

Original Article

Study of Body Mass Index (BMI) on Medical Students

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Abstract

Background: Body mass index is a valuable tool to assess the nutritional status of an individual. It can be conveniently used to identify those who are underweight, overweight or obese. **Objective:** To determine the BMI status of medical students. **Methods:** This cross sectional descriptive study was carried out in the Department of Physiology, Sir Salimullah Medical College, Dhaka from July 2009 to June 2010. A total number of 264 students of both sexes, age ranged from 19 to 21 years were included. A structured questionnaire was used to collect and record the information on age, sex, height in meters and weight in kilograms of each subject. The measurements were taken under supervision using a standardized weighing machine, height measuring scale and measuring tape. Body Mass Index (BMI) was calculated using the formula weight (in kilogram)/ height² (in meter). Using cut off points from World Health Organization (WHO) criteria BMI was classified. Statistical analysis was done by using SPSS version 16. **Result:** Mean BMI of male students was 21.64 and of female students was 23.52. In this study, the prevalence of overweight was 20.5% and obesity was 4.5% while 63.6% of the students were within normal weight range and 11.3% were underweight. Among the male students 9.35% were underweight, 76.97% were normal weight, 10.07% were overweight, 3.59% were obese and among female students it was 13.6%, 48.8%, 32% and 4.54% respectively. **Conclusion:** This study reveals that overweight is a rising problem for both male and female medical students. Moreover, overweight and underweight issues are more common in female students.

Key words: BMI, Overweight, Obese, Underweight, Medical students.

Introduction

Body mass index is a valuable tool to assess the nutritional status of an individual. It can be conveniently used to identify those who are underweight, overweight or obese. In the past decade, occurrence of overweight and obesity are very high affecting both developed and developing countries like Bangladesh. In Bangladesh, there is a nutritional transition from typical carbohydrate diet to fast food dietary habits, particularly young adults like medical students have been affected. Adverse effect

of overweight and obesity is associated with a large number of debilitating and life threatening disorders like cardiovascular, metabolic and other non communicable diseases¹. The increasing rates of overweight and obesity are a result of changing lifestyles and industrialization with the associated increasing rate of television viewing and playing with computer games, consumption of high calorie and high fat foods coupled with low levels of energy expenditure in the form of low physical activity². The prevalence of overweight and

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obesity are increasing worldwide and it has become a significant health hazard. Obesity rates have now reached epidemic proportion in the western hemisphere constituting over 25% of population in United States and 15% in Europe³. Obesity and overweight are not only a problem of adults but also of children and adolescents worldwide⁴. In Bangladesh little attention has been paid to adolescent and young adult's obesity until recently. Studies on medical students and health personnels in many countries suggests that overweight and obesity is a problem among these population groups^{5,6}. There is increasing rate of urbanization and changing lifestyles in Bangladesh which carries the risk of increased overweight and obesity in young adults. The social implications of obesity are a major problem area that is often neglected. The obese, do less well academically, have poor job prospect and lower self esteem. Since this overweight/obesity become an alarming sign it is necessary to prevent this by changing lifestyle and health education. Before starting a health education program we need to assess the burden of the problem among the medical students, whom will be involved with the future health care approaches of the country. Hence the study was conducted to determine the prevalence of underweight, overweight and obesity among the medical students.

Methodology

This cross sectional descriptive study was conducted at Sir Salimullah Medical College, Dhaka during July 2009 to June 2010 where 264 students from first and second year (age 19-21 years) were included. A structured questionnaire was used to collect and record the information on age, sex, height in meters and weight in kilograms of each subject. The objective of the study was explained and written consent was taken from each student. The measurements were taken under supervision using a standardized weighing machine, height measuring scale and measuring tape. Body mass index (BMI) was calculated using the formula weight (in kilogram)/ height² (in meter). Using cut off points from World Health Organization (WHO) criteria (Table 1), BMI less than 18.5 was considered underweight, 18.5 to 24.99 normal weight, 25 to 29⁹ was overweight and 30 or above as obese. Statistical analysis was done by using SPSS version 16.

Result

A total of 264 medical students were participated in the study with the age ranged from 19 to 21 years. Among

them 139 (53%) were male and 125 (47%) were female (Figure 1).

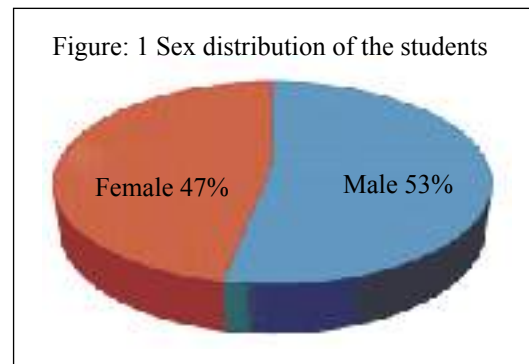


Figure: 1 Sex distribution of the students

The mean height of the students was 1.59 meters and their mean weight was 58.5 kilogram. The mean height of male students was 1.66 meters (SD±4.82.) and their mean weight was 59.73 kilogram (SD±8.99) where mean height of female students was 1.56 meters (SD±4.98) and their mean weight was 57.33 kilogram (SD±10.6) (Table 1).

