Research Article

Study of body mass index in first year MBBS students in a medical college of Eastern UP

Sarita Agrawal, Vivek Sinha, Poonam Kachhawa, Arun Kumar

Department of Biochemistry, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India.
Correspondence to: Sarita Agarwal, E-mail: drsaritavagrawal@gmail.com

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Abstract

Background: Overweight and obesity are recognized as "escalating epidemics" affecting both developed and developing countries. Obesity is associated with a large number of debilitating and life-threatening disorders such as cardiovascular, metabolic, and other non-communicable diseases. Of the factors contributing to obesity, stress seems to be particularly important as stressful condition leads to irregularity in diet, lack of exercise and addiction, each being considered an independent factor leading to obesity. Medical students are exposed to a lot of stress throughout their education. Hence, this study was undertaken to find out the prevalence of overweight and obesity among undergraduate medical students.

Objectives: To assess the prevalence of overweight and obesity among medical students in Saraswati Institute of Medical Sciences, Hapur, Uttar Pradesh and also to find the relationship of the following risk factors with obesity: (a) physical inactivity, (b) sleeping habits, (c) diet, (d) stress, and (e) association with other diseases (thyroid disorders, menstrual disorders).

Material and Methods: A descriptive cross-sectional survey was conducted in the Department of Biochemistry among 100 students; data were collected using pretested questionnaire from 100 students after taking an informed consent. The height and weight of the students were measured, and the BMI was calculated.

Results: Among the 100 students, the mean ± SD height of the students was 1.67 ± 0.09 m, while the mean weight was 66.61 ± 12.71 kg and the mean BMI 23.54 ± 3.09 kg/m^2. Normal BMI was observed in 73.1% students, while 22.3% students were overweight, 3.1% obese, and only, 1.5% underweight. Overweight and obesity were significantly more in male than female students.

Conclusion: The present study gives an idea about the high prevalence of overweight and obesity in the medical students. There is a need to create awareness and interest regarding healthy diet and body weight management among this future physician population. Nutritional education on dietary practices and life style change should be built in as supporting educational activity during student years.

KEY WORDS: Overweight, obesity, body mass index, medical students

Introduction

The burden of noncommunicable diseases is increasing globally and poses a major public health concern, a large part of which is preventable.[1] Burden of noncommunicable diseases in general and cardiovascular disease, in particular, is largely attributed to obesity both in the developed and developing countries.[2] Obesity has reached epidemic proportions globally. In 2014, more than 1.9 billion adults, aged 18 years and older, were overweight. Of them, over 600 million were obese, 39% of adults aged 18 years and over overweight, in 2014, and 13% obese.[3] The rapid increase of overweight and obesity, especially in the younger generation, in many low and middle-income countries like India, due to inappropriate diet and inactive lifestyle, foretells us overwhelming chronic disease burden in the next 10–20 years if no intervention is done.[4]

Obesity is an increase in body weight as the result of excessive accumulation of body fat. Body mass index (BMI)

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is commonly used to define obesity. It is defined as a person's weight in kilograms divided by the square of height in meters (kg/m^2). The WHO defines normal weight as a body mass index (BMI, kg/m^2) of ≥18.5 to <25, overweight as a BMI of ≥25 to <30, and obesity as a BMI of ≥30.[5] College life is an important stage for adolescents, as at this time their behaviors are conducive to change[6] but they are also exposed to stress and lack of time, posing a barrier to adoption of healthy practices[7] despite being equipped with knowledge. Hence, this study was undertaken to find out the prevalence of overweight and obesity among the undergraduate medical students of Saraswati Institute of Medical Sciences, Hapur, Uttar Pradesh, India.

