STUDENTS' CORNER

Majority of the Population Disregards Obesity as a Health Risk: Obesity among different Socioeconomic Strata in Karachi - A Hospital Case study

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ABSTRACT

Background: Obesity is a chronic disease which requires aggressive management. Obesity, although not a direct cause of most diseases, unfavorably alters the risk factor profile. It may lead to high blood pressures and high cholesterol levels, which can result in cardiovascular diseases or strokes. In addition to these diseases, the quality of life is also severely impaired. Successful treatment of obesity not only alleviates the associated medical problems, but also improves the quality of life dramatically.

Objectives: To observe and compare obesity, its perception and complications among different socioeconomic classes in Karachi.

Methods: A predesigned questionnaire was filled out at two hospitals of Karachi for a sample representing patients from lower and higher socioeconomic strata. BMI of these patients was calculated and assessed with respect to their income, education level and occupation, eating patterns, frequency of exercise. The presence of associated non-communicable diseases like hypertension and diabetes mellitus was also recorded. Data was analyzed using SPSS software.

Results: The patients' population comprised 31 males and 19 females. The mean age was 45.56 (SD ± 12.08). Minimum age was 15 years, while maximum was 75 years. Pathological analysis revealed that majority of SCC cases were moderately differentiated, SCC with clinical stage T2 or T3, N0,M0/N1,M0. Most common oral sites came out to be buccal mucosa of cheeks followed by lateral borders of tongue and lips. All patients underwent primary resection ± neck dissection and reconstruction when necessary.

Conclusion: Obesity was observed in all classes irrespective of the education, income and occupation of the respondents with sedentary lifestyle being the main causal factor. There exists lack of awareness of the harmful consequences of obesity

KEY WORDS: *BMI, Obesity, Morbid Obesity.*

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INTRODUCTION

The common perception in our part of the world is that obesity is characteristic for the developed countries. Recent results have revealed an alarming rise in the incidence of obesity globally including in the developing world. Considered to be more threatening than smoking[1] a 2001 WHO report reveals obesity has reached epidemic proportions globally, with more than 1 billion adults overweight and at least 300 million of them clinically obese. It has become a major contributor to the global burden of chronic disease and disability. Often coexisting in developing countries with under-nutrition, obesity is considered by experts to be a complex condition, with serious social and psychological dimensions, effecting virtually all ages and socioeconomic groups.[2]

Decreased physical activity and overconsumption of cheap, energy-dense food have led to globally increasing incidence of obesity with tripled rates in the last 20 years. The prevalence of overweight among them children has increased from 10% to 25% with the prevalence of obesity ranging from 2% to 10%. The Middle East, Pacific Islands, Southeast Asia, and China face the greatest threat.[3] Data from the National Health Survey of Pakistan for 1990-1994 revealed prevalence of obesity (BMI > or = 27) in 25-44 year olds in rural areas (9% males, 14% females) and in urban areas (22% males, 37% females) respectively. For 45-64 year olds, prevalence was higher (11% males, 19% females) in rural areas and (23% males, 40% females) in urban areas respectively.[4]

The rapid increase in the prevalence of obesity suggests a trend that is largely due to social, environmental and behavioral changes rather than changes in hereditary factors.[5,6] Obesity results from an imbalance between caloric input and its expenditure. Nutrition plays a direct role in caloric balance, being the sole factor responsible for calorie intake while calorie expenditure is dependent on specific variables of. physical activity, basal metabolic rate and the thermogenic effect of food.[7,8] Recent evidence, from Western countries, suggests that sedentary activities, such as watching television or using a computer, are associated with increasing obesity, independent of purposeful physical activity.[9,10]

