

PREVALENCE OF OVERWEIGHT AND OBESITY IN HEALTH EMPLOYEES

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ABSTRACT

Background: Obesity is a common health problem worldwide and associated with many comorbidities and health problems. This study was conducted to know the frequency of overweight and obesity in teaching hospitals and medical college staff of Bannu.

Material and Methods: This cross sectional study was carried out in Department of Cardiology, Bannu Medical College, Bannu from 1st September 2011 to 31st October 2011. All the staff of hospitals and college was eligible for study except pregnant ladies. Data was obtained through questionnaire and measurement of height and weight. Data was analyzed for frequency and relative frequency.

Results: 86 males and 14 females were included. Based on BMI, 22% were obese, 38% overweight, 34% normal and 6% were underweight. Out of 22 who were obese, 11 (50.00%) were among the teaching staff, five (22.73%) administrative staff, three (13.64%) paramedical staff and three (13.64%) were support staff. Ten (45.5%) of obese subjects were having age more than 50 years, 7 (31.8%) were in age group between 36-50 years and 5 (22.7%) were in age group between 21-35 years. Among 22 obese, 18 (81.82%) were male and 4 (18.18%) were female. The frequency of hypertension in 22 obese subjects was 3 (13.64%), while in 78 non obese, it was 3 (3.84%). The prevalence of diabetes was 3 (13.64%) in 22 obese and 4 (5.13%) in 78 non obese.

Conclusion: One in every 5 people was obese. There is an alarming rate of obesity among the population of Bannu Medical College & its allied hospitals in Bannu.

KEY WORDS: Obesity, Overweight, Diabetes mellitus.

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INTRODUCTION

World Health Organization (WHO) has called the worldwide rise in obesity a global epidemic. With excess body weight comes the risk of long-term health consequences.¹ Overweight and obesity is associated with the morbidity and mortality of many health conditions, such as coronary artery diseases, Type 2 diabetes, gall bladder disease, ischemic stroke, osteoporosis, sleep apnea and some types of cancers.

Overweight and obesity are the fifth leading risk for global deaths. At least 2.8 million adults die each year as a result of being overweight or obese. In addition, 44% of the diabetes burden, 23% of the ischemic heart disease burden and between 7% and 41% of certain cancer burdens are attributable to

overweight and obesity. Obesity is associated with a substantial reduction in life expectancy. Recent data from the United States suggest that a severe level of obesity (BMI > 45) during early adulthood (aged 20–30 years) may reduce a man's life expectancy by up to 13 years and a woman's by up to 8 years.²

While many factors influence excess body weight at a basic level, overweight and obesity results from a sustained energy imbalance. This occurs when energy intake from the diet exceeds energy expenditure from physical activity and metabolic processes over a considerable period. Even a slight imbalance over the long term can result in increased weight. The result of excess energy intake relative to energy expenditure is the storage of unused energy as body fat.³

Overall or total adiposity is most commonly measured using the Body Mass Index (BMI). This is an index of a person's weight relative to their height, and is considered to be a reasonable reflection of overall body fat for most people. BMI is not gender-

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specific. It is calculated as a person's weight in kilograms divided by the square of their height in meters. BMI does not directly measure percentage of body fat, but it provides a more accurate measure of overweight and obesity than relying on weight alone.⁴

The WHO has defined categories of BMI based on evidence of increased risk of chronic disease and mortality.¹ This classification is used for people aged 18 years and over, and is not suitable for children and adolescents. According to this classification a BMI of 18.5-24.9 is considered normal, 25 or more overweight, and 30 or more as obese. Although obesity and high BP are both disorders/conditions in their own right, studies have shown that there is a strong and close relationship between the two.⁵ Blood pressure increases as BMI increases and people who are obese have been found to have a much higher prevalence of high BP.⁶ There is good evidence of an association between excess body weight and higher TC and LDL cholesterol levels and lower HDL cholesterol levels body weight and TG levels⁷ and to diabetes mellitus.⁸ This has been a consistent finding across a range of prospective studies.⁹ In our study we considered only association of diabetes with obesity which is indirectly related to dyslipidemia.

