

## PREVALENCE OF OBESITY AND OVERWEIGHT AMONG MEDICOS IN BOTH MALE AND FEMALE STUDENTS

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### ABSTRACT

**Objective:** The reason of the study was to evaluate the complications of obesity in medical students by assessing the impacts of clinical outcome.

**Methods:** In a prospective cohort study, the prevalence of obesity has been observed in medicos through questionnaire form, on the basis of clinical history involving inactivity, stress, unhealthy diet, familial, appetite, sleep pattern, and metabolic disorder; also the body mass index (BMI) is calculated for the respective medical students.

**Results:** The occurrence of obesity as a result of high-calorie diet, inactivity, and all the above-mentioned conditions will enhance the complications of obesity. This study revealed that the complications were highly due to unhealthy diet for male and inactivity for female students. Hence, the predominance of obesity in male medicos was found out to be 2.5% and that of overweight was 4%. The overall prevalence was 6.5%, whereas the predominance of obesity in female medicos was found out to be 2% and that of overweight was 4.25%. The overall prevalence was 6.25%. Our findings showed the equivalent prevalence of obese and overweight in both male and female students.

**Conclusion:** The study confirmed the general impression that there is a significant amount of obesity among the medical students. Accumulating evidence indicates that obesity is an increased prevalence and lead to various complications as stated in the medical literature. Obesity is a risk factor for coronary heart disease, hypertension, stroke, and chronic illness. It occurs primarily due to the lack of physical exercise and to a lesser extent, due to a decrease in the basal metabolic rate and altered BMI affecting the body fitness. Therefore, regular physical activity (exercise and yoga) is required for the young medicos which will help to control their stress and BMI, which may prevent the complications of obesity.

**Keywords:** Complications, Medical students, Obesity, Overweight.

### INTRODUCTION

Obesity is becoming a worldwide epidemic. The prevalence of overweight (body mass index [BMI] - 25-29.9) and obesity (BMI - 30) is approximately 66% in the United States [1]. Obesity increased in a significant extent from 23% to 30.5%, and there is raised instance for both men and women and all age groups [2]. Due to the factors of interaction in the social, behavioral, culture, psychological, metabolic, and genetic factors complex multifactorial chronic disease of obesity may occur. Obesity is not a trifling problem throughout the world not only among adults but also for children, teenagers, and young adults. Of the factors contributing to obesity, stress seems to be particularly important because stressful conditions lead to irregularity in diet, lack of exercise, and addiction. Each of these being considered an independent factor for obesity [3].

Obesity may be referred to as a disease entity, wherein excess body fat accumulates and leads to such an extent that it affects the health adversely. Obesity is a chronic disease that increases the risk of mortality and reduced life expectancy [4]. Obesity has been implicated in the pathogenesis of several diseases such as diabetes mellitus and myocardial infarction. The kidney is also a target organ of obesity, which can be damaged resulting in dysfunction of this organ. Obesity, a condition of an excessively high proportion of body fat, is associated with elevated risks of cancers of the breast, colon and rectum, endometrium, esophagus, gallbladder, kidney, pancreas, thyroid, and possibly other types of cancer [5].

Oxidative stress in diabetes mellitus causes several adverse effects on the cellular physiology. This is particularly relevant and dangerous for the  $\beta$ -cell of islet pancreas, which is among the tissues that have the lowest levels of intrinsic antioxidant defense mechanism. Multiple

biochemical pathways and mechanisms of action have been implicated in the harmful effects of chronic hyperglycemia and oxidative stress on the function of vascular, retinal, and renal tissues [6].

Researchers have long been documented that the changes in dietary and physical activity patterns underlying the obesity epidemically were caused due to changes in the economic, social, and physical environments that every individual tolerate. This risk of obesity can be prevented by increasing the uptake of healthy foods, decreasing the accessibility of foods which are in low-nutritional value [7,8]. Very few studies have been conducted till now to gauge the obese levels in medical students. So, out of interest, this study was undertaken to see the development of overweight/obesity in medical students of both male and female. This study is depicting the trend of increased range of overweight/obesity and their complications among undergraduate medical students.

