SELF REPORTING OF OBESITY, OVERWEIGHT AND HEALTH RISKS AMONG 1ST YEAR MBBS STUDENTS OF REHMAN MEDICAL COLLEGE, PESHAWAR

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ABSTRACT

OBJECTIVE: to find out the frequency of obesity, overweight and health risks among the 1st year medical students of Rehman Medical College Peshawar, Pakistan.

METHODOLOGY: This cross-sectional study was conducted at Rehman Medical College, Peshawar, Pakistan from April to July 2011. A self administered questionnaire was given to 100 students of 1st year MBBS, of which 80 responded. Data was collected using structured questionnaire and anthropometric indices were measured using standard tools for measuring weight hip ratio (WHR) and body mass index (BMI). Data analysis was done using SPSS 16.0.

RESULTS: The mean age of the students was 19.3+0.78 years. Out of 80 students (male=46 and females=34), 13 (16.2%) were obese (BMI ≥ 27), 12 (15%) students were overweight (BMI ≥ 23) while 47 (58.8%) weighted normal (BMI 18.5 to 22.9). The WHR calculations showed that majority of the students (58.8%) were falling under low health risk category, 13.8% were in the category of moderate health risk and 5% students were under the category of high health risk. Obesity and overweight was more frequent among male students while female students were more dominant in the category of moderate and high health risks.

CONCLUSION: Frequency of obesity and overweight is more amongst the male students as compared to female students while more female students are at moderate and high health risk. Since medical students are over occupied with their studies, efforts should be made on promoting low intensity long duration physical activity.

KEY WORDS: Obesity, Overweight, BMI, Weight Hip Ratio, Medical Students, Health Risks.

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INTRODUCTION

Obesity is an intensifying public health problem; therefore, its prevalence has led the World Health Organization (WHO) to declare it a "global epidemic".[1] They are defined as abnormal or excessive fat accumulation that may impair health. Obesity has reached epidemic proportions globally, with more than 1.4 billion adults overweight - of these over 200 million men and nearly 300 million women are clinically obese.[2]

Overweight and obesity is a result of positive energy balance over an extended period of time, where energy intake exceeds energy expenditure. While there are specific genetic disorders that give rise to overweight and obesity, recent epidemiological trends indicate that the rise in overweight and obesity is a result of environmental and behavioral changes.[3]

In modern society, energy dense food is abundant while the energy demands of individuals are considerably reduced. The expansion of food production industry has brought about a higher consumption of diets that are high in energy, protein and fat and low in complex carbohydrate. The change in family structure and longer working hours have resulted in an increased demand for convenience foods that are generally of poor nutritional quality than foods prepared at home. Over the period of time there have been substantial dietary changes including the passive over consumption of energy, despite our neurobiological processes controlling food intake.[4]

Obesity and overweight pose a major risk for serious diet-related chronic diseases, including type II diabetes, cardiovascular disease, hypertension and stroke, and certain forms of cancer.[5,6] The health consequences range from increased risk of premature death, to

serious chronic conditions that reduce the overall quality of life.[7]

A crude population measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in meters). According to WHO, the Indo-Asian specific definition of overweight is set as BMI ≥ 23kg/m2 while that of obesity is set as BMI ≥ 27kg/m2.[8]

The WHR has been used as an indicator or measure of the health of a person, and the risk of developing serious health conditions.

It can be measured by: WHR= circumference of waist/ circumference of hip region

Waist-hip ratio is a better and simpler indicator of both intra-abdominal fat and coronary artery disease, than BMI[9]. It is less dependent on body size and height[10], but more on hip circumference, which is an index of muscle mass[11]. Several studies showing the relationship of WHR, BMI and blood pressure to cardiovascular diseases have been carried out on Caucasians.[12]

In available literature, many studies can be found about the prevalence of obesity in Pakistan. But majority of them follow the same BMI cut-offs as defined by WHO internationally. Such cutoffs are used by many of the researchers, in their studies.[13,14] Our study used the WHO, Indo-Asian specific definition of overweight (BMI ≥ 23) and obesity (BMI ≥ 27). These new definitions may provide a more accurate determination of the health of Pakistanis.

The objective of this study was to assess the prevalence of obesity and overweight as well as level of health risk amongst the first year medical students of Rehman Medical College Peshawar.

METHODOLOGY

It was a cross sectional survey conducted at Rehman Medical College Peshawar. A total number of 100 students were approached out of which 80 students from 1st year MBBS with males (n=46) and females (n=34) took part. The study was conducted within four month period from April to July 2011. All students were given a self administered questionnaire along with a consent form. The questionnaire carried questions regarding the measurements of their height in meters, weight in kilograms, waist and hip circumference in inches, on which BMI and WHR for the students were calculated. The body mass index (BMI) was defined as the weight in kilograms divided by the square of the height in meters (kg/m2). Our study used the WHO, Indo-Asian specific definition of overweight (BMI ≥ 23kg/m2) and obesity (BMI ≥ 27 kg/m2). These new definitions may provide a more accurate determination of the health of Pakistanis. BMI cut offs were used according to the standard criteria for classification of individuals (Table 1). The cut off points for waist-hip ratio are given in Table 2. Data was entered in MS excel and BMI as well as waist hip ratio was calculated. Data analysis was done on SPSS version 16 for descriptive statistics.

