to 20% of obese school children in Beijing (World Heart Federal Fact-sheet, 2002).

18.8% of the Kalabari women aged 31-40 are obese compared to 33.9% of obese women aged 35-44 in the United States (according to Health United State, 2003, NCHS). This difference could be as a result of the different occupation practiced by the Kalabari women.

Also, it was seen that 12.8% of Kalabarimen aged 55-64 in the United States (according to Health United States, 2003, NCHS). This difference could be as a result of the different occupation which is practiced by the Kalabarimen.

59.7% of Kalabari women between the ages of 21-65 are obese, and this can be compared to 50% of obese women between the ages of 20-74 in the United States. The rate of obesity of Kalabari women is seen to be slightly higher than that of women in the United States; one of the reasons is due to the fact that most of the Kalabari women who are obese enter the fattening room.

CONCLUSION

Conclusively, a total of 49% of subjects used for this study were obese, with women being more obese than men.

It is shown that body mass index (BMI), occupational background, eating habit and fattening

room cultural practice have significant effect on obesity while genetics have little or no effect on obesity. In view of these, it is recommended that people in the area of study should cut down on their daily intake of food especially carbohydrates, exercise among individuals should be encouraged and the fattening room practice should be abolished.

The study recommends that individuals are advised to cut down on the quantity of food especially carbohydrate intake in their daily meals, exercise should be greatly encouraged, eating in between meals should be stopped or highly reduced, messages should be passed across on the dangers of obesity, and an alternative culture should be sought for, order than the fattening room practice.

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Conflict of Interest: We write to declare that there is no conflict of interest.

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