RISK FACTORS OF OVERWEIGHT AND OBESITY AMONG FEMALES OF BAHAWALPUR CITY

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ABSTRACT

Background: Obesity specially among females is on rise and results in different chronic diseases. **Objective:** To assess the prevalence and risk factors for obesity in adult female population of Bahawalpur city. **Material and Methods:** Study design: Cross sectional, descriptive study. Place and Duration**:** Satellite Town, Bahawalpur from 1st September, 2012 to 31st March 2013. On the basis of obesity prevalence of 35-40% among females, sample size of 400 was calculated, with 5% margin of error and at 95% confidence interval. The study subjects included 15-64 years aged females and were selected by simple random method. Data was collected by face to face interview using a structured questionnaire and analyzed by using SPSS version 17. **Results:** Out of total 400 females, 48% were obese and highest level of obesity was found in 26-35 year age group. Significant association was found between walk ($p<0.001$), work out ($p<0.001$), calories consciousness ($p<0.05$) and BMI. **Conclusion**: It is the time to educate the people on healthy life style especially about different types of foods, calorie awareness and importance of physical activity to maintain the weight within normal limits.

Key words: BMI, Physical Activity, Calorie conscious, Obesity, Females

INTRODUCTION

Obesity is one of the serious but neglected public health problems of 21st century in many parts of the world.[1] It is the most prevalent nutritional disorder among all age groups and is on rise among adults, especially the women in both developed and developing countries.[2] Being a developing country, Pakistan faces a double burden of communicable and non-communicable diseases. A major risk factor for the rising epidemic of cardiovascular diseases and diabetes mellitus is obesity.[3] World Health Organization uses BMI calculated as kg/m^2, and it defines obesity as BMI above 30 and overweight, as BMI above 25, the Indo-Asian specific definition of obesity is set as, BMI above 27 and overweight as BMI above 23.[4] According to this definition there are more than one billion overweight people (BMI >25) in the world and about 2.5 million deaths annually are attributed to overweight/obesity worldwide.[5]

Usually obesity occurs when intake of calories is more than burn through normal daily activities and exercise. Body stores extra calories as fat. So decline in physical activity, changing dietary patterns, sedentary life styles, social and economic factors, some medical problems and as well as, few medications are believed to contribute the world wide epidemic of obesity among both adults and children.[6,7]

Obesity can have adverse impact on health at each stage of women's life cycle and marked impacts on life expectancy and fertility. This study was conducted to determine the prevalence and risk factors associated with obesity among adult females.

MATERIAL AND METHODS

It was a cross sectional, descriptive study, conducted from 1st September, 2012 to 31st March, 2013. The study was conducted in city area of Satellite Town, Bahawalpur. The population included in the study comprised of non-pregnant adult women, aged 15-64 years. Total population residing in the selected area (Satellite Town) was 120, 462 according to the data provided by Bureau of statistics Bahawalpur Division. A list of all women 15-64 years residing in Satellite town, Bahawalpur was obtained from LHWs of that area and used as sampling frame to select the sample of 400 women by using the simple random method.

Expecting the female obesity prevalence of 35-40%,[8] in a population of 68,231 with the margin of error of 5%, at 95% confidence level, calculated sample size was 386, to remove the 5% response error the total sample was taken as 400.

All females of 15-64 years age residing in the study

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area, were included in study, whereas exclusion criteria was, all pregnant females and upto three months of delivery, women suffering from chronic debilitating disease like tuberculosis, carcinoma, renal failure, hepatic failure and stroke or on steroid therapy and guests. A preformed, pretested questionnaire was used to interview all the respondents included in the study. Weighing machine for measurement of weight, measuring tape for height measurement was used BMI, physical activity and socio economic status was also noted. BMI was calculated by using formula, weight in kg/ height in meter^2 and categorized as BMI of 20-24.9 as Normal, 25-29.9 as Overweight and >30 as Obesity.

Respondents were categorized into three socioeconomic groups according to their per month family income in rupees < 25,000 as Low, 25,000-50,000 as middle and > 50,000 upper social class. Respondents were asked about different eating habits, meals per day, frequency of taking meat, fruit, soft drink, fried food, sweets and chocolates, salad as part of their meal and calories consciousness in taking meal. Caloric Consciousness was assessed by perception of person regarding intake of food calories as per her requirement according to age and physical work, and categorized as: Not at all, never think about the calories and kind of the food. To some extent, only avoid sugar, chocolates and baked product. To great extent, takes low calories food and avoid soft drinks, sugar, chocolates, baked products and fried foods. Meals per day, in addition to three regular meals (breakfast, lunch, or dinner) more than two snaking with burgers and baked food in between two regular meals was considered as an extra meal, and categorized as; Daily, use daily one extra meal per day. Occasionally, 3 days in a week, one extra meal per day. Often, more than 3 days in a week, one extra meal per day. Physical activity was assessed by walk and exercise; Walk, at least 30 minutes in a day and five times a week. Exercise, 20 minutes or more work out daily and five times a week. Data was entered and analyzed using SPSS version 17. Chi square test was applied as a test of significance using level of significance as 5%.

