Original Article        Obesity in Medical Students

# Frequency of Obesity in Medical Students of Multan Medical & Dental College, Multan

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## ABSTRACT

**Objective:** To measure the frequency of obesity in male and female medical students of Multan Medical and Dental College using BMI for quantification of Obesity.

**Study Design:** Descriptive / cross-sectional study

**Place and Duration of Study:** This study was conducted at the Multan Medical and Dental College, Multan in March, 2017

**Materials and Methods:** A total of 100 medical students from all five years, 50 males and 50 females of ages 18-25 were included in the study. A questionnaire was filled out by subjects asking them about their age, gender, weight in kilograms and height in meters.

**Results:** Students were classified into different categories of obesity according to their BMI with reference to world health organization (WHO) criteria. Out of 100 students, 68% fell into the normal range of BMI, 23% were overweight and 7% fell into Obese Class 1. Out of 50 male students, 33% had normal BMI, 26% were overweight and 8% fell in obesity class 1. Out of 50 female students, 35% had normal body mass index (BMI) 20% were overweight and 6% fell in Obesity Class 1.

**Conclusion:** This study suggests that obesity and overweight are prevalent among both male and female medical students. There is an increasing need to carry out more studies, preferably with larger sample size, to assess the burden and impact of this problem.

**Key Words:** Body mass index, Overweight, Obesity, Medical students

## INTRODUCTION

Obesity is defined as the presence of excess amount of adipose tissue in the body.[1] The amount of body fat is difficult to measure directly and is usually determined from an indirect measure.[2] One such measure is the body mass index (BMI), which has been shown to correlate with the amount of body fat in most individuals (notable exceptions are athletes who have large amounts of lean muscle mass, hence, a greater BMI despite less amount of adipose tissue). Body Mass Index (BMI) is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obese in adults.[3] The BMI is calculated in both men and women as: BMI = Weight in kilograms/(height in meters)$^2$ or BMI= 703 x (weight in pounds) / (height in inches).

According to WHO, overweight is defined as BMI= 25.0-29.9 and obesity is defined as BMI ≥30.0. Class I obesity is 30.0-34.9, class 2 obesity is 35.0-39.9, and

class 3 (extreme) obesity is BMI greater than 40.[4] The WHO classification is primarily based on the association between BMI and mortality.

As obesity is a pandemic and developing countries have the highest number of overweight and obese individuals, it is least surprising that Pakistan ranked 9th out of 188 countries in terms of obesity[5], according to a study published by Marie.[6] It is a major risk factor in natural history of many debilitating chronic diseases for example, hypertension, diabetes and coronary heart diseases e.t.c.[3] All chronic diseases associated with obesity have high mortality rates, so indirectly, obesity can lead to death.

## MATERIALS AND METHODS

This descriptive / cross-sectional study was carried out at Multan Medical and Dental College, Multan in March, 2017. It was a cross-sectional descriptive study. It was the first time that a study on this topic was carried out in this institute. A questionnaire was designed which inquired about the age, gender, weight (in kilograms) and height (in meters). The study population was selected randomly by using random table. The questionnaire was distributed randomly amongst hundred students from all five years of medical studies (ages 18-25), fifty of those were males and fifty were females. The data collected from the questionnaire was used to calculate the BMI. The data

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for hundredstudents was analyzed collectively and also separately for males and females by dividing them into two groups of fifty each, and their BMI was categorized into the WHO classification of obesity.[2] Frequency charts, bar charts and Pie charts were drawn to analyze the data.

## RESULTS

Our study was aimed at observing the frequency of obesity according to WHO classification of BMI[2] in MBBS students of Multan Medical and Dental College, Multan. Frequency for each category of obesity WHO[4] was analyzed for male and female students separately and also collectively as a group of 100. Out of 100 students, 68% fell into the normal range of BMI, 23% were overweight and 7% fell into Obese Class 1.

**Table No.1: Frequency of body mass index (kg/m$^2$) (n=100)**

| Classification | No. | % |
|---|---|---|
| Underweight (<18.5) | 2 | 2.0 |
| Normal range (18.5-24.9) | 68 | 68.0 |
| Overweight (25.0-29.9) | 23 | 23.0 |
| Obese Class I (30.0-34.9) | 7 | 7.0 |
| Obese Class II (35.0-39.9) | - | - |
| Obese Class III (≥40) | - | - |

**Table No.2: Frequency of body mass index according to genders (n = 100)**

| Classification | Male | | Female | |
|---|---|---|---|---|
| | No. | % | No. | % |
| Underweight (<18.5) | - | - | 2 | 4.0 |
| Normal range (18.5-24.9) | 33 | 66.0 | 35 | 70.0 |
| Overweight (25.0-29.9) | 13 | 26.0 | 10 | 20.0 |
| Obese Class I (30.0-34.9) | 4 | 8.0 | 3 | 6.0 |
| Obese Class II (35.0-39.9) | - | - | - | - |
| Obese Class III (≥40) | - | - | - | - |
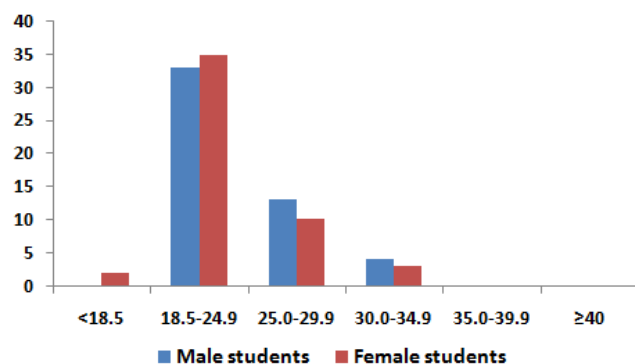


**Figure No. 1: Frequency of students according to BMI**

Out of 50 male students, 33% had normal BMI, 26% were overweight and 8% fell in obesity class 1. Out of 50 female students, 35% had normal BMI 20% were overweight and 6% fell in Obesity Class 1 (Tables 1-2, Fig. 1).

## DISCUSSION

In our study 68% students had normal BMI. This finding was comparable to a study conducted at Islamabad Medical and Dental College in 2014, which showed that 59.7% of the students in their study had normal BMI.[7] A similar study conducted at Lahore Medical and Dental College in 2011 showed that 60% of the students had BMI in the normal range.[8] From one study at a medical college in UAE, 58.8% of the students had normal BMI.[9]

In this study, 23% were overweight. A study reported similar figures, 27% being overweight.[8] A larger study that involved university students of same age group from different countries, stated that 22% were overweight or obese.[10] A similar study carried out in Kerala showed that 24.57% students were overweight.[11] Seven percent of the students fell into the Obesity Class I.A study conducted at a medical college in Tamil Nadu, India concluded that obesity was prevalent in 6.25% of the students.[12] Results of other studies reported obesity in 2%, 7% and 6.9%.[7-9]

## CONCLUSION

This study suggests that obesity and overweight are prevalent among both male and female medical students. There is an increasing need to carry out more studies, preferably with larger sample size, to assess the burden and impact of this problem.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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