RESULTS

A total number of 80 students participated in the study with 57.5% male and 42.5% female students. The mean age of the students was 19.3+0.78 years.

Table 1 is showing the details of BMI & WHR of the students. Out of 80 students, 13 (16.2%) were obese (BMI ≤ 27) and 12 (15%) students were overweight (BMI ≤ 23). Figure 1 shows comparison of BMI between male and female students.

The results show that 81.2% students analyzed for waist to hip ratio were in the area of low health risk and 6.2% students were in the category of high health risk. Figure 2 shows comparison of waist hip ratio between male and female students. In contrast to the BMI results, it was found that more female students were in the category of moderate health risk as compared to male students, while no male student came into the category of high health risk.

TABLE I: BODY MASS INDEX (BMI) CUT OFF VALUES 8,15

BMI Values:	
Underweight	Below 18.5
Normal	18.5 to 22.9
Overweight	23 to 26.9
Obesity	≥ 27

TABLE II: WAIST TO HIP RATIO (WHR) CHART 8, 15

Male	Female	Health Risk Based Solely on WHR
0.95 or below	0.80 or below	Low Risk
0.96 to 1.0	0.81 to 0.85	Moderate Risk
1.0+	0.85+	High Risk

TABLE III: BODY MASS INDEX (BMI) AND WAIST TO HIP RATIO (WHR) IN STUDENTS

		Frequency (n=80)	Percent
BODY MASS INDEX	Underweight	8	10.0%
	Normal	47	58.8%
	Overweight	12	15.0%
	Obese	13	16.2%
WAIST TO HIP RATIO	Low heath risk	65	81.2%
	Moderate health risk	10	12.5%
	High health risk	5	6.2%