The relationship between obesity and socioeconomic factors, though complex, has been demonstrated in different populations. Low income and low education may be associated with obesity and obesity related co-morbidities.[11] Some developing countries face the paradox of families in which the children are underweight and the adults are overweight. This combination has been attributed by some people to intrauterine growth retardation that results in low birth weight apparently predisposing to obesity later in life through the acquisition of a "thrifty" phenotype.[12] The "thrifty phenotype" hypothesis proposes that as an adaptation to malnutrition in fetal life, permanent metabolic and endocrine changes occur which would be beneficial if nutrition remained scarce. However, if nutrition becomes abundant, these changes predispose to obesity and impaired glucose tolerance and an increased susceptibility to cardiovascular disease. The "thrifty phenotype" hypothesis proposes that as an adaptation to malnutrition in fetal life, permanent metabolic and endocrine changes occur which would be beneficial if nutrition remained scarce. The etiology of obesity in the low socioeconomic strata is believed to be multi-factorial. Physical activity, nutrition and certain psychosocial factors like self-esteem, depression and body image are some of the elements associated with risk of obesity in the low socioeconomic class. People of lower socioeconomic status are less health conscious and have stronger beliefs in the influence of chance on health. This in turn is associated with unhealthy behavioral choices.[13].

METHODOLOGY

A descriptive cross sectional study was conducted in a public and a private sector hospital over a period of two months from July 1, 2012 to August 31, 2012. Sample size was calculated to be 114 with CI 97%, precision at 5% & prevalence at 8%. Wastage was added and the sample size was inflated to increase validity of the study. A total of 125 adults between the ages of 18-60 years were included employing convenience sampling. Pregnant women, mentally challenged patients & non-

cooperative patients were excluded from the sample.

Weight and height of patients were measured using height scale/measuring tape and calibrated weighing scale at the two hospitals. Height was recorded in meters and weight in kilograms with BMI calculated by using the formula weight/height^2. Socioeconomic status was measured in terms of overall family income, occupation and education level. Respondents were categorized according to WHO's classification of Body Mass Index (BMI) based on their weight and height.

Table 1:WHO Classification of BMI and Categories

BMI Range	Category
BMI of 25-30kg/m^2	Overweight
B BMI between 30-35kg/m^2	Obese
BMI >35kg/m^2	Morbidly Obese

A predesigned questionnaire was the data collection instrument. The questionnaires were filled out by interview and translated to Urdu for patients who did not understand English. Data was entered and analyzed using SPSS version 17. All quantitative variables were presented as mean and standard deviation and all qualitative variables as percentages and frequencies. Chi-square test of significance was applied and p-value <0.05 was considered as significant. The limitations presented for this study pertain to the small sample size of 125 respondents which is small to draw definitive conclusions. The samples were also limited to only two hospitals which restricts generalization or results.

RESULTS

A total 125 questionnaires were filled out at two hospitals. Table 2 shoes distribution of respondents according to their BMI

Table 2: BMI Distribution of Respondents

BMI	n	%
Overweight (25-30)	60	48.0
Obese (30-35)	43	34.4
Morbidly Obese(>35)	22	17.6

Cross tabulations were used with BMI as the independent variable. The association of BMI was assessed with different variables like gender, monthly income, marital status, education level, occupation, family history of obesity, associated co-morbidities and the frequency of physical exercise.

Table 2:Cross Tabulations

	Overweight	Obese	Morbidly Obese	P value
Gender				
Male	26.4	12.8	8	**0.201**
Female	21.6	21.6	9.6	
Monthly Income				
PKR 10,000-19999	11.2	2.4	3.2	
PKR 20,000-49,999	4	0	0.8	
PKR 50,000-74,999	4	0.8	1.6	**0.294**
PKR 75,000-99,999	4	4.8	0.8	
PKR 100,000-149,999	4	3.2	1.6	
PKR 150,000 and above	0.8	0.8	0	
Marital status				
Single	16	10.4	1.6	**0.088**
Married	32	24	16	
Education Level				
Uneducated	19.8	9.1	5.8	
Primary	0.8	0.8	0	
Matriculate	2.5	1.7	0	**0.758**
Intermediate	3.3	5	3.3	
Bachelors	13.2	9.9	4.1	
Masters	8.3	9.1	3.3	
Occupation				
House-maker	12.8	14.4	7.2	**0.458**
Banker	6.4	4	0.8	
Driver	3.2	1.6	2.4	
Family History				
Yes	18.4	9.6	20	**0.111**
No	29.6	14.4	8	
Frequency of Exercise				
Nil				
Twice a week	41.94	28.23	10.48	**0.047**
Three times or more	3.23	4.03	3.23	
	2.42	2.42	4.03	
Associated co morbidities				
None				
Hypertension	28	16.8	5.6	
Diabetes mellitus	8.8	8	6.4	**0.127**
Asthma	10.4	4.8	4	
Joint pains	0	3.2	1.6	
	0.8	1.6	0	

