FREQUENCY OF OBESITY AMONG COLLEGE STUDENTS

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ABSTRACT

Background: Obesity is strongly associated with enhanced risk of morbidity and mortality. It is a complex condition with serious social and psychological dimensions, which threatened both developed, and developing countries. **Objective:** To assess the frequency of obesity among college students of Rahim Yar Khan. **Methodology:** This cross sectional study was conducted in 8 colleges of Rahim Yar Khan from 1st September 2013 to 30th November 2013. Total 162 students were included in this study. Student's social class, residence were noted in predesigned proforma. Weight of college students was measured by weighing scale in possible minimum clothes and height were measured by stadiometer without shoes. BMI was calculated by formula, "weight in kilogram divided by height in squared meter". BMI of each student was compared with WHO charts, BMI – for- age BOYS and GIRLS. The data was entered and analyzed by using SPSS version 17. **Results:** In this study the mean age of the students was 16.7±1.3 years. Among the 162 students, 47 (29%) students were males and 115 (70.98%) females, 6 (12.77%) male and 11 (9.57%) females were obese. 9 (5.56%) students belonged to rich class, 104 (64.19%) to middle class and 49 (30.25%) to lower class. 5 (55.56 %) from rich class, 4 (3.85 %) from middle class and 8 (16.33 %) from lower class were obese. 63 (38.89%) students were belonged to rural area and 99 (61.11%) to urban. 6 (9.52 %) were obese among rural students and 11 (11.11%) obese from urban students. **Conclusion:** Frequency of obesity was high in college students of Rahim Yar Khan. Obesity was found in both sexes, all ages, social classes and native areas. However it was more prevalent in males, rich class and urban natives.

Keywords: Body Mass Index, Obesity, College students, Socioeconomic status

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INTRODUCTION

Obesity is a disease in which excess body fat has accumulated to such an extent that the health may be adversely affected and leading to reduced life expectancy and/or increased health problems. Obesity or excess body fat is strongly associated with enhanced risks of morbidity and mortality. Childhood obesity has been associated with type 2 diabetes mellitus, the early-onset metabolic syndrome, subclinical inflammation, dyslipidemia, coronary artery diseases, and adulthood obesity.[1] Obesity is a key risk factor in the natural history of chronic diseases. This is very important health problem in our country especially in adolescents. The adverse effect of obesity is to emerge the population in transition of hypertension, hyperlipidaemia and glucose intolerance, while coronary heart disease and long term complication of diabetes such as renal failure begin to emerge several years later.[2]

The most common indices used for determining obesity include body mass index (BMI), and waist circumference and waist-to-hip ratio. The most recommended index is BMI. There are many growth references that use age and gender specific body mass index cut-points to classify obesity but for children and adolescents, an internationally agreed reference system is more challenging as body height and body composition change at different rates across populations during the different stages of maturation and growth.[2] These reference systems include the 2000 USA Center for Disease Control and Prevention (CDC) reference, the older National Center for Health Statistics / World Health Organization (NCHS/WHO) reference, the International Obesity Task Force reference and the 2007 growth reference released by the world health organization for children (5 to 19 years old). The 2007 WHO reference seem to be a better choice.[3]

Rapidly changing dietary practices and a sedentary lifestyle have led to increasing prevalence of childhood obesity (5-19 yr) in developing countries.[1] There is also a rapid rise in the number of overweight and obese children despite a persistently high burden of under nutrition.[4] The studies done in various cities of Pakistan showed prevalence of obesity in adolescents was from 6 to 11.9%.[5-8]

The Obesity being a risk factor for many chronic diseases, need to be determined for estimation of future burden and prevention.[9] Decrease in obesity in adolescent is associated with decrease in metabolic, cardiovascular diseases and psychiatric problems.[10] Additionally, there is scarcity of data on obesity

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among adolescents in Pakistan generally and our area specifically. This study was conducted to assess frequency of obesity among college students.

METHODOLOGY

This was a cross sectional study to assess the prevalence of obesity in college students of first year and second year of Tehsil Rahim Yar Khan. This study was conducted from 1st September 2013 to 30th November 2013. There are 20 colleges in Tehsil Rahim Yar khan, out of these 8 colleges were selected randomly. Systematic random sampling technique was used to select 162 students from these colleges.

The sample size of the study was calculated by applying the standard formula for proportion i.e. $n = z^2pq / E^2$. The sample size, 162 was calculated at 95% confidence level and 5% margin of error, with expected prevalence of 11.9%.[8]

Students with physical deformities, chronic debilitating diseases like heart diseases, known hepatic diseases, moderate and severe persistent asthma, and chronic diarrhoea were excluded from the study. Permission to collect the data was taken before data collection from the administration of the concerned colleges. The students were contacted in the classes. Data was collected from each student about Age, Sex, Class, Parents 'Social Class, (Rich class if income was > 50000 rupees per month, Middle, if income was 20000-50000 rupees per month and Lower class if income was < 20,000 rupees per month) and residence of Rural / Urban.

After this, weight was measured with wearing possible light clothing and without shoes, using weighing scale to the nearest 0.5kg. A correction of 0.5 kg was made for the weight of the clothes. A portable stadiometer was used to measure the height without shoes on a vertical plane and read to the nearest 1 cm. BMI was calculated by the formula: Wt (kg) / Ht (m^2). BMI was compared with WHO Charts, BMI for – age BOYS and BMI for – age GIRLS. Each student who has more than > + 2 Z score of WHO BMI for – age sex specific charts, was labeled Obese and < + 2 Z score was labeled Non - Obese on a Performa.

