

Prevalence of Obesity and Overweight among Adults in Iranian Population (Yazd Province)

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Abstract

Objective: Obesity is a worldwide and major public health problem including Iran and other countries. Available data indicates that the prevalence of obesity has significantly increased among the Iranian population over the past 30 years. The aim of the present study was to evaluate the prevalence of obesity in Yazd (central province of Iran) population.

Materials and Methods: This was a cross-sectional population-based study and performed by census method on Yazd population aged 30 years old or above. Height, body weight and Body Mass Index (BMI) were measured. Statistical analyses were performed with Chi-Square test.

Results: Totally, 8448 subjects aged >30 years from both sexes were evaluated. Data showed that the rate of BMI above 25kg/m² for women and men was 43.9% and 32.2% respectively. In both genders, the rate of obesity and overweight raised by increasing of age up to 50 years old. Overall, the prevalence of obesity was higher in women compared with men in all ages. The prevalence of obesity and overweight were 9.5% and 29%, respectively.

Conclusion: This study indicated a high prevalence of obesity and overweight in the central area of Iran, especially in urban people.

Keywords: Obesity, Overweight, Body mass index, Yazd

Introduction

Obesity has emerged as a public health problem worldwide. Indeed, it is now so common that is replacing the more traditional public health concerns (i.e. malnutrition and infectious diseases) (1,2). Obesity is an undesirable outcome of change in lifestyle and behaviour. It is also a major risk factor for development of diabetes,

hyperlipidemia and osteoarthritis (3-9). Obesity may lead to early disability and loss of job in the majority of subjects because of osteoarthritis as well as diabetes and coronary artery disease associated complications. Although, the contribution of hereditary factor may account for about 30–70% of this issue (9), intake of high caloric diets and reduced expenditure of energy in the form of low physical activities, changing lifestyle and behaviors, particularly in the modern societies, are also responsible for development of overweight and obesity.

Planning health programs and preventive projects require necessary information in the field of obesity for different geographical areas. The prevalence of coronary artery diseases, hypertension, diabetes and osteoarthritis is high in Yazd (10). Despite of the apparent affinity of obesity with these conditions, there is no documented information in relation to prevalence rate of obesity or overweight in this region of Iran. So, the purpose of this paper is the determination of the prevalence of obesity among adults of Yazd Province (central Iran).

Materials and Methods

A cross sectional study by census method was conducted enrolling 8448 subjects above 30 years old in Yazd, 4567 women and 3881 men with respective mean ages of 47.7 and 48.5 years old between June 2009 and May 2011. Pregnant women were excluded from the study. The study protocol was approved by the medical ethics committee of Shahid Sadoughi University of Medical Sciences. Written informed consent was undertaken from the participants. Weight was measured with a digital scale (measurement accuracy of 100 g), with subjects in minimum clothing and without shoes. Height was measured by Seca scales (Seca 216 Stadiometer, Scales Galore Co., US) and height measuring systems with subjects standing shoeless and with their shoulders set normally. Body mass index (BMI) was calculated by dividing weight (kg) by the height in meters squared (m^2).

Overweight and obesity were defined as $25 \leq \text{BMI} < 30$ and $\geq 30 \text{ kg/m}^2$ respectively.

After an interview and clinical examination, height and body weight was measured by standard methods and then BMI was calculated. Statistical analyses were performed with Chi-Square Tests using SPSS software (SPSS for windows version 17, Chicago, US). P -value ≤ 0.05 was considered statistically significant.

Results

The characteristics of the study population are shown in Table 1.

The overall prevalence of obesity and overweight were 9.5% and 29.0%, respectively. There was a significant association between obesity and gender, age and place ($P < 0.001$) (Table 1). The rate of $\text{BMI} \geq 25 \text{ kg/m}^2$ in women and men was 43.9% and 32.2%, respectively. $\text{BMI} \geq 25 \text{ kg/m}^2$ was found in 47.2% of urban population and 28.3% of rural population. The prevalence of obesity and overweight in relation to the age groups of men and women is shown in Table 2.

The prevalence of obesity among women compared to men was more than that for men in all age groups. In both genders, the rate of obesity and overweight raised by increasing age up to 50 years old. The prevalence of overweight and obesity according to the living place of the patients also is presented in Table 3.

Table 1. Prevalence of obesity and overweight in different age, gender and place groups.

Variable	n	Overweight (%)	Obese (%)	P-value
Age				
(years)				
30-39	2835	32.2	11.7	<0.001
40-49	2354	34.7	11.4	
50-59	1368	28.6	9.5	
60-69	1152	21.6	4.9	
≥ 70	739	10.8	1.8	
All	8448	29	9.5	
Gender				
Male	3881	27	5.2	<0.001
Female	4567	30.7	13.2	
Place				
Urban	4571	34.8	12.4	<0.001
Rural	3877	22.2	6.1	

Discussion

According to these results, overweight and obesity should be considered as a significant health problem at our area especially among women in urban population. In a study done in Yazd in 2000, the prevalence of obesity was 16.3% among 570 women aged 15-65 years old (11). Several studies have been performed to investigate the extent of this problem in Iran (19-21), which is an important risk factor for many diseases (22). Prevalence of obesity in Iranian adult population (≥ 18 years old) has been reported to be 21.5% and also the obesity was more common in women compared to men (16). The higher frequency of obesity in women in our study may be due to the age of the participants in our study. Our results show that the prevalence of obesity among women is particularly high, and similar findings have been reported by others (12-14,17,18).

The underlying causes of the higher prevalence of obesity among women are not well understood but it may be due to less physical activities of Iranian women compared with men and it is because of the limitation in outdoor climatic and/or social conditions, And the limitation in the number of fitting saloons and physical exercise clubs for females; also, childbirth could be another reason (18). The other explanation is the sampling bias, which

happens in most household surveys in Iran, because the most participants in such studies are those who work at home during the day and most of them are housewives.

The age relationship of obesity for each 10 years of age may reflect the impact of hormonal changes with age in which there is a common decrease in physical activity and a basal metabolism (19). In this study, there was a decrease in the prevalence of obesity during the sixth decade of life, which is similar to the results of some other studies (20,21). The reason for this decrease is unclear, but it may be related to the changes in eating habits or earlier mortality among older more obese people (22,23). A sedentary lifestyle lowers energy expenditure and promotes weight gain.

The lower prevalence of obesity among rural subjects compared with urban residents was also found in another study (24). A possible explanation is that, in Yazd, similar to many other areas of Iran, there may be great differences in eating habits and physical activity in rural and urban areas.

Conclusion

In conclusion, the results of this study indicate a high prevalence of obesity and overweight in the central area of Iran especially in urban place and in female subjects.

Table 2. Comparison of obesity and overweight in different age and sex groups.

Age (years)	Gender	n	Over weight (%)	Obese (%)	P-value
30-39	Female	1542	32.6	16.7	<0.001
	Male	1293	31.7	5.8	
40-49	Female	1290	36.4	15.5	<0.001
	Male	1064	32.8	6.5	
50-59	Female	769	31.5	12	<0.001
	Male	599	24.9	6.3	
60-69	Female	632	23.7	6.6	<0.001
	Male	520	19	2.9	
≥ 70	Female	334	12	2.7	<0.001
	Male	405	9.9	1	

Table 3. Prevalence of obesity and overweight with respect to gender and place

Gender	Variable	Place	n	Overweight (%)	Obese (%)	P-value
Female		Urban	2589	35.7	16.8	<0.001
		Rural	1978	24.2	8.3	
Male		Urban	1982	33.7	6.5	<0.001
		Rural	1899	20	3.8	

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