

**Study on the Prevalence of Overweight and Obesity among Medical Students of CAIMS Karimnagar, Telangana****P.N. Bhandarkar¹, J. Rajamouli², G Sachin³**¹Professor, Department of Community Medicine, CAIMS, Karimnagar²Professor and Head of Department of Community Medicine, CAIMS, Karimnagar³Statistician cum Lecturer, Department of Community Medicine, CAIMS, Karimnagar**Correspondence Author:** J. Rajamouli, Professor and Head of Department of Community Medicine, CAIMS, Karimnagar, India.**Type of publication:** Original Research Paper**Conflicts of Interest:** Nil**Abstract****Background:** Overweight and Obesity is one of the causes of Death. The morbidity associated with overweight and obesity is also enormous. Prevalence of overweight and obesity is increasing worldwide.**Objective:** To study the prevalence and associated factors with overweight and obesity among medical students.**Methodology:** A cross sectional descriptive study in which 102 medical students (Interns) of age 22 – 26 years participated for the study, in which 45 males and 57 females were chosen by Random sampling method.**Inclusion:** All willing interns included.**Exclusion:** Students with physical limitations, mental disability or undergoing any clinical therapy were excluded. Data were collected by using pre-tested questionnaire and analyzed by using proportions, t-test and logistic regression models using SPSS version16. P-value less than 0.05 statistically significant.**Result:** Out of 102 interns participated in the study 44% males and 56% were females. The mean BMI in boys is 23.8 ± 3.14 and mean BMI of girls is 23.15 ± 4.10 . The prevalence of overweight was 23% and obesity was 6% according to WHO guidelines. Obese and overweight individuals had significant family history. Girls had

significant increased and substantial risk for co-morbid conditions than boys. Eating pizza and burger is more associated with increase in BMI of students.

Conclusion: Promotion of daily physical activity in the form of outdoor games, Yoga and walking is recommended. Healthy dietary practices and life style change should be built in as supporting educational activity during student years.**Keywords:** Overweight, obesity, physical activity, Medical students**Introduction**Obesity is an emerging as a serious health problem throughout the world not only among adults, but also in children, teenagers and young adults. Obesity is multi-factorial disorder which is often associated with diabetes, hypertension, cardiovascular diseases, osteoarthritis and certain cancers. The cause of adult obesity includes a variety of factors like diet, genetic predisposition; lack of physical activities other behavioral factors¹⁻². In Delhi the prevalence of obesity is 33.4% in urban women and 21.3 % in men³. In India little attention has been paid to childhood and adolescent obesity. Studies on medical students and health personnel in many countries suggest that obesity is a problem among this population group.⁴⁻⁸

The complications of obesity are type 2 diabetes, hypertension, stroke, coronary heart disease, gall bladder diseases, arthritis and psychological problems. Prevention of obesity is always better than a treatment. College can play significant role in encouraging healthy behavior in students. Medical students are exposed various factors known, unknown for overweight/ obesity. It is necessary to prevent obesity by young adult based approaches like changes in lifestyle and health education. Therefore we want to assess the burden of the problem among medical students of this institution.

Material Methods

The study was conducted at Chalmeda Anand Rao institute of Medical Sciences, Karimnagar Telangana, during March 2017 to June 2017. It is cross sectional descriptive study in which 102 medical students (Interns) of age 22 – 26 year participated for the study. Data collection was done among medical students. Brief introduction was given and objective of the study was explained after getting written consent from the interns, a pretested questionnaire was administered. Anthropometric measurements were taken to calculate BMI by using formula

$$\text{BMI} = \text{weight (Kg)}/\text{Height}^2 (\text{m}^2)$$

A BMI of 25.0 to 29.30 considered as overweight and BMI 30 & more considered as obese. Measurement was taken using a standardized weighing machine and height measuring scale. Waist circumference was measured at midpoint between lower boarder of ribcage and iliac crest. Classification of overweight and obesity according to WHO guidelines are as bellow (Table 1).

Table 1 : Classification of Overweight and Obesity (WHO Criteria)

Classification	BMI (Kg / m ²)
Under Weight	< 18.5
Normal Weight	18.5 - 24.9
Overweight or Pre obes	25.0 - 29.7
Obes	> 30

Statistical analysis was performed using Medcalc version 18.0, SPSS.16.0 and Microsoft Excel. Continuous variable (Age in year, Body weight, Height, BMI) with normal distribution was expressed as mean. Proportion was used to measure obesity/ Overweight, unpaired t-tests were used to find out any statistically significant association of Mean BMI for age with various correlates, and multinomial logistic regression used to find food affects BMI. P value of lesser than 0.05 was considered to be of statistical significant.

Results

Out of available students at the time of the study, 102 gave consent for participation in the study. Participated student’s response was 100%. 102 students who consented for the study were included in the study. Out of 102 students 57(55.9%) were female, and 45(44.1%) were male. The mean age and standard deviation for age for female students 23.50 years and 0.57 years and for male were 23.80 years and 0.95 years respectively. The prevalence of overweight was 23 % and the prevalence of obesity was 6 % according to WHO guidelines.

