

Prevalence of Overweight and Obesity And its Correlates in Medical And Nursing Students of UPUMS, Saifai, Etawah

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Abstract

Introduction: Obesity is the most common expression of unhealthy diet often combined with lack of physical activity. We are amidst an epidemic of obesity which has serious health ramifications. Easy availability of fast foods, junk food culture and sedentary life style add fuel to fire. Realizing this fact, the present study was undertaken on medical and nursing students.

Aim: To study the prevalence and correlates of overweight and obesity in medical and nursing students.

Objectives: 1-To study the prevalence of overweight and obesity in medical and nursing students of various batches. 2- To study the correlates of overweight and obesity medical and nursing students. **Methods:** It was a cross sectional observational study. The study population consists of 519 medical and nursing students of UPUMS Saifai, Etawah. A predesigned and pretested questionnaire was used for data collection. General information and anthropometric measurements of the subjects were done for BMI, waist circumference and waist-hip ratio.

Observations: The study population comprised of 338 medical students (201 males, 137 females) and 181 nursing students (77 males, 104 females). According to BMI, 22.8% of the medical students were overweight (BMI 25.0-29.9 kg/m²) and 1.48% were obese (BMI ≥ 30 kg/m²). On the other hand, 16.0% of the nursing students were underweight having BMI < normal and 16.6% had overweight while 2.2% were obese. Considering waist circumference, 1.49% of male medical students and 8.76% of female medical students were obese. While in nursing students, no males were obese and 0.97% females were obese. Considering waist hip ratio, only 2% of male medical students and 31.4% of the females had waist hip ratio higher than normal. While in nursing students, the entire male had normal waist hip ratio and 17.5% nursing female students had waist hip ratio more than 0.85.

Conclusion: Medical & nursing students have higher deposition of fat making them more vulnerable to co-morbidities of overweight and obesity.

Keywords: Body mass index, Medical students, Obesity, Overweight, Waist-hip ratio

I. Introduction

Obesity is the most common expression of unhealthy diet often combined with lack of physical activity. We are amidst an epidemic of obesity which has serious health ramifications. Overweight and obesity are now so common with in the world's population that it is beginning to replace under-nutrition and infectious disease as the most significant contributor to ill health.

Worldwide, obesity has more than doubled since 1980. In 2014, more than 1.9 billion adults [18 years and older], were over-weight. Of these, over 600 million were obese. In 2014, 39% of adults [aged 18 years and over] (38% of men and 40% of women) were overweight and 13% (11% of men and 15% of women) were obese [1]. Childhood obesity is a fast emerging problem. Effective prevention of adult obesity will require prevention and management of childhood obesity.

It is a fast growing problem in the developing countries like India too and is now known to be associated with increased health risk. Obesity is a risk factor in the development of hypertension, diabetes, gall bladder disease and coronary heart diseases and certain types of cancers. Other co-morbid conditions associated with obesity are varicose vein, abdominal hernia, osteoarthritis of weight bearing joints and psychological stress.

Prevalence of obesity varies with in the country because of difference in lifestyle, mainly in the dietary patterns and physical activity. In addition to this, urbanization and industrialization is the main culprit for increase in prevalence of obesity. There is convincing evidence that increase in the energy density of the diet by fat or sugar together with concomitant eating behaviors like snacking, junk food, binge eating and eating out promote unhealthy weight gain through passive over consumption of energy. Consequent upon the economic

development and market globalization, traditional energy dilute foods are being replaced by widely advertised highly processed energy dense foods. Therefore, there is an imperative need for restriction of consumption of energy dense foods in order to check further progress of the epidemic. WHO has also emphasized on the urgent need of understanding the prevalence trend, factors contributing and developing strategies for effective intervention.

With this background in event, present study was undertaken in medical and nursing students of UPUMS institute to get the prevalence of overweight and obesity with the help of three parameters BMI, waist hip ratio (WHR) and waist circumference (WC).

Aim

To study the prevalence of overweight and obesity in medical and nursing students at UPUMS, Etawah.

Objectives

To study the prevalence of overweight and obesity in medical students with respect to BMI, WHR and WC

To study the prevalence of overweight and obesity in nursing students according to three parametres

To study the correlates of overweight and obesity in medical and nursing students

II. Materials And Methods

We had conducted a cross sectional study and the study population comprised all the medical students and B.Sc. Nursing students at UPUMS (338 medical students and 181 nursing students), who had given consent and were available for data collection from June 2016 to July 2016. A predesigned and pretested questionnaire was used for data collection. General information regarding age, sex, type of family, socioeconomic status, education and occupation of parents was collected. Information regarding their dietary habits, lifestyle and body weight perceptions was collected.