The data was entered and analyzed by using SPSS version 17. The frequencies of obesity and gender were calculated. The mean and standard deviation of quantitative data of study population (age, weight, height and BMI) was calculated. Stratification with respect to age, weight, height and gender was done and Chi-square test was applied and P value < .05 was taken as significant.

RESULTS

Total 162 subjects were included in this study. Mean age of students was 16.7 ± 1.3 years. The minimum age of the students was 15 years and maximum age 19 years. Total 17 (10.5%) students were obese as shown in Fig I.

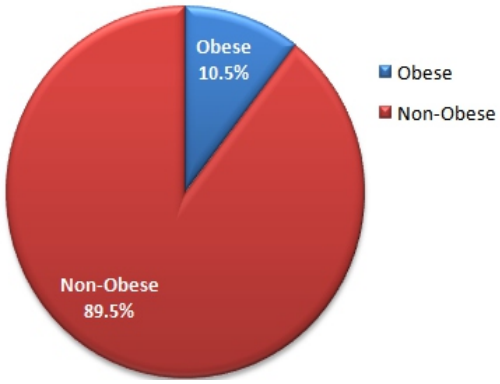
Table I: Relation of obesity with Gender (n = 162)

Gender	Obesity		Total	P.value
	Obese (%)	Non-Obese (%)		
Male	6 (12.77)	41(87.23)	47 (29)	0.546
Female	11 (9.57)	104 (90.43)	115 (70.98)	
Total	17 (10.5)	145 (89.5)	162 (100%)	

Table I shows that 47 (29%) students were males and 115 (70.98%) females. Total 17 (10.5%) students were obese, 6 (12.77%) males and 11 (9.57%) females were obese with p value 0.546 which was statistically insignificant.

Table II depicts that students were stratified into two age groups i.e ≤ 16 yearsand 17-19 years. 7 (20%) were obese in 17-19 years age group. (P = 0.03).

Figure I: Frequency of obesity among college students



The prevalence of obesity in age group 17 – 19 years was statistically significant. (P = 0.038) showed a association between obesity and increasing age of students.

Table II: Relation of Obesity with Age (n = 162)

Age Group	Obesity		Total No (%)	P. value
	Obese No (%)	Non-Obese No (%)		
≤16 years	10 (7.88)	117 (92.13)	127 (78.4)	0.038
17-19 years	7 (20)	28 (80)	35 (21.6)	
Total	17 (10.5)	145 (89.5)	162 (100%)	

Table III: Relation of Obesity with Social Class (n = 162)

Social Class	Obesity		Total No (%)	P. value
	Obese No (%)	Non-Obese No (%)		
Rich	5 (55.56)	4 (44.44)	9 (5.56)	0.001
Middle	4 (3.85)	100 (96.15)	104 (64.19)	
Lower	8 (16.33)	41 (83.67)	49 (30.25)	
Total	17 (10.5)	145 (89.5)	162 (100%)	

Table IV: Relation of Obesity with Residence (n = 162)

Residence	Obesity		Total No (%)	P. value
	Obese No (%)	Non-Obese No (%)		
Rural	6 (9.52)	57 (90.48)	63 (38.89)	0.748
Urban	11 (11.11)	88 (88.89)	99 (61.11)	
Total	17 (10.5)	145 (89.5)	162 (%)	

Table III shows that 9(5.56%) students belonged to rich class, 104 (64.19%) to middle class and 49 (30.25%) to lower class out of which 5 (55.56 %), 4 (3.85%) and 8 (16.33%) were obese respectively. (p=0.00)

Table IV shows that 63 (38.89%) were rural students and 99 (61.11%) urban. 6 (9.92 %) were obese from rural students and 11 (11.11%) from urban area

DISCUSSION

Obesity is a progressive problem both in developed or developing countries. Pakistan is in transition, facing double burden of the disease. In South Asia, including Pakistan, social and environmental changes are occurring rapidly, with increasing urbanization, changing lifestyles and reduced physical activity.[11] Total 162 students were included in this study, 47 (29%) students were male and 115 (70.98%) were females. Total 17 (10.5%) students were obese. This percentage is much higher than the study of Chaudhry MA.[12] Which is reflecting only 2.4% students to be obese at Lahore. A study from Turkey was also in contrast with this study, which was reporting the rate of obesity among students as 6.5%.[13] In this study out of 47(29%) male students 6 (12.77%) were obese and out of 115(70.98%) female students 11 (9.57%) were obese, a similar trend of obesity in male students was found higher than female students in Hyderabad and Karachi in other studies.[14,15]

In age group 15-16 years obesity was found in 10(7.88%) students, while almost 15% adolescent found to be obese at Chennai in India in one study of Tharkar S.[16] Young adults showed 20% obesity which is comparable to USA where 16.1% young adults are obese.[17]

Among the social class the rich were more seen to be obese like in current study in which 55.56% students of rich class were obese, similar to a study at Karachi.[15] Obesity among adolescents of affluent education institutions was 25.35%, this difference might be due to the sample selection as well as size in current study all three classes were present but at Karachi the sample was taken from rich class only. These are in consistence with the results from Indian studies as well.[16]

CONCLUSION

Prevalence of obesity was high among college students of Rahim Yar Khan and seen in both sexes, all ages, social class and native areas. However obesity was more observed in males, rich class and urban natives.

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