

Prevalence of Obesity Among Females Adolescents in Urban Areas of Navi Mumbai ,India



Medical Science

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ABSTRACT

An adult obesity has occurred globally due to the advanced living standard and sedentary life style. Obesity is associated with many serious physiological, psychological and social consequences. Obesity is one of the major causes of non-communicable chronic diseases. The fact that obesity is acquiring epidemic proportions in the developed world is well accepted but the rising prevalence in developing countries warrants greater concern. In view of this, a cross sectional study was done to find the obesity in adult female of urban areas by waist hip ratio method. The result of the study showed that 34.66% of young female adults were found obese. Prevalence of obesity in young female adults of undergraduate students in urban areas is increasing.

Introduction

Obesity is a chronic disease that is characterized by excessive body fat in relation to lean body mass.¹ Obesity is caused due to an imbalance of body fat in terms of quantity and distribution. Nowadays the obesity has become epidemic in the world affecting both developed and developing countries. It is one of the major causes of non-communicable diseases causing high morbidity and mortality.

The primary cause of obesity is an imbalance between energy intake and energy output leading to accumulation of fat in the body. In recent years, due to rising affluence, urbanization, and sophisticated things have changed lifestyle drastically. There is very convincing evidence that lack of physical activity and high intake of foods rich in fat or sugar increase the risk of weight gain or obesity.¹ Nowadays modern people prefer to eat outside than in the home. Junk food and snacks consumption outside the home is one of the risk factors of increasing weight. Junk food and snacks are more energy dense and higher in fat intake. This leads to increase in the consumption of food reach in calories which leads to deposition of fat in the body.

Obesity is a disease that results when excess body fat is accumulated to a point that health is adversely affected. Overweight and obese adolescents are likely to stay obese in later life and more prone to develop diseases. Obesity is important determinants of health and lead to adverse metabolic changes like increase in blood pressure, cholesterol and hyper triglycerides. Physical inactivity does not only cause overweight and obese but also in the development of chronic diseases such as diabetes, hypertension, cancers and heart diseases in later life.

There are several anthropometric methods to determine the obesity in men. Usually BMI (Body Mass Index) is used traditionally as benchmark to determine the obesity but there are several limitations of this index like inability to distinguish body fat distribution. BMI reflects general obesity, whereas waist hip ratio (WHR) reflects central obesity where body fat is primarily located in the abdomen. Both methods BMI and waist hip ratio are relatively simple to use and have been employed in field surveys as surrogate markers of total body fat composition (BMI) and visceral fat composition (WHR). However, epidemiological stud-

ies have shown that obesity measured by waist hip ratio is more relevant than measured by BMI. 2-4

The prevalence of obesity is more in developed countries and similar trends are being observed in developing countries. Obesity has been increased by three folds in young adolescents over the past four decades.⁵ Limited data are available on the prevalence of obesity in young female adolescents who are living in the urban areas of India. Thus this study was conducted to determine the prevalence of obesity among Indian female adolescents by waist hip ratio method.

Materials and Methods

In the present study, a total of 75 medical students were included. The cross sectional study was conducted on young adults age range between 18-24 years. The students were selected by random selecting technique using purposive sampling procedure keeping in view the operational feasibility. The study was conducted in Kamothe, Navi Mumbai, India in the year 2014- 2015. Anthropometric measurements of the subjects were taken using standard apparatus. Inelastic tape measure graduated in centimeters (0-150) was used to measure the waist and hip circumferences. Waist circumference was measured using a measuring tape over the abdomen, with measurements made halfway between the approximate midpoint between the lower margin of the last palpable rib and the highest point of iliac crest in the standing position.^{6,7-9} Hip circumference was measured over light clothing at the widest point over the buttocks over the greater trochanters when viewed from the side.¹⁰⁻¹² Waist to hip ratio (WHR) was obtained by dividing waist circumference by hip circumference.