RESULTS

In our study, BMI of 52% females was found normal and 48% population was having BMI more than normal among these 67% were overweight and 33% obese. (Table I)

Table I: Number of respondents according to BMI

BMI	No. (%age)
<25	208 (52)
25-29.9	128 (32)
≥30	64 (16)
Total	400 (100)

Table II: Number of respondents according to their BMI and economic status

Economic status	<25	>25	Total
	No (%age)	No (% age)	No. (%age)
Low	64 (30.8)	32 (16.6)	96 (24)
Middle	56 (26.9)	80 (41.7)	136 (34)
Upper	88 (42.3)	80 (41.7)	168 (42)
Total	208 (100)	192 (100)	400 (100)

(Not Significant)

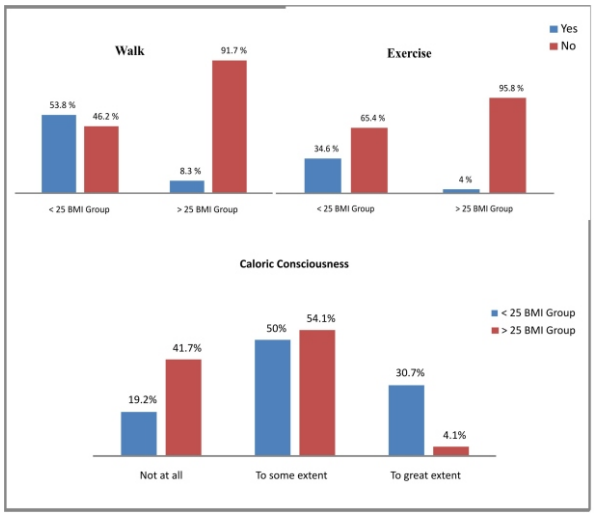
In our study, females having BMI above the normal, 16.6% were of lower socioeconomic status, 41.7% belonged to middle and 41.7% of upper class. (Table II)

Table III: Number of respondents according to their BMI and eating habits (multiple responses)

Items	BMI≥25			BMI<25		
	Daily	Often	Occasionally	Daily	Often	Occasionally
	No (%age)	No (%age)	No (%age)	No (%age)	No (%age)	No (%age)
Meat	104 (54)	56 (29)	32 (17)	24 (11.5)	64 (30.7)	120 (57.6)
Fruit	72 (37.5)	24 (12.5)	96 (50)	120 (57.6)	32 (15.3)	56 (26.9)
Soft Drinks	132 (68.7)	24 (12.5)	36 (18.7)	24 (11.5)	16 (7.6)	168 (80.7)
Fried food	136 (70.9)	48 (25)	8 (4.1)	24 (11.5)	32 (15.3)	152 (73)
Baked food	136 (70.8)	42 (21.8)	14 (7.2)	24 (11.5)	30 (14.4)	154 (74)
Sweets & chocolates	168 (87.9)	24 (12.5)	0 (0)	8 (3.8)	24 (11.5)	176 (84.6)
Salad	44 (22.9)	16 (8.3)	132 (68.7)	160 (69)	34 (16.3)	14 (6.7)

Our study results revealed that 75% out of females having BMI more than normal were taking 4 or more than 4 meals per day. Our study showed that daily consumption of soft drinks, fried food, sweets & chocolates and baked food was 69%, 71%, 87% and 71% respectively in the females having BMI ≥ 25 as compared to 11%, 11%, 4% and 11% respectively in the females with BMI <25 (Table III). Study results revealed that 53.8% of the females from group having BMI>25 gave the history of walk as compared to 8.3% in the <25 BMI group. It was found that 65.4% of the females from group having BMI < 25 were not in the habit of exercise as compared to 95.8% in the group having BMI ≥ 25. (Fig. I) According to the study in females having BMI ≥ 25, 4.1% were caloric conscious as compared to 30.7% in the group having BMI < 25 (Figure I).

Figure I: Figure showing walk, exercise and caloric consciousness among study subjects



DISCUSSION

According to their BMI 48% of the respondents in our study were overweight or obese, this prevalence of obesity is more as compared to study done by D J Nanan, in Karachi, which revealed the prevalence of obesity (BMI > 25) was 37% and 40% in urban women of 25-44 years and 45-64 years age respectively.[9] It may be due to less awareness regarding caloric requirement, different nutrients and their caloric value and different taboos etc. In another study, done by Tazeen H Jafer et al, the prevalence of overweight and obesity, weighted to the general Pakistani population was found 25% which was also less than prevalence revealed in our study.[10] However, in contrast to these findings, 66.8% adult female population was found overweight and obese in a study done by Gity Sotoudeh et al.[11]

Our study found no association between socioeconomic status and obesity which contradicts the finding revealed in the study, where socioeconomic status was independently significantly associated with overweight and obesity,[10] the similar results were found in another study done by Grace A Shayo, where obesity was significantly more prominent in women with high socioeconomic status as compared to those with middle and low socioeconomic status.[5] This contradictory result of our study can be explained in the light of the findings by another study done by Mobada CE et al, which concluded that relationship between socioeconomic status and obesity is inconsistent and controversial in the developing world.[12]

Our study revealed the significant relationship ($p<0.001$) between walk, physical activity and overweight or obesity. More than 90% of the respondents in the overweight/obese group were not doing any type of physical activity to burn their calories; these results were found consistent with another study.[13]

No association was observed between the weight and meals per day. Majority of overweight in the study took 3 meals per day; results were matching with another study, which showed that women subjects who took 2-3 meals per day showed greater body mass indices and a greater proportion were overweight/obese compared to those who took 4-5 meals per day.[14]

Our study revealed that consumption of take away foods (baked food, fried food, sweets & chocolates and soft drinks) was more in group with BMI ≥25 as compared to those with BMI < 25. Similar findings were reflected in a study done by Kyle J Smith et al, where consuming take away food twice a week or more was associated with a 31% higher prevalence of moderate obesity in men.[15]

CONCLUSION

In study population over weight and obese people are more, which may reflect the general trend of weight gain in female population in Bahawalpur City. For healthy life style, avoidance of junk food, fried & baked food and sweets are advised along with the advice of physical exercise and regular walk. So there is a great need of health education of the population for the control of their weight. It is time that they must become calorie conscious and encouraged to develop the habit of physical exercise for the prevention of many non-communicable diseases.

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