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Biochemistry

A STUDY OF PREVALENCE OF OBESITY AMONG MEDICAL STUDENTS AND ITS RELATION WITH FOOD HABITS AND EXERCISE

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ABSTRACT **Introduction:** Obesity is widely regarded as a major global pandemic as it is associated with numerous comorbidities such as increased cardiovascular diseases and diabetes. Increased intake of junk food and a sedentary life has increased the rate of obesity among the youth over the last 20 years. **Materials and Methods:** The present study was conducted at a medical college to check the prevalence of obesity among medical students and its relation with food habits and exercise. Students were given a self-administered questionnaire about obesity which had an information regarding age, sex, food habits, frequency of consumption of junk foods, duration of sleep, exercise, etc. **Results:** The prevalence of obesity and overweight was 29.2% and 18.8% respectively. The prevalence of obesity was higher in the 18-21 years (17.2%) than in the 22 -25 years age group (12%). It was found that among obese students, 89% of students skipped their meals and only 11% had their regular meals. The students who tended to skip their breakfast less than three times a week were more obese (45.2%) than those who had never skipped their lunch (22%). It was also found that among obese students, 24.7% of students never did exercise, whereas 43.8% of students used to do exercise for < 1 hour, 28.8%% used to do exercise for 1-2 hours, and 2.7% used to do a regular exercise for >2 hours a day. The students who did not do exercise or exercise for <1 hour a day were more than those who used to do exercise for 1-2 hours and those who used to do regular exercise for >2 hours a day. **Conclusion:** The study concluded that the obesity and overweight is a serious health issue for medical students as they are future doctors and health leaders in the community.

KEYWORDS : obesity, medical students, food habits, exercise.

Introduction:

Obesity is widely regarded as a major global pandemic as it is associated with numerous comorbidities such as diabetes and cardiovascular diseases. The prevalence of overweight and obesity has doubled since 1980 as about one third of the world's population is now classified as overweight or obese. (1,2). Obesity has debilitating effects on both physical and mental health, Finally, it leads to lower life expectancy and quality of life. The prevalence of obesity has been increasing globally among young people (3), and more than 1.9 billion adults were overweight and of these over 650 million were obese (4). Studies in Eastern Mediterranean countries indicate that obesity has increased at an alarming level among adults. A study on college students in the Middle East showed 21.8% of students were obese and 15.7% were obese (5).

Increased intake of junk food and a sedentary life has increased the rate of obesity among the youth over the last 20 years. Several studies among university students in multiple developing countries including India, Bangladesh, etc, suggested a high prevalence of obesity (6). Anthropometric measure such as the body mass index (BMI) is widely used as convenient index of adiposity, yet there are limitations in their estimates of body fat. (7) According to the World Health Organization (WHO), overweight and obesity are excessive fat accumulation that presents a health risk. Body mass index (BMI) is an instrument recommended to classify obesity, and BMI ≥25–30 Kg/m2 would be considered overweight, and BMI >30 Kg/m2 would be considered obese. (8) Quality of food consumption is as important as the correct servings and quantity. Studies have proven that fast food items tend to cause obesity, a primary concern of metabolic syndrome which can lead to non-communicable diseases like diabetes and cardiac diseases. (9,10) Our study aims to determine the prevalence of obesity in medical students and its relation with food habits and exercise.

Material & Methods:

The present study was a cross-sectional observational study conducted at SBKS Medical college, Pipariya, Vadodara. This study included 250 medical students after getting ethical approval from the institutional ethics committee. Students were given a self-administered questionnaire about obesity which had an information regarding age, sex, food habits, frequency of consumption of junk foods, duration of sleep, exercise, etc. Anthropometric measurements such as height and weight were taken and body mass index (BMI) was calculated.

Statistical Analysis:

Descriptive statistics were used for data analysis and the data was represented in the form of percentages, and mean by using Microsoft Excel. Prevalence was calculated by using Medcalc Version 20.118.

Results:

The present study comprised of 250 medical students, of which 151 were females and 99 were males. The students were given a self-administered questionnaire about obesity which had information regarding age, sex, food habits, frequency of consumption of junk foods, duration of sleep, exercise, etc. Anthropometric measurements such as height and weight were taken and BMI was calculated. Total 24 students (14 females, 10 males) were underweight (BMI<18.5), 106 students (73 females, 33 males) were normal (BMI 18.5 – 22.9), 47 students (29 females, 18 males) were overweight (BMI 23.0-24.9) and 73 students (38 males, 35 females) were obese (BMI >25). [Figure 1, Figure 2]

Figure 1: BMI Distribution of the study sample.

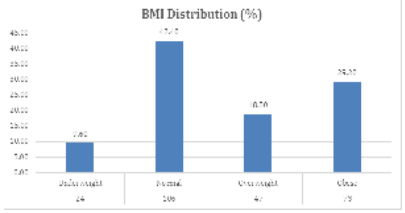
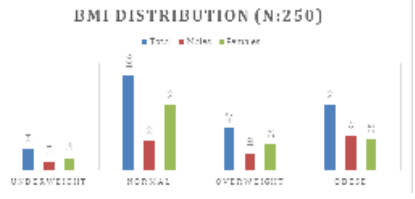


Figure 2: Gender-wise distribution of BMI in the study sample.



Most of the obese students consumed junk food (93.2%) than the students who did not consume it at all (6.8%). Among obese students, 46.6% consumed junk food 1-2 times a week, 37% of students

consumed junk food 3-5 times a week, and 9.6% of students consumed junk food more than 5 times a week. [Table 1]

Table 1: The relationship between diet habits and different BMI categories.

