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Full Length Research Paper

Overweight and obesity among staff of Usmanu Danfodiyo University, Sokoto, Nigeria

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Abstract

The prevalence of obesity is increasing worldwide. Affluence is a sure key factor in the development of obesity as portrayed by increased urbanization and industrialization that has been associated with increased prevalence of obesity. The objective of this study was to estimate the prevalence of overweight and obesity in Usmanu Danfodiyo University, Sokoto, Nigeria, within an urban community perceived knowledgeable. This was a descriptive cross sectional study that involves a systematic random sampling of the University staff to select the respondents. Their weight, height, and body mass index were assessed. Overweight and obesity was defined using the International Obesity Task Force (IOTF) BMI cutoff points. Self administered as well as interview administered questionnaires were used. The average body mass index was 25± 4 with majority of the respondents (50%) having a normal body mass index. The prevalence of obesity was found to be 12% while the prevalence of obesity and overweight combined was 47%. The respondents who had Knowledge of own weights were 67% and those who had no knowledge of their weights were 33%. Respondents who wanted a better shape than they were 82.4% and those who did not mind their shape were 16.5%. The respondents who perceived Obesity as a sign of good living were 12.5%; as a result of laziness 9.7%; as God-given 9.7%; as a disease 68.1%. The study demonstrated a moderately high prevalence of obesity among staff of Usmanu Danfodiyo University Sokoto with poor knowledge of the subject but a good attitude towards it. The study also demonstrated a statistically significant relationship between obesity and some socio-demographic factors like, type of staff and cadre of staff.

Keywords: Overweight, obesity, prevalence, Nigeria.

INTRODUCTION

In both the developed and the developing world, obesity has reached epidemic proportions (Derek *et al*., 2006). More than 10% of the world's adult population was estimated obese with over 200 million men and nearly 300 million women as at 2008 (WHO, 2008). In a study in Northern Nigerian population at katsina state in Nigeria, 21% prevalence was recorded in adults with 29.8% being females and 9.3 % being males (Kolawole *et al*., 2011). The prevalence of obesity is increasing worldwide (Chhatwal *et al.,* 2004) and there is the need to carry out a research in this immediate environment (Usmanu Danfodio University, Sokoto, Nigeria) to determine prevalence and the attitude toward obesity. The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended and many other factors of which the most important are; inactivity; dietary change; genetic predisposition; and recently childhood under nutrition (WHO). Affluence is sure a key factor in the development of obesity as portrayed by increased urbanization and industrialization that has been associated with increased prevalence of obesity (Derek *et al*., 2006). Urbanization takes an important role due to the inactivity and dietary change it comes with. There is a societal difference in obesity relationship with the socioeconomic status of individuals. In developing societies, a strong direct relationship exists between socioeconomic status and obesity among men, women, and children (Sobal and

Stunkard, 1989). Attitude towards obesity differs between the developed and the developing world. Obesity is perceived as a sign of prosperity or good living in most cultures of the developing countries especially Nigeria. This was also the case in the Nepal study where 50% of respondents viewed obesity as a sign of prosperity (Prakash *et al.*, 2011). But obesity is frowned at in the developed countries and considered disfiguring, stigmatizing and a known cause of low self-esteem and social isolation (WHO, 2008). This ill cultural attitude towards obesity in the developing world is sure to influence the prevalence of obesity in these countries, especially Nigeria. Overweight and obesity are the fifth leading risk for global deaths. At least 2.8 million adults die each year as a result of being overweight or obese. In addition, 44% of the diabetes burden, 23% of the ischaemic heart disease burden and between 7% and 41% of certain cancer burdens are attributable to overweight and obesity (WHO, 2008). Little is known about prevalence and attitude towards obesity in Nigerian population working in a tertiary institution with a literate background.

MATERIALS AND METHOD

The study took place in Usmanu Danfodiyo University, Sokoto, Nigeria in June 2014. It is a Federal University situated in North-West zone of Nigeria. The study population comprised of all staff of Usmanu Danfodiyo University Sokoto (academic and non academic) totaling 2,807. The sample size was calculated using the formula for calculating sample size (Dlanne et al.,1999).