The respondents were asked about identified factors directly related to obesity. The results provided 81.6% of the respondents confirmed of snacking between their meals while 18.4% refrained from eating between meals. 54.4% of the respondents consumed carbonated drinks every day while 45.6% did not drink carbonated drinks every day.

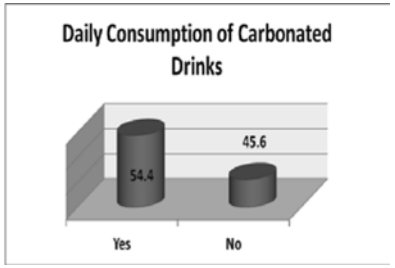

Table 3:Frequency

Frequency of Weekly Exercise		
BMI Range	**n**	**%**
No Exercise	100	80
Twice	13	10.4
More	12	9.6
Want to Lose Weight		
BMI Range	**n**	**%**
Yes	41	32.6
No	84	67.4

DISCUSSION

There is a significant percentage of obesity in all classes irrespective of the socioeconomic stratification. This finding was not consistent with Nanan's report that obesity was directly associated with socioeconomic status with more prevalent in urban areas with increasing income as compare to rural areas.[4]

The study showed increase in obesity in the uneducated category while less number of obese in the graduate & postgraduate category. This was consistent with the study of AJ Stunkard in 1993 where obesity and lack of

education were positively associated.[14] An alarming 56% of the study population did not consider obesity a hazard to health. Only 33% of the respondents wanted to lose weight while 67% were not keen to lose weight. This again suggested a lack of awareness regarding the ill effects of obesity, resulting from poor education.

The study showed fifty percent association of co morbidities with excess weight, consistent with the *study "The relation of gender, race and socioeconomic status to obesity and obesity co morbidities in a sample of US adults. International Journal of Obesity (2002)"* depicting a graded increase in diabetes, hypertension and high serum cholesterol with increasing body weight in nearly all gender, racial and socioeconomic groups. The results of this study suggested a substantial disease burden associated with obesity and this burden increases with increasing severity of obesity.[15]

The study showed a strong relationship between obesity & positive family history of obesity, as respondents having positive family history were found to be more obese. National Health & Nutrition Examination Survey III reported similar findings that prevalence of obesity (BMI=30) is twice as high in families of obese individuals than in the population at large.[16]

Another important finding was the lack of physical activity in the study population. overweight (41.94%), obese (28.23%) and morbidly obese (10.48%) respondents did not exercise even once a week. Exercise twice a week was indulged by overweight (3.23%), obese (4.03%) and morbidly obese (3.23%) respondents exercised. Few exercised three or more times a week overweight (2.42%), obese (2.42%) and morbidly obese (4.03%). This was consistent with findings reported in other studies[17,18,19] where physical activity was shown to induce health related benefits and was the most beneficial prevention practice for losing and successfully maintaining weight. A study by La Torre et al[20] showed that boys and girls of higher socioeconomic status were more likely to participate in extra-curricular physical activities.

