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PERCENTAGE BODY FAT AND BMI PROFILES OF SELECTEDCHILDBEARING AGE WOMEN AMONG LASU STUDENTS

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ABSTRACT

Obesity is a major public problem of concern toevery group of people in the contemporary society. This study focused on cases of obesity among women of child bearing age ,who are students of Lagos State University [LASU] Ojo, Lagos Nigeria. It also correlates their percent body fat [%body fat] with their ages and number of successful child delivery. 30 students who were married woman, with mean age of 39.83±4.86 within the range of 29-47 years participated in the study. The variables measured on each participants were height, weight and skinfolds from seven sites [chest, scapula, axilla, triceps, waist, hip and thigh folds]. Ages and number of successful child delivery were also recorded. Data collected were analyzed using mean and Pearson's Product Moment Correlation Coefficient [PPMC] at 0.05 probability level.Findings show that obesity is prevalent among Lagos State University female students that are of childbearing age; and there is positive relationship between their ages and obesity. However frequency of child delivery has no relationship with obesity among the women.

INTRODUCTION

Obesity is a major public health problem indeveloped countries and is also becoming increasingly extensive in developing countries undergoing nutrition transition because of changes in diet and lifestyles [Uzualor, 2006; Marchie, 2006; Olubayo-Fatiregun, 2006; Belahsen,

Mziwira andFertat, 2003; 86 Okuneye, 2002]. According to Belahsen, Mziwira and Fertat [2003], obesity is a significant cause of morbidity and a factor in mortality owing to its multiple complications thatinvolve hypertension, non-insulin-dependent diabetes mellitus, hypercholesterolemia and cardiovascular and respiratory diseases.

Citing Okeke and Ngwu, Olubayo-Fatiregun [2006]states: "incidence of obesity was found to be very high among Nigerian men and women; specifically 54.3% of a group. of Nigerian women was found to be obese." Olubayo-Fatiregun [2006] adds that 10 of every 15 cases of sudden death that occurs through renal failure, cardiac arrest andhypertension in Ilesa, Nigeria are associated with obesity.

Of particular interest in this study is the prevalence of obesity among women of childbearing age. Generally, obesity, or too much body fat, has become a serious health threat for women at every stage of life (Health Check Systems, 1997), and it is on the increase among women at all stages (Task Force on Nutrition and Optimal human Development, 2002) According to Health Check System (1997), it is linked as a serious factors in more than thirty conditions that affect women.

In relation to pregnancy, Mercola (2005) mentions that obesity is loaded with complication that includes:

- Increased rate of hypertensive disease, cesarean section and infection.
- Higher rate of blood clots and respiratory complications.
- Independent risk factor for neural tube defects, fetal mortality and preterm delivery.
- Childhood obesity and its associated morbidity.

Similarly, task force on nutrition and optimal human development (2002), states that women who are obese before pregnancy are risking the health of themselves and their unborn child. University, Task Force on Nutrition and Optimal Human Development (2002), mentions that obese women can develop gestational diabetes, high blood pressure and need to be hospitalized during pregnancy. Their babies can be born prematurely or suffer serious birth defects and other severe problems. Siega-Riz, Siega-Riz and Laraia, (2006) also report several obese-based complication among childbearing age women of United States.

Obesity is particularly dangerous for women of childbearing age, because it creates a life cycle of serious problems that can be passed from generation to generation. This is particular for the babies of obese women, because when they grow they are more likely to suffer from Cardiovascular Disease, Diabetes and other health problem (Task Force on Nutrition and Optimal Human Development, 2002). This could be so for the lucky ones who survived the complication during pregnancy and labour. This study focused on determining the percent body fatand BMI profiles among women of childbearing age, who are students of Lagos State University (LASU) Ojo, Lagos Nigeria. It also correlates their percent body (% body fat) with their ages and number of successful child delivery.

The following research questions served as guide in this study:

1. Will Obesity will be prevalent among childbearing age female students of LASU?
2. Is there any relationship between % bodyfat of childbearing age female students of LASU and their ages?
3. Is there any relationship between % bodyfat of childbearing age female students of LASU and number of successful child delivery?