$n = Z^2pq/d^2$

Where; n = minimum sample size; Z = standard normal deviate, corresponding to 95% confidence interval = 1.96; P = prevalence from previous studies = 6.7% = 0.067; q = complementary probability of p = 1-p = 1-0.067 = 0.933; d = tolerable margin of error = 0.05

$$n = \frac{(1.96)^2 \times 0.067 \times 0.933}{(o.o5)^2}$$

n = 96

For a population less than 10,000, the total number of questionnaires will be;

$$= n \div (1+ n/N) = 96 + (1 + 96/2806) = 97$$

For an anticipated 85% response, the total number of questionnaires was calculated as

97/0.85 = 114 questionnaires

And the power calculation using online software was 1.

A list of all the university staff was obtained and systematic random sampling (Araoye, 2004) was used to select the 114 staff taking part in the study. An ethical clearance letter and letter of introduction were obtained from the ethical committee in Usmanu Danfodiyo University Teaching Hospital, Sokoto.

The study was a descriptive cross-sectional one, carried out on all staff of Usmanu Danfodiyo University Sokoto. The selected study population were administered semi structured self (literate respondent) and interview (illiterate respondents) administered questionnaires. The variables of the questionnaire include biodata, educational statues, income and cadre of staff. This is in other to elicit the possible pattern existing between level of educational attainment, obesity and attitude towards obesity and also the impact of income and cadre of staffs on obesity.

Determination of Overweight and Obesity

Weight and the height of the respondents were measured using stadiometer. The body mass index was used to measure obesity and it was calculated by dividing the weight of respondents by the square of their heights. The International Obesity Task Force (IOTF) BMI cutoff points: (Participants with BMI values corresponding to an adult BMI of <25 kg/m^2 were classified as normal weight, participants with BMI values corresponding to an adult BMI of 25 to 29.9 kg/m^2 were classified as overweight, and participants with BMI values corresponding to an adult BMI of 30 kg/m^2 were classified as obese) was used to classify the calculated BMI.

Data analysis

The data was analyzed using the statistical software package SPSS software version 20. Analysis of data started with description of data, using mean and standard deviation for quantitative variables, frequencies and percentiles for qualitative variables. This was followed by inferential statistics (chi square and correlation). Results are represented in tables 1-4 and figures 1-3 in the results. P-value < 0.05 was considered to be statistically significant.

RESULTS

Sociodemographic variables

The average age of respondents in years is 38.04 (SD±11.175) and the age group of 40 years and above had 7(7.8%) respondents who were obese and 29 (32.2%) that were not obese. While among the age group below 40 years, 4 (4.4%) were obese and 50 (55.5%) were not obese. Males were 92% and females were 8% of the respondents. Of these, the total obese males were 8 (8.8%) and non obese male were 76 (84.4%); while the female who were obese are 3 (3.3%) and non obese were 5 (5.5%). The respondents were Hausa/Fulani (69%), the Yoruba's (8%) and other tribes (23%).