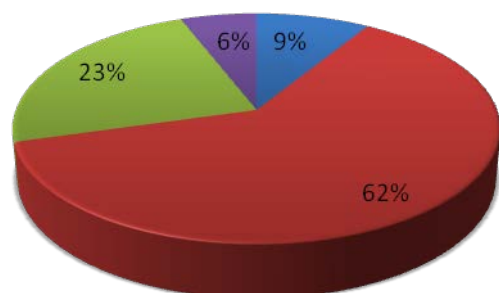
In Present study,13.7% and 2.0% are found overweight and obese respectively in 22-24 age group similarly in 24-26 age group 9.8% and 3.9% students found overweight and obese respectively. The proportion of overweight was 23 % and obesity was 6%. In female students Overweight and obesity were 10.9% and 3.9 %, and male student were 12.7% and 2.0 % respectively given in bellow (Table 2)

Table 2 : Age wise and sex wise BMI Distribution

Variab le	Under weight	Normal weight	Over weight (Pre obese)	Obese	Total
Age					
22 - 24	7(6.9)	39(38.2)	14(13.7)	2(2.0)	62(60.8)
24 - 26	2(2.0)	24(23.5)	10(9.8)	4(3.9)	40(39.2)
Sex					
Male	1(1.0)	29(28.4)	13(12.7)	2(2.0)	45(44.1)
Female	8(7.8)	34(33.3)	11(10.9)	4(3.9)	57(55.9)

Fig 1 : Prevalence of overweight and obesity

■ Underweight ■ Normal Weight
■ Overweight (Preobes) ■ Obes



Girls had increased and substantial risk for co morbid condition than boys but not significant (Table 3).⁹

Table 3: Co-morbidity Risk with Waist Circumference sex wise

Risk	Boys	Girls
Increased Risk	(≥94cm) 0.98 %	(≥80cm)13.72 %
Substantial Risk	(≥102cm) 2.94 %	(≥88cm) 6.86 %

The associations of various correlates are summarized in Table 4, in which family history of obesity was found to have statistically significant association with overweight / Obesity.

Table 4 : Association of various correlates with BMI for Age (n = 102)

Correlates	Frequency	Mean BMI	DF	T- Value	P- Values	Status
Gender (n = 102)						
Male	45	23.8	100	0.881	0.38	NS
Female	57	23.15				
Residence (n = 102)						
Rural	19	23.11	100	0.389	0.7	NS
Urban	83	23.53				
Type of Diet (n = 102)						
Mixed	89	23.45	100	0.018	0.98	NS
Veg	13	23.47				
Family History of Obesity / Overweight (n = 102)						
No	89	23.11	100	2.606	0.018	S
Yes	13	25.74				

Discussion

India is currently in a transitional phase between developing countries and developed countries. Overweight and obesity among college going students is an important issue. This age group is very important to ingrain the importance of healthy eating and physical exercise. Prevalence of overweight and obesity according to WHO international classification was 14.33% and 3.34% respectively. In our present study the prevalence of overweight and obesity is 23% and 6% respectively. Study conducted by Selvaraj K. et. al. reported prevalence of overweight and obesity is 24.3 % and 8.6 % respectively.¹⁰ similar study was conducted in west Bengal, India among undergraduate medical students. It has been estimated to affect 20-30% of adults, 10-20% of children and adolescents in developed countries.¹¹ Another similar study reported a prevalence of 11.7% overweight and two percent obesity among medical students of Delhi ^{12- 13}. The International diabetes foundation has accepted BMI >25kg/m² and >23Kg/m² as cut of value for obesity for Asian men and women

respectively.¹⁴ According to the above scale, the prevalence of obesity in our study among males 34%, among females 24.50%.

Silent finding is that 13% of overweight and obese gave family history of obesity of either or both parents, this is almost analogous to fact that if either of the parents is obese, there is 50% chance for obesity of child, when both parents are obese, the child has an 80% chance of being obese^{15, 16}. In our study obesity and overweight were found more among the students who were eating fatty foods like pizza/burger.

In this study association of gender, residence and diet (Mixed/Veg) with overweight/obesity was not found statistically significant. More research is needed to confirm findings in watching TV, and computer or internet usage, regular membership of gymnasium and physical activity.

Conclusion

From the present study it can be concluded that overweight and obesity is common among the medical students. Physical activities like exercise, yoga, outdoor games will have protective effect against their problems. Sedentary life style, irregular diet, visits to restaurants, family history of obesity increasing the risk of overweight and obesity.

It is recommended that healthy life styles, healthy food habits, physical activity should be adopted from young adulthood itself. Regular monitoring for overweight and obesity will be a valuable approach in preventing the obesity and further risk of developing chronic degenerative diseases.

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