METHODS AND PROCEDURE PARTICIPANTS

The population of this study included all femalestudents of Lagos State University Ojo, Lagos State Nigeria, that are of childbearing age. However, Thirty of them who are students of

Sandwich Degree Programme in the Faculty of Education of the University volunteered to participate in the study. All participants were given informed consent form that explained the purpose of the study and the procedure for data collection. They all filled copies of this form and append their signature. This participants were married women, with mean-age of 39.83±4.86 within the range of 29-47 years.

PROCEDURE FOR MEASUREMENT

All measurements and collections of data werecarried out in the Exercise Physiology and Human Performance Laboratory of Lagos State University, Ojo campus, Lagos. The variables measured on each participant were height, weight and skinfolds from seven sites (chest, scapula, axilla, triceps, waist, hip and thigh folds) of Jackson and Pollock equation as described by Carol (2007). The skin folds were measured using Slim-Guide Skinfold Calliper. Ages to the nearest birthday were asked from the participants and recorded to the nearest birthday. In addition, number of successful child delivery were also recorded. The standard measurements procedure as described by International Society for the Advancement of Kinanthropometry (ISAK, 2001) were followed to measures height and weight using Seca 220 model of stadiometre for height, and weighing scale for weight respectively.

The Body Mass Index (BMI) was calculated as described by Fahey, Insel and Roth (2001), and body fat percentage was calculated using 7-fold formula of Jackson and Pollock as described by Carol (2007).

DATA ANALYSIS

The data collected in this study were coded andsubjected to statistical analysis. Descriptive statistical tool of Mean and pictorial analytical tool of scattergram were used to describe results,

while. Pearson's Product Moment Correlation Coefficient PPMC) was used to test the relationship of variables at 0.05 probability level.

RESULTS

Table 1: Results on Mean (X), Standard Deviation (SD) and Range (R)

Variables	X	SD	R
Height [cm]	153.69	9,34	145.20-171.30
Weight [kg]	74.82	16.74	45.60-109.21
Age [years]	39.83	4.86	29-47
No of Children	2.3	0.89	0 - 5
BMI[kg/m^{2}j	37.94	7.42	19.75-45.28
%Bodyfat	33.26	8.88	10.70-41.09

Results presented in table 1 show that the mean height of the participants of this study was 153.69±9.34 within the range of 145.20-171.30cm, while their mean weight was 74.82±16.74 within the range of 45.60-109.21 kg. The mean age was 39.83±4.86 within the range of 29-47 years, andmean-number of children successfully delivered was 2.3±0.89 within the range of 0-5 children. The table further shows that the participants recorded mean BMI of 37.94±7.42 within the range of 19.75- 45.28kg/m^2, and mean % body fat of 33.26±8.88 within the range of 10.70-41.09

Table 2: PPMC Results on %body fat relationship to age and number of children

Variables	Σx	Σy	Σxy	df	r-cri	r-cal
%Bodyfat and Age	1194	787.8	940633.2	29	0.36	0.43
%body fat and Number of Children	69	78.8	54358.2	29	0.36	0.27

Results presented in table 2 are on relationship of % body fat to ages and number of children successfully delivered by participants. The table shows that the calculated r-value of 0.43 for %bodyfat and age was greater than 0.36 at 0.05 level of probability. This indicates a significant positive relationship between %bodyfat and ages of participants. The table also ;Flows that the calculated r-value of 0.27 for%bodyfat and number of children was less than the critical value of 0.36 at 0.05 level of probability. This results indicates no significant relationship between %bodyfat and number of successfully delivered children, meaning that the number of children successfully delivered by the participants has no relationship with their %bodyfat level.Figures1 and 2 further describe these results.