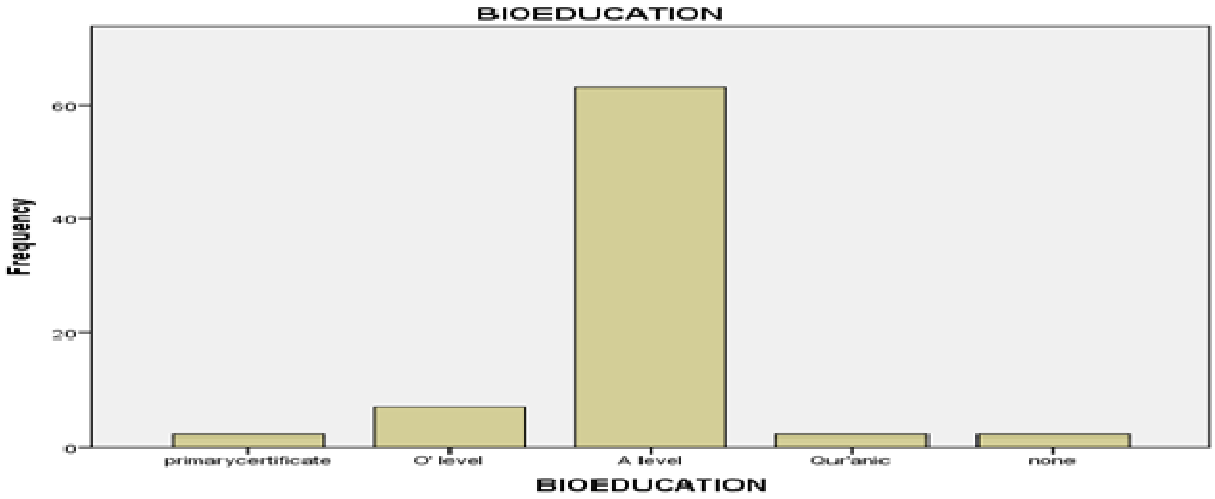

Figure 1: Bar chat representing various educational levels

Table 1. Educational cadre of staff

			obese or not		Total
			obese	not obese	
	Academic	Count	7 (7.8%)	29(32.2)	36
	non academic	Count	4(4.4%)	50(55.6%)	54
Total		Count	11	79	90

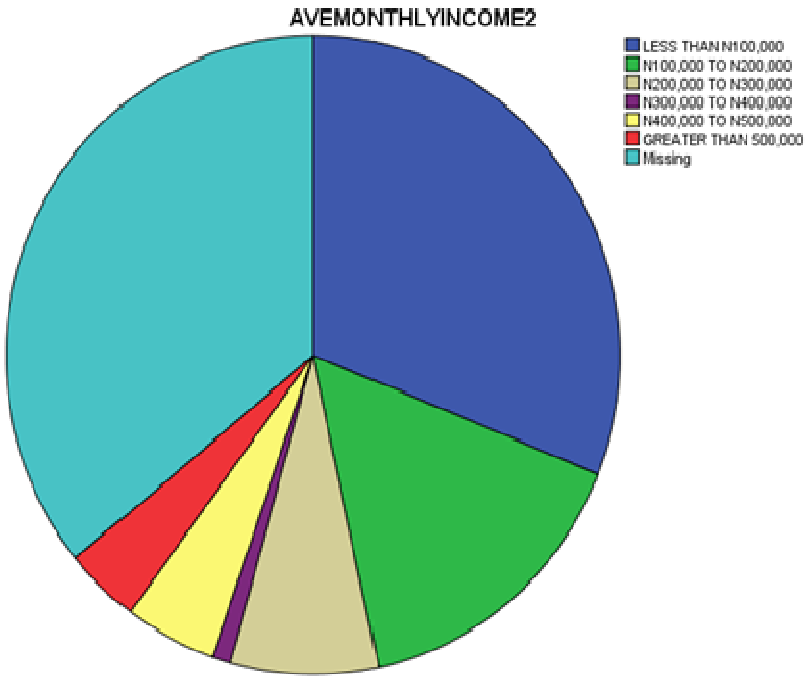

Figure 2: Pie chart showing the class of average monthly income of respondents.

Table 2: Crosstabulation of average monthly income in relation to obese and not obese

average monthly income			obese or not		Total
			obese	not obese	
	greater than N100,000	Count	8(8.8%)	76(84.4)	84
	Less than N100,000	Count	3(3.3%)	5(5.5%)	8
	Total	Count	11	81	92