### METHODS

In this study, we have chosen undergraduate medicos from the Shri Sathya Sai Medical College and Research Institute. The duration of the study was from January 1<sup>st</sup>, 2016 to January 30<sup>th</sup>, 2016. The study was carried out on 50 subjects in the age group of 20-25 years old of both male (25) and female (25) students. Those who had developed overweight/obesity constituted the study group. We have obtained signed consent form from all the medical students who are all participated.

A structured, pretested questionnaire was given to each student which included questions about their activity, stress, dietary intake, appetite, sleep pattern, and metabolic disorder and in addition history of polycystic ovarian disease were ruled out in females individuals. The perceived questionnaire was prepared to estimate the obesity levels and the complications to distinct individualism. The questionnaire was

analyzed to obtain the range and complications of obesity. Weight and height were measured by standard techniques. Weight was measured using a normal weighing scale with no shoes. Height was recorded using a measuring tape, with the individual standing straight next to the wall, with the heels, buttocks, shoulders, and occipital touching the wall without shoes. The BMI was calculated using the formula

$$\text{BMI} = \text{Weight (kg)} / \text{Height}^2 \text{ (m}^2\text{)}$$

Adequate daily physical activity was defined as moderate to severe the physical activity of at least 60 minutes/day as recommended by Global Recommendations on Physical Activity for Health, World Health Organization publication 2010 [9].

#### Inclusion criteria

If there was a family history of overweight/obesity, stress, unhealthy diet, inactivity, thyroid disorder, polycystic ovarian disease (PCOD).

#### Exclusion criteria

If the student was suffering from any psychiatric illness or under any antidepressant medication or if a student refused to grant consent, then such student was excluded from the study.

#### RESULTS

The development of obesity is a worldwide public health problem in adulthood. Our study provided clear information focusing on obesity for both boys and girls of medical students. This study indicates that the presence of unhealthy diet 24 (6%), abnormal appetite 15 (3.75%), inactivity 8 (2%), familial 3 (0.75%), stress 2 (0.5%), abnormal sleep pattern 2 (0.5%), metabolic disorder was found to be nil and BMI for overweight was 16(4%) and for obese 10 (2.5%) among male students. For females, the inactivity 24 (6%), familial 12 (3%), stress 11 (2.75%), unhealthy diet 7 (1.75%), abnormal appetite 7 (1.75%), medications 3 (0.75%), PCOD 3 (0.75%), metabolic disorder was nil and BMI for overweight 17 (4.25%) and for obese 8 (2%) as shown in the Tables 1 and 2.

This study revealed that the complications were highly due to unhealthy diet for male and inactivity for female students. This study made known that the results in overweight and obesity among medical students through changes in lifestyle including increased unhealthy diet and decreased physical activity. According to our identification, unhealthy diet and inactivity are the main components that affect obesity in stressed medicos. The increased prevalence of overweight among females and obesity among males were observed in our study. We also found a significant relationship between obesity and menstrual disorders among girls. Girls who have too much fat on their body may find that their monthly cycle is disrupted. Girls with condition called PCOD tend to put on weight easily. They may also have irregular periods. They may be sometimes on medication which in turn also results in fat accumulation. In addition, both male (25) and female (25) medicos had shown no metabolic disorders. However, the remaining complications were varied in each individual.

According to our result, the increased incidence of inactivity among females in comparison to males and a history of increased unhealthy junk food intake was taken from male medical students. We could establish a relationship between family history and obesity; this may be because these students were from different socioeconomic classes, some of whose environment offered an abundance of calorie rich food and few opposed for physical activity. Although changes in the genetic makeup of genetic population occur too slow to be responsible for this rapid rise in obesity, genes did play a role in the development of obesity and was observed that increased female predisposition to the familial cause of obesity to males.

