ROLE OF DIET IN DEVELOPMENT OF OBESITY

Zia Ur Rehman[1], Muhammad Ishtiaq[2], Hamid Hussain[3], Sara Gul[2], Muhammad Amjad[1], Bushra Iftikhar[1]

[1]Department of Community Medicine, Khyber Medical College, Peshawar - Pakistan

[2]Department of Community Medicine, Pak International Medical College, Hayatabad, Peshawar - Pakistan

[3]Institute of Public Health, Khyber Medical University, Peshawar - Pakistan

ABSTRACT

Objective: To find the prevalence of obesity and to assess relationship of obesity with diet activity among men in main city of District Charsadda.

Material and Methods: The study was conducted from March to September 2013. Four hundred males of age group 20-65 years were selected from main Charsadda City by multistage sampling. Data was collected for age, diet history, and then height and weight were measured and BMI was calculated using structured questionnaires. Analysis was done using SPSS program and results were evaluated in the light of research objectives.

Results: Results showed that there is 20% obesity in our study area, showing 37% prevalence below 40 years and 63% above 40 years age among men. The average caloric intake per week and per day was 22016 and 3145.15 calories respectively; among the obese, 84% of men had high caloric intake whereas 95% of obese men had decreased physical activity as compared to normal men in the study population.

Conclusion: The high caloric intake showed positive correlation with obesity.

Key Words: Prevalence; Obesity; Diet; sedentary life style.

INTRODUCTION

Obesity is a global epidemic both in developed and developing countries[1,2]. Obesity has become a drastic problem all over the globe. As more and more countries embrace indoor lifestyles and western eating habits, the number of obese people is increasing day by day. Obesity has acquired the status of a global epidemic and more than 320 million are calculated to be obese. More than 2.5 million deaths each year are attributed to obesity, a figure is expected to double by 2030. The prevalence of obesity is increasing day by day and is a well-recognized and common public health hazard in affluent societies[3,4].

Obesity has strong relation with lifestyle and behaviors. It is one of the most common contributing factors to the development of the hypertension, diabetes mellitus, coronary heart disease, hyperlipidemia, hyperthyroidism, arthritis, gall bladder diseases etc[1,5]. Obesity is considered to be the second leading cause of death after cigarette smoking. The major reasons are attributed towards the unhealthy eating, sedentary type of living and social habits of the people, which is responsible for high levels of obesity[6,7].

Previous studies showed low obesity prevalence i.e. 2.5%. The prevalence of obesity was higher in urban residents than in rural and is due to urbanization and migration in industrialized countries[4,8]. Obesity increased with age and the highest prevalence rates of obesity was estimated in the middle age group[3,9]. Over the last decade, the prevalence of obesity in developed countries has more than doubled[10]. The obesity prevalence of 18-29 years almost doubled in the next decade of age and attained the highest value in the age-range of 50 and above year's group[11].

There is a strong relation between dietary intake, sedentary behavior and obesity[12]. Sedentary behavior appears to be clearly associated with elements of a less healthy diet including lower fruit and vegetable consumption; higher consumption of energy-dense snacks, drinks & fast foods; and higher total energy intake[13,14].

Obesity is one of the major nutritional problems all over the world and recently its prevalence is increasing in developing countries. Pakistan also suffers from the problem of obesity and it is on rise in Pakistan and if it is not corrected in time may lead to epidemic thus this cross-sectional study was conducted to find the prevalence and association of obesity with diet among men of district Charsadda.

Address for Correspondence:
Dr. Muhammad Ishtiaq
Assistant Professor
Department of Community Medicine,
Pak International Medical College,
Peshawar - Pakistan
Cell: 0334-9121822
Email: drishtiaq250@yahoo.com

MATERIAL AND MATHODS

A descriptive cross sectional comparative study was carried out among males in District Charsadda from March 2013 to September 2013. The sample size was 400, according to WHO formula with 95% confidence interval and 50% prevalence. Individuals with age range 20-65 years were selected by simple random method after cluster sampling of the union councils of the Charsadda city. Detailed structured questionnaire was used to collect relevant information i.e. age, sex, diet, and then height and weight were measured according to standard protocol. After that the average weekly caloric intake and average weekly calories burned were collected from the individuals by visiting offices, schools and shops. Then data was entered, processed, analyzed and presented in the form of tables and graphs. The selected men were divided into 2 categories of BMI i.e. less than 27 (Not Obese), and more than 27 (Obese).