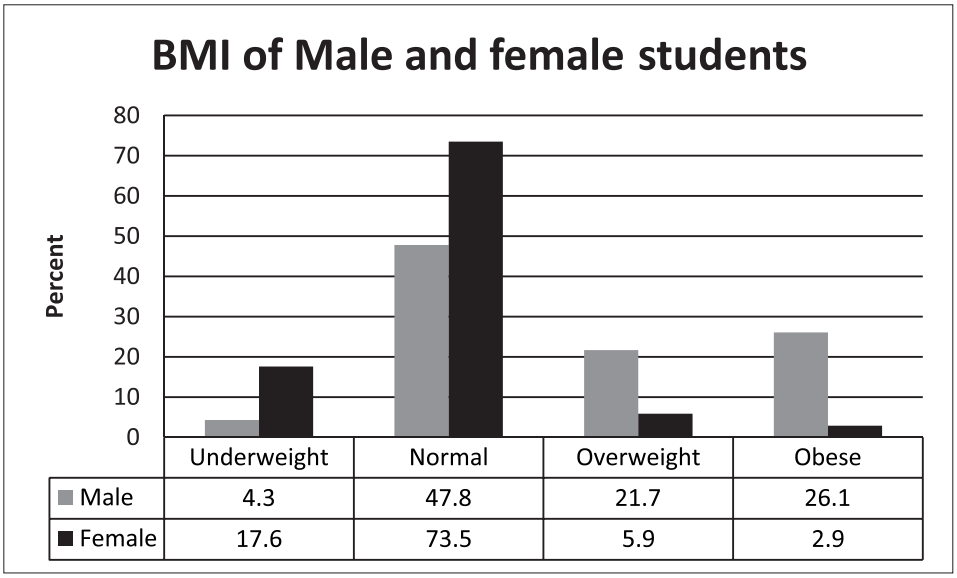

FIGURE I: COMPARISON OF BODY MASS INDEX (BMI) VALUES BETWEEN MALE AND FEMALE STUDENTS

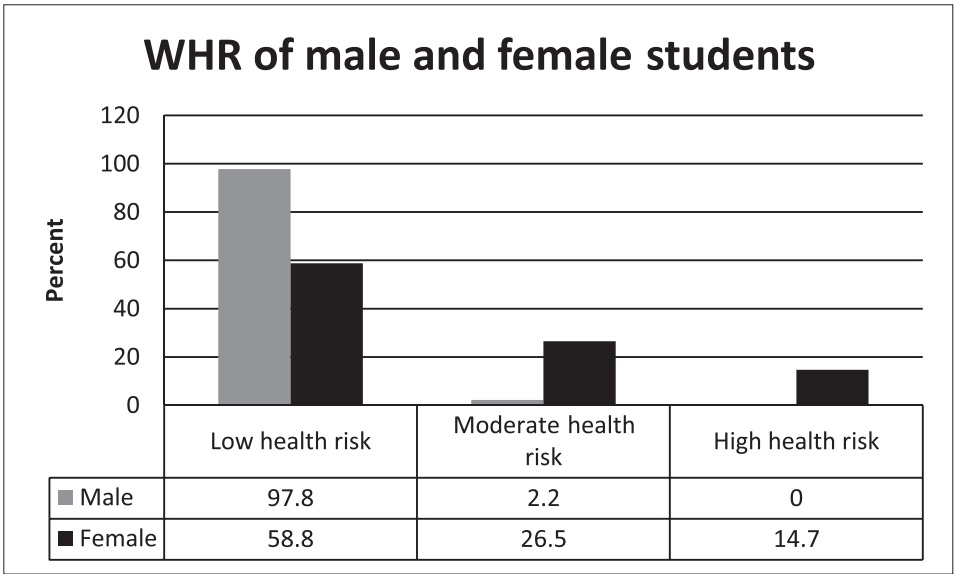

FIGURE II: COMPARISON OF WAIST TO HIP RATIO BETWEEN MALE AND FEMALE STUDENTS

DISCUSSION

The results of the current study showed that BMI of the majority of the students was in the normal range (58.8%, BMI 18.5 to 22.9). The overall prevalence of obesity and overweight was calculated to be 31.2% of which, 16.2% had obesity (BMI ≤ 27) while 15% students were overweight (BMI ≤ 23).

The prevalence of obesity and overweight in Pakistan is higher in females than in males regardless of age group and residence[16]; however our study revealed a greater frequency of males being overweight and obese. In comparison, more males (21.7%) were in the category of overweight as compared to female students (5.9%). Majority of female students (73.5%) were found to be in the category of normal weight as compared to the male students (47.8%).

The results of our study also show a higher frequency of obesity and overweight in men as compared to the results of Pakistan National Survey (PNS) which reported the prevalence of obesity in men to be 16%.[17]

Our study also revealed that majority of the students analyzed for waist to hip ratio were in the area of low health risk i.e. 81.2% students, with 12.5% students were in the category of moderate health risk while 6.2% students were in the category of High health risk.

Much of the work has been done on the prevalence of obesity and overweight around the world. The statistics gathered in various countries differ from one another and the major difference is caused by the methodology, material, parameters used for measurements and the community under the study. According to a study done in Thailand, 28.3% people are overweight while 6.8% of the population was obese.[18] Our study is comparable with this, revealing that 5% of the population was obese. A study on Singaporean population showed that 8.5% women while 5.9% men were obese.[19] In China according to the results of a study, only 13.6% men and 19.2% women were overweight moreover only 0.5% men and 1.5% women were obese.[20]

In Saudi Arabia, there is more prevalence of obesity among the Saudi women than in men. According to the study on Saudi people results showed that up to 44% women were obese while the obesity in men was limited up to 26%.[21-23] The western world and European countries show an increasing trend in overweight and obesity. This can be clearly explained from their living style, daily routine and most importantly from their eating habits as they have nearly quit the home made food and use high fat containing food.

According to the available statistics on US population, prevalence of obesity is 20-25% while in Europe data shows 10-24% obesity.[24-26] Similarly statistic available, the Malasian medical students also shows trends of overweight, where 14.8% students were found to be overweight, showing higher ratio of females.[27] As far as Pakistan is concerned Obesity emerges as a prominent health problem, as seen in the rest of the world. Pakistan, like other countries is becoming a place where obesity is affecting the people, due to the economic development, increasing urbanization and lifestyle changes (including diet and physical activity). The obesity occurring in men and younger women is rapidly increasing.[28] According to a study conducted in Pakistan, majority (65%) of the adolescents fall under the normal range of BMI and 17% were underweight and 18% falls were overweight.[29] These studies reveal a high health risk for diabetes, hypertension and cardiovascular diseases. We analyzed, randomly selected 80 students of Rehman Medical College and the results are nearly comparable to most of the studies around the world including studies in Pakistan.

CONCLUSION

It is concluded that frequency of obesity and overweight was higher in male students as compared to female students. On the other hand more female students were found to be at high health risks when analyzed on the parameter of WHR. Since medical students are over occupied with their studies, efforts should be made to promote low intensity long duration physical activity that can be conveniently integrated into their daily lives without affecting their medical studies.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

SB: Conception and design, analysis and interpretation of data, supervision, final approval of the version to be published

MY: acquisition of data, analysis and interpretation of data, drafting the manuscript, final approval of the version to be published

HMA, ZS, AUR, SB: acquisition of data, drafting the manuscript, final approval of the version to be published

SIG: critical revision, final approval of the version to be published

CONFLICT OF INTEREST

Author declares no conflict of interest

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