

Prevalence of Obesity among senior teaching faculty of an undergraduate medical college of Lahore, Pakistan

MAHAM JAVED, RAZIA CHAUDHRY, MUSHAL NOOR, KHALID JAVED ABID

ABSTRACT

Aim: To determine the prevalence of obesity among senior teaching faculty of basic and clinical sciences and to identify the risk factors associated with obesity focusing mainly on effect of life style.

Study design: Cross-sectional analytical

Study settings & duration: Study was conducted among senior teaching faculty of Basic and clinical sciences for MBBS and Dentistry from May 2013 to August 2013.

Methods: After obtaining the list of professors, Associates and Assistant professors, stratified random sampling technique was used and proportionately 24(32%) professors, 16(25.3%) associates and 32(42.7%) assist. Professors were selected by simple random technique from each strata.

Results: Out of total 75 subjects 24 (32%) were professors, 19(25.3%) associate and 32(42.7%) were assistant professors. Male were 41 and females 34. Mean age of subjects was 43.5 yrs. Thirty two teachers belonged to basic and 43 were from clinical sciences. Twelve female and 14 male teachers had BMI ≤ 25 while 22 females and 27 males (49) had BMI $>$ than 25. Only 27(36%) were used to have 1-2meals/day while others >2 . Regarding fast food consumption only 1 subject out of 75 was used to have daily, 34(45.3%) admitted to have once/week and rest 40(53.4%) were used to take twice or $>$ per week. Thirty one subjects (54.7%) had sedentary life style and out of 44 who had no sedentary life style 25(36.5%) were used to do 30 min. exercise daily or 4-5 times /week at least.

Conclusion: Prevalence of obesity was quiet high (36.6%) among senior teachers of this College of Medicine and Dentistry Lahore. Correlating factors as sedentary life style, excessive fast food intake and age are definite risk factors for obesity, diabetes, hypertension and heart disease.

Keywords: Body Mass Index, determinants, senior teaching faculty

INTRODUCTION

Obesity is a medical condition in which there is excessive accumulation of fat in the body.¹ According to WHO it is taken with reference to BMI (Body Mass Index), a measurement which is taken by dividing the person's weight in kg by the person's height in m². A person with a BMI above 25kg/m² is considered overweight, and above 30kg/m² is considered obese². Generally it is accepted that obesity develops when energy intake continuously exceeds energy expenditure, causing a fundamental chronic energy imbalance³. However there are other numerous factors that contribute to obesity, including: genetics, metabolism, behavior and lifestyle and even medications⁴.

Obesity is a major risk factor for cardiovascular disease (CVD) and Type 2 diabetes mellitus (DM) and in the presence of other risk factors for non-communicable diseases (NCDs) such as smoking, hypertension, and elevated blood cholesterol⁵. Other notable complications of obesity include: menstrual irregularities and infertility, osteoarthritis, sleep apnea, and even numerous cancers⁴. On average,

obesity reduces life expectancy by six to seven years a BMI² of 20-35kg/m² reduces life expectancy by ten years¹⁰. It has been established that unbalanced diet and lack of physical activity are the most prominent factors responsible for obesity⁴. Before the 10th century obesity was rare¹ in 1997 the WHO formally recognized obesity as a global epidemic⁷. AS of 2008 the Who estimate that at least 300 million adults (greater than 10%) are obese, with higher rates among women than men². The rate of obesity also increases with age at least up to 50 to 60 years old⁸. Once considered a problem only of high income countries, obesity rates are rising worldwide and affecting both the developed and developing world⁹. These increases have been felt most dramatically in urban settings². Obesity in Pakistan is a health issue that has attracted concern only in the past few years. Urbanization and an unhealthy, energy-dense diet (presence of oil and fats in Pakistani cooking), as well as changing lifestyles, are among the root causes contributing to obesity in the country. According to a list of the world's "fattest countries" published on Forbes, Pakistan is ranked 165 in terms of its overweight population, with 22.2% of individuals over the age of 15 crossing the threshold of obesity¹¹.