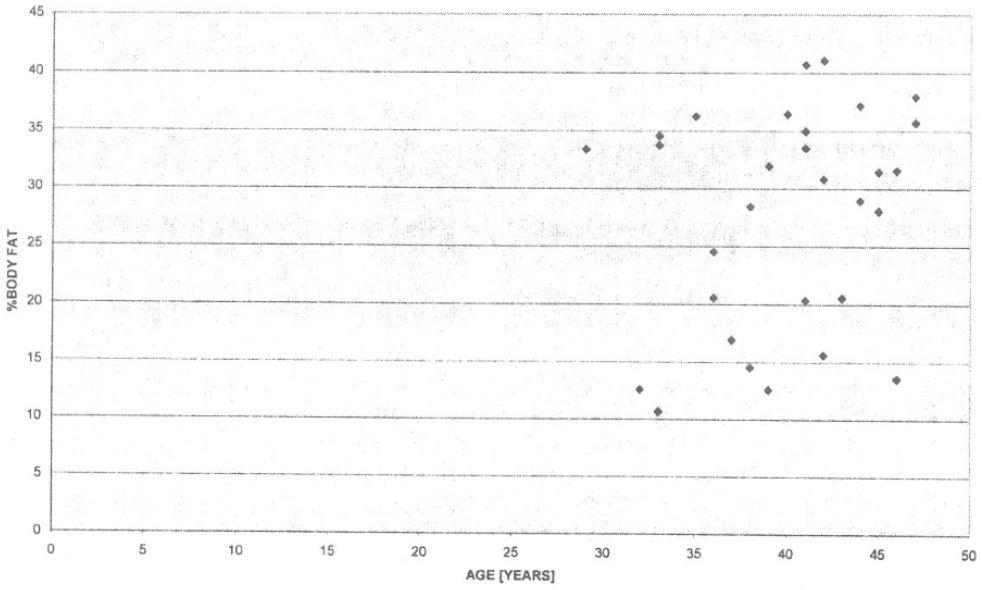

Figure 1: Scattergram showing relationship between ages and % body fat of participants.

Figure 1 shows a pattern of relationship between the ages of the participants of this study and their %bodyfat. It indicates that majority of those who recorded 30%bodyfat and above were forty years of age and above. It is obvious in the figure that many participant were obese, as they recorded above 30% bodyfat.

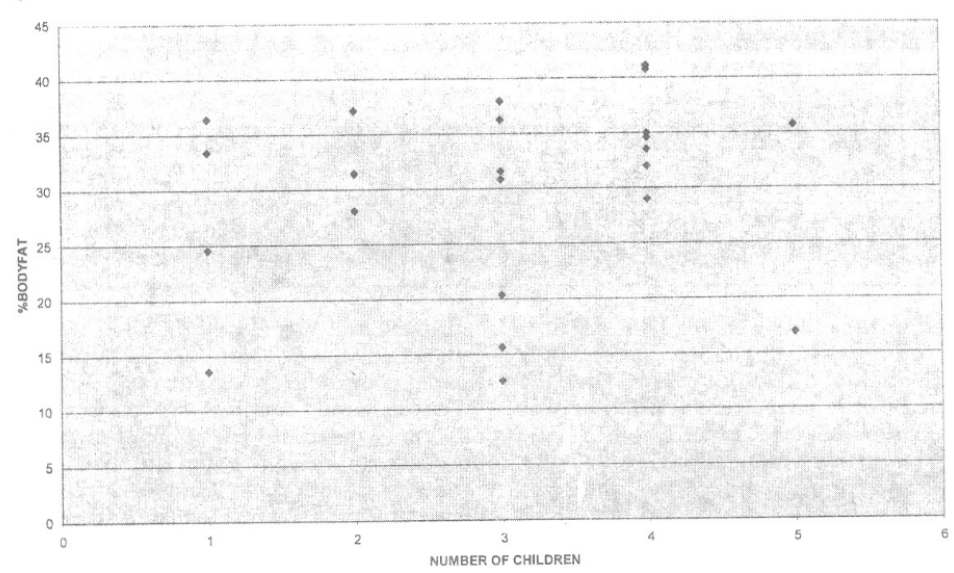

Figure 2: Scattergram showing relationship between the number of children successfully, delivered by the participants and their %bodyfat.

Figure 2 shows no any pattern of relationship between the number of children successfully delivered by the participants and their %body fat. The table shows no significant cluster at any point.

