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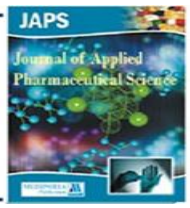

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Perception of weight and weight management practices among students of a tertiary institution in south west Nigeria

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ABSTRACT

The study focuses on young adults' perception of their weight and their management of perceived weight problems. Participants (N = 200) were medical and pharmacy undergraduates in a tertiary institution. Their weights, heights, hip to waist ratio and hip circumference were measured. A questionnaire was administered to assess their weight perception and examine self management of their perceived weight problems. More than half (65.5%) of students surveyed were within normal BMI weight range, but there was a significant difference between actual weight and perception of weight. The actual prevalence of weight problems (underweight, overweight and obese) was 34.5% and drug use in weight management was also low (9%). The females were more concerned about losing extra weight than males. They used Xenical® (orlistat), Green world® (chitosan and pro-slim tea), Xenadrine® (green tea, caffeine and capsaicin) and Lipo6® fat burner pills, which are all weight loss drugs. From the study, it can be concluded that this population has relatively healthy weight, as more respondents have normal weight than underweight, overweight and obese students. However, there was significant distortion in weight perception.

Keywords: Overweight, Obesity, Weight –perception, Under weight.

INTRODUCTION

Weight problems refers to the existence of either excess amounts of body fat for one's height or frame called overweight (or obese), or insufficient body fat called underweight. Weight management is very important for people with weight problems because untreated weight problems can lead to health conditions that affect individuals physically (impairing movement and normal daily activity), psychologically (developing low self esteem or low self worth), socially (inability to socialize and function well in the society) and economically (increased cost of living due to higher healthcare cost and decreased productivity) (Cameron *et. al.*, 2011**)**. Weight management is not about weight loss only; on the contrary, it covers all aspects of attaining and maintaining optimum weight (ideal body weight) for a healthy lifestyle. This is achieved by losing weight in the case of overweight or obesity, and gaining weight in the case of underweight. Weight problems, either underweight or obesity, are associated with increased mortality relative to normal weight category (Felgal *et al*. 2005). Early onset obesity has a life time impact because obesity is associated with an increased number of unhealthy life years that affect young adult disproportionately (Visscher *et al.* 2004).

Insulin resistance, metabolic syndrome, dyslipidemia, and type 2 diabetes mellitus, which were long considered diseases of adulthood, have become relatively new concerns with younger populations. To effectively curb the obesity epidemic, adolescents and young adults must develop an accurate self-perception of their weight (Yan *et al.*, 2009). Weight loss program among young adults are more often motivated by desire for better physical posture rather than by health concerns (Smith *et al.*, 2000). Needed lifestyle modification and diet change are considered too difficult. Easily obtained nonprescription weight loss products and prescription diet pills are appealing alternatives to the increasingly overweight population (Blanck *et al.*, 2001).Young adults and women were more likely to use non prescriptions drugs for weight management (Blanck *et al.*, 2001,Bray, 2007) and young adults respond to spam emails to purchase non-prescription weight loss or weight gain products (Fogel & Shivilko, 2010). These products have short term successful weight management effects, are often not safe in the long run due to their many side effects and herbal products have variable commercial purity. Moreover, evidence for the effectiveness of these products is often scanty or non-existent and their safety is untested (Blanck *ets al.*, 2001, Bray, 2007).

The purpose of this study is to examine actual weight and perception of weights among students in a medical college in south west Nigeria. The study also investigated use of drugs or herbal products among this group. This will provide baseline data on weight problems and how young adults manage them.

METHOD

Sample size

A convenient sample of two hundred students in the high institution, which were willing to participate in the study, was recruited. A weighing scale, metre rule and tape rule were used to measure students' weight in kilogram, height in metre, hip and waist circumference in inches. These measures were used to calculate individual students' body mass index (BMI) and waist to hip ratio. An open and close ended structured questionnaire was administered to students. Each questionnaire has four sections comprising of the students' demographic information section; students' perception of weight; weight management to know how many students were undergoing weight management or had undergone weight management in the past and to determine the type of weight management whether drug management or non-drug management such as exercise, diet or herbal management or a combination of both methods; recording of students' individual measured weight (kg), height (m), waist and hip circumference (inches) and calculations of body mass index [weight in kg/(height in metres)^2] and Waist-to-Hip Ratio [waist circumference/hip circumference].