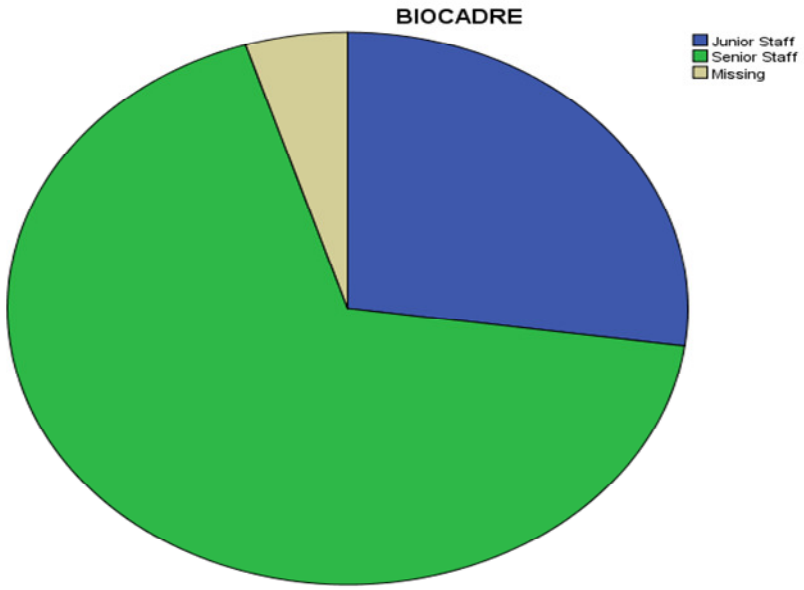

Figure 3: Pie chart representing the cadre of staff.

Table 3: BIOCADRE Crosstabulation with obesity

			obese or not		Total
			obese	not obese	
BIOCADRE	Junior Staff	Count	0(0.0%)	22(32.4%)	22
	Senior Staff	Count	8(11.8%)	38(55.9%)	46
	Total	Count	8	60	68

The Muslims were 80.9%, the Christians were 17% and others were 2.1%. Among the respondent, academic staffs were 51.1% and non academic staffs were 48.9%. The senior staff formed 67% of the respondents. The married respondents were 73% and unmarried 27%.

Prevalence of Obesity

The mean body mass index ranged between 17and 37 and a mean of 24.89 with a standard deviation of 4.397.

Attitude towards Obesity

The respondents who had Knowledge of own weights were 67.0% and those who had no knowledge of their weights were 33.0%.

The respondents who had Knowledge of their body mass index were 18.9% and those who had not were 81.1%.

Respondents self classification of their weight, underweight 7.5%, normal weight 80.0%, overweight 11.3%, and obese 1.3%.

Respondents who wanted a better shape than they

Table 4: Class of body mass index

	Frequency	Percent	Valid Percent
UNDERWEIGHT	3	2.9	3.0
NORMAL	50	48.5	50.0
OVERWEIGHT	35	34.0	35.0
OBESE	12	11.7	12.0
Total	100	97.1	100.0

were 82.4% and those who did not mind their shape were 16.5%.

The respondents who perceived Obesity as a sign of good living were 12.5%; as a result of laziness 9.7%; as God-given 9.7%; as a disease 68.1%.

Amongst the respondents, some believed obese people are, lazy (83.0%), are funny (7.5%), and do not succeed in life (9.4%).

90.2% of respondents think obesity should be of public health concern while 9.8% thought otherwise.

