Obesity and Body Image of Women and Men in Iran-Tabriz†

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Abstract

The aim of this research is to determine the rates of obesity in men and women in Iran Tabriz and to reveal the relationship between obesity and body sensation. Within the scope of this aim, height, weight and Body Mass Index values were collected from individuals on a total of 1000 individuals, 562 women, 438 men, who live in Iran-Tabriz. In addition, a questionnaire was applied to reveal the body perception of these individuals. According to the findings of this research, the average value of BMI was 26.27 for men and 26.59 for women. In our study, Turkish men and women in Iran were found to be overweight compared to men and women in other studies. In general, it has been observed that goiter, blood pressure, sugar, brain-arteries and calcification are more common in women and only cardiovascular diseases are seen in men. Obese people have lower self-esteem and body sensation than those who have normal weight. In this study, the average value of body sensation is 144,10 for males and 136,86 for females. Positive trends were determined in our sample according to the scale. It was determined that between the ages of 12-29 and 40-49, there was a significant difference in body perception between male and female individuals.

Key Words: Anthropometric measure, obesity, body sense, general health situation, Iran

Introduction

Anthropometry is a simple, non-invasive, and inexpensive, universally applicable method that can demonstrate the composition, proportions, and type of human body (World Health Organization [WHO], 1995, 2000). Anthropometry is an easy technique that can be easily applied in indirect techniques to assess public health (Cameron et al., 1981; Özgün Başbıyık & Akin, 2007). Today, this technique is widely used. Weight, height, circumference, subcutaneous fat thickness and bone length and width measurements are variables used in field studies. The fact that anthropometric instruments are cheap and easy to transport provides a great advantage (Gültekin, 2004). Ideas about nutrition and health status of people in anthropometric measurements are important. The information gathered with the anthropometric measurements keeps the light from gathering. In the study, we will try to emphasize the importance of these values by determining the weight, height, BMI values of people aged 18 years and older living in Iran-Tabriz with anthropometric measurements and by conducting

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a questionnaire. This research aimed to investigate the relationship between self-esteem, body image and obesity in obese people. Obesity is manifested in the body as the amount of fat tissue increases in excess. The presence of excess fat in the body is an indication of the presence of a disease. In general, it is very important to know the origin of the disease in a fight against disease. It appears that the effects of environmental factors are more dominant in obesity when genetic and environmental factors are combined (Gültekin et al., 2009).

When the previous researches are examined, it is emphasized that the findings of obesity prevalence in general are important on the basis of findings. If we do not ignore the efforts made for the treatment of obesity and the serious dimensions of this treatment, the value and importance of such studies can be grasped better in order to determine the environmental factors that cause obesity. For these reasons, it is our primary goal to make the necessary information and announcements regarding the examination of obesity, which is an important problem for all countries and people, and for taking preventive measures for obesity. Obesity is an important health problem in Iran as well as in all countries (Amiri et al., 2014).

The body sensation expresses how our bodies are rendered in our minds and is closely related to self-esteem (Mikolajczyk et al., 2012). As such, the individual accepts his own abilities and talents as they are and respects himself (Tezcan, 2009). There are also studies in the literature that show that there is no such connection (Sarwer, et al., 1998; Deveci et al., 2005; Degirmenci, 2006; Mikolajczyk et al., 2012), although many of the researches show that there is an inverse link between BMI and self-esteem in adults. Many of the investigations show that body dissatisfaction is higher in obese people (Tezcan, 2009; Mikolajczyk et al., 2012). It is these dissatisfacts that cause the majority of obese to lose weight and want to lose weight (Karakaya et al., 2012). In fat people, body dissatisfaction is related to the perceived body weight rather than the current body weight (Cutting et al., 1999). In some studies investigating the relationship between self-esteem and obesity in adults, it has been described that there is an inverse relationship between obesity and self-esteem with BMI (Gortmaker, 1993), while in a study it is stated that there is no link between body image and BMI (Telch et al., 1994). Studies in the literature have shown that there is a linear relationship between obesity and ego value reduction (Bryan et al., 2001; Pinar, 2002). In a survey of 87 obese women conducted to determine the levels of depression and self-esteem in obese people, 42.5% of obese people were depressed and 85.6% had less self-esteem (Ogden et al., 1996). In Ogden and Evans’ study, it was also stated that obese people are more depressed and self-esteem is less (Ogden et al., 1996). In Kartal’s study, it was also stated that self-esteem is less in fat individuals (Kartal, 1996). Galletly and her colleagues (1996) conducted a study of 64 women in which a decrease in the value of weight-loss depression and an increase in self-esteem were determined. In a study conducted on women in Kerej, it was observed that there was a positive link between the increase in BMI and depression (Feizi et al., 2012), and a similar result was obtained in female students of Erdebil University (Ghorbani et al., 2012). In other studies, it has been found that women who are obese are poorer in quality of life when compared to non-obese women, ie those with normal weight (Ghorbani et al., 2012; Ogden et al., 1996).