CMC College of Medicine and Dentistry, Lahore
Correspondence; Razia Chaudhry, dr.razia.ch@gmail.com

MATERIAL & METHODS

This cross-sectional study was conducted among senior teachers faculty of Basic and clinical sciences for MBBS and Dentistry of a private medical College for MBBS and Dentistry Lahore, from May 2013 to August 2013. Basic objectives of study were to determine the prevalence of obesity among senior teachers faculty of basic and clinical sciences and to identify the risk factors associated with obesity focusing mainly on effect of life style i.e., diet and physical activity. According to strata of staff, stratified random sampling technique was used and proportionately 24(32%) professors, 16(25.3%) associates and 32(42.7%) Assist. Prof, (total 80 study subjects were selected to compensate the failure in response rate) then simple random technique was used to select study subjects from each strata. Study subjects themselves told their weight and height (not measured by the researcher), BMI was calculated and staff members were categorized according to WHO'S classification of obesity, based on BMI.

Total of 75 subjects from 80 returned the questionnaire with different percentages of response to different questions. SPSS version 16 was used to then analyze the data. Frequency distribution, percentages mean and SD of variables were calculated accordingly. Cross tabulation between outcome variable and different determinants of obesity was done and Chi-square test was applied to see the significant association between variables. P-value of 0.05 and <was considered significant.

RESULTS

Out of total 75 subjects 24(32%) were professors, 19(25.3%) associate and 32(42.7%) were assistant professors. Male were 41 and females 34. Mean age of subjects was 43.5 yrs. with SD+10.2 yrs. median of 38 yrs and range was 27-79. Forty four (58.6%) were between 27- 47yrs, 27(36%) were in age group of 48-68 yrs and rest 4% were >68. Thirty two teachers belonged to basic and 43 were from clinical sciences.

Table 1: Distribution of study participants according to Basic/Clinical Sciences (n=75)

Faculty	Frequency (n)	%age
Basic Science	32	42.7
Clinical Science	43	57.3

Twelve (12) female and 14 male teachers (26) had BMI <25 while 22 females and 27 males (49) had BMI > than 25. Only 27(36%) were used to have 1-2meals/day while other 48(64%) were having >2 meals/day. Five (6.7%) staff members were used to

have snacks between meals daily while other 70(93.3%) had 1-3 times /day. Regarding fast food consumption only 1 subject out of 75 was used to have daily, 34(45.3%) admitted to have once/week and rest 40(53.4%) were used to take twice or > per wk. Forty three (57.3%) of the subjects were used to have fruits and vegetables daily while 32(42.7%) had 3 times or < per week. Thirty one subjects (54.7%) had sedentary life style and out of 44 who had no sedentary life style 25 (36.5%) were used to do 30 min. exercise daily or 4-5 times /wk at least while rest 19 had once/week

DISCUSSION

Among 75 teachers under study (34.6%) were found pre-obese and obese (BMI >25) and about all these had sedentary life style i.e. no exercise and any other physical activity. Obesity is a worldwide escalating problem caused by a complex interaction of genetic, socio-demographic, behavioral and environmental factors. There is large evidence that obesity develops when energy intake continuously exceeds energy expenditure, causing a fundamental chronic energy imbalance. Societal and behavioral changes over the last decades are held responsible for the considerable increase in sedentary lifestyles ¹², as well as inappropriate dietary patterns including snacking, large portion sizes, soft drinks, high fat and energy dense diets as in this study significant association ($p=0.016$) has been revealed between fast food intake more frequently than who take it occasionally ¹³. The role of high dietary fat intake in the etiology and maintenance of excess weight is controversial. Positive associations between dietary fat and excess body fat were observed in some studies, but not in others ¹⁴. Other dietary factors besides dietary fat are now considered to influence obesity i.e., carbohydrate, protein, fiber, energy density and glycemic index ¹⁵. Results of our study regarding relationship between BMI and high energy dense food are also congruent to the positive association ($P=0.016$). A better understanding of these factors is essential to innovate more appropriate health policies. The relative importance of dietary intake in the development of obesity is difficult to establish because of dietary reporting bias. In general, inaccurate energy intake reports result from under recording & under eating during the period of dietary registration or a combination of both ¹⁷⁻¹⁸.

