Short Report

Prevalence of Overweight and Obesity among Students of a Medical College in Saudi Arabia

S. N. Bazmi Inam

INTRODUCTION

Obesity is an excess of body fat that frequently results in a significant impairment of health.[1] Obesity results when the size or number of fat cells in a person's body increases. A normal-sized person has between 30 and 35 billion fat cells. When a person gains weight, these fat cells first increase in size and later in number. One pound of body fat represents about 3500 kilocalories.[1] Obesity is a recognized risk factor for cardiovascular diseases, hypertension, diabetes mellitus, gall bladder diseases, osteoarthritis, endometrial and breast cancers.[2,3] 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.[4] 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 lifestyle changes are also affecting children in these countries; prevalence of overweight among them ranges from 10 to 25%, and the prevalence of obesity ranges from 2 to 10%.[4] The etiology of obesity is complex and is generally affected by factors such as genetics, environmental, social and psychological factors.[5] Current obesity levels range from below 5% in China, Japan and certain African nations, to over 75% in urban Samoa. But even in relatively low prevalence countries like China, rates are almost 20% in some cities.[6] Prevalence of overweight and obesity is considered to be high in Saudi Arabia. A study on 19,598 individuals revealed that the prevalence of overweight was 30.7% for males and 28.4% for females in all age groups and in 18 to less than 21 years age group it was 23.1% in males and 30.4% in females.[7] Another study on Saudis over the age of 15 years reported prevalence of overweight and obesity of 29% and 15% respectively among males and 27% and 24% respectively in females.[8] Study from Bahrain conducted on native adults aged 30-79 years reported prevalence of overweight and obesity of 35.2% and 21.2% respectively for males and 31% and 48.7% for females respectively.[9] Finally, a study conducted on male students of King Saud University, Riyadh, Saudi Arabia, reported the prevalence of overweight to be 31% and obesity 23.3%.[10] Such high prevalence rates of overweight and obesity are alarming.

The purpose of this study was to find the prevalence of overweight and obesity in the students of College of Medicine, Qassim University, Saudi Arabia.

SUBJECTS AND METHODS

It was a cross sectional survey conducted at College of Medicine, Qassim University. Two hundred and forty-one male students of College of Medicine, from Pre-Medical Year, Year-1, Year-2 and Year-3 were enrolled. All students were requested to participate in the study. Height and weight of each student who volunteered for the study were taken on a beam balance scale. Average weight of "thobe" (traditional male arabic dress) was routinely deducted from the recorded weight. The body mass index (BMI) was defined as the weight in kilograms divided by the square of the height in metres (kg/m2). BMI was used as standard criteria for classification of individuals as desirable (normal) BMI range: 18 -24.9, overweight BMI: 25 – 29.9, obesity: greater than or equal to 30 (8).

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 each Year 1, 2 and 3 students.

RESULTS

Two hundred and forty-one male students participated in the study. The response rate in Pre-medical Year students, Year-1, 2 and 3 medical students was 68.2%, 66.7%, 89.5% and 100% respectively. The mean age of the students was 21.2+1.3. Of these, 112 (46.5%) were overweight or obese (BMI > 25), 29 (6.2%) students had BMI <18 and obesity (BMI >30) was found in 40(16.6%) students. Only 115 (47.7%) had BMI in the desirable (normal) range: 18.0-24.9. There was no statistically significant difference in overweight and obesity prevalence between the Years in which students were studying. Chi Square for trend analysis was not statistically significant. **(Table I)**

TABLE I: PATTERN OF OBESITY AMONG STUDENTS

	n = 58 Pre-Med	n = 52 Year-1	n = 60 Year-2	n = 72 Year-3	N = 241 TOTAL
BMI <18	1(1.7%)	2(3.3%)	6(11.8%)	5(6.9%)	15(6.2%)
BMI 18-24.9 Normal	34(58.6%)	31(51.7%)	22(43.1%)	28(38.9%)	115(47.7%)
BMI 25-29.9 Overweight	14(24.1%)	16(26.7%)	19(37.2%)	23(31.9%)	72(29.9%)
BMI > 30 Obese	9(15.5%)	11(18.3%)	4(7.8%)	16(22.2%)	40(16.6%)

P-Value < 0.05

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 ischaemic heart disease and 8-42% of certain cancers globally were attributable to a BMI above 21 kg/m^2. There are different methods for estimation of body fat.[11,12] Due to its simplicity and ease of application, the most frequently and widely used method is the BMI.[13,14] Therefore, in this study BMI was used for estimation of body fat and categorizing individuals in normal, overweight and obese categories. The prevalence of obesity in the Arabian Peninsula is high ranging between 16-25% in males and 17-43% in females.[15] In the Saudi adolescents as well as all age groups including children, the prevalence of obesity is alarmingly high.[16,17] Study on students of King Saud University, Riyadh also showed high prevalence of overweight and obesity of 31% and 29% respectively.[10] The results from this study suggest that overweight and obesity are major problem, among young men in Qassim, Saudi Arabia. The proportion of obesity (16.6%) among students in this study was less than that reported from King Saud University, but the proportion of students who were overweight was almost similar (29.9%). A higher body mass index accounts for 16% of the global burden of disease, expressed as a percentage of disability-adjusted-life-years.[18] The financial cost for obesity related diseases is very high and consumes fairly large proportion of health care budget. Health care costs incurring on caring for patients afflicted by obesity related diseases in Saudi Arabia are not available. However, it is not difficult to make an educated guess by merely looking at the population-based figures that it must be quite high. This study along with studies in children and adolescents confirming high and rising trend of overweight and obesity demands attention and urgent multi-pronged health promotion and prevention strategies to address this problem.

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AUTHOR AFFILIATION:

Dr. S. N. Bazmi Inam
Associate Professor,
Department of Family and Community Medicine
College of Medicine, Qassim University
P.O Box 1162, Buraidah 51431
Qassim, Kingdom of Saudi Arabia
E-mail: drbazmiinam@hotmail.com