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Obesity and Overweight Prevalence of the Adult Population in the Trakya Region of Turkey

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Purpose: To evaluate the prevalence of the obesity and overweight in the Trakya Region of Turkey.
Method: A random sample of 798 inhabitants of Edirne (382 women and 416 men) aged 18-84 years participated in our work. All participants answered a structured questionnaire comprising information on social, demographic, and behovioral and clinical aspects. When the BMI (body mass index) was > = 30 kg/m^2, the subject was considered as "obese" and if BMI was between the 25kg/m^2 and 30kg/m^2 then the subject was considered overweight. Spearmen correlation analyses were performed to determine whether BMI scores were related to other aspects.

Results: The mean BMI was 25.55 kg/m^2 and the prevalence of the obesity was 15.9 % and the overweight was 31.6%. BMI is significantly correlated with age, gender, education level, marital status, hypercolestrolemia, hypertension and diabetes. There was no correlation with smoking and alcohol intake.

Conclusion: Obesity is a major issue of public health in Trakya Region of Turkey and obese individuals have some chronic health problems. Obesity increased with age and marriage, and it is more frequent among low educated men.

Key words: obesity, overweight, body mass index, adult, Turkey.

Obesity is a growing health problem for all countries even when they are developed or developing. The fundamental causes of obesity epidemic are sedentary lifestyles, high fat and energy dense diets, despite the dissemination of a large variety of diet programs, fat free or low-fat foods. It is reported the prevelance of obesity among the adult people is increasing and today it is known that obesity is a risk factor for some diseases and mortality. On the other hand, the influence of western culture spreads even to Asian countries. As a sample in Japan fashion magazines publish articles on how to achieve the ideal (thin) body, and white models appear in 30% of television commercials and today Japanese females wish they were taller, would prefer to be blonde, and have longer legs. As a result of these kinds of expectations the desire for thinness seems to be increasing with the body/self dissatisfaction and eating disorders. BMI is a commonly used measure of body size, obtained by dividing the weight in kilograms by the square of the height in meters. A BMI over 25 kg/m^2 is defined as overweight, and a BMI of over 30 kg/m^2 as obese.

Our aim in this study is to determine the obesity prevalence in Trakya Region and to see the correlation with some diseases, social and behavioral conditions.

Methods

798 people participated our study. Sample consisted of a total of 382 (mean age 37.99 +/–15.22) female and 416 (mean age 39.45 +/–14.41) male adults. All participants answered a structured questionnaire including age, gender, height, weight, marital status, education level (no education, literate, primary school, secondary school, high school, university), cigarette smoking (never, current), alcohol consumption (never, daily, weekly, monthly) and existence of hypertension, hypercolestrolemia and diabetes. These last three conditions were accepted positive if the case was being followed by a medical establishment or using a medicine or applying a special diet for instance low salt or low fat diets. All participants randomly selected from the primer health establishments in a week to avoid the repetition. Questions were asked by educated health staff. Body Mass Index (BMI) is calculated by dividing weight in kilograms by height in meters squared. A BMI below 18.5 indicates unusual thinness and possibility of anorexia nervosa. A BMI of 25-29.9 indicates overweight status and a BMI of greater than 30 indicates obesity. Spearman correlation analyses were performed to determine whether BMI scores were related to other parameters.

Results

Regardless of gender the mean BMI was found 25.55 kg/m^2 and the prevalence of obesity was 15.9 % and the overweight 31.6 %. The mean BMI for males was 26.06 +/–3.82 and the prevalence of the obesity was 14.42% and overweight prevalence was 46.15%. The mean BMI for females was 25.00 +/–5.17 and the prevalence of the obesity and overweight were 17.8 % and 25.91%. 44.61 % of the population were smoking, 28.69 % drinking alcohol daily, weekly or monthly, and they were married 68.67%. The prevalence of the hypertension was 19.04%, hypercholestrolemia 13.91% and diabetes mellitus 6.65%. Using Spearman correlation analyses it was determined that BMI is significantly correlated to age $r = 0.455$ $p<0.001$, marital status $r = 0.399$ $p<0,001$, gender $r = -0.116$ $p<0.001$, education $r = -0.287$ $p<0.001$, hypertension $r = 0.300$ $p<0.001$, hypercolestrolemia $r = 0.255$ $p<0.001$, diabetes mellitus r = 0.182 $p<0,001$. It was not found a correlation to cigarette smoking $r = 0.051$ $p>0.05$ and alcohol consumption $r = 0.043$ $p>0.05$. The male and female population divided into three groups: obese, overweight and normal to compare the prevalence of three diseases. The results were given in the table 1.

