

Body Mass Index Status of First Year Medical Students

Rahman MA¹, Begum J², Wahab MA³

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Abstract

Introduction: Body mass index (BMI) is an important tool for indirect measure of nutritional status of an individual. Overweight and obesity are recognized as “escalating epidemics” affecting both developed and developing countries. An obese (BMI ≥ 30 kg/m²) individual is more likely to get hypertension, heart disease, diabetes mellitus, cardiovascular disease, gall bladder disease and various types of cancer.

Aim: To assess the prevalence of overweight and obesity among students of Armed Forces Medical College (AFMC) and factors associated with obesity.

Methods: A descriptive cross-sectional survey was conducted in the Department of Anatomy among 101 students ‘AFMC Medical cadets’ category from November 2019 to January 2020. Data were collected using pretested questionnaire after taking verbal consent from the participants and administrative authority. The height and weight of the cadets were measured and the BMI was calculated.

Results: Among the 101 Medical cadets of Armed Forces Medical College, the mean \pm SD height of the students was 1.6 \pm 0.08 m, while the mean weight was 63.6 \pm 12.1 kg and the mean BMI was 24.0 \pm 4.3 kg/m². Normal BMI was observed in 65.6% students, while 24.2% students were overweight, 10.1% obese and only 2.2% underweight. Overweight and obesity were significantly more in male than female students.

Conclusion: The present study gives an idea about the alarming prevalence of overweight and obesity among the ‘AFMC Medical Cadets’ category. 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 each calendar year.

Key-words: Overweight, Obesity, Body mass index (BMI), Medical students, Escalating epidemics.

Introduction

Body mass index (BMI) is an important tool for indirect measure of nutritional status in an individual. This indicator provides a method that can assist in planning interventions to help eliminate many non-communicable preventable diseases. According to WHO BMI

is categorized¹ as Normal: 18.5 to <25 kg/m², Overweight ≥ 25 to <30 kg/m² and Obesity ≥ 30 kg/m². Obesity can result in a wide range of serious health consequences, such as diabetes, hypertension, cardiovascular disease and some forms of cancer². Overweight and obesity are the fifth leading risk of global deaths³, in worldwide, obesity has increased more than doubled since 1980. Now-a- days it has reached epidemic proportions globally. In 2014, more than 1.9 billion adults, aged 18 years and older were overweight and out of them, over 600 million were obese⁴.

The rapid increase of overweight and obesity, especially in the younger generation, in many low and middle-income countries like Bangladesh, India, Pakistan due to inappropriate diet and inactive lifestyle, foretell us overwhelming non communicable disease burden in the next 10–20 years if no effective measures are taken right now⁵. Graduation period of life is an important stage for adolescents and young adults, as at this time their behaviors are conducive to change⁶ but they are also exposed to stress and lack of time, posing a barrier to adoption of healthy practices⁷ despite being equipped with knowledge. Hence, this study was undertaken to find out the prevalence of over-weight and obesity among the 1st year “AFMC Medical Cadets’ category, the undergraduate medical students of AFMC.

Materials and Methods

This institution based cross sectional study was conducted from November 2019 to January 2020 among 101 first year medical students of ‘AFMC Medical Cadets’ category. ‘AFMC Medical Cadets’ category get huge relaxation in physical standard during the admission procedure in contrast to the ‘AMC Medical Cadets’ category to whom physical standard is as like as the requirement of Bangladesh Armed Forces. Inclusion criteria were all regular male and female cadets. The study group consisted of 89.1% Bangladeshi, 3.9% Nepali, 1.9% Bhutanese and 1.98% Indian students. AMC Cadets, has been excluded from the study. Although both types of cadets have to go through similar, weekly schedule physical hard ship and other activities. Balanced standard diet is given to compensate the physical hardship and mental stress to all medical cadets. Their heights and weights were recorded and structured questionnaire was filled after getting consent. Z-proportional test was applied to find the significant difference between male and female for each BMI category. Data were analyzed with SPSS 20.0 and a value of $p < 0.05$ was considered as statistically significant.

1. Col Md Azizur Rahman, MBBS, MPhil, Professor & Head, Department of Anatomy, Armed Forces Medical College (AFMC), Dhaka (E-mail: azizur834@yahoo.com) 2. Dr Jebunnessa Begum, MBBS, Junior Consultant of Gynaecology & Obstetrics, Shahed Ahsanullah General Hospital, Tongi, Dhaka 3. Lt Col Md Abdu Wahab, MBBS, MD, Associate Professor of Biochemistry, AFMC, Dhaka.