Table-1: Classification of BMI (WHO criteria)

Classification	BMI (Kg/M ²)
Underweight	<18.5
Normalweight	18.5-24.9
Overweight	25.0-29.9
Obese	>30

Table-1: Classification of BMI (WHO criteria)

Mean BMI of male students was 21.64 and of female students was 23.52. In the study, the prevalence of overweight was 20.5% and obesity was 4.5% while 63.6% of the students were within normal weight range and 11.3% were underweight. Among the male students 9.35% were underweight, 76.97% were normal weight, 10.07% were overweight, 3.59% were obese and among female students it was 13.6%, 48.8%, 32% and 4.54% respectively (Figure 2).

Table-2: Anthropometric values of male and female students

	Male (N=139)	Female (N=125)
Height (Meter)	1.66 (SD±4.82) (1.56 -1.75)	1.56 (SD±4.98) (1.48 -1.66)
Weight (Kilogram)	59.73 (SD±8.99) (44- 88)	57.33 (SD±10.6) (41-75)

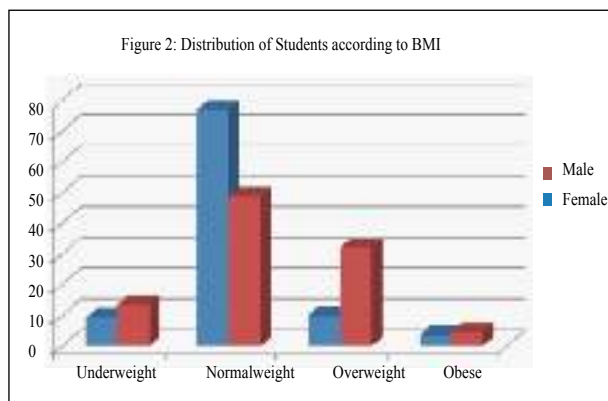


Figure 2: Distribution of Students according to BMI

Discussion

In the present study, most of the students had a normal BMI and it was 63.6%. It was almost similar to the study conducted at Lahore Medical and Dental College which showed 60% of students having normal BMI⁷. Boo et al from Malaysian Medical College, reported that 69% of students had a normal BMI⁸. Another similar study also reported a prevalence of 57% normal weight among medical students of Meenakshi Medical College and Research Institute, Kanchipuram district, Tamil Nadu, India³.

In this study, prevalence of obesity was 4.5%. A similar study from Malaysia reported obesity of 8% among medical students⁸. Gupta et al. reported 3% obesity among medical students of Calcutta⁹ while Chhabra et al. reported obesity to be 2% among medical students of Delhi¹⁰. Abdalla and Mohamed in their study on medical students of Ribat University, Khartoum reported obesity to be 9%¹¹ while Selvaraj and Sivaprakasam reported obesity of 8.6% among medical students³.

In our study, overweight was found among 20.5% of medical students. In a similar study conducted by Selvaraj and Sivaprakasam showed overweight to be 24.3% of medical students³. In other studies, frequency of overweight among medical students were reported by Gupta et al. to be 17.5%⁹, according to Chhabra et al. it was 12%¹⁰, Abdalla and Mohamed stated it to be 18%¹¹. In the present study, prevalence of overweight was high among female students implying that the risk of metabolic syndrome is high among females when compared with males.

In the current study, underweight students were 11.3%. According to Boo et al. in a Malaysian study, 15% of medical students were underweight⁸. In another study,

Daud and Javaid reported underweight to be 6% among medical students⁷. The present study showed that females are more underweight compared to males. This could be due to the current trend for slimness rather than malnutrition. This trend was also highlighted Minhas et al. in a similar study at Dow Medical College, Karachi¹². Salient finding is that, the sedentary lifestyle was high among overweight and obese and they had less physical activity.

Conclusion

From the study, it can be concluded that, obesity is not a major problem among medical students but being overweight is coming up as a significant problem. However, more female students were overweight or underweight. Keeping in view that now a days more female students are coming for studying medical science, this is a significant findings and needs better education and awareness. Thus this study reinforces the need of healthy lifestyles, healthy food habits and a physically active daily routine among the adolescent and youths of this country. Regular screening for overweight and underweight is a valuable approach to prevent it and its complications.

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