THE PREVALENCE OF OBESITY AMONG RESIDENTS IN BENIN CITY METROPOLIS

Salami L .I. (Prof) and Nwabah N. I (Ph.D.)
Department of Vocational and Technical Education
University of Benin, Faculty of Education, Benin City.

Abstract
The purpose of this study was to determine the prevalence of obesity among residence in Benin City metropolis. Specifically the study determined, eating style, types of diet consumed majorly. The study was carried out in Benin City, Nigeria; Population for the study comprised 1,147,188 people in Benin City metropolis. A convenient sampling technique was used to select 600 residences for the study. The instrument for data collection was structured questionnaire. Frequencies and percentages were used for data analysis. Findings revealed that majority of the residences in Benin City metropolis lacked nutritional knowledge hence they consumed any type of food that is available.

Introduction

Nutrition and health science is constantly evolving; still obesity poses an alarming threat to the whole human race. Obesity, which was once considered a problem of the high-income counties, is now rising worldwide. Caballero (2007), noted that for thousands of years obesity was rarely seen. Curtin, Ogaden , flegal , Carroll and Haslam , (2010) noted that obesity was not noticed until the 20th century that it became common , so much that in 1997 the World Health organization (WHO), (2000) , formally recognized obesity as a global epidemic . In 2005 the WHO established that at least 400 million adults (9.8%) are obese, with higher rates among women than men. The findings of Abubakari , lauder , Aguyeman , Jones , Kirk and Bhopal (2008) , agreed that obesity rate in west Africa is established to be 10% .Rates of obesity among women are three times those found in men and has doubled in the last 15 years. The findings of the National Bureau of Economic Research (2013) shows that obesity prevalence rate will rise (40%) for men and (43%) for women by 2020. Those in the highest socioeconomic status (SES) Show1.9% to be obese at age 18 and 19.6% at age 40. Of those in the low SES group 4.6% are obese at age 18 and 31.3% are obese at age 40.

The major problem of obesity is the health risks accompanying it. Healthy people (2010) noted that obesity increases the risk of a number of health conditions, resulting in unhealthy life-year with poor quality of life and increased health care costs. Healthy People continued that the health risk associated with obesity include hypertension, adverse lipid concentration, and type 2 diabetes among others. The findings of Allison, Fontaine, Manson, Stevens and Vanitallie (1999), stated that obesity was found to be the leading health issue in the United States society, resulting in about 300,000 deaths per year. The rate of sudden deaths in Nigeria due to heart failures may not be far from obesity health risks. Increase in the rate health risks of obesity and its prevalent have prompted the research.

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have adverse effect on health, leading to reduce life expectancy and increase health problems (WHO, 2000, Matthew, 2013). Individuals are considered obese when their body mass index (BMI), a measurement obtained by dividing their weight in kilograms by the square of the person's height in meters. Robert (2001), classified obesity as thus:

BMI	Classification		
< 18.5	underweight		
18.5 – 24 .9	normal weights		
25.0 – 29. 9	over weight	----------	at risk of related health problems
30.0 – 34.9	class 1 obesity	----------	increased health risk
35.0 – 39.9	class 11 obesity	----------	increased health risk
>40.0	class 111 obesity	----------	major health risk

Expressed in kilograms per square meter (WHO, 2000).

According to Christakis and Fowler (2007), obesity increase the likelihood of various diseases, particularly heart diseases, type 2 diabetes, obstructive sleep apnea, certain types of cancer, and osteoarthritis. The authors, also, stated that obesity is most commonly caused by a combination of excessive food intake, lack of physical activity, and genetic susceptibility. A few cases are caused primarily by genes, endocrine disorders, medications or psychiatric illness. Evidence to support the view that some obese eat little yet gain weight due to a slow metabolism is limited. On the average obese people have greater energy expenditure than their thin counterparts due to the energy required to maintain an increased body mass. In support, Matthew (2013) stated that causes of obesity are diet, sedentary life style, genetic, and other illness. This therefore, means that individuals must understand the implications of excessive eating of starchy and fatty foods, indulging in sedentary life style of not getting involved in physical activities. Studies have shown that dieting and physical exercises are the main treatment for obesity. The National Control of Health Statistic (2008) stated that diet quality can be improved by reducing the consumption of energy – dense foods such as those high in fat and sugars and by increasing the intake of dietary fiber.

