

FREQUENCY OF OBESITY AND ITS RELATION WITH PHYSICAL ACTIVITY

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ABSTRACT

Objectives: To find the prevalence of obesity among the adult male population and to assess the relation of obesity with physical activity.

Materials and Methods: A cross-sectional study design was conducted from March 2013 to September 2013, in the four union councils of District Charsadda. The sample size was 400 according to WHO sample size calculation with 50% prevalence, 95% confidence interval and 5% precision. Adult males of age group 20-60 years were included in the study while male age either less than 20 or more than were excluded from the study population. A multistage sampling technique was followed in which initially the main city of District Charsadda was divided into clusters on the basis of union councils and then from these by simple random method four union councils were selected. A pretested structured questionnaire was used for data collection of various variables like age, occupation, average daily food intake, moderate to severe physical activity causing calories burn. Height and weight were measured and Body Mass Index was calculated for each of the individual by means of standard measuring protocols. Data analysis and interpretation were done using Statistical Package for Social Sciences and Microsoft Excel software programs and results were evaluated in the light of the proposed hypothesis and presented in forms of frequency and percentage.

Results: Our study results showed 20% prevalence of obesity. The average calories intake per person was more in approximately 75% of the study population. The average calories burns per day were 1442.85 calories which were less as compared to international food guidelines. Among the obese, 95% had decreased physical activity and more calories intake as compared to normal non obese men. Our results showed that decreased physical activity/ sedentary life style showed positive correlation with obesity.

Conclusion: Obesity in adult male was positively associated with sedentary lifestyles, high caloric intake, and reduce physical activity.

Key Words: Prevalence, Obesity, Body, Mass Index, Physical Activity, Sedentary, Life Style.

INTRODUCTION

Obesity is one of the major nutritional problems all over the world and recently its prevalence is increasing in developing countries^{1,2}. Obesity has become an emerging public health problem around the globe in developed and developing countries. It is a well-recognized health concern in industrialized countries and affluent societies. Globally the prevalence of obesity is increasing worldwide³. Obesity has acquired the status of a global epidemic and more than 320 million are calculated to be obese worldwide every year. More than 2.5 million deaths each year are attributed to obesity, an alarming figure which is

expected to double by the year 2030. In the current world different research studies confirmed a strong inverse relationship between obesity incidence and personnel physical activity. Obesity is one of the most common contributing factors to the development of non communicable diseases⁴. Obesity increased with age and the highest prevalence rates of obesity was estimated in the middle age group⁵. In the last two decades, the prevalence of obesity in developed countries has more than doubled⁶. The prevalence of obesity of 20-30 years age almost doubled in the next decade of age and attained the highest value in the age-range of 50 & above year's group⁷.

Modern world is facing two major lifestyle-related epidemics that are intricately linked: an epidemic of obesity and an epidemic of inactivity. Increased physical activity lowers the risk of obesity whereas less than 60 min/day moderate to vigorous physical activity were associated with obesity^{8,9,10}. The lack of physical activity is a risk factor for obesity, while obesity reduce

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the likelihood of participating in physical activity^{11,12}. A very high proportion (84%) spent more than 2 hours in front of screens daily and almost 50% did not meet the daily physical activity guidelines mentioned by Center of Disease Control, USA¹³. Physical activity is important for achieving proper energy balance and has also been strongly associated with obesity^{14,15}. Physical activity levels were very low when compared to recommended levels, while the prevalence of obesity and sedentary life were high¹⁶. Physical activity that expends 1500 to 2000 kcal/day appears to be adequate⁸.

The major reason is attributed towards the eating, living and social habits of the people, which is responsible for high prevalence of obesity both in the developed and developing countries. Modern research studies showed that 60 to 90 minutes per day of moderate to severe or intensive physical activity was necessary to maintain a significant weight and to avoid obesity and its associated complications in adult and old ages. Pakistan also suffers from the problem of obesity and is attributed to decrease physical activity. The prevalence of obesity is on rise in the rural and urban communities of Pakistan and if not corrected and prevented effectively in near time might increase the national burden of non communicable diseases. So this cross sectional study was conducted to find the prevalence of obesity and to estimate the association between obesity, caloric diet and with physical activity.