Height and weight of each individual was measured with the help of stadiometer and weighing machine respectively. Body mass index was used parameter to classify overweight and obesity. It is defined as the weight in kg divided by square of his height in metres (kg/m²). According to WHO classification (2000) cut off values were used to classify overweight and obesity in students [2]. BMI values are age independent and same for both sexes.

Waist circumference and hip circumference was measured using fibre plastic tape. Waist circumference was measured at the midpoint between lower border of rib cage and iliac crest while hip circumference was measured at the level of greater trochanter. Waist circumference (WC) and waist to hip ratio (WHR) was calculated which are the approx indices of the intra abdominal fat mass and total body fat and there is increased risk of metabolic complications for those men with a waist circumference of ≥102cm and women with waist circumference of ≥88cm[3]. High waist to hip ratio >1 in men and >0.85 in women indicates abdominal fat accumulation. The data thus collected was entered in excel sheet and analyzed using SPSS 23 version.

III. Results And Discussion

The study population comprised of 338 medical students [males: 201(59.47 %), females: 137 (40.53%)] and 181 nursing students [males: 78 (43.09%), females: 103(56.91%)].

Table 1: Prevalence of overweight and obesity in medical and nursing students according to various indices

Indices	Medical students (n=338)			Nursing students (n=181)		
	Male (n=201)	Female (n=137)	Total (n=338)	Male (n=78)	Female (n=103)	Total (n=181)
BODY MASS INDEX (Kg/m²)						
< 18.5	6(3%)	24(17.5%)	30(8.8%)	7(9%)	22(21.4%)	29(16.02%)
18.5 - 24.9	137(68.2%)	89(65%)	226(66.86%)	54(69.2%)	64(62.1%)	118(65.19%)
25.0 - 29.9	55(27.4%)	22(16%)	77(22.8%)	15(19.2%)	15(14.6%)	30(16.57%)
30.0 - 34.9	2(1%)	1(0.7%)	3(0.89%)	2(2.6%)	2(1.9%)	4(2.21%)
35.0 - 39.9	1(0.5%)	1(0.7%)	2(0.59%)	0(0%)	0(0%)	0(0%)
≥ 40.0	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
BMI vs. Gender in Medical Students $\chi^2=24.2$ df=4 p<0.001						
BMI: Medical vs Nursing students $\chi^2=10.1$ df=4 p=0.038						
WAIST CIRCUMFERENCE (cms)						
(<input type="checkbox"/> 102 in Males & <input type="checkbox"/> 88 in females)	3(1.49%)	12(8.76%)	15(4.44%)	0(0%)	1(0.97%)	1(0.55%)
(< 102 in males & < 88 in females)	198(98.51%)	125(91.24%)	323(95.56%)	78(100%)	102(99.03%)	180(99.45%)

Waist Circumference vs Gender in Medical Students $\chi^2=10.1$ $df=1$ $p=0.001$						
WAIST HIP RATIO (WHR)						
(>1 in males & >0.85 in females)	4(1.99%)	43(31.39%)	47(13.9%)	0(0%)	18(17.48%)	18(9.94%)
(<input type="checkbox"/> 1 in males & <input type="checkbox"/> 0.85 in females)	197(98%)	94(68.61%)	291(86.09%)	78(100%)	85(82.52%)	163(90.05%)
Waist hip ratio vs. Gender in Medical students $\chi^2=58.8$ $df=1$ $p=0.001$						

