

# Comparison of BMI in Male and Female Medical Students of Siddhartha Medical College in Vijayawada

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**Abstract:** *Introduction: Overweight and Obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. An increase intake of food, high in fat, and sugars with physical inactivity are considered to be the fundamental causes of obesity. BMI are used to classify Obesity and Overweight. This study is aimed to evaluate BMI among medical students and to see its association with gender. Methods: A cross sectional study was done on medical students in Department of physiology from September 2022 to October 2022. Age; sex Bodyweight, Height of 102 students of First Year Medical Students were collected using a structured questionnaire. BMI was calculated and classified according to WHO Criteria. The data obtained was analysed statistically. Result: Out of 102 students 55 were Females, 47 were males. 66.6 % students were found to be having normal BMI. Obesity was seen in 8.8 % students of which 44.4% were females and 55.5% were males. Overweight was seen in 24.5 % students of which 36% were females, 64% were males. Discussion: In this study we found that overweight and obesity was more in male medical students compared to female medical students. Healthy eating and regular physical activity was advised to the concerned individuals.*

**Keywords:** BMI, Obesity, Medical students

## 1. Introduction

The start of technological advances seen in the eighteenth century resulted in the improved public health, and increase in amount, quality and variety of food available to the public domain. Before the advent of technology chronic food shortage and malnutrition has been the scourge of humankind from the dawn of history. The incremental effect of these technological advances caused over abundance of easily accessible food, coupled with reduced physical activity led to increased prevalence of obesity.<sup>1</sup>

Adolphe Quetelet (1796-1874) was a Belgian mathematician, astronomer and statistician, in his mathematical studies found that 'weight increases as the square root of height'. It was called Quetelet Index .Later in 1972 Ancel named it as Body Mass Index.<sup>2</sup> BMI was used to measure body fat and diagnose Obesity. It has its limitations as it doesn't directly measure body fat.<sup>3</sup>

Increased BMI is major risk factor for Non Communicable Diseases. Prevalence of obesity has increased in India over 4% in a survey done by NFHS 2019-21 compared to survey of NFHS 4(2015-16).22.9% men and 24% in women were under overweight or obesity category as per NFHS 5 survey.<sup>4</sup>

Obesity is now seen in all irrespective of age, gender and especially in occupations where physical activity is less. Professional students, including medical students are not immune to the increased BMI. Pressure of exams, studying for long hours, social isolation, long time schedule of classes all these not only contribute to stress levels in students but

also increase the duration of physical inactivity which can contribute to the raised BMI levels.<sup>5</sup>

This study is done to see the BMI values in medical students and to compare between male and female students BMI.

## 2. Materials and Methods

This cross sectional study was done at Siddhartha Medical College, Vijayawada during September 2022 to October 2022 .102 students from first year age group of 17-20 yrs was included. A structured questionnaire was given to students which included Age, gender, height in meters, weight in kg. Procedure, objective of the study was explained and consent from the participating students was taken. Height is measured using height measuring scale, measuring tape and weight by standardised weighing machine .BMI was calculated in the students using the formula.

$$\text{BMI} = \frac{\text{Weight in Kg}}{(\text{Height in meter})^2}$$

According to WHO BMI less than 18.5 is considered underweight, 18.5 to 24.99 normal weight, 25 to 29.9 is overweight and 30 or above as obese.<sup>6</sup>

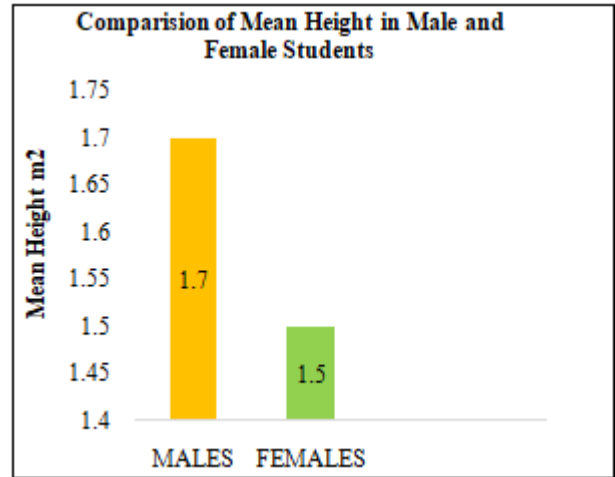
**Table 1**

S. No	BMI	Categories
1	<18.5	Under Weight
2	18.5 to 24.99	Normal Weight
3	25 to 29.9	Over Weight
4	30 or above	Obese

### 3. Results

Study is conducted in 102 students in which 55 were female students and 47 were male students.