Formula for calculation:

$$\text{Waist to Hip Ratio} = \frac{\text{Waist circumference}}{\text{Hip circumference}}$$

The classifications of obesity under waist hip ratio are as follows.^{13,14-16}

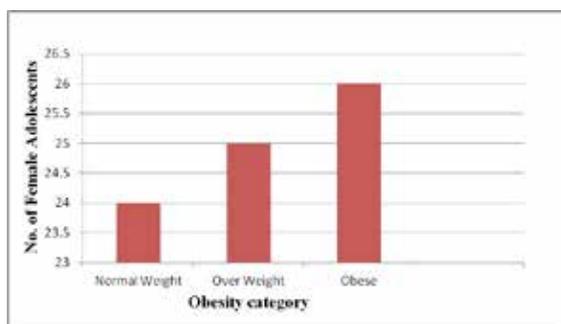
Table 1: Standard values for waist to hip ratio (WHR) in females.

S.N	Waist hip ratio	Inference
1.	<0.80	Normal weight
2.	0.80-0.84	Over weight
3.	≥ 0.85	Obese

Result

Table 2: Results of anthropometric measurement under waist hip ratio in young adult females.

S.N.	Obesity category	Cut-off Values	Number	Percentage %
1.	Normal weight	<0.80	24	32%
2.	Overweight	0.80-0.84	25	33.33%
3.	Obese	≥ 0.85	26	34.66%

**Fig 1: Prevalence of obesity in young adult females using waist hip ratio methods.**

By waist hip ratio method, twenty six participants (34.66%) were found obese. One third of the participants were found overweight. Least percentage (32%) of the participants was found normal weight.

Discussion

Epidemiological studies of worldwide show a consistent trend of increasing obesity prevalence among adolescents particularly over the past three decades.¹⁷ The prevalence of overweight and obesity in Indian school based data demonstrates an obesity range of 5.6% to 24% for the children and adolescents respectively.^{18, 19} Another study done by De Vito et al., in young adults in Italy reported that prevalence of obesity in females was 6.5%.²⁰

In our study, overweight was diagnosed in 33.33% and obesity was diagnosed in 34.66% in young adult females using WHR method. This was in line with Thiam et al. 2006; which showed that a greater percentage of the adult women in West Africa are either overweight or obese. The majority of the participants who were obese were unmarried (97.1%). Most of these subjects (74%) were between the ages of 17years and 26years.²¹ Another study done by Onyechi et al., also showed that the prevalence of obesity in female is more (13.1 %) than male (8.2 %).²² Another study done by Montero et al. 2004; which showed that there were more obese women in thirty seven developing countries of which eight were from West African countries.²³

In both developing and developed countries of the world, there is an epidemic of obesity that is affecting the health and well being of millions of young adults world wide.²⁴ Adolescents are said to make up about 20% of the world's population.²⁵ The prevalence of obesity is higher in the urban than in the rural areas. Overweight and obese children are likely to stay obese into adulthood and more likely to develop chronic diseases at a younger age.²⁶ Obesity levels

in children and adolescents have tripled over the past four decades.²⁷ Many studies have shown that the prevalence of overweight among adolescents varies between 10 to 30%.²⁸⁻³⁸ Prevalence varies within the country because of differences in the lifestyle, mainly in the dietary patterns and physical activity. The urbanization and industrialization are the main reasons for increasing prevalence of young adolescence obesity. Studies of prevalence of obesity in young adult will be useful tools in planning and developing appropriate intervention methods. In general a physical activity is recommended every day. This includes aerobic activity, work-related activity and muscle strengthening activity. Physical activity is defined as any activity leading to calorie consumption. It reduces a risk of diseases associated with obesity. Therefore, appropriate measures to prevent further progression of the problem must be taken right at this stage; otherwise obesity could emerge as the single most important public health problem in female adults.

Conclusion

From this study, it is concluded that there is high prevalence of obesity in young female adults of undergraduate students in urban area like Navi Mumbai. Beside BMI, waist hip ratio method can be used to measure the obesity. Given the prevalence of obese individuals, prevention of obesity among these young ones should be encouraged especially among the females to reduce the risk of diseases induced by obesity in later years.

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