This study aims to investigate the relationship between body sensation and self-esteem in obese people and to examine the relationship between the psychological status of obese and non-obese individuals in adulthood, and to reveal the relationship between individual health problems and anthropometric measurements.

Materials and Methods

Height, weight and BMI values are used to determine the height, weight and BMI values of individuals in order to establish user profiles in sports halls, airports, parks, shopping malls, national libraries, schools and university students and normal clinical and nutrition clinics in order to get access to the work done on adult individuals living in Iran- Tabriz. It was obtained. 562 women, and 438 male subjects were surveyed. A questionnaire was applied to determine the socioeconomic levels of the individuals participating in the survey, and questions were asked regarding the place of birth, number of siblings, educational status of the parents, and the occupation of the parents. On the other hand, in the questionnaire of our research, a questionnaire reflecting the health histories and health problems of the individuals was applied to reveal the health status of the participants. These questions have been applied to highlight the link between the individual’s health status and anthropometric measures. Questions were asked about whether participants made special diets or not, the frequency of sports, goiter, blood pressure, sugar, cerebrovascular, arthritis and cardiovascular diseases. The weight and height anthropometric measurements
of the subjects participating in this study were taken and Body Mass Index (BMI) values were calculated with these measurements. Anthropometric measures were taken from the methods administered by the International Biological Program (IBP) (Weiner & Lourie, 1969, Tanner et al., 1969). Body measurements were taken with a 1 mm precision Martin-type anthropometer, and body weight measurements were taken with a precision digital weighing machine of 100 gr. Care has been taken to ensure that as little as possible clothing is available to individuals involved in the intake of anthropometric measurements. This scale, which is used for the measurement of body sensation in the research, was developed by Dr. I. Selim Hovardaoğlu from the Department of Psychology, at the Faculty of Language and History-Geography, Ankara University. There are 40 items on this scale, all items scored between 1-5. Subjects were asked to respond on the questionnaire as follows: I do not like it at all, I do not like it very much, I have no idea, I like it quite a lot and I like it very much. It seems possible to obtain one score on this scale. As a result, the lowest score that can be taken from the scale is 40 and the highest score is 200. The increase in points also means a positive increase. Interested researchers extracted the score of any item from the total score and compared the item average and total score average (Hovardağlu, 1993).

**Results**

Weight, height anthropometric measurements were taken from the subjects participating in this study and Body Mass Index (BMI) values were calculated with these measurements. Anthropometric measures were taken using the method proposed by the International Biological Program (IBP) (Tanner et al., 1969; Weiner & Lourie, 1969). The height measurement was taken with a 1 mm precision Martin-type anthropometer, the body weight measurement was taken with a digital weighing machine with a precision of 100 gr. Care has been taken that subjects involved in the study of anthropometric measurements should be as little as possible to wear. Anthropometric measurements were evaluated with the SPSS 23.0 program.

In this research, a total of 1000 individuals, 562 women and 438 men, were surveyed. The age distribution of adult individuals living in Iran-Tabriz is shown in Table 1. Gender distribution of the participants is given in Table 2.

**Health status of the individuals**

In this research conducted in Iran-Tabriz, a questionnaire was applied to participants to get information about the health status of the individuals. The aim of this questionnaire is to assess the differences in anthropometric measures in Iran-Tabriz individuals and to show the general health status of the individuals and their relationship to their age and sex. Table 3 shows the prevalence of diseases in individuals. Exercise habits are common in both men and women (Table 3). But with exercise it seems that the diet is not as powerful as its practice. When we evaluate the health problems present in the participants, the tension problem is seen more frequently in female individuals and it is observed that the rate of calcification is higher in women as well. Cardiovascular disease was found to be more common in male subjects.

**Anthropometric data evaluation and analysis**

Height, which is a sign of growth and development in the body, is accepted as the most used measure together with weight. BMI is calculated by length and weight measurements and is generally used to determine participants’ body shape, lifestyle and nutrition style. The Mann-Whitney U test is one of the non-parametric tests that allow us to use it to assess whether two independent samples are on average equal. It is non-parametric version of the independent t-test. In the SPSS package program, data were analyzed by using the Mann-Whitney U test to determine whether the height, weight and BMI were the same according to sex. The reason for using the Mann-Whitney U test in this study is that the height, weight and BMI variables generally do not follow a normal distribution Table 5. Percentage values of individuals in anthropometric measurements are given in Table 4. The assumption of normality in height, weight and BMI of the normality tests conducted was rejected at α=0.05 significance.
level. In other words, individuals do not follow a normal distribution of height, weight, and BMI (Table 6). In addition, Q-Q plot drawings show that the normality assumption is not satisfied (Figures 1, 2 and 3).