Material and Methods

A descriptive cross-sectional survey was conducted in the month of June 2016 in the Department of Biochemistry. The study population consisted of all the 100 first year MBBS students. Students present on the day of study were included, and efforts were made twice to contact absentees. A total of 100 students participated in the study. A pretested questionnaire was used to collect and record information on age, sex, height in meters, and weight in kilograms, of each subject. Body weight and height were measured to the nearest 0.1 kg and 0.5 cm using standard calibrated scales and a nonstretch tape fixed to a flat vertical wall, respectively. To reduce the errors in measurement, the scales were checked for precision by weighing an object of known weight. BMI was calculated with the formula: weight (kg)/height (m^2). Using cutoff points adapted from the WHO criteria, BMI < 18.49 kg/m^2 was defined underweight, 19–24.99 kg/m^2 normal, 25–29.9 kg/m^2 overweight, and ≥ 30 kg/m^2 obese. The data obtained were compiled and analyzed by using SPSS software, version 21.

Results

Of the 100 students who participated in the study, 62 were male and 38 female students. The mean age of the students was 21.8 ± 3.9 years (Table 1). A total of 87 mothers and 65 fathers of the students were reported to be obese. History of hypertension and diabetes was present in 50 and 60 mothers, respectively, while among the fathers of the students, hypertension and diabetes were observed in 72 and 82 of them, respectively. A small number of them showed both the diseases (Table 2). The mean ± SD height of the students was 1.67 ± 0.09 m, the mean ± SD weight 66.61 ± 12.71 kg, and the mean ± SD BMI 23.54 ± 3.09 kg/m2. As depicted in Figure 1, most (73.1%) of them showed normal BMI, while 22.3% of them were overweight, 3.1% obese, and only, 1.5% underweight. Overweight and obesity were observed more in the male than the female students (Figure 2); this observation was statistically significant (p = 0.03).

Table 1: Sociodemographic characteristics of students (n = 100)

Gender	Number of students
Male	62
Female	38

Table 2: Positive family history

Factor	Mother	Father
Obesity	87	65
Hypertension	50	72
Diabetes	60	82

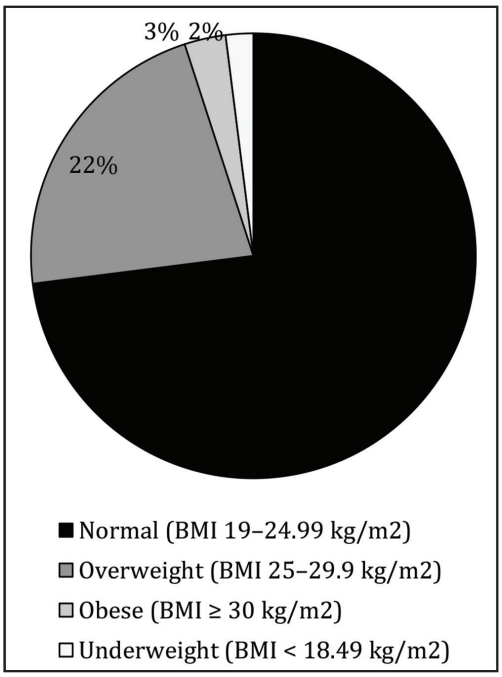

Figure 1: Distribution of the students according to BMI.

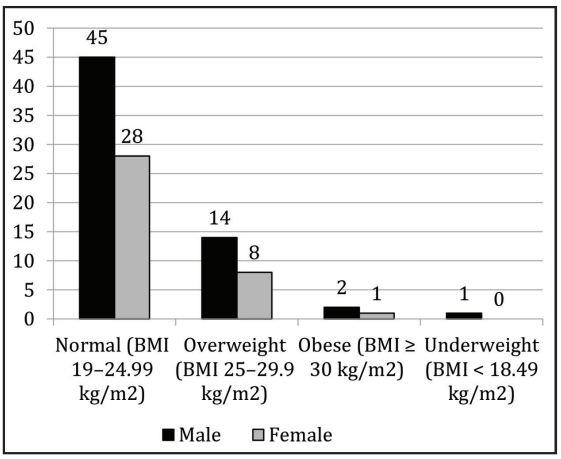

Figure 1: Distribution of the students according to gender and BMI.

