# PREVALENCE OF OVERWEIGHT AND OBESITY, AMONG STUDENTS OF KHYBER GIRLS MEDICAL COLLEGE PESHAWAR.

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## ABSTRACT

**Objective:** The aim of this study is to estimate the prevalence of obesity in Khyber Girls Medical College Peshawar.

**Material and Methods:** This is cross sectional study, conducted in Khyber Girls Medical College Peshawar from November 2012 to April 2013. In the study two hundred and forty female students of first, second, third and fourth year MBBS Students aged 19 to 21 years were enrolled. Obesity was determined using body mass index (BMI = Wt/Ht2).

**Results:** Two hundred and forty female students participated in the study. The response rate in first year, second year, and third year, forth year students were 77.3%, 69%, 92% and 100% respectively. The mean age of the students was $21.3 + 1.2$. Of these, 78 (32.5%) were overweight with BMI ($23 - 24.9$ kg/m2), obese students with (BMI > 25 kg/m2) were 41 (17%), 7 (2.9%) students had BMI < 18 kg/m2. Only 114(47.5%) had BMI in the desirable (normal) range: 18.5-22.9 kg/m2. There was no significant difference in overweight and obesity prevalence between the years in which students were studying. There was no significant difference in overweight and obesity prevalence between the years in which students were studying.

**Conclusion:** This study suggests that overweight and obesity among these students is due to their sedentary lifestyle and imbalance in the daily intake of calories, carbohydrate, fat and protein.

**Key Words:** obesity, body mass index

## INTRODUCTION

Obesity is defined as a condition of abnormal or excessive fat accumulation in adipose tissue; to the extent that health may be impaired.[1] Obesity and overweight are a global problem. In the developed countries, it is one of the most common nutritional disorders and is also becoming a major problem in the developing countries.[2] The rates of obesity have tripled in developing countries in the past 20 years especially among populations that have a sedentary lifestyle involving decreased physical activity and over consumption of cheap, energy dense food. Such life style changes are also affecting children and adolescence in these countries; prevalence of overweight among them ranges from 10 to 25 %,and the prevalence of obesity ranges from 3 to 10%.[3] Obese individuals differ not only in the amount of excess fat that they store, but also in the re-

gional distribution of fat within the body. The distribution of fat affects the associated risks with obesity and the kinds of disease that result. In the United States, at least 11% to 19% of adolescents are estimated to be obese, (defined as a Body Mass Index (BMI) greater than the 85th to 95th percentiles) according to NHANES 1988 to 1991[4]. The National Health Survey of Pakistan (NHS 1990-1994) data clearly shows the double burden of under-nutrition and overweight in adolescents and adults.[4,5] More adolescents are underweight than overweight while the opposite is true for adults.[5] The NHS 1990-1994 revealed that 1% of the population in Pakistan was reported to be obese and 5% overweight in the 15-24 years age group.[5] The risk of being overweight in adulthood is greater with higher degrees of being overweight in childhood and in the later adolescent years.[6] Being overweight, in turn, is recognized as a significant risk factor for chronic diseases such as arteriosclerosis, ischemic heart disease and diabetes; all of which are major causes of morbidity and mortality.[7-8].

Overweight during adolescence also has social, economic, and psychological consequences, including effects on academic performance and psychosocial functioning.[9] Obesity has numerous socially related consequences in later life such as lower wages, less likelihood of marriage, and less education.[10]

The etiology of obesity is complex and is generally affected by factors such as genetics, environmental, social and psychological factors[11].

Prevalence of overweight and obesity is consid-

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ered to be high in Peshawar[12]. The purpose of this study was to find the prevalence of overweight and obesity by measuring their Body Mass Index (BMI) in the Khyber Girls Medical College Peshawar.

## SUBJECTS & METHODS

It was a cross sectional survey conducted at Khyber Girls Medical College Peshawar. Total two hundred and forty female students of first, second, third and fourth year MBBS Students were enrolled. The students included were healthy with no history of chronic infection.

BMI cut of values of Asians were followed out as:

The patients with normal body mass index were having $18.5-22.9 kg/m^2$

The patients were categorized as overweight with body mass index $23-24.9 kg/m^2$

The patients were considered obese with body mass index $->25kg/m^2$.

Body mass index or Quetelet Index is a statistical measurement the percentage of body fat is not measured, instead it only compares a person's weight and height, it is useful tool to estimate a healthy body weight based on how tall a person is. Body mass index is defined as the individual body weight divided by square of his height[13] the weight was recorded in kg with the height in cm. From these measurements BMI of the subjects was determined by dividing the weight by the square of height in meters by the above formula.

Anthropometric measurements were conducted in minimum clothing to the nearest 0.1 kg using a weight scale with calibration done after every 25 readings. Body height was measured in the erect position without shoes to the nearest 0.1 cm using wall mounted stadiometers Using the portable health scale ZT-120, the height was measured to the nearest 0.1cm.In the upright position, weight was measured to the nearest 0.1kg using Health Scale ZT-120.The Health Scale ZT-120 has a well constructed weighting load carrying installation consist of a lever mechanism, a self indicating dial for easy reading weight range graduated with metric and British units(0.5-120 kg, or 256lbs).It has also a height measuring standard composed of three tubes graduated with metric and British units(70cm-190cm,271/2-74¾ in).