Data Analysis

The data collected from the questionnaires were imputed into Microsoft Excel and analysed with IBM SPSS statistical editor (version 19). Results were represented using cross tabulation of perception of weight versus actual weight. Other results consist of frequencies, percentages and means. Statistically significant difference of demographics like age and sex were analysed with chi-square tests.

RESULTS AND DISCUSSION

The population studied comprised of 129 female students (64.5%) and 71 male students (35.5%) as shown in table 1. Mean age of respondents was 23.77years (table2). Weight problems were observed in both males (6.5%) and females (23%), but majority (65.6%) of students surveyed were within the normal weight BMI range (table 3). This result is similar to results of a study of students' ideal weight in Nigeria that recorded 82.76% ideal body weight (Buowari, 2010).

Table. 1: Demographic profile of the students showing sex distribution.

Sex	Frequency	Percentage
Male	71	35.5%
Female	129	64.5%
Total	200	100%

Table. 2: Demographic profile of the students showing age distribution.

Age (Years)	Males	Females	Total
16 – 20	2 (1%)	18 (9%)	20 (10%)
21 – 25	26 (13%)	92 (46%)	118 (59%)
26 – 30	37 (18.5%)	17 (8.5%)	54 (27%)
31 – 35	6 (3%)	2 (1%)	8 (4%)
Mean Age	26.31years	23.11years	23.77years

Table. 3: Actual Body Mass Index showing prevalence of weight problems amongst the different sexes of students.

BMI Values	Males	Females	Total
Mean BMI (kg/m^2)	20.7	23.7	-
BMI range (kg/m^2)	18.0 – 36.3	17.6 – 41.0	-
BMI > 16.0 (severely underweight)	0 (0%)	0 (0%)	0 (0%)
BMI 16.0 – 18.4 (underweight)	4 (2%)	7 (3.5%)	11 (5.5%)
BMI 18.5 – 24.9 (normal weight)	58 (29%)	73 (36.5%)	131 (65.5%)
BMI 25.0 – 29.9 (overweight)	6 (3%)	30 (15%)	36 (18%)
BMI 30.0 – 34.9 (obese class I)	2 (1%)	13 (6.5%)	15 (7.5%)
BMI 35.0 – 39.9 (obese class II)	1 (0.5%)	4 (2%)	5 (2.5%)
BMI > 40.0 (obese class III)	0 (0%)	2 (1%)	2 (1%)
Weight Problems (underweight+ overweight+ obese class I, II & III)	13 (6.5%)	56 (23%)	69 (34.5%)

Chi square test= 14.83, Degree of freedom(df)= 5, p value= 0.01

Major weight gain, defined as increased BMI =5kg/m^2 over a period of ten years, was highest at ages 25-34. This weight gain has an increasing risk for obesity related morbidity and mortality by middle age (NHLBI report, 2005). It is therefore important that necessary intervention to prevent obesity be initiated in this age group. Using chi-square test, there was a statistically significant difference in prevalence of weight problems between the male and female students ($p<0.01$) as shown in table 3, with a higher percentage of weight problems in the female students (23%) than in the male students (6.5%). The male students had an average BMI of 20.7 while the females had a higher average BMI of 23.7

accounting for their higher prevalence of overweight and obesity. The BMI range for female students was 17.6- 41.0 which was wider than that of the male students; 18.0 - 36.3. This is similar to the trend in the study conducted by Larose *et al.* (2011), that proved that weight problems especially overweight and obesity are more common amongst females than males. However, there was no significant difference for abdominal obesity between males and females based on waist circumference and waist-to-hip ratio (table5).

Table. 5: Prevalence of trunk or abdominal obesity among students (using Waist Circumference and Waist-to-Hip Ratio).

	Males	Females	Total
Students With Abnormal Waist Circumference	Above 40inches 4(2%)	Above 35inches 20(10%)	24(12%)
Students With Abnormal Waist To Hip Ratio	Above 0.90 3 (1.5%)	Above 0.80 30 (15%)	33(16.5%)
Total	7 (3.5%)	50(25%)	57(28.5%)