Body Mass Index / Junk food	<18.5 Underweight	18.5-22.9 Normal	23.0-24.9 Overweight	>25 Obese
Never	20.8%	3.8%	4.2%	6.8%
1-2 times	58.4%	55.6%	59.6%	46.6%
3-5 times	20.8%	27.4%	36.2%	37%
>5 times	0%	13.2%	0%	9.6%

In our study, it was found that among obese students, 89% of students skipped their meals and only 11% had their regular meals. The students who tended to skip their breakfast less than three times a week were more obese (45.2%) than those who had never skipped their lunch (22%). Further, 46.6% of obese students said that they eat all the time or most often in response to stress, and 49.3% of obese students believed that constant stress could be a reason for weight gain. [Table 2]

Table 2: The relationship between skipping a meal and different BMI categories.

Body Mass Index / Meal skipped/week	<18.5 Underweight	18.5-22.9 Normal	23.0-24.9 Overweight	>25 Obese
Never	25%	27.3%	38.3%	22%
<3 times	54.2%	51%	40.4%	45.2%
3-6 times	16.7%	18.9%	14.9%	22%
All days a week	4.1%	2.8%	6.4%	10.8%

In our study, it was found that among obese students, 24.7% of students never did exercise, whereas 43.8% of students did exercise for < 1 hour, 28.8%% did exercise for 1-2 hours, and 2.7% did a regular exercise for >2 hours a day. The students who did not do exercise or did exercise for <1 hour a day were more than those who did exercise for 1-2 hours and those who did regular exercise for >2 hours a day. [Table 3]

Table 3: The relationship between exercise and different BMI categories.

Body Mass Index / Exercise	<18.5 Underweight	18.5 - 22.9 Normal	23.0 - 24.9 Overweight	>25 Obese
Never	41.7%	25.5%	31.9%	24.7%
<1 hour/day	37.5%	45.3%	46.8%	43.8%
1-2 hours/day	16.7%	29.2%	21.3%	28.8%
>2 hours/day	4.1%	0%	0%	2.7%

In our study, it was found that among obese students, 1.4 % of students used to sleep for <4 hours, whereas 43.8% of students used to sleep for 4-6 hours, 46.6% used to sleep for 7-9 hours and 8.2% used to sleep for >9 hours a day. There was no significant correlation between lack of sleep with obesity in our study. Further, 61.6% of students believed that lack of sleep could be a reason for obesity. [Table 4]

Table 4: The relationship between sleep and different BMI categories.

Body Mass Index / Sleep/24 hours	<18.5 Underweight	18.5-22.9 Normal	23.0-24.9 Overweight	>25 Obese
< 4 hours	0%	4.7%	0%	1.4%
4-6 hours	41.7%	22.6%	53.2%	43.8%
7-9 hours	45.8%	68%	40.4%	46.6%
>9 hours	12.5%	4.7%	6.4%	8.2%

Our study's prevalence of obesity and overweight was 29.2% and 18.8% respectively. Age of the Students in our study was ranging from 18 to 30 years. The prevalence of obesity was higher in the 18-21 years (17.2%) than in the 22 -25 years age group (12%). The prevalence of obesity in males was 38.4% whereas in the case of females it was 23.2%. However, the prevalence of being overweight was 19.20% in females and 18.2% in the case of males. So, the prevalence of obesity was higher in the case of males as compared to females and the prevalence of overweight was higher in females as compared to males.

Discussion:

The intricate relationship between food and health has been perfectly illustrated by Hippocrates more than 2500 years ago, when he stated, "Let food be thy medicine and medicine be thy food." For ages, the role of diet and health has been the subject of intense research. In recent times, with the increasing burden caused by lifestyle diseases on the health sector, there has been a renewed interest in the relationship between food and health. (11) Due to the very demanding course and busy schedule of the medical degree; medical students are known to be involved in less physical activity and more sedentary lifestyles due to academic pressure.

Obesity in India has reached epidemic proportions in the 21st century, with morbid obesity affecting 5 % of the country's population. Our study's prevalence of obesity and overweight was 29.2% and 18.8% respectively. In our study, the prevalence of obesity was higher in males (38.4%) as compared to females (23.2%). However, the prevalence of overweight was higher in females (19.20%) as compared to males (18.2%). The prevalence of obesity was higher in the 18-21 years (17.2%) than in the 22 -25 years age group (12%). Similar findings were reported by Gudegowdai K S et al and Adhikari et al. (9,10) The prevalence of obesity was higher in the 18-21 years (17.2%) than in the 22 -25 years age group (12%). In our study BMI was significantly associated with sex, age, skipping meals, frequency of junk food, and the number of meals in a day.

A similar study of obesity was done among medical students in Bangalore, by Gudegowda K S et al. and a prevalence of 11.32% was observed in that study. (12) The findings of the study done among medical students by Adhikari et al showed the prevalence of overweight and obese to be 18% and 2% which was lower than our study (13). The study done by Manojan KK et al in Kerala in 2013 showed the prevalence of obesity and overweight to be 25.71% and 24.57% (14). Similar findings were observed in a study by Deotale MK et al in 2015. (15) All these studies were based on WHO Asia-Pacific guidelines. Medical students had adequate knowledge regarding the risk factors of obesity but were not able to implement healthy eating habits because of the busy schedule of college hours, less time for lunch/breakfast, and emergency duties that predispose them to overweight and obesity.

Conclusion:

The study concluded that the obesity and overweight is a serious health issue for medical students as they are future doctors and health leaders in the community. Students have good knowledge about preventive measures to control obesity but lack the adoption of appropriate practices. The study reinforces the need to implement a healthy lifestyle, healthy food habits, and regular exercise, among medical students to have a healthy future.

Conflict of interest: The authors do not have any conflict of interest.

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