Results

Among the 101 medical students 37(36.6%) were male and 64(63.7%) were female and mean age was 19.6±0.9 years. Mean weight of male students was 70.9±10.5 kg and for female students 60.5±12.0 kg. Mean height of male students was 1.7±0.04 meter and for female students 1.6±0.07 meter. Mean BMI of male students was 23.9±3.3 and for female students 23.9±3.9kg/m². The prevalence of overweight and obese among the male and female together was 23.8% and 9.9% respectively. The prevalence of underweight among male and female were 0% and 3.1%, respectively and the difference between male and female was statistically significant (p<0.01). More than 67% male and 62% female students were within normal healthy weight. The prevalence of overweight and obesity among male students were higher than that of female students. Family history of non-communicable disease like; hypertension and diabetes mellitus in either or both of the parent was present in many cadets. This study reveals in either of 53 mothers and 57 fathers of 101 participants were suffering from hypertension and diabetes mellitus respectively. Out of above findings, 15 were common for both the diseases.

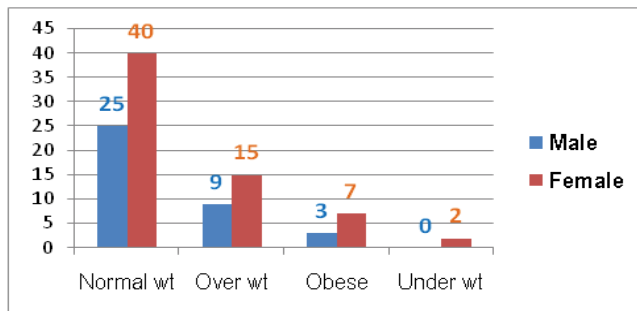


Figure-1: Distribution of participants by gender and BMI

Table-I: Positive family history

Factor	Mother	Father
Hypertension	36	32
Diabetes	17	25

Discussion

Young adult population of a country is an integral part of socioeconomic development and country's future leader in all aspect, so they should be healthy, smart and physically fit. Under the military environment physical fitness of medical cadets is mandatory. More so overweight and obesity is a risk factor in causation of chronic non-communicable diseases therefore increasing the burden of disease. In this study, of the 101 medical cadets, 37 were male and 64 were female students. The mean±SD height of the students was 1.6±0.08 m, the mean weight 63.6±12.1 kg and the BMI 23.9±4.3 kg/m². Most (64.36%) of them showed normal BMI while 23.8% of them were overweight, 9.9% obese, and only 1.9% underweight. The study reveals that the prevalence of overweight and obesity among the medical Cadets of AFMC is alarming. Similar study done by

Agrawal S et al⁴ revealsthe mean±SD height of the students were 1.7±0.09 m, the mean weight 66.6±12.7 kg and the BMI 23.5±3.1 kg/m². Most (73.1%) of them showed normal BMI while 22.3% of them were overweight, 3.1% obese, and only 1.5% underweight which is very much similar to our findings except the obesity which is lower than that of present study findings.

Rahman MS et al³ in Rajshahi University conducted a study among 911 (male 727 and female 184) university students for investigating their nutritional status, and it was measured by their BMI. The mean BMI of both male (21.6±2.6 kg/m²) and female (19.9±2.6 kg/m²) students shows the lower prevalence than that of our findings of BMI of this study. The reason is the cadets of AFMC are from relatively higher socioeconomic background in contrast to the Rajshahi University which is supported by Kotian et al⁸. They revealed that the risk of obesity was two times higher among the adolescents of high socioeconomic class. A significant relation between obesity 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 consumption⁹. Chhaya and Jadav who carried out their study in a similar population, have reported a higher pro-portion of underweight (13.6%) and obesity (25.6%), when compared with this study¹⁰.

Family history of non-communicable disease like hypertension and diabetes mellitus in either or both of the parent was present in many cadets which is supported by the findings of Agrawal S et al⁴. All the above findings, reinforcing the need to reschedule the healthy lifestyle, healthy food habits and physical activities in daily routine among the cadets of Armed Forces Medical College.

Conclusion

This study suggests that limited physical exercise and better medical knowledge about healthy dietary habits does not necessarily result into better practices. The study also shows the prevalence of overweight and obesity among the medical cadets of AFMC is alarming, they need to be encouraged to participate more in physical exercise, especially sports, athletics and other outdoor activities. Further studies should be undertaken to identify specific barriers among medical cadets in practicing healthy dietary habits and come up with workable solutions. Nutrition education is required including counseling on reshaping meals and consumption of snacks.

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