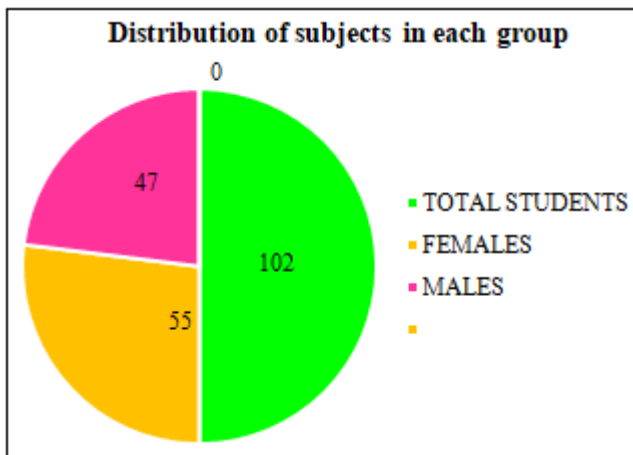
- Mean±SD of weight in male students 73.1±14.0
- Mean±SD of height in male students is 1.7±0.1
- Mean±SD of BMI In male students 25.0±4.8
- Mean±SD of weight in female students is 57.8±8.4
- Mean±SD of height in female students is 1.5±0.05
- Mean±SD of BMI in female students is 23.1±3.4
- Obesity percentage is 8.80% with females 44.40% males at 55.0%
- Overweight percentage 24.50% males at 64% females at 36%.



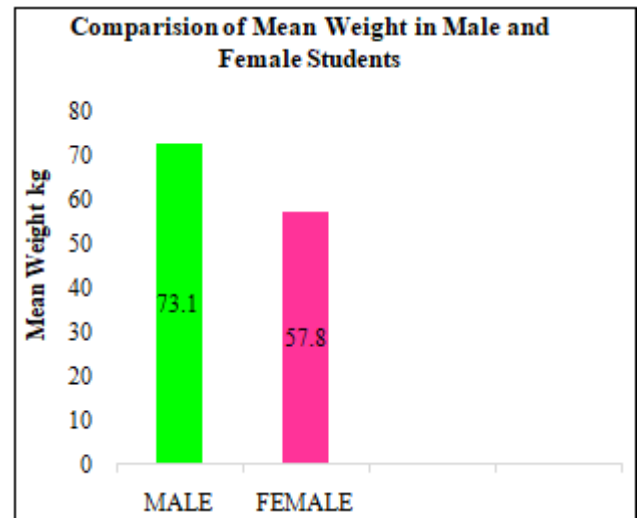
Graph 2

Table 2

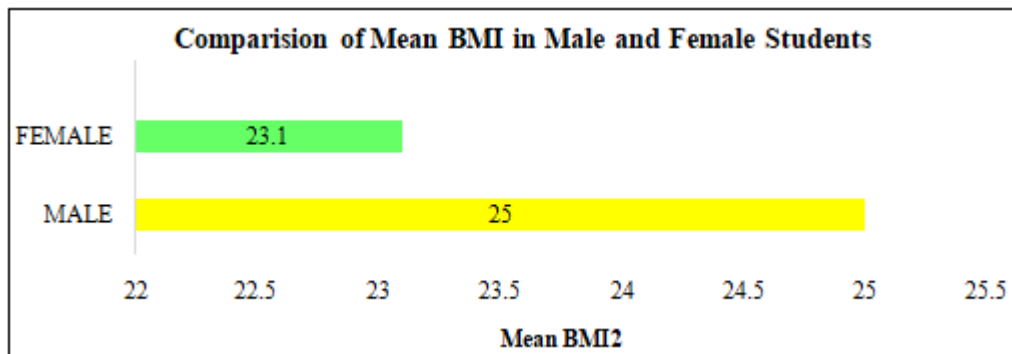
S. No	Students	Mean	Weight	Height	BMI
1	Male	Mean±SD	73.1±14.0	1.7±0.1	25.0±4.8
2	Female	Mean±SD	57.8±8.4	1.5±0.05	23.1±3.4



Graph 1



Graph 3



Graph 4

### 4. Discussion

India national obesity risk is 7/10, childhood obesity risk 4/11.<sup>7</sup> In terms of obesity India is in transitional phase between developed and developing countries. In college going students normally height is stabilised at their age so assessing overweight / obesity in them is important. And the importance of physical exercise and healthy eating can be taught.<sup>8</sup>

In the present study we have seen that 66.6% students were having normal BMI. Prevalence of overweight and obesity is 24.5%, 8.8% respectively. Prevalence of Obese/Overweight was seen more in male students (55.0%/64%) than in female students (44.7% /36%).

In a study done by Deshpande et al prevalence of 44.9% overweight /obese is seen , prevalence among males is more than females (46.7% vs. 43.6%).<sup>9</sup>

A study done by Sharmila Krishna et al noted that the prevalence of overweight and obesity to be 18.2% and 8.2% among the first year medical students with higher prevalence of overweight/Obesity in males as compared to females.<sup>10</sup>

A similar study done by Mehta et al showed that the prevalence of obesity was 11.53% in study population. Over weight /obesity more in males than in females.<sup>11</sup>

In a study done by Doley found that BMI of first year students decreased from time of admission to eight months later .But prevalence of overweight/obesity is still seen in one third of students at the time of follow up.<sup>12</sup>

This study had similar results in regard to prevalence when compared to other studies with slight variations. A gender difference in BMI values was seen to be with more male students having raised BMI values as compared to female students. Continuous focus on study to crack NEET entrance, transition to professional college which again demands long study time, eating junk food, could be seen as some of the reasons for the raised prevalence of obesity.

## 5. Conclusion

We can conclude that prevalence in obesity and overweight is more in medical students. And males have more BMI values than female students. Raised BMI in adolescents causes increased burden to our health care system. Along with educating them about the importance of physical activity, management of time which helps in allotting time for themselves apart from studies, encouraging sports participation in students. As they are the future doctors it is important to educate them about importance of health and the need to include time for exercise in their schedules.

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