#### DISCUSSION

According to the WHO International Classification, the prevalence of overweight and obesity was 14.33% and 3.34%, respectively. In our

**Table 1: Prevalence of obesity/overweight among male medicos**

S.No.	History	Number of presenting complaints for males	Percentage for males
1	Unhealthy diet	24	6
2	Abnormal appetite	15	3.75
3	Inactivity	8	2
4	Familial	3	0.75
5	Stress	2	0.5
6	Abnormal sleep pattern	2	0.5
7	Metabolic disorder	-	-
8	Medications	-	-
9	BMI		
	Overweight	16	4
	Obese	10	2.5

BMI: Body mass index

**Table 2: Prevalence of obesity/overweight among female medicos**

S.No	History	Number of presenting complaints for females	Percentage for females
1	Inactivity	24	6
2	Familial	12	3
3	Stress	11	2.75
4	Unhealthy diet	7	1.75
5	Abnormal appetite	7	1.75
6	Medications	3	0.75
7	Polycystic ovarian syndrome	3	0.75
8	Metabolic disorder	-	-
9	BMI		
	Over weight	17	4.25
	Obese	8	2

BMI: Body mass index

study, the prevalence of obesity in male students was found out to be 2.5% and that of overweight was 4%. The overall prevalence was 6.5%, whereas the prevalence of obesity in female students was found out to be 2% and that of overweight was 4.25%. The overall prevalence was 6.25%. Our findings showed the identical prevalence of obese and overweight in both male and female students.

An important relation between obesity/overweight and consumption of junk food was recognized 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 [10]. This relation has been also proved in our study. Like our findings, Manojan *et al.* [11] organized a study in the Trivandrum Medical College, among 350 students, the prevalence of obesity was 25.71% and that of overweight was 24.57%. The prevalence of overweight and obesity patterns were varied in both studies.

Bertsias *et al.* [12] conducted among medical students in Greece revealed a slightly higher prevalence of obesity, which was 22%. This was accredited to lack of regular physical activity and family history of obesity. In our study, the relation between obesity and overweight was predominantly due to unhealthy diet and physical activity. This study declared that stress found to be more prevalent in females (2.75%) than the male students (0.5%), among medical college students [13,14]. This has been suggested to be linked to long hours of study, examinations, and very tight time schedules associated with the medical courses [15].

BMI of college students has been shown to be positively correlated with the level of stress [16,17]. Several experimental and human studies involving supplementation of antioxidants to prevent oxidative and systemic inflammatory action in the obese have also been conducted, but there are few studies regarding the beneficial effect of antioxidants in improving renal dysfunction in obesity [18-20].

Bandurska-Stankiewicz [21] suggested an association between thyroid-stimulating hormone (TSH) and fasting insulin, and insulin sensitivity has been reported in adults with obesity. The increased TSH and peripheral hormone levels, which are usually in the upper normal range in obese subjects, may be adaptation process to increase energy expenditure to reduce further weight gain. The changes of thyroid hormones concentration may be regarded as a consequence rather than a cause of obesity, according to our study we found thyroid was not the reason for causing obesity among the selected male and female medical students.

Obesity is often expressed in terms of BMI. Overweight is usually due to obesity but can arise from other causes such as abnormal muscle development or fluid retention. Obesity and overweight are the major risk factors for a number of chronic diseases including diabetes, cardiovascular diseases, and cancer. Risk factors for obesity and overweight include: Poor balanced diet, excess sleep, lack of physical activity, medical conditions and medication, age, and consumption of alcohol. Studies show that small changes in weight and increase in physical activity can make a significant improvement in health [22].

### CONCLUSION

This study concluded that obesity in medical students is common, and the process is oriented. A highly positive correlation between diet history questionnaire and other parameters showed that there is significance in the individuals of obesity for various complications especially seen in medicos. Regular physical activity (exercise and yoga) is required for the young medicos which will help to control their stress and BMI, which may prevent the complications of obesity. According to AHA (American heart association) advices; regular physical activity, to workout 1 hr at least for 5 days in a week, which helps to decrease the risk of heart diseases and to reduce the risk factors caused by obesity. By saying this proverb, we conclude "that nothing cannot be changed today but never everything stays the same just as today if we follow"..."Healthy body paves the way to healthy mind."

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