The objectives of this study were to determine the frequency of overweight and obesity, to determine the frequency of hypertension and to determine the frequency of diabetes mellitus in the sample population of teaching hospitals and medical college staff of Bannu.

MATERIAL AND METHODS

This cross sectional study was carried out in Department of Cardiology, Bannu Medical College, Bannu from 1st September to 31st October 2011. Sampling technique was purposive non probability sampling. Using WHO software for sample size calculation, the needed sample size was 78 for anticipated prevalence of 51%¹⁰ with 6% margin of error and 95% C.I (confidence interval). A sample of 100 employees was collected from Khalifa Gul Nawaz Teaching Hospital, District Head Quarter Hospital and Women and Children Hospital and Bannu Medical College, Bannu. All the college and three hospitals staff were eligible for the study except pregnant women. Data was obtained through questionnaire and measurement of height & weight. BMI was calculated from height and weight. WHO classification

of BMI in Kg/m² of 18.5-24.9 as normal, 25 or more overweight, and 30 or more as obese was used.¹ Gender and age group were demographic variables. Height in cm, weight in kg, Fasting Blood sugar, systemic arterial blood pressure and BMI in Kg/m² were research variables. Age grouping was as: 21-35 years, 36-50 years and more than 50 years. (JNC 7 definition of hypertension was used which apply for all the above age groups. BP of 140/90 and above was considered as hypertensive. FBS of 126 mg/dl or RBS of 160 mg/dl or above or persons having history of diabetes or using oral hypoglycemic or insulin were considered as diabetics.

Data was analyzed using SPSS 14 (SPSS, Inc., Illinois, USA) and was presented as frequencies (numbers) relative frequencies (percentages).

RESULTS

A total of 100 subjects were studied including 86 males and 14 females. Based on BMI, 22% were obese, 38% overweight, 34% normal and 6% were underweight. Out of 22 who were obese, 11 (50.00%) were among the teaching staff, five (22.72%) administrative staff, three (13.64%) paramedical staff and three (13.64%) were support staff as in table 1.

Ten (45.5%) of obese subjects were having age more than 50 years, 7 (31.8%) were in age group between 36-50 years and 5 (22.7%) were in age group between 21-35 years. Among 22 obese, 18 (81.82%) were male and 4 (18.18%) were female. The frequency of hypertension in 22 obese subjects was 3 (13.64%), while in 78 non obese, it was 3 (3.84%). (Figure 1)

The combined prevalence of obesity and overweight in subjects who were taking regular exercise of 30 min or more was lower than those who were not taking regular exercise i.e. 40% v 60%.

Table 1: Frequency of Obesity in different groups of employees.

Strata	Frequency (number)	Relative Frequency (%)
Teaching staff	11	50.00%
Administrative staff	5	22.72%
Paramedics	3	13.64%
Support staff	3	13.64%
Total	22	100%

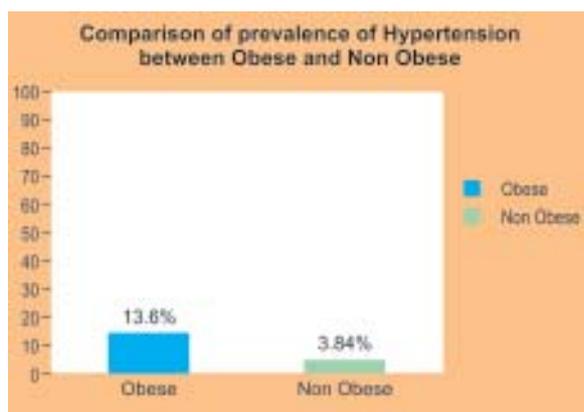


Figure 1: Comparison of Hypertension between 22 Obese and 78 Non Obese subjects.