Table-2 Correlates of overweight and obesity in medical students

CORRELATING FACTORS	BODY MASS INDEX (N=82) (<input type="checkbox"/> 25Kg/M ²)	WAIST HIP RATIO (N=47) (>1 In Males And >0.85 In Females)	WAIST CIRCUMFERENCE (N=15) (<input type="checkbox"/> 102cm In Males And <input type="checkbox"/> 88cm In Females)
DIETARY HABITS			
Vegetarian	74(90.24%)	37(78.7%)	10(66.67%)
Non Vegetarian	8(9.76%)	10(21.28%)	5(33.33%)
EAT IN BETWEEN MEALS			
Never	5(6.09%)	1(2.13%)	2(13.33%)
Tea	13(15.85%)	3(6.38%)	1(6.67%)
Snacks	14(17.07%)	7(14.89%)	1(6.67%)
Fruits	12(14.63%)	6(12.77%)	3(0.2%)
Chips And Dairy Products	3(3.66%)	4(8.51%)	1(6.67%)
Cold Drinks	1(1.22%)	0(0%)	0(0%)
Multiple Responses	34(41.46%)	26(55.32%)	7(46.67%)
DIETARY PREFERENCES			
Sweets	19(23.17%)	6(12.77%)	2(13.33%)
Chocolates	13(15.85%)	16(34.04%)	5(33.33%)
Fatty Foods	2(2.44%)	3(6.38%)	0(0%)
Dry Fruits	11(13.41%)	4(8.51%)	2(13.33%)
None	13(15.85%)	8(17.02%)	2(13.33%)
Multiple Responses	24(29.27%)	10(21.28%)	4(26.67%)
EAT OUTSIDE			
Never	0(0%)	0(0%)	0(0%)
Daily	6(7.32%)	4(8.51%)	2(13.33%)
Weekly	31(37.80%)	15(31.91%)	3(0.2%)
Occasionally	45(54.88%)	28(59.57%)	10(66.67%)
TOTAL MEALS			
One	0(0%)	0(0%)	0(0%)
Two	33(40.24%)	15(31.91%)	7(46.67%)
Three	39(47.56%)	28(59.57%)	8(53.33%)
More Than Three	10(12.19%)	4(8.51%)	0(0%)

According to BMI, the prevalence of overweight and obesity in medical students was 27.4% and 1.0% respectively in males as compared to 16.0% and 0.7% in females. Similar results have been found in nursing students where the prevalence in males was 19.2% and 2.6% while in females it was 14.6% and 1.9% respectively. It was observed that the prevalence of underweight is higher in females of both medical and nursing streams. Similar findings were observed in an ICMR funded study conducted by **Pradeepa R et al** in which they found that overweight and obesity was 22.2% in women and 20.9% in men in rural areas of some states of India [4]. On the other hand, **NFHS-3** reported that in India obesity was more prevalent in urban areas compared to rural areas especially in men (urban-15.9%, rural-5.6%); women(urban-23.5%, rural-7.2%)[5]. The higher values reported in ICMR study were probably because they had taken BMI >23.0 Kg/m² as cutoff for overweight and obesity. **Siddhu et al** have observed that 16.8% of the rural adult have BMI >25.0 (kg/m²)[6]. **Marie NG et al** during their worldwide analysis of published surveys, reports and published article observed that the proportion of adults with a body-mass index (BMI) of 25 kg/m² or greater increased between 1980 and 2013 from 28.8% (95% UI 28.4–29.3) to 36.9% (36.3–37.4) in men, and from 29.8% (29.3–30.2) to 38.0% (37.5–38.5) in women. . The prevalence of overweight and obesity has also increased in children and adolescents in developing countries, from 8.1% (7.7–8.6) to 12.9% (12.3–13.5) in 2013 for boys and from 8.4% (8.1–8.8) to 13.4% (13.0–13.9) in girls. In adults, estimated prevalence of obesity exceeded [7]. **Premlal K S et al** in their study among the 606 college going adolescents in Kancheepuram observed that 201 (33.4%)

were overweight and obese by Indian guidelines, whereas by the WHO guidelines 130 (21.5%) were overweight and obese [8].

As far as waist circumference is concerned, it was observed that 8.76% females have higher values depicting abdominal fat deposition and it is more than their male (1.49%) counterparts. It was also observed that the overall fat deposition is higher in medical students (4.4%) as compared to nursing students (0.55%). In ICMR study by **Pradeepa R et al** they have reported that 19.5% of the rural adults have higher waist circumference [4].

WHR has also been observed to be higher in females of medical and nursing streams as compared to males. In total, the medical students have higher percentage of WHR (13.9%) as compared to nursing students (9.94%). **Sohani A et al** in their study for screening of obesity in adolescents have observed that 42.06% of the overweight and obese students have higher WHR [9]. The higher prevalence reported by them could be because they considered ≥ 0.9 as cutoff for WHR.

Dietary correlates of overweight and obesity were higher for vegetarian. It was also observed that majority of the overweight and obese medicos consumed tea, snacks and other products in between meals. Majority had preference for sweets and chocolates. Eating outside, total number of meals was not associated with higher value of overweight and obesity as majority of them were eating outside occasionally and weekly while only few of them consumed more than four meals. **Premlal K S et al** observed that 23(3.8%) of total population had habit of consuming fast food daily and 120(19.8%) had habit of having fast food 3-5 times a week. Similar observations were seen in the dietary habits of nursing students too [8].

IV. Conclusion

Prevalence of overweight and obesity was higher in medical students. Appropriate health education regarding dietary habits and behavior change communication shall be imparted to the medical students. It is recommended to have elaborative study to find out various factors responsible for high prevalence of overweight and obesity.

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