Several young adults in this population had a false weight perception. Table 4 shows that 31% of students surveyed thought they were overweight whereas the BMI confirms that 18% is actually overweight. In addition, 15.5% believed they were underweight whereas only 5.5% were actually underweight. Overall 46% of respondent had wrong perception of their weight compared to their BMI values (Table 4b). There was a statistically significant difference (table 4) between weight perception and actual weight based on the Body Mass Index (BMI and p value<0.00). Perception of weight is a key determinant of adolescents' nutritional habits and weight management. Adolescents who are underweight or normal weight but perceive themselves as overweight have greater risk for eating disorders such as anorexia nervosa. People who are overweight but do not perceive themselves as such are unlikely to engage in weight control practices such as diet or exercise (Brener *et al.,* 2004). In this study and a Jamaican study (Barrett & Huffman, 2011), more respondents underestimated their weight and this could be a barrier to engage in appropriate lifestyle modification. To effectively manage weight problems and reduce attendant morbidity and mortality, there must be an accurate self perception of weight by individuals (Yan *et al.,* 2009). Drug use in management of weight problems was not rampant in the population (table 6). 9% of the total population consisting of 1% males and 8% females used drugs or herbal products to manage their weight. This result is consistent with results by Blanck *et al*. 2001 which reported 7% and that females were more likely to use non-prescription weight loss products than males. The females used drugs such as Xenical®, which contains Orlistat (a lipase inhibitor); Lipo 6® fat burner pills, which contains six different ingredients that increase body metabolism; Green world® capsules, which contains Chitosan and Green tea and Xenadrine®; which contains Caffeine, Capsaicin and Green tea and also increases rate of metabolism and thermogenesis. The two males that used drug management were using Steroidal drugs with the aim of gaining weight. This study shows that females were more interested in losing extra body fat than the male students and this is similar to the study by Larose *et al.,* (2011), on some college students showing that females were more disturbed about gaining weight compared to males and more likely to use non-prescription products (Bray,2007)**.** None of the students used drugs alone for weight management (table 7). 28.9% of the students that were involved in weight management used only non-drug methods such as exercise, special diets and herbal remedies while the remaining 71.1% used a combination of Drug and Non-drug methods.

Table. 4: Weight perception versus actual weight status (Body Mass Index).

Actual weight	Weight perception				
	Under weight	Normal weight	Over weight	Obese	Total
Underweight (5.5%) (16.0 – 18.4)5	0	11	0	0	11
normal weight 18.5-24.9)	30	69	32	0	131 (65.5%)
Overweight (25.0-29.9)	1	25	10	0	36 (18%)
Obese class I (30.0-34.9)	0	0	15	0	15 (7.5%)
obese class II (3539.9)	0	1	4	0	5(2.5%)
obese class III (>40)	0	0	1	1	2(1%)
total	31 (15.5%)	1.6(53%)	62(31 %)	1 (0.5%)	200 (100%)

Chi square test=161.5, degree of freedom (df)=15, p value=0.00. There was a significant difference between weight perception and actual weight status using Body Mass Index.

Table .4b: Difference between actual weight and perceived weight.

BMI Categories	Actual %	Perceived %	Difference %
Underweight	5.5	15.5	10
Overweight	65.5	53	12.5
Obese	18	31	13
Total	11	0.5	10.5

Table. 6: Drug use in the management of weight problems amongst students.

Drugs	Males	Females	Total
Green world® capsules	0	8	8
Xenical® capsules	0	4	4
Xenadrine® capsules	0	1	1
Lipo 6® fat burner pills	0	3	3
Steroidal® drugs	2	0	2
Total	2(1%)	16(8%)	18(9%)

Table. 7: Type of weight management used by the students whether drug or non-drug management or both.

Weight management	Males	Females	Total
drugs only	0	0	0
non-drug methods only (exrercise. Special diet, and or herbal remedies)	4	7	11(28.9%)
drug+non-drug methods	3	24	27(71.1%)
total	7.(18.4%)	31(81.6%)	38

CONCLUSION

From the study, the population surveyed had relatively healthy weight as the percentage of students with normal weight BMI was higher than the percentage of students with combined underweight, overweight and obese BMI. Amongst the students with weight problems, it can be concluded that the females had a higher prevalence of weight problems than the males. However, there was an overall high incidence of false weight perception as there was a statistically significant difference between percentage weight perception and actual weight status which could hinder

appropriate weight management. Drug use in the management of weight problems was quite low but involved used of drugs that may be dangerous (steroids) or herbal products with unproven efficacy. Most of the students that were managing their weight combined drug and non-drug methods. More females were involved in weight management than the male students.

This study therefore recommends that students should be educated on the importance of monitoring their weight and Body Mass Index from time to time in order to prevent deviation from healthy weight. They should also be educated on the health risks of being underweight, overweight or obese as well as safe and effective long term weight management. Education can be achieved by organising seminars, health awareness walks, distributing medical handbills, publishing relevant articles and journals and through the media (television, radio and newspapers).

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