Over recording may also occur, though infrequent. Studies identifying low energy reporters and factors associated with underreporting used the doubly labeled water technique ¹⁹ or the ratio of energy intake to basal metabolic rate ^{20, 21}. It has been

observed that overweight and obese individuals tend to underreport their dietary intake to a greater extent than normal weight individuals²²⁻²³. This phenomenon may lead to the paradoxical observation that obese individuals appear to eat less than lean individuals. Sex, age, smoking, physical activity level, educational level, body image, health consciousness and social desirability are other factors reported to affect the accuracy of self-reported dietary intake²³⁻²⁴. Some studies have examined the association of nutritional intake with BMI²⁵ and more specifically with overweight and obesity²⁶⁻²⁷. However, for a number of populations, including the Flemish, information on this relationship is missing. Also, although the associations of abdominal obesity with type 2 diabetes, cardiovascular disease and mortality appear to be stronger than for general obesity, only few studies have published results describing the relationship between dietary intake and waist circumference in a cross-sectional²⁸ or prospective design²⁹. Moreover, dietary intake was not always the main focus in these studies.

Regular and 2-3 times/week physical activity as jogging or brisk walk whether indoor or outdoor among senior teacher faculty showed strong statistical relationship ($P=0.005$) with normal BMI. A study conducted to investigate the relationships of physical activity types and sedentary behavior with BMI and waist circumference (WC). The sample comprised 6215 adults (2775 men, 3440 women) aged 25-50 years and over living in Scotland. Self-reported physical activity of moderate to vigorous intensity (MVIA) included domestic activity, walking, and sports and exercises. Dependent variables were BMI-defined obesity (BMI-OB) and WC-defined obesity (WC-OB). TVSE was positively related to both WC-OB (adjusted OR 1.69 (95% CI 1.39, 2.05) for $>/=4$ h of TVSE per d compared with < 2 h/d) and BMI-OB (OR 1.88; 95% CI 1.51, 2.35) independently of MVIA.

In current study high significant statistical difference was found between BMI of faculty members of clinical and basic sciences, the clinical faculty members showed more obesity with. This may be related to more food intake and low physical activity on account of availability of time.

CONCLUSION

Prevalence of-obesity was quiet high (36.6%) among senior teachers of this College of Medicine and Dentistry Lahore. Correlating factors as sedentary life style, excessive fast food intake and age are definite risk factors for obesity, diabetes, hypertension and heart disease. So public health recommendations

should both promote physical activity and discourage engagement in sedentary pursuits

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Table II: Obesity and its determinants by statistical analysis

Variables	BMI < 25 (%)	BMI > 25 (%)	Total	P value
Designation				
Professors	06(25%)	8(75%)	24(100%)	P=0.46
Assoc. Professors	07 (38.9%)	12 (61.1%)	19 (100%)	
Assist. Professors	13 (38.8%)	19 (50%)	32 (100%)	
Total	26	49	75	
Age groups(yrs)				
27-48	40(81.64%)	9(18.36%)	49(100%)	P=0.000046
49- 79	09(34.62%)	17(65.38%)	26(100%)	
Total	49	26	75	
Gender				
Male	24(58.53%)	27(65.85%)	41(100%)	P=0.2822
Female	12 (35.29%)	22(64.70%)	34 (100%)	
Total	26	49	75	
Faculty Type.				
Basic Sciences	21	05	26	P=0.00000
Clinical sciences	05	44	49	
No. of Meals per day				
1-2	10	17	27(32%)	P=0.747
3 & >	16	32	48 (68%)	
Total	26	49	75 (100%)	
Fast food intake per week				
Daily	00	01	01 (0.8)	P=0.016 (Fisher exact test)
1-3/wk & <	25	49	74 (99.2%)	
Total	26	49	75 (100%)	
Intake Of fruits & vegetb. per week				
Daily	15	28	43 (57.3%)	P=0.9638
2-3 or <	11	21	32 (42.7%)	
Total	26	49	75 (100%)	
Sedentary life style				
Yes	20	14	34(34.7)	P=0.000006
No	06	35	41(65.3%)	
Total	26	49	75 (100%)	
Physical exercise, 30 min./day				
Regular	15	10	25(56.8)	P=0.05
Occasionally	09	10	19 (43.2%)	
Total	26	20	44(100%)	
Diabetes				
Yes	10	16	26(36%)	P=0.00036
No	10	39	49(64%)	
Total	26	49	75(100%)	
Hypertension				
Yes	15	10	25	P=0.0013
No	11	38	49	
Total	26	49	75(100%)	