DISCUSSION

The mean age of the respondents was 38 ±11 and the age group of 40 years and above who were obese were 7 (7.8%) and the non obese were 29 (32.2%) . While the age group of less than 40 years had 4 (4.4%) obese and non obese were 50 (55.6%). This proportion with relation to the age group were statistically insignificant ($Chi^2_{(n=90)}$ =1.90 (1); p=0.17). But many older people in developed countries are overweight or obese (Chapman, 2008). A greater percentage of the respondents were males (92%) of which 8 (8.8%) were obese and 76 (84.4%) were not obese. While the female respondent were 8%, of which 3 (3.3%) were obese and 5 (5.5%) were non obese, this is probably because in this region most women do not acquire western education and even when they do, they don't work. This gender difference in relation to obesity was statistically insignificant ($Chi^2_{n=90}$ = 3.10 (1); p =0.08). But globally, overall, more women are obese than men (Rebecca and Benjamin, 2012). 73% of the respondents were married, which is expected considering the mean age of this study. Majority of the respondents were Muslims (81%) and of the Hausa/Fulani tribe (69%). 83% of the respondents were educated up to the tertiary level. This is however not what is generally obtained in this region but may be because the study was carried out in an academic community. 51% of the respondents were academic staffs of which 7 were obese and 37 were not obese. And of the 49% non academic staffs, 3 were obese and 37 were not obese (table 1). It suffice to mention that the non academic staffs comprises mainly of staffs with low level of education while all the academic staff are having higher level of education, of which it can be concluded that from this study a higher level of education is tantamount to higher prevalence of obesity in this academic community. This finding is in keeping with the conclusion that the relationship between educational attainment and obesity was modified by both gender and the country's economic development level: an inverse association was more common in studies of higher-income countries and a positive association was more common in lower-income countries, with stronger social patterning among women (Cohen et al., 2013). The mean average monthly income was approximately N470, 000 with majority of the respondents (49%) earning less than N100, 000. Of the respondent with greater than 100,000 income, only 2 were obese and 32 non obese while of the respondents receiving less than 100,000, 2 were obese and 27 not obese (table 2) but it suffices here to note that some of the respondents (36%) refused to divulge their monthly income. But it was shown that the senior staff formed 67% of the respondents, of which 8 (11.8%) were obese while non (0.0%) were obese among the junior staffs who were 33% of respondents (table 3). This was statistically significant ($Chi^2_{n=68}$ 4.336 (1); p=.037). This relationship seems to be supportive of the notion that affluence brings about increasing prevalence of obesity (Derek et al., 2006).

The average body mass index was 25±4 with majority of the respondents (50%) having a normal body mass index (table 4). The prevalence of obesity was found to be 12% while the prevalence of obesity and overweight combined was 47%. These findings are in keeping with those of Freedman and Rubinstein (2010). However, when compared with the prevalence of obesity among Turkish university staff (Pirinçci *et al.,* 2009), the prevalence was higher in this (UDUS) university although the prevalence of obesity and overweight combined was nearly the same. Obesity prevalence in this university was a bit higher than that found by the world health organization in its 2013 world health statistics for Nigeria. It was also higher than the worldwide prevalence of 10% (WHO, 2008). When compared with neighboring countries, the prevalence was found to be much higher except in Benin republic where it was approximately the same (WHO, 2013). In Nigeria, the prevalence of obesity in this university was lower than that of katsina (kolawole *et al*., 2011) and Abia (Chukwunonso and Ifeoma, 2012) states but higher than that found in Plateau (Puepet *et al*., 2002), Ibadan (Olatunbosun *et al*., 2011) and Ilorin

(Desalu *et al*., 2008). From studies carried out by Awosan *et al.,* (2013) it was obvious that prevalence of obesity was much lower among university staff in sokoto than bankers, teachers and traders in the same region.

The prevalence of obesity was found to be 12% while the prevalence of obesity and overweight combined was 47%. Prevalence of obesity among men in this study was 10% while it was 37.5% among females. This is in keeping with findings in most studies except that done in Abia state (Chukwunonso and ifeoma, 2012). This may be because the particular study in Abia state was done amongst university students where the females of this age group are usually concerned with keeping fit and not being disfigured.

There was however similarities in attitude towards obesity between this study and the previous ones quoted above in other Nigerian states. Although 80% considered their weight normal, 82% still wanted to get in better shape which is similar to what was found in Karachi in 2004 (Waris and Syed, 2004). Unlike the other studies, 68% of the respondents viewed obesity as a disease rather than a sign of good living, as a result of laziness or God given (genetic predisposition). This difference may however be due to the fact that the question was presented as an either/or question in the questionnaire. 83% of the respondents also believed that obese people are lazy. But obesity is frowned at in the developed countries and considered disfiguring, stigmatizing and a known cause of low self-esteem and social isolation (WHO, 2008).

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