CONCLUSION

Females tend to be more obese irrespective of the socioeconomic status with married respondents more overweight compared to their single counterparts. Although high socioeconomic status has an increased incidence of obesity, it is also observed groups of socioeconomic status. Lower socioeconomic status has been associated with less health consciousness i.e. doing things to keep one healthy, stronger beliefs in the influence of chance on health and lower life expectancies. These attitudinal factors have been implicated in unhealthy behavioral choices.[21] Obesity was found to have a positive association with co-morbidities. This translates into an increased burden of diseases and an economic drain on the country due to the costs incurred in treating these conditions. In 2004 in the Pacific Islands, the economic consequences of non-communicable diseases, mainly obesity and diabetes mellitus amounted to $1.95 million-almost 60% of the health care budget of Tonga.[2] There was generally a low awareness towards importance of physical activity. Increased sedentary behaviors and lower levels of physical activity are evident in lower segments of socioeconomic society around the world[19] Education levels are positively associated with health knowledge and leisure time physical activity and higher education levels have been shown to increase physical activity participation and other healthy behaviors.[22]

REFERENCES

[1] Globesity: Michael Quinion; worldwidewords.org: Sept 28,2002

[2] The world health report 2006: working together for health. Geneva: World Helath Organization, 2006

[3] Hossain P,Kawar B, El Nahas M. *Obesity and Diabetes in the Developing World — A Growing Challenge N Engl J Med 2007; 356:213-215*

[4] Nanan DJ. *The obesity pandemic--implications for Pakistan J Pak Med Assoc. 2002 Aug; 52(8):342*

[5] Hodge AM, Zimmet PZ. The epidemiology of obesity. Bailleres Clinical Endocrinology and Metabolism 1994; 8:577-599

[6] James WP. A public health aspect approach to the problem of obesity. Int J. Obes. and Metab. Disorders 1995; 19(Suppl 3): S341-345

[7] Cameron A et al. Overweight and obesity in Australia: the 1999-2000 Australian Diabetes, Obesity and Lifestyle Study (AusDiab). Med J Aust 2003, 178:427-432.

[8] Ching PL et al. Activity level and risk of overweight in male health professionals. American Journal of Public Health 1996, 86(1):25.

[9] Levine JA: Non-exercise activity thermogenesis - liberating the life-force. J Intern Med 2007, 262:273-287.

[10] Hamilton MT, Hamilton DG, Zderic TW. Role of low energy expenditure and sitting in obesity, metabolic syndrome, type 2 diabetes, and cardiovascular disease. Diabetes 2007, 56(11):2655-2667.

[11] Pyle SA et al. Fighting an epidemic: The role of schools in reducing childhood obesity. Psychology in the Schools 2006; 43(3): 361-376.

[12] Swallen KC et al. Overweight, Obesity and health related quality of life among adolescents: The national longitudinal study of adolescent health. Pediatrics 2005; 115:340-347.

[13] World Health Organization(2010). Global Strategy on Diet, Physical Activity and Health: Obesity and overweight facts.

[14] Stunkard AJ, Sorenson TIA. Obesity and socioeconomic status – a complex relation. New Eng J Med 1993; 329: 1036-1037.

[15] Paeratakul S et al. The relation of gender, race and socioeconomic status to obesity and obesity co-morbidities in a sample of US adults. International Journal of Obesity 2002; 26: 1205-1210.

[16] RJ.F.Loos,C Bouchard.Obesity—is it a genetic disorder?(Review).J.Inter Med.Oct 2003;254:401-425

[17] Jansen et al. Comparison of overweight and obesity prevalence in school-aged youth from 34 countries and their relationships with physical activity and dietary patterns. Obes Rev2005 May;6(2):123-132

[18] Banks et al. Relationship of obesity to physical activity, domestic activities, and sedentary behaviors: cross-sectional findings from a national cohort of over 70,000 Thai adults. BMC Public Health 2011, 11:762

[19] Proper et al. Sitting time and socioeconomic differences in overweight and obesity. International Journal of Obesity 2007; 31(1): 169-176

[20] La Torre G et al. Extra-curricular physical activity and socioeconomic status in Italian adolescents. BMC Public Health 2006; 6:22

[21] Wardle J, Steptoe E. Socioeconomic differences in attitudes and beliefs about healthy lifestyles. Journal of Epidemiology and Community Health 2003; 57(6): 440-443.

[22] Ball K, Crawford D. Socioeconomic status and weight change in adults. A review. Social Science & Medicine 2005; 60(9):1987-2010