Research findings have shown that obesity is the most serious public health problem of the 21stcentury, a leading preventable causes of death worldwide, with increasing prevalence in adult and children. This alarming had made solution to the problem imperative and very urgent. To seek solution therefore, the study is poised determining the prevalence of obesity among residence in Benin City metropolis.

Purpose of the Study

The main purpose of the study was to determine the prevalence of obesity among residence in Benin City metropolis. Specifically the study determined:

1 Eating style of residents in Benin City metropolis.
2 Types of diet consumed majorly by residents in Benin City metropolis.
3 Body measurements (height and weight) of residences in Benin City metropolis.

Research Questions

Three research questions guided the study

1 What are the eating styles of residents in Benin City metropolis?
2 What type of diet do residence in Benin City metropolis consumed majorly?
3 What are the body measurements (height and weight) of residents in Benin City metropolis?

Methodology

Area of the Study: This study was carried out in Benin City environ , in Edo state , Nigeria , comprising of four local government areas(LGAs) – IkpobaOkha, Oredo , Egor and Ovia North East . For the metropolis, Oredo is considered.

Design of the Study: The study was cross – sectional survey involving quasi experimentation. This is because it involved the use of matching instead of randomization as in the experimentation, In other words, the data collected is compared to WHO standards which technically is not a control.

Population for the Study: The population of the study consisted of all the residents in Benin City environ. These gave a total population of approximately 1,147,188 people (Source: Census 2006).

Sample for the Study : The sample for the study is made up of three hundred and fifty (150) adults – men and women , three hundred and fifty(300) children – ages 6years – 11 years in Benin City metropolis , giving a total of three hundred (300) persons . Random sampling technique was utilized to select one (Oredo) out of the four LGAs in Benin City metropolis.Convenient sampling technique was used in getting the study sample.

Instrument for Data collection: The instrument for data collection for the study was an anthropometric chart. The chart comprised of columns for sex,age, weight and height measured as well as column for body mass index BMI for each child and adult. Structured questionnaire on eating style, who suffers from these diseases, major food consumed was also used. The anthropometric charts designed by the researcher for data collected and the questionnaire was validated by three lecturers in human nutrition, Home economics.

Data Collection Technique: The body weight and height of each child and adult was taken using potable bathroom scale (HANSONModel) to the nearest0.2kg. Standing height was measured using constructed vertical wooden rod affixed with graduated fiber glass tape. Subjects stood bare footed and readings were taken to the nearest 0.1cm. The body mass index BMI was calculated as well for each subject from height and weight measurements obtained thus;

$$BMI = \frac{\text{body weight (kg)}}{\text{Height } (M^2)}$$

The height and weight measurements recorded in the chart were compared with World Health Organization (WHO, 2001) referencestandard. Distribution and collection of the instruments were by hand. Three research assistants were trained and used for the data collection. All the 300 copies of the questionnaire were duly completed and returned. This represents 100% return rate.

Method of Data Analysis: Six commonly used weight indicators namely – underweight , normal weight , overweight class 1 obesity , class11 obesity , class 111 obesity were used to evaluate the nutritional status of the subjects .Mean and standard deviation were used to calculate the distribution, while frequency and percentage were used to calculate the prevalence of overweight. T-test was used to test the hypothesis at 0.05 level of significance. Results were compared with WHO (2007) reference standard.

Findings of the study: Based on the data analysis, the following findings were made:

Table 1: The Percentage Scores of the Eating Styles of Residents in Benin City Metropolis

S/N	Eating Style	N=600	
		Frequency	Percentage
1.	Eat three times a day	264	49.5
2.	Eat once a day	10	1.9
3.	Eat twice a day	140	26.3
4.	Eat as many times as …	108	20.3
5.	Eat more when depressed	11	1.8

Data in Table 1 displays the eating styles of residence in Benin City metropolis. From the findings, 49.5% of the respondents eat three times a day, 26.3% of the respondents eat twice a day, 20.3% of the respondents eat as many times as they feel like eating , while 1.9% of the respondents eat once a day. Only 1.8% of the respondents eat more when depressed.

