Prevalence of Obesity and Overweight among Medical Students based on New Asia-Pacific BMI Guideline

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ABSTRACT

Background: This study is aimed to determine the prevalence of obesity and overweight among medical students based on Asia-Pacific Guideline of Body Mass Index (BMI).

Materials and Methods: This descriptive study was carried out on 350 medical students of a Medical college in Trivandrum, Kerala in 2013, by using a pretested proforma and anthropometric measurements

Result: The overall prevalence of obesity among medical students was 25.71% (95% CI, 21.75-29.83), and overweight was 24.57%.

Conclusion: The measurement of obesity using Asia-Pacific guideline shows a definite increase in prevalence of obesity among students. Reinforcing the need to encourage healthy lifestyle, healthy food habits and a physically active daily routine, among the adolescents, including medical students need to be focused to prevent this obesity related disease epidemic.

Keywords: BMI, Prevalence of Obesity, Overweight, Body Weight

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BACKGROUND

The prevalence of obesity is increasing rapidly worldwide.[1] This may leads to of heart disease and other chronic diseases including hyperlipidaemia, hyperinsulinaemia, hypertension, and early atherosclerosis.[2] The professional students, including medical students are in a high risk side when obesity is concerned. This is mainly because of the modernization and industrialization which has lead to sedentary life style and unhealthy eating pattern. The ideal definition, based on percentage body fat, is impracticable for epidemiological use. The body mass index (weight/height2) is widely used in adult populations, and a cutoff point of 30 kg/m2 is recognised internationally as a definition of adult obesity.[3] The Western Pacific Regional Office of the World Health Organization (WHO) has recommended lowering the BMI cutoff levels for Asian people to 23.0 for overweight and 25.0 for obesity.[4] The obesity related disorders occur at a much lower body mass index (BMI) in ethnic Asian populations than in ethnic Caucasian. Elevated body fat percentage and cardiovascular risks at low body mass index levels among Asian people, including Indians were well documented.[5].

Obesity is one of the life style associated disorders in India with the prevalence of overweight being 9.4% and of obesity 2.4%. Kerala ranks second among Indian states with the prevalence of overweight 17% and obesity 3.8%. This obesity prevalence is based on global BMI cut off values. Obesity is one of biggest challenges that Indians need to overcome because we are genetically predisposed to weight gain. Medical students are more prone to obesity due to their lifestyle with less physical activity and disordered eating habits and thereby are prone to obesity related health hazards. This constitutes the rationale for conducting the study. This study is to assess the prevalence of obesity and overweight among medical students in a medical college in Trivandrum based on Asia-Pacific BMI guideline.

MATERIALS AND METHODS

This study was a descriptive study conducted among medical students of medical college in Trivandrum district of Kerala, India. 350 students from all batches of MBBS course were selected as participants in this study. All MBBS students in this medical college were included as study subjects. Those above the age of 25

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years and who were not willing to participate were excluded from this study. The study period was between 1st may 2013 to 30th may 2013. The study variables like diet, frequency of consumption of meat, fast food, fried snacks, chocolates, ice creams, sleep pattern, consumption of alcohol and smoking status were studied.

Table 3. Fast food consumption and obesity

Category	No fast food		Daily consumption		Once or more in a week		Once in a month	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Obese	3	3	3	3	63	70	21	24
Non obese	14	5.4	13	5	62	23.8	171	65.8

The participants were categorized on the basis of BMI (Body Mass Index, weight in kilo gram divided by height in meter square), criteria for Asian people (under weight (BMI < 18.5), normal (BMI = 18.5 to 22.9), over weight (BMI= 23 to 24.9), obese grade 1 (BMI= 25 to 29.9) and obesity grade 2 (BMI >30)).

The data collection was done using a pretested proforma. Tools used for measuring BMI were, a digital weighing machine which could measure least up to 100gms, a calibrated height measuring scale which could measure least up to 0.1 cm. The height was measured on a vertical scale with heels, buttocks, and occiput against the wall. The weighing machine was checked with known weights every day before starting the survey Informed consent was obtained from the participants and ethical approval obtained from IEC. The collected data were entered into Microsoft excel software and the analysis was done using SPSS 16 software.