According to the Center of Disease Control, USA an adult man age group between 19 and 30 should consume 2,400 calories daily and those between 31 and 50 should consume 2,200 calories i.e. 2,300 calories per day and 16,100 calories on weekly basis. The main study limitations were non-cooperation of the individuals selected in the study, transport problems and security problems of the study area.

RESULTS

The age distribution of the study population n = 400 is shown in Table 1. The percentage of obese and non obese is shown in Figure 1. The frequency and percentage of dietary intake of individuals having obesity and No obesity is shown in Table 2.

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

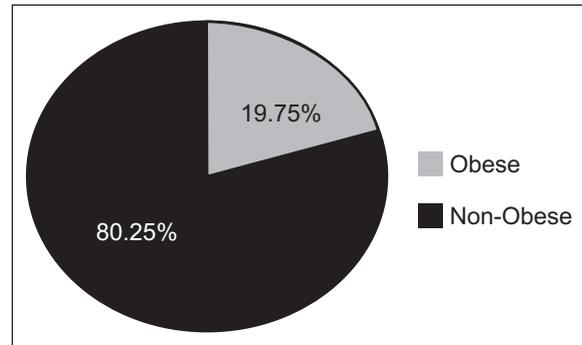| S. No.	Age in years	Frequency & %age
1.	20-30	63(15.75%)
2.	30-40	81(20.25%)
3.	40-50	117(29.25%)
4.	50 & above	139(34.75%)
Total		400

Figure 1: Percentage of Obese & Non Obese (n = 400)

DISCUSSIONS

According to our study results, the prevalence of obesity in men belonging to different classes was 20% while in other research studies the prevalence calculated was 8% and 26.6%[11,15]. The reason for high prevalence of obesity as compared to previous studies was attributed to the fact of strictly following the inclusion and exclusion criteria in order to minimize the bias.

The study result analysis revealed that obesity is more prevalent among men above 40 years of age and is calculated to be 63% while the percentage of obesity in men below 40 years of age is 37% as were estimated previously[3,9]. Our results also show that obesity is least prevalent in the younger age groups as compared to above 40 years of age groups[7,11].

In our study we also observed a positive association between obesity and diet as studied previously[1]. The average caloric intake calculated per week and per day was 22016 and 3145.15 calories respectively, which far surpasses the value assigned for adult men by the Daily Food Guide, i.e. 2570 calories per day. Our study shows that there is an increased dietary intake among males and this seems to have a direct impact upon the increase in the prevalence of obesity as reported previously.

According to our study, about 71% of the study population has high caloric food intake while 29% has normal or less than the recommended caloric intake. 84% of the obese individuals took a high calorie diet, corroborating the positive relationship of diet with obesity and according to our reports, there is a 2.5 (two and half) fold chance of BMI increased with increase caloric

Table No. 2: Relationship of Obesity with Diet (n=400)

S. No.	Findings	Obese	%age of Obesity	Not Obese	%age of Non-Obese	Total
1	Increased Diet	66	23.24%	218	76.76%	284
2	Normal Diet	13	11.21%	103	88.79%	116
	Total	79	20%	321	80%	400

Odd Ratio = 2.446 ~ 2.5.

The Pearson Chi-Square value = 7.589. (more than the table value)

diet[2]. The study results showed odd ratio of 2.446 or 2.5; which indicates that the odds of having increase caloric diet has 2.5 times greater/more chances to be obese, than those having normal diet. The Pearson Chi-Square test value calculated was 7.589 with 1 Degree of Freedom (D.F) and 0.002 P-value; which is more that the Critical Value (Table Value) and thus we conclude that there is positive association between obesity and increased diet.

