



Prevalence of Obesity in Students of College Going Age

**Dr. Basawaraj
Puranik**

Professor – Department of General Medicine, Shadan Institute of Medical Sciences Teaching Hospital and Research Centre, Himayathsagar Road, Hyderabad, Telangana State, INDIA.

**Dr. Shashank
Kumar Srivastav**

House-Surgeon, Shadan Institute of Medical Sciences Teaching Hospital and Research Centre, Himayathsagar Road, Hyderabad, Telangana State, INDIA.

INTRODUCTION:

Obesity is one of the most serious public health challenges of the 21st century. The problem is global and is steadily affecting many low- and middle-income countries, particularly in urban settings. The prevalence has increased at an alarming rate. Globally, in 2013 the number of overweight is estimated to be over 42 million. Close to 31 million of these are living in developing countries.

Overweight and obese are likely to stay obese into adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age. Overweight and obesity, as well as their related diseases, are largely preventable. Prevention of obesity therefore needs high priority.

The WHO Member States in the 66th World Health Assembly have agreed on a voluntary global NCD target to halt the rise in diabetes and obesity.

The prevalence of overweight and obesity in adolescents is defined according to the WHO growth reference for adolescents (overweight = one standard deviation body mass index for age and sex, and obese = two standard deviations body mass index for age and sex).

As today's the citizens of tomorrow's world, their survival, protection, and development are the prerequisite for the future development of humanity. Without ensuring optimal growth and development, efforts to accelerate economic development significantly will be unsuccessful.¹ In many developing countries including India, it co exists with under nutrition. This constitutes a double burden for these countries. The problem of obesity is not only confined in adults but also among children and adolescents.² Obesity is associated with a higher chance of obesity, premature death and disability in adulthood. But in addition to increased future risks, obese experience breathing difficulties, increased risk of fractures, hypertension, and early markers of cardiovascular disease, insulin resistance and psychological effects.³

Obesity has reached epidemic proportions in India in the 21st Century, affecting 5% of the country's population. Obesity is an emerging problem in urban India and increase in overweight and obesity may be a major contributor to adult obesity epidemic.⁴

Height and weight were measured as per standard WHO guidelines.⁵ Body Mass Index (BMI) was calculated as body weight in kg/height in meters square.⁶

With this background present study has been planned with the objective to study and compare the prevalence of obesity in intermediate colleges and also to study the risk factors associated.

METHODS:

An Institution based cross sectional study was conducted. Initially Institutional Ethics Committee permission was obtained for the study.

Two intermediate colleges were selected by random sampling technique. From each college, it was decided to study the students of 14th to 20 years of age. A prior permission from each selected college was sought from the Principal of the college before the start of the actual

study after explaining the nature and schedule of the study.

As a first step, all the students from age of 14th to 20 years age of both the colleges were enumerated. There were 950 students.

Taking 20% as possible prevalence with 95% confidence interval and an allowable error of 15%, the sample size came out to be 711 for both the colleges together. This was divided almost equally between the two colleges. From each college, the roll call of each class was obtained. 353 students of one college and 365 from other college were selected randomly in such a way that was included and this number represented the colleges.

Permission was obtained. A predesigned, pretested and structured questionnaire was used to collect information on individual characteristics like age, sex, parent's education, parent's occupation, religion, physical activity, family history of obesity etc. Height and weight were measured as per standard WHO guidelines.⁵ Body Mass Index (BMI) was calculated as body weight in kg/height in meters square.⁶ The cut off points for age and gender specific BMI were used in the present study as per Agarwal et al recommendations.⁷

RESULTS:

The mean age of study subjects in one college was 13.32±1.42 and in other college was 13.08 ±1.42 which is comparable. In both the colleges, males were more than the females. Maximum belonged to the age of 14 years (24.7%) followed by 15 years of age (21/9%). For one college, maximum were in the age of 15 years (52.2%) and for other school, maximum were at 14 years (62%). The overall prevalence of obesity in one college was 19% and other college was 21% respectively. There was no statistically significant difference in the prevalence of obesity in that of both the colleges ($p < 0.05$).

Table 1 : Age and gender wise distribution of study subjects in college 1:

Age	Male	Female	Total
14	3(7.5)	1(2.5)	4(1.1)
15	17(46)	20(54)	37(9.3)
16	33(52)	30(48)	63(17.8)
17	49(54)	41(46)	90(25.5)
18	47(57)	36(43)	83(23.5)
19	26(52)	24(48)	50(14.2)
20	25(96.2)	1(3.8)	26(8.6)
Total	200(56.65)	153(43.35)	353(100)

Table 2 : Age and gender wise distribution of study subjects in college 2:

Age	Male	Female	Total
14	2(33.3)	4(66.7)	6(1.6)
15	33(57.9)	24(42.1)	57(15.6)
16	32(47.8)	35(52.2)	67(18.4)
17	48(60)	32(40)	80(21.9)
18	56(62.3)	34(37.7)	90(24.7)

19	32(55.2)	26(44.8)	58(15.9)
20	7(100)	0(0)	7(1.9)
Total	210(57.5)	155(42.5)	365(100)

Table 3: Prevalence of obesity in college 1 and college 2.