RESULTS

Among 350 students who participated in this study 228 (65.1%) belongs to the age group of 18 to 20 years

Table 1. Age distribution of participants

Age group in years	Frequency	Percentage
18-20	228	65.1
20-22	87	24.9
22-24	35	10

(Table1). Out of these 350 students 241(68.86%) were females.

The prevalence of obesity among medical students based on Asia-Pacific guideline is 25.71% (95% CI, 21.75-29.83). Prevalence of overweight among medical students is 24.57% and 7.7% of the medical students are underweight **(Table 2).** The 61% of obese subjects fall under the age group 18-20 years, 26% under age group 20-22 years and 13% under age group 22-24 years.

Table 2. Distribution of participants according to weight category

Weight Category(BMI)	Frequency	Percentage
Underweight	27	07.70
Normal	147	42.00
Overweight	86	24.57
Obese	90	25.71

This study shows 337(96.29%) as non vegetarians and only 13 (3.71%) as vegetarians. It was found that 10% of students skip their breakfast but most of them, 83% do not skip any meals. The highest percent of them consume more food during lunch (39%) then breakfast (34%) and the least number of them consume more food during dinner (27%).

This study shows that 63% of obese individuals consume fast food once or more in a week whereas only 22.8 % of non obese fall under the same category. The obese students who do not consume fast-food are only 3% and who consume fast food daily were also 3 percent **(Table 3).**

The study shows that 84% of obese population and 76% of non obese population consumes chocolate/ ice-cream once or more in a week. The daily consumers are 7% among obese and non obese population **(Table 4).**

It can be seen that, 81% of obese students did not adopt any weight management methods. Only 12% of obese students are involved in any physical activity whereas 34% of non obese population is involved in one or other regular physical activity. It was found that 6% students used to sleep for less than 6 hours, 49% for 6 hours and 45% for more than 6 hours. There was not much disparity in the sleeping pattern of obese and non obese individuals.

As per the study report there were no female alcoholics, and out of the 109 males who were surveyed, there were 34 (31.2%) alcoholics. Among 34 alcoholics

Table 4. Consumption of chocolate and ice-cream and obesity

Consumption Pattern	Obese		Non obese	
	Frequency	%	Frequency	%
No consumption	2	2	2	0.7
Daily	6	7	19	7.3
Once or more in a week	76	84	199	76
Once in a month	6	7	40	15

only 4 (11.8%) were obese. It was found that, out of 109 male students 58 (53.2%) were used to smoking cigarette. Among the smokers 79% were non obese. It can be seen that 26 % of obese population had positive familial history of obesity when compared to 13% of non obese population.

DISCUSSION

In a study conducted among adolescents in Chennai city, 6.2% were overweight and 5.2% were obese, this obesity estimates were based on WHO global BMI standards.[6] In this study, the prevalence of obesity among medical students based on Asia-Pacific guideline is 25.71% and overweight is 24.57%. In another study conducted among medical students in Malaysia, 5.2% were found to be obese (BMI > 30 kg/m2) and 14.8% were found to be overweight (BMI 23-24.9 kg/m2); 13.7% of males and 15.7% of females.[7]

Study conducted in Chennai shows, nearly 20% of the students ate fast food items on 4 to 7 days during the previous week, 30.4% watched television for more than two hours per day, and nearly 68% of the girls and 22% of the boys did not participate in outdoor sports activities.[6] This study shows 63% of obese individuals consume fast food once or more in a week whereas only 22.8 % of non obese fall under the same category. This study also shows that consumption of fast food, fried snacks was found to be more among obese students'. Other factors like frequency of meat consumption sleep pattern, alcoholism and other addictions do not have a significant role as a risk factor in this scenario.

CONCLUSION

The prevalence of obesity among medical students was found to be 25.79%. The higher prevalence of obesity compared to other studies may be due to more stringent Asia-Pacific Obesity guideline. It was observed that there is an increase in obesity prevalence among those who are using unhealthy life style, including fast food and fried snacks consumption. This study reinforces the need to encourage healthy lifestyle, healthy food habits and a physically active daily routine, among medical students and need to be focused to prevent this obesity related disease epidemic. The measurement of obesity using Asia- Pacific guideline shows a definite increase in prevalence of obesity among students.

END NOTE

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