CONCLUSION

High Caloric intake is a major risks factor for Obesity.

RECOMMENDATIONS

The individuals should take low caloric value foods to avoid obesity and its complications. Overeating, excessive sugar intake and carbonated soft drinks should be avoided. Balanced diet, having vegetables and fibrous food should be advised. The Govt, concerned department and private sector should launch health awareness campaigns and to educate communities regarding healthy eating habits, life styles and preventive steps to avoid obesity and its associated detrimental complications.

REFERENCES

1. Dugan SA. Exercise for preventing childhood obesity. Phys Med Rehabil Clin N Am. 2008 May; 19(2): 205-16.

2. Flynn MA, McNeil DA, Maloff B, Mutasingwa D, Wu M, Ford C, Tough SC. Reducing obesity and related chronic disease risk in children and youth: a synthesis of evidence with 'best practice' recommendations. Obes Rev. 2006 Feb; 7 Suppl 1: 7-16.

3. Gezawa ID, Puepet FH, Mubi BM, Uloko AE, Bakki B, Talle MA, Haliru I. Prevalence of overweight and obesity in Maiduguri, North-Eastern Nigeria. Niger J Med. 2013 Jul-Sep; 22(3): 171-74.

4. Heseker H, Schmid A. Epidemiology of obesity. Ther Umsch. 2000 Aug; 57(8): 478-81.

5. Hajian-Tilaki KO, Heidari B. Prevalence of obesity, central obesity and the associated factors in the north of Iran: a population-based study and regression approach. Obes Rev. 2007 Jan; 8(1): 3-10.

6. Mushtaq MU, Gull S, Mushtaq K, Shahid U, Shad MA, Akram J. Dietary behaviors, physical activity and sedentary lifestyle associated with overweight and obesity among Pakistani children. Int J Behav Nutr Phys Act. 2011 25; 8: 130-38.

7. Al-Hazzaa HM, Abahussain NA, Al-Sobayel HI, Qahwaji DM, Musaiger AO. Physical activity, sedentary behaviors and dietary habits among Saudi adolescents relative to age, gender and region. Int J Behav Nutr Phys Act. 2011. 21; 8: 140-46.

8. Agyemang C, Owusu-Dabo E, de Jonge A, Martins D, Ogedegbe G, Stronks K. Overweight and obesity among Ghanaian residents in The Netherlands: how do they weigh against their urban and rural counterparts in Ghana? Public Health Nutr. 2009 Jul; 12(7): 909-16.

9. Amoah AG. Obesity in adult residents of Accra, Ghana. Ethn Dis. 2003 Summer; 13 (2 Suppl 2): 97: 101-09.

10. James PT. Obesity: the worldwide epidemic. Clin Dermatol. 2004 Jul-Aug; 22(4): 276-80.

11. Koukoulis GN, Sakka C, Katsaros F, Goutou M, Tsirona S, Tsiapali E, Piterou A, Stefanidis I, Stathakis N. High rates of obesity prevalence in adults living in central Greece: data from the ARGOS study. Hormones (Athens). 2010; 9(3): 253-62.

12. Lazzeri G, Rossi S, Pammolli A, Pilato V, Pozzi T, Giacchi MV. Underweight and overweight among children and adolescents in Tuscany (Italy). Prevalence and short-term trends. J Prev Med Hyg. 2008 Mar; 49(1): 13-21.

13. Pearson N, Biddle SJ. Sedentary behavior and dietary intake in children, adolescents, and adults. A systematic review. Am J Prev Med. 2011 Aug; 41(2): 178-88.

14. Patrick K, Norman GJ, Calfas KJ, Sallis JF, Zabinski MF, Rupp J, Cella J. Diet, physical activity, and sedentary behaviors as risk factors for overweight in adolescence. Arch Pediatr Adolesc Med. 2004 Apr; 158(4): 385-90.

15. Ismail MN, Chee SS, Nawawi H, Yusoff K, Lim TO, James WP. Obesity in Malaysia. Obes Rev. 2002 Aug; 3(3): 203-8.