Variable	college : 1	college : 2	Chi-Square	P value
Non-obese	287(81.3)	288(79)		
Obese	66(19)	77(21.09)	0.647517	0.4210
Total	353	365		

DISCUSSION:

Overweight and obesity and their impact on health:

The link between obesity, poor health outcomes and all-cause mortality is well established. Obesity increases the likelihood of diabetes, hypertension, coronary heart disease, stroke, certain cancers, obstructive sleep apnoea and osteoarthritis. It also negatively affects reproductive performance. Overweight and obesity – i.e. BMI ≥ 25 kg/m² and ≥ 30 kg/m² respectively – were estimated to account for 3.4 million deaths per year and 93.6 million DALYs in 2010. 7 To achieve optimal health, the median BMI for adult populations should be in the range 21–23 kg/m², while the goal for individuals should be to maintain a BMI in the range 18.5–24.9 kg/m². The risk of co-morbidities increases with a BMI in the range 25.0–29.9 kg/m², and the risk is moderate to severe with a BMI greater than 30 kg/m².⁸

The prevalence of overweight pre-school aged children is increasing fastest in low- and lower-middle-income countries.⁹ In 2013, an estimated 42 million children (6.3%) aged under 5 years were overweight.⁹

The latest estimates show that the global prevalence of overweight and obesity in children aged under 5 years has increased from around 5% in 2000 to 6% in 2010 and 6.3% in 2013.¹⁰ There was little change in the prevalence of overweight in children in Latin America and the Caribbean over the last 13 years, but countries with large populations had levels of 7% and higher. It is estimated that the prevalence of overweight in children aged under 5 years will rise to 11% worldwide by 2025 if current trends continue.¹⁰

There has been an increasing global recognition of the need for effective strategies to prevent and control childhood overweight and obesity. In 2012, the World Health Assembly agreed a target of no increase in childhood overweight by 2025.¹¹ To accelerate WHO's efforts to address the issue, in May 2014 the Director-General of WHO established a high-level Commission on Ending Childhood Obesity.

To prevent obesity, multisectoral population-based action is required, focusing on prenatal, infancy and childhood health actions targeting the most vulnerable groups. The ministry of health will need to take leadership and engage with other relevant government sectors in a national multisectoral action plan. Policies should simultaneously address different sectors that contribute to the production, distribution and marketing of food, while concurrently shaping an environment that facilitates and promotes adequate levels of physical activity.¹²⁻¹⁵ For the management of obesity, low-energy diets are effective in the short term, but reducing inactivity, increasing walking, and developing an activity programme can increase the effectiveness of obesity therapy. Treating associated health risks and established complications is important. In addition, there needs to be strengthening of health systems to address obesity and diabetes as clinical entities through primary health-care services for early detection and management. Regular monitoring of the prevalence of obesity and diabetes should be instituted as part of routine NCD surveillance.

Facts about Obesity:

1. Overweight and obesity are defined as “abnormal or excessive fat accumulation that may impair health”

Body mass index (BMI) – the weight in kilograms divided by the square of the height in meters (kg/m²) – is a commonly used index to classify overweight and obesity in adults. WHO defines overweight as a BMI equal to or more than 25, and obesity as a BMI equal to or more than 30.

2. More than 1.4 billion adults were overweight in 2008, and more than half a billion obese

In 2008, more than 1.4 billion adults were overweight and more than half a billion were obese. At least 2.8 million people each year die as a result of being overweight or obese. The prevalence of obesity has nearly doubled between 1980 and 2008. Once associated with high-income countries, obesity is now also prevalent in low- and middle-income countries.

3. Globally, 42 million preschool children were overweight in 2013 - Childhood obesity is one of the most serious public health challenges of the 21st century. Overweight children are likely to become obese adults. They are more likely than non-overweight children to develop diabetes and cardiovascular diseases at a younger age, which in turn are associated with a higher chance of premature death and disability.

4. Overweight and obesity are linked to more deaths worldwide than underweight

65% of the world's population live in a country where overweight and obesity kills more people than underweight. This includes all high-income and middle-income countries. Globally, 44% of diabetes, 23% of ischaemic heart disease and 7–41% of certain cancers are attributable to overweight and obesity.

5. For an individual, obesity is usually the result of an imbalance between calories consumed and calories expended - An increased consumption of highly calorific foods, without an equal increase in physical activity, leads to an unhealthy increase in weight. Decreased levels of physical activity will also result in an energy imbalance and lead to weight gain.

CONCLUSIONS:

Obesity is one of the most serious public health challenges of the 21st century. The problem is global and is steadily affecting many low- and middle-income countries, particularly in urban settings. Overweight and obese are likely to stay obese into adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age. We have found prevalence of obesity in college going students. The mean age of study subjects in one college was 13.32±1.42 and in other college was 13.08 ±1.42 which is comparable. Maximum belonged to the age of 14 years (24.7%) followed by 15 years of age (21.9%). For one college, maximum were in the age of 15 years (52.2%) and for other school, maximum were at 14 years (62%). The overall prevalence of obesity in one college was 19% and other college was 21% respectively.

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