DISCUSSION

Results of this study show that the group ofwomen studies were obese. A record of 37.94 kg/m2 BMI and 33.26 %bodyfat in table 1 indicate obesity in comparison with standard of >30 for both BMI and %body fat (Corbin, Welk, Cobin &, Welk, 2004; Fahey, Insel 86 Roth, 2001; Addo, Akeredolu 86 Akeredolu, 2000; Foss 86 Keteyian, 1998; and Howley 86 Franks, 1992). This finding agrees well with previous reports that indicate significant levels of obesity among women of childbearing age (All India Institute of Medical Sciences [AIIMS], 2007; Siega-Riz 85 Laraia, 2006; and Mercola, 2005). Siega-Riz, Siega-Riz and Laraia (2006) report that in US, a survey of 1999 2002 indicate that 26% of non-pregnant women 2039 years of age are overweight (25-29.9 BMI), and 29% are obese (>29.9 BMI). And on average, obesity among all the women appears to have peaked at 33% with no appreciable increase between 1999-2000 and 2003-2004. AIIMS (2007) also reports that over 50% of women in Indian cities above the age of 35 years are overweight though the percentage goes down to 33.9 percent for rural women.

In the report of Siega-Riz, Siega-Riz and Laraia (2006), comparative analysis indicate clearly that higher proportion of women of childbearing age are overweight or obese corn pared to men, and women of younger or older ages. In addition, upwards of 80% of African American women are either overweight or 132 obese. In Nigeria, many case have been reported among various group of people including women of childbearing age (Uzualor 2006, Marchie, 2006 & Olubayo-Fatiregun 2006). Few years back, Addo, Akeredolu and Akeredolu (2000) report grade III (>40 BMI) and Grade II (30-40 BMI) Obesity among pregnant women Ikere-Ekiti, These are

indications that the case of obesity among childbearing age women in Nigeria is almost an established one.

Finding of these study also shows positive relationship between percent body fat and ages of women of childbearing age; meaning that age is a factor of obesity among this population. This finding too is not far from previous ones. Matthew, Abraham, Crawford, Miles, Neer, Powell, and Wesley [2001] report significant relationship between chronological age of mid-life [40-55 years] Caucasian, African-American, Hispanic, Chinese-American, and Japanese American women. Similarly, Jackson, Stanforth, Gagnon, Rankinen, Leon, Rao, Skinner, Bouchard, and Wilmore[2002] document age as significant correlate of %bodyfat among other related factors. Based on this, they conclude that there is need to consider age when defining the prevalence of obesity with BMI for populations of American men , and women.

This study found no relationship between %bodyfat and number of child delivery among the population. Though there is no significant relationship between these two variables , it is not the intention of these study to encourage too many child deliveries in life time considering other health implications. Studies however have shown that obesity in women can cause serious pregnancy-related complications [Mojtabai, 2007; Mercola,Z005; & Health check system, 1997]. According to Mojtabai [2007], higher pre-pregnancy body mass index (BMI) is associated with increased risk of neutral tube defects (NTDs) and possibly other negative birth outcomes in the offspring.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this study, it is concludedthat obesity is prevalent among Lagos State University female students that are of childbearing age; and there is positive relationship between their ages and obesity. However, frequency of' child delivery has no relationship with obesity among the women.

It is therefore recommended that childbearing age women need to be educated on the negative effects of overweight and obesity to womanhood in relation to pregnancy and child delivery. In

the higher institutions of learning, this aspect of sexuality education could be incorporate into General Studies, so that every female student could be enlightened on this vital issue. In addition, women of childbearing age should be introduced to, and encouraged to participate in programmes that work against gaining excessive weight. Such programmes include exercise and active sporting activities, and appropriate diet programmes. Female students of childbearing age in LASU should be motivated to seize the opportunity of varieties of sports facilities and equipment on the campus to remain active and maintain relatively good body weight and %bodyfat level. The University Sports Council in collaboration with Department of Physical and Health Education should design programmes that will involve mass participation of female students in sports and fitness programmes.

There is need to replicate this study in other higher institutions, and also make a comparison of this population with other women of childbearing age.

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