Table2; Responses on Types of Diet Consumed by Residents in Benin City Metropolis

S/N	Types of Diet Consumed	N=600			
		YES		NO	
		Frequency	Percentage	Frequency	Percentage
1	Fried eggs	491	82.7	103	17.3
2	Doughnut	401	67.5	193	32.5
3	Fish rolls	400	67.0	197	33.0
4	Buns	331	55.7	263	44.3
5	Fried fish	525	87.9	72	12.1
6	Fried potatoes	414	69.7	180	30.3
7	Ice cream	449	75.6	145	24.4
8	Egg roll	448	75.4	146	24.6
9	Butter	350	59.2	241	40.8
10	Whole grain	414	70.4	174	29.6
11	Fruits	548	92.7	43	7.3
12	Meals with lots of vegetables	470	79.7	120	20.3
13	Vegetables	481	81.9	106	18.1

Data in Table 2 displays the type of diet consumed by residence in Benin City metropolis. It presents the frequency counts and percentages of respondents who answers '' yes'' or '' no'' to the types of diet consumed by the residence in Benin City metropolis in Edo State, Nigeria. Out of 600 respondent,

491 respondent representing 82.7% responded positively to the consumption of fried eggs, 401, representing 67.5% agreed to the consumption of doughnut,400 respondents, representing 67.0%, consumes fish rolls, 331 respondents , representing 55.7%, responded positively to consumption of buns, 525 respondents representing 87.9% agreed to consumption of fried fish, 414 respondents representing 69.7% said yes to the consumption of fried potatoes, 449 respondents representing 75.6% affirmed to consumption of ice cream. Out of 600 respondents, 448 representing 75.4% responded positively to consumption of egg roll 350 respondents representing 59.2% agreed to the consumption of butter. The findings in table 2 also revealed that out of the 600 respondents 414 representing 70.4% responded positively to the consumption of whole grain, 548 responded representing 92.7% responded positively to the consumption of fruits, 481 representing 81.9% responded positively to the consumption of vegetables, while 470 respondents representing 79.7% also, responded positively to the consumption of meals with lots of vegetable.

Table 3: The Prevalence of Obesity Among Residents in Benin City Metropolis

Age	Weight (Kg)		Height (m)		Body Mass Index					
(Years)	Male	Female	Male	Female	UW	NW	OW	C1O	C11O	C111O
1-10	24	25	1.2	1.3	-	18.8	-		-	-
11-20	56	59	1.7	1.6	-	-	-	33.8	-	-
21-30	56	59	1.8	1.7	-	-	-	31.9	-	-
31-40	70	62	1.8	1.7	-	-	-	-	36.7	-
41-50	65	66	1.8	1.7	-	-	-	-	36.4	-

*WHO (2000) Anthropometric Standard. *UW- Underweight, *NW- Normal weight, *OW – Overweight, *C1O – Class1 Obesity, *C11O – Class 11 Obesity, * C111O – Class 111 Obesity

Table 3 shows that most respondents within the age range of 11- 20 and 21-30 suffered from a class 1 obesity, while the respondents within the age range of 31-40, and 41- 50 suffered from class 11 obesity . However, the respondents within the age range of 1-10 had normal weight. The normalcy in weight may be attributed physicalactives the children get involved in both in school and at home.

Table 4: t-test Analysis of BMI of Male and Female Residence in Benin City Metropolis in Edo State

Sex	BMI	Kg/m^2
Male	30.0	$^{+}$1.8
Female	30.0	$^{+}$1.7
T-Value	0.7650	

Table 4 shows that mean BMI of the males ($30.0kg/m^2$) was not significant different ($P< 0.05$) from the mean BMI of the female ($30.0kg/m^2$). Therefore the null hypothesis which states that there is no significant gender difference in the mean BMI of the adults was upheld.

Table 5: Frequency/ percentage Responses of those suffers from the disease Among Respondents and Descendants of Residents in Benin City Metropolis.