MATERIAL AND METHODS

A cross sectional comparative study was carried out among male population of age ranges from 20 to 60 years in main city of District Charsadda, Khyber Pakhtunkhwa, Pakistan; between March and September 2013. The sample size was 400 calculated according to the WHO formula with 95% confidence interval, 50% prevalence and with 5% precision. Male with age ranges between 20-60 years were included in the study while female, migrants and those having pathological conditions were excluded from the study population. A multistage sampling technique was followed in which initially the whole District Charsadda was divided into clusters on the basis of union councils and then on the basis of simple random technique 100 individuals were selected from each of the union council. A detailed pretested medium sized structured questionnaire was used to collect relevant data for example age, average calorie intake, physical activity and occupation etc. by visiting local community, offices, schools and shops. Height and weight were measured and body mass index was calculated by means of standard protocols of Body Mass Index calculation. According to the Center of Disease Control, USA; if people burn less than 16,100 calories were labeled as having decreased physical activity and those burning more were labeled as having normal physical activity. The average daily calories intake and burned were calculated for each of the individual by means of pretested structured questionnaire. Statistical Package for Social Sciences (SPSS) version 16 and Microsoft Excel (MS Excel)

software programs were used for data entry, analysis, interpretation and presentation of data. Continuous variables were analyzed using mean and categorical variables were analyzed using percentages.

RESULTS

Our study results showed that 36% of the study population was less than 40 years of age while 64% were above 40 years. The age distribution of the study area population n = 400 is shown in Table 1. From the results of our study the prevalence of obese population was approximately 20%. The frequency and percentage of obese and non obese are shown in Table 2. Interestingly in our study results, among the obese population there were more prevalence of high caloric food intake, sedentary life style and reduce physical activity. The relationship of Obesity and physical activity as assessed in our study is shown in Table 3.

DISCUSSIONS

Obesity is one of the most common contributing factors to the development of non communicable diseases⁴. The prevalence of obesity in developed as well in developing countries is on rise⁶.

According to our study results, the prevalence of obesity in adult men belonging to different classes and sectors was 19.75% (n=79) while in international

Table 1: Age Distribution of the Study Population (n = 400)

S. No.	Age	Frequency & %age	
1	20-30 Years	63(15.75%)	
2	30-40 Years	81(20.25%)	
3	40-50 Years	117(29.25%)	
4	50 & above Years	139	34.75%
Total		400	

Table 2: Frequency & Percentage of Obese and Non Obese (n = 400)

S. No.	Findings	Frequency & %age	
1	Obese	79(19.75%)	
2	Non-Obese	321(80.25%)	
Total		400	

Table 3: Relationship of Obesity with Physical Activity (n = 400)

Physical Activity	Obese	Not Obese	Chi-Square value	P value
Decreased PA	75 (21.55%)	273 (78.45%)	4.97	< 0.05
Normal PA	4 (7.69%)	48 (92.31%)		

research studies the prevalence calculated was 8% and 26.6%^{7,17}. This showed that the prevalence of obesity was high in our study population as compared to developed countries. Our study results showed that majority of males are below 45 years of age making 56% of our study population while the remaining 44% are above 45 years of age. Result analysis revealed that obesity is more prevalent above 40 years of age and is calculated to be 63% while the percentage of obesity below 40 years of age is 37% as were estimated previously^{3,5}. Our results also show that obesity is least prevalent in the younger age groups as compared to above 40 years of age groups⁷. As investigated in the national and international research studies the obesity increased with age and the highest obesity prevalence was estimated in middle age groups⁵ and the prevalence of obesity between 20 to 30 years age almost doubled and tripled in the next decades of age and had attained the highest value in age ranges 50 years and above⁷.

The average physical activity and calories burn per day was about 1442.85 calories which showed a marked decrease amount while the estimated amount required to be burned as given by the Center for Disease Control (CDC), USA is 2200-2400 calories per day¹⁰ and this might be the reason responsible for high prevalence of obesity in our study population. Among obese people, 95% had decreased physical activity and thus reveals strong relationship between physical activity and obesity prevalence^{13,14}. Based on the relationship between obesity and reduce physical activity it was analyzed and interpreted that the odds of obesity was 3.5 times among the obese population then the active life style activities. According to the Center for Disease Control (CDC), obesity results from energy imbalance either by consuming too much calories or not getting enough physical activity, and thus the findings of our study supported and confirmed that sedentary life style, decreased physical activity, and high caloric intake showed positive association with obesity prevalence^{15,16,17}.

CONCLUSION & RECOMMENDATIONS

The high caloric intake, sedentary life style practices and reduce physical activity poses significant risk of obesity and thus it is recommended that a balanced diet, moderate physical activity and healthy life style activities be promoted among the communities, and awareness be created among people regarding prevention and control of obesity and its complications through mass media campaigns.

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