Discussion

In our study, of the 100 students, 62 were male and 38 female students. The mean ± SD height of the students was 1.67 ± 0.09 m, the mean weight 66.61 ± 12.71 kg, and the mean ± SD BMI 23.54 ± 3.09 kg/m^2. Most (73.1%) of them showed normal BMI, while 22.3% of them were overweight, 3.1% obese, and only, 1.5% underweight.

The study conducted among medical students in Greece revealed a slightly lower prevalence of obesity, which was 22%. This was attributed to lack of regular physical activity and family history of obesity.[8] A significant relation between obesity/overweight and consumption of junk food was established in a study conducted among medical students of Malaysia. In their study, the prevalence of obesity was 15.2% and that of overweight was 21.8%. This increased prevalence was attributed to their increased junk food consumption.[9] Deshpande et al[10] reported the prevalence of obesity to be 29% among medical undergraduate students of Ujjain. Thakkar et al[11] reported that, according to Revised Indian Guidelines, the prevalence of obesity was 23% among college girls in Agra District of Uttar Pradesh which is very similar to our study. Kotian et al[12] revealed that the risk of obesity was two times higher among the adolescents of high socioeconomic class. In our study, 100 students participated, of which 62 were male and 38 were female students, while in the study done by Minhas et al[13] 222 (28%) were male and 570 (72%) were female students. The mean age of the participants in this study was 21.8 ± 3.9 years[14]. However, the study done by Agarwal et al[15] in MMAC, Delhi, comprised younger participants. A mean ± SD BMI of 23.54 ± 3.09 kg/m^2 was reported, higher than the earlier reported studies[13,16]. The present study found comparatively more students (73.1%) showing normal BMI than the earlier reported studies[1,16]. Boo et al[17] in their study on the students from a Malaysian medical college, reported that 69% of students showed a normal BMI. The prevalence of underweight was very low (1.5%), contrary to the reports obtained by Kumar et al[1] (20.1%) and Mani[16] (10%) through their studies. The overall prevalence of overweight and obese was found to be 22.3% and 3.1%, respectively, which was similar to the results of the study done by Mani[16]. Although Gupta et al[18] reported a similar prevalence of obesity through their study, the number of overweight students were fewer. Chhaya and Jadav[19] who carried out their study in a similar population, have reported a higher proportion of underweight (13.6%) and obesity (25.6%), when compared with our study. In our study, overweight and obesity was observed more in male than in the female students; the observation was statistically significant ($p = 0.03$) and comparable with the previous studies.[13,17] On the contrary the study done by Lakshmi and Devi[20] among the medical students of Tirupati reported no gender difference, while Hamid et al[21] in their study, reported female students being more overweight among the students of Skims Medical College. Comparable with the past studies[13] family history of obesity in either of the parent was present in many students (mothers 87 and fathers 65); similarly, many of them showed a family history of diabetes or hypertension or both.

Strength and limitations: As the study is conducted in medical college students, who are future physicians it is very important that they be aware of increasing obesity as this may influence the outlook of patients .This study was conducted in 100 medical students. It was recommended to conduct a study with a larger sample size. Recall and non-response bias could have occurred from the students while filling the questionnaire, which warrants further research.

Conclusion

This study highlights the fact that superior knowledge about healthy dietary habits does not necessarily result into better practices. Programmes focusing on improving time management skills of students are essential. They need to be encouraged to participate in physical exercise, especially sports, athletics, and other outdoor activities. Further studies should be undertaken to identify specific barriers among medical students in practicing healthy dietary habits and come up with workable solutions. Improvement in dietary habits, if made in early years of medical schooling, would produce physicians practicing and promoting healthy dietary habits. Nutrition education is required including counseling on skipping meals and consumption of snacks.

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