Data were entered in SPSS version 11.BMI was calculated and students were classified as normal, overweight, and with obesity. Chi Square test for significance was applied on the data to ascertain statistical difference between years, second, third and fourth year MBBS students.

## RESULTS

Two hundred and forty female students participated in the study. The response rate in first year, second year, and third year, forth year students were 77.3%, 69%, 92% and 100% respectively. The mean age of the students was $21.3+1.2$. Of these, 78 (32.5%) were overweight with BMI ($23 – 24.9 kg/m^2$), obese students with (BMI$>25 kg/m^2$) were 41 (17%), 7(2.9%) students had BMI$<18 kg/m^2$. Only 114(47.5%) had BMI in the desirable (normal) range: $18.5-22.9 kg/m^2$. There was no significant difference in overweight and obesity

**Table 1: Pattern of overweight and obesity among students of Khyber Girls Medical College Peshawar:**

| BMI kg/m2 | n = 57 Year-1 | n = 60 Year-2 | n = 61 Year-3 | n = 62 Year-4 | Total |
|---|---|---|---|---|---|
| < 18 kg/m2 | 2 (3.5%) | 2 (3.3%) | 2 (3.2%) | 1 (1.61%) | 7 (2.9%) |
| 18.5-22.9 kg/m2 Normal | 35 (61.4%) | 32 (53.3%) | 24 (39.3%) | 23 (37%) | 114 (47.5%) |
| 23-24.9 kg/m2 Overweight | 16 (28%) | 17 (28.3%) | 22 (36.0%) | 23 (37%) | 78 (32.5%) |
| >25kg/m2 Obese | 6 (10.5%) | 9 (15%) | 12 (19.6%) | 14 (22.5%) | 41 (17%) |

prevalence between the years in which students were studying. Chi Square for trend analysis was not statistically significant.  This study suggests that overweight and obesity among these children may be due to their sedentary lifestyle and/or lack of intake of proper food (imbalance in the intake of daily calories, carbohydrate, fat and protein)

## DISCUSSION

Obesity should be considered a disease in its own right. It is also one of the key risk factors for other chronic diseases together with smoking, high blood pressure and high blood cholesterol. In the analyses carried out for World Health Report 2002, approximately 58% of diabetes, 21% of ischemic heart disease and 8-24% of certain cancers globally were attributable to a BMI above 21Kg/m2. [11,13]. Body mass index is the most frequently and widely used method due to its simplicity and ease of application[14].In this study BMI was used for categorizing individuals in normal, overweight and obese categories.

Obesity are now dramatically on the rise in low and middle income countries particularly in urban setting.[15] Supporting this statement studies from countries such as India,[16] Srilanka,[17] also show the high prevalence of overweight and obesity in their population and

more so in urban, affluent settings. The prevalence of obesity, though representing a small proportion of our community, constitute a high prevalence of obesity and overweight i.e. (17%) and (32.5%) respectively. Our study is comparable to the data available from other countries like India, Srilanka, Qatar and Iran.[16-18].Study on dietary pattern of children among low socioeconomic group of Karachi showed obesity and overweight to be 4%[19]. In our study there is high prevalence of overweight and obesity compared to the above study, the reasons are that the students age are different, however, as the child grew older, parental supervision and counseling declined. Majority of the students are in hostels and with stressful studies the consumption of carbohydrates, fat and proteins was imbalanced, which is in reverse of what is recommended. According to our studies, the prevalence of obesity and overweight is higher in female's medical students with progressive age the reason being that the female medical students in areas like Peshawar cant maintain their outdoor physical activities due constraints of our society, with multiple responsibility and the stress of studies, in spite of their knowledge they can't maintain themselves.

Students are taking junk food more compared to a mixed healthy diet. Meals were taken at random; it was also low in vitamins, minerals, and other micronutrients. Comprise of less intake of vegetables and fruits and more of food with high caloric intake and energy-dense foods (high in fat and sugars).

A trend towards decreased physical activity due to sedentary lifestyles is also observed, because of transitions of our lifestyle due to media, Internet, indoor games in the last decade or so. The consumption of snacks was seen increasing with urbanization as well as with affluence plus overall consumption of foods from the vegetable groups decreased with urbanization and affluence.[20] this sedentary lifestyle is also a major contributor in young age obesity.

This study shows high and rising trend of overweight and obesity among medical students, which demands attention and urgent health promotion and prevention strategies to address this problem. Advice about dietary intake should include guidance about avoiding the over-consumption of energy dense diets rich in fat and refined products and low in fiber. Existing knowledge about causes of obesity could be used to modify practices and hence control this problem. Health education in schools should incorporate all the above-mentioned points in an understandable and appealing way in order to maximize its impact in the community.

## CONCLUSION

Given the prevalence of overweight individuals, it is important that work be done in regards to tackling this health issue, which is of significant consequence in the long term. Physical educational activity should be encouraged and made a part of the students' curriculum. Students are under the pressure of studies special classes for awareness and counseling should be held where they should be helped on how to reduce or maintain their weight. In hostel and cafeteria the menu chart should be checked, awareness about caloric value of different food should be there. There is a need for more based studies are conducted in college and in the general population so as to establish guidelines on nutrition and weight status for the Pakistani people only then, can we prevent the untoward effects of this emerging epidemic in our affluent community.

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