Table 1. The prevalence of Hypertension, Hypercholestrolemia and Diabetes Mellitus for normal, overweight and obese people

Features	BMI (kg/m^2)					
	<25		25-30		>30	
	male %	female %	male %	female %	male %	female %
Hypertension	12.88	7.94	17.09	32.00	28.33	47.05
Hypercholestrolemia	7.36	7.47	12.95	20.00	21.66	36.76
Diabetes Mellitus	4.36	2.33	6.73	11.00	6.66	17.64

Discussion

The results show that obesity and overweight are spreading. The mean BMI is 25.55 kg/m^2 and 47.5% of our population exceeded the 25 kg/m^2 limit. In Turkey the oldest scientific research about anthropometry is Afet İnan's work which was published in 1947. According to this results the mean height and weight of males and females are 1652mm 62.01kg and 1522mm and 52.89kg sequentially [4]. Unfortunately she did not calculate the BMI values but it may estimated about 23kg/m^2 from these averages. Our mean height and weight are 1726.4+/–70mm, 77.69+/–12.34 kg for males and 1613.3+/–6.45mm, 64.92+/–13.16 kg for females. It is seen that our male population became longer about 7cm and females 9cm in last 67 years. But unfortunately our BMI values are also increasing comparing those years.

In literature there are lots of works about the prevalence of overweight and obesity. The obesity prevalence of adolescents was reported 2.3% in Turkey [5]. Lissau et al. searched the adolescent population of 13 European countries, United States and Israel. Their results show that the highest prevalences of overweight were found in the United States (15.1% for girls and 13.9% for boys), Ireland, Greece, and Portugal. They also concluded that the prevalence of obesity and overweight were increasing by age [6]. Yates A. et al. reported BMI values from the different ethnic groups from the USA. The mean BMI was 25.15 for whites, 24.30 for Japanese, 21.70 for Chinese and the average of all 24.90kg/m^2 [11]. Santos reported the prevalence of obesity was significantly higher in women (26.1%) than men (13.9%) among the Portuguese adults [9]. A progressive and significant increase in weight, height and BMI of the Portuguese young male population was reported between 1960 and 1990 [1]. The percentage of young males with BMI over 25 kg/m^2 was of 8.1% in 1960 and of 18.0% in 1990, while those having a BMI over 27 kg/m^2 varied between 3.6% and 6.4% in the same period, respectively. The percentage of young adult males with BMI higher than 25 kg/m^2 doubled between 1960 and 1990. In 2002 the overall prevalence of obesity was 16% and the prevalence of overweight –49.1% in Lithuanian population [3]. Reich A et al. concluded obesity is an increasing problem even among schoolchildren in Germany [8]. England has the same problem with the ratios of overweight children about 20% [7]. The mean BMI values 25.3–27.0 are reported from Poland for female adults [10]. The cumulative incidence of obesity from birth to grave was 33.8% in men and 32.4% in women in Finland [2].

It is obvious that obesity is a growing health problem for all western countries today. It is also a risk factor for some diseases such as cardiovascular, metabolic and some kinds of cancer. According to our results hypertension, hypercholestrolemia and diabetes mellitus were increasing while the BMI was increasing as well. In table 1 this increasing trend is seen more obviously for females. Obese females have 47.05 % hypertension 36.76% hypercholestrolemia and 17.64% diabetes mellitus. These results show that obesity is destructive especially for women.

Alcohol consumption and cigarette smoking was not correlated with BMI. Smoking is very common in our population, it is 52.88% among males and 35.60 among females. Smoking is one of the most important risk factors for the cancer. This addiction together with obesity may become more dangerous. Trakya region is known with the high alcohol consumption. It is 43.50 % among men and 12.56 % among women.

Education level was one of the correlated factors to BMI. Its negative correlation value ($r = -0{,}287$ $p < 0{,}001$) indicates that obesity was increasing among the low educated people.

Conclusions

Obesity is a serious problem in Turkey. It is more common between the married low educated men. Obese people are more endangered to have hypertension, hypercholestrolemia and diabetes mellitus. Alcohol consumption and cigarette smoking was not correlated to BMI.

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