Similarly the prevalence of diabetes was 3 (13.64%) in 22 obese and 4 (5.13%) in 78 non obese. (Figure 2)

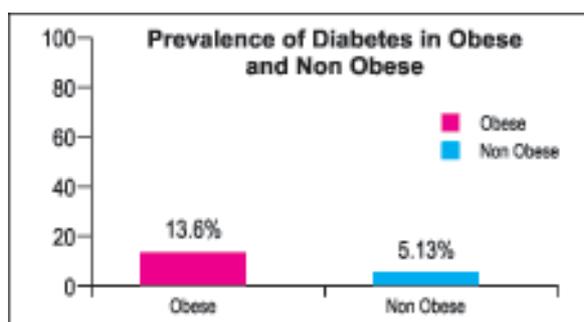


Figure 2: Comparison of Diabetes in 22 Obese and 78 Non Obese subjects.

DISCUSSION

Obesity is a growing epidemic that affects women more often than men. The prevalence of overweight and obesity in the United States has reached the point where it is more common than a normal body weight. The combined prevalence of overweight and obesity in women over the age of twenty years is about 51% which does not support our study because we have 28% obesity in our local female population but as a whole we have 60% prevalence of obesity and overweight.¹⁰ Prevalence of overweight in our study was 38%. Obesity is regarded as the most preventable cause of morbidity and mortality, primarily because of the links to hypertension, coronary artery disease, stroke and diabetes.¹¹ In our study the prevalence of diabetes and hypertension was 13.64% each, which in comparison to the series of Hajjar I, and colleagues and another Asian study is very much lower, who found 30% prevalence of hypertension in obese and overweight patients.^{12,13} This big difference may be due

to diet and exercise effect to which these people are used to, because most people in this remote area use their legs instead of vehicles for local routine distance coverage. Studies suggest that people who are more than 20% overweight have prevalence of hyperlipidemia, hypertension, diabetes and chest diseases that are between 1.5 and 3.5 times higher than those people whose weight is normal.¹⁴ In our study the hypertension was 3.5 times more common in obese than non obese and diabetes 2.65 times more common almost similar to other studies. But we did not look into association of obesity with other comorbidities like hyperlipidemia as compared to other studies (study limitation)

Some studies even from European countries have lower prevalence of 8% than our series but in that study more people were in younger age group as compared to our study population.¹⁵ In a Prevalence Survey of obesity in Australia, it was found that there is strong association between obesity and diabetes in which they found 44.4% diabetics in obese people which does not support our data being on the very lower side in comparison to this survey.¹⁶ The mechanisms underlying these associations are complex and are likely to be interrelated. Obesity for instance, is associated with insulin resistance and hyperinsulinemia, important features of type 2 diabetes mellitus. It has been speculated that excess of insulin in obese people, in turn may play a role in the retention of sodium, expansion of blood volume, production of excess nor epinephrine, and smooth muscle proliferation that are the hallmarks of hypertension. The prevalence of diabetes and hypertension is three times higher in overweight adults than in those of normal weight.¹⁰

Age wise distribution of obesity and overweight in our study is similar to international research, having patients usually more than 20 years of age but in other studies high prevalence has been found in children also.¹⁷ In our series obesity and overweight was lower (41%) in people taking regular exercise for more than 30 minutes daily as compared to (76%) in those having no time for exercise. This observation in our study is strongly supported by the Nurse's Health Study, documented a lower incidence of obesity and cardiovascular disease, including both coronary heart disease and stroke in people who were taking regular exercise for at least thirty minutes daily for long periods. The recommendation for aerobic activity is thirty minutes on most, if not all, days of the week. This is the minimum recommendation those wishing to lose weight should aim to exceed this. The patient should be advised to gradually increase her energy expenditure through changes to her daily routine (e.g., climbing stairs rather than riding the elevator, parking farther from a destination if safe) and the incorporation of regular exercise likely to be continued

over the long-term.¹⁸

Obesity is associated with so many diseases but we were not aimed to study these associations in our present study. It needs more research in the local set up to go into the depth of obesity and related problems.

CONCLUSION

One in every 5 people was obese. This is an alarming rate of obesity among the population of Bannu Medical College & its allied hospitals in Bannu.

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CONFLICT OF INTEREST
Authors declare no conflict of interest
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