S/N	History of Diseases	N=600 Suffers	Frequency	Percentage
1	History of smoking?	Self	72	12.0
		Mother	6	1.0
		Father	195	32.5s
		Other relatives	327	54.5
2	Hypertension?	Self	42	7.0
		Mother	129	21.5
		Father	234	39.0
		Other relatives	195	32.5
3	Diabetes?	Self	45	7.5
		Mother	75	12.5
		Father	15	2.5

		Other relatives	465	77.5
4	History of physical inactivity?	Self	45	7.5
		Mother	75	12.5
		Father	15	2.5
		Other relatives	465	77.5
5	Family history of premature cardiovascular diseases (before 60 years)	Self	-	-
		Mother	108	18.0
		Father	252	42.0
		Other relatives	240	40.0
6	History of obesity?	Self	66	11.0
		Mother	234	39.0
		Father	45	7.5
		Other relatives	255	42.5

Table 5 revealed the 6 listed diseases and those who suffered from them; three had over 50% adoption by the respondents. The respondents whose relatives had the history of smoking were 54.5%, 77.5% of the respondents relatives suffered from diabetes, while 77.5% relatives suffered from the history of physical inactivity.

Discussion of the findings

Table 1 shows the eating styles of residents in Benin City metropolis. Majority of the respondents eat three times a day, a meal pattern normally most accepted by Nigerians. The data in table 1 also showed that 20.3% of the respondents eat as many times as they desire to eat a day. Though the consumption of meals is three times a day, most of the meals consumed are relatively high in carbohydrate and fats. The types of diets consumed by the residents, no doubt, will definitely lead to overweight and then to obesity, hence its prevalence. This finding is in line with Mathew (2013) who stated that the causes of obesity are diet, excessive eating of starchy and fatty food. The National Control of Health Statistics (2008) cautioned that diet quality can be improved by reducing the consumption of energy-dense foods such as those high in fats and sugars and by increasing the intake of dietary fiber.

Table 3 revealed the average height and weight of the residence compared favourably with WHO anthropometric standards (2000). This implies that majority of the residents in Benin City metropolis were suffering from overweight and obesity, indicating over nutrition. This incidence of over nutrition is not surprising as the study was conducted in urban area and over nutrition is expected to be more prevalent in urban area than result of under nutrition. This finding is in line with Mathew (2013) stated that obesity is caused by diets, sedentary life styles, genetics and other illnesses. The prevalence of overweight and obesity can be as a result of over eating of diverse energy and fatty food, poor food habit, physical inactivity, and sedentary life styles like watching television. These findings are consistent with the findings of The National Bureau of Economic Research (2013), who stated that obesity prevalence rate is highest among the high Socio Economic Status (SES). The findings of Abubakari, Laudu, Aguyeman, Jones, Kirk, and Bhopal (2008) also agreed that obesity rate in West Africa is established to be 10%. The BMI which is needed in assessing obesity compared favourably with WHO (2000) Anthropometric standards. The results showed prevalence of overweight and obesity among the adults. Only the children between 0-11 years had normal weights. The girls' weights were slightly higher. This result may be attributed to the active years in school. In active stage, the consumption rate and usage are almost equal, so no excess of food is stored up in the body; the occurrence of obesity becomes rare.

Table 5 revealed that77.5% of the relatives suffered from diabetes and had history of physical inactivity. These findings show that illness associated with obesity were in the gene of the residents suffering from obesity. This therefore means that the residents need to seriously check the prevalence of obesity, by checking their eating styles, the types of foods consumed and get involved in active lifestyles – like exercise, gardening, taking brisk walks and taking part in house chores. These findings are in line with Christakis and Fowler (2007), who stated that obesity increases the likelihood of various diseases, particularly hearty diseases, Type 11 diabetes, obstructive sleep apnea, certain types of cancer and

osteoarthritis. Christakis and Fowler (2007) further noted that a few cases are caused primarily by genes, endocrine disorders, medications or psychiatric illness. Lack of significant gender difference in the mean BMI of the residents as evident in the test of hypothesis implies that there is no gender discrimination as regards nutrition among the residence in Benin City metropolis in Edo State.

Conclusion

It is obvious from the study that there is prevalence of overweight and obesity among the residents in Benin City. This means that the residents indulge in over eating of foods high in energy and fat and most probably live inactive and sedentary life, causing overweight and prevalence of obesity in Benin City metropolis.

Recommendations

Based on the findings of the study, the following recommendations were made:

- Home Economists and health educators need to address the issue of obesity, by giving health talks in radios and television.
- Public awareness programmes on the importance of eating adequate meals and exercise.
- Physical activity programme should be included in the school curriculum and in workers schedules to ensure fitness among children and adults.
- A planned treatment program should be implemented after BMI reaches 30.

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