Table 3. Health status of subject according to age and sex

|                     | Male | Freq. (%) | Female | Freq. (%) |
|---------------------|------|-----------|--------|-----------|
| Sports habit        | 264  | 60.3      | 286    | 50.9      |
| Special diet        | 147  | 33.6      | 199    | 35.4      |
| Arthritis           | 29   | 6.6       | 84     | 14.9      |
| Hypertension        | 75   | 17.1      | 99     | 17.7      |
| Goiter              | 29   | 6.6       | 47     | 8.4       |
| Diabetes mellitus   | 44   | 10.0      | 70     | 12.5      |
| Cardiovascular disease | 40  | 9.1       | 47     | 8.4       |
| Brain-vessel disease | 9   | 2.1       | 12     | 2.1       |

According to the results given in Table 6, (1) the null hypothesis, “distribution of height variable is the same according to sex categories”, was rejected according to the Mann-Whitney U test. In other words, the height of men and women is statistically significant; (2) the null hypothesis expressed as “The distribution of weight variable is the same according to the sex categories” was rejected according to the Mann-Whitney U test. In other words, the weights of men and women are statistically significant; and (3) the null hypothesis, “Distribution of BMI variable is the same as sex categories”, can not be rejected according to the Mann-Whitney U test. In other words, the BMI values of men and women are not statistically significant.

Kruskal Wallis test
In the Kruskal-Wallis test, used to test whether the mean of three or more independent samples are the same. It is non-parametric version of one-way ANOVA. In the SPSS package program, Kruskal Wallis test was used to analyze whether height, weight and BMI were the same according to age, father education, maternal education and obesity status. The reason for using the Kruskal Wallis test in this study is that the height, weight and BMI variables generally do not have normal distribution.
of age groups are statistically significant, (2) the null hypothesis, “distribution of weight variable is the same according to age categories”, was rejected according to the Kruskal Wallis test. In other words, the weights of age groups are statistically significant, and (3) the null hypothesis, “distribution of BMI variable is the same according to age categories”, was rejected according to the Kruskal Wallis test. In other words, the BMI values of age groups are statistically significant.

According to the results given in Table 8, (1) the null hypothesis, “distribution of height variable is the same according to father’s education categories” cannot be rejected according to the Kruskal Wallis test. In other words, father education is not statistically significant in the distribution of height, (2) the null hypothesis, “distribution of weight variable is the same as in father education categories” cannot be rejected according to the Kruskal Wallis test. In other words, father education is not statistically significant in the distribution of weight, and (3) the null hypothesis that “distribution of BMI variable is the same as in father’s education categories” cannot not be rejected according to the Kruskal Wallis test. In other words, father education is not statistically significant in the distribution of BMI.

According to the results given in Table 9, (1) the null hypothesis, “The distribution of height variable is the same in the gender category” was rejected according to the Mann-Whitney U test. In other words, the heights of men and women are statistically different. (2) The distribution of weight is the same in the sex category. Independent Samples, Mann-Whitney U Test was applied. The null hypothesis was rejected. (3) The distribution of BMI in the gender category is the same. Independent Samples, Mann-Whitney U Test was applied. The null hypothesis is preserved.
the same according to the mother education categories” is rejected according to the Kruskal Wallis test. In other words, it was determined that father education is statistically significant in the distribution of height, (2) the null hypothesis that “the distribution of the weight variable is the same as in the mothers education categories” cannot be rejected according to the Kruskal Wallis test. In other words, education is not statistically significant in the distribution of weight, and (3) the null hypothesis, “Distribution of the BMI variable is the same as in the mother education categories” was rejected according to the Kruskal Wallis test. In other words, it was determined that father education is statistically significant in the distribution of BMI.

According to the results given in Table 10, (1) the null hypothesis, “distribution of height variable is the same as obesity categories” is rejected according to the Kruskal Wallis test. In other words, the height of age groups are statistically significant, (2) the null hypothesis, “distribution of weight variable is the same as obesity categories” is rejected according to the Kruskal Wallis test. In other words, the weights of age groups are statistically significant, and (3) the null hypothesis, “Distribution of the BMI variable is the same as for obesity categories,” was rejected according to the Kruskal Wallis test. In other words, the BMI values of age groups are statistically significant.

**Body perception in female and male individuals**

Table 11 shows the questionnaire survey of the questionnaire about individuals’ body senses. According to the score analysis all questions were scored between 1 and 5. This scale contains 40 items. Subjects were asked to respond in this way on the questionnaire; (I do not like it at all, I do not like it at all, I do not like it very much, I do not like it, I’m not sure, I like it at all, and I like it very much). The increase in points means positive and positive increases. In this study, the average value for men is 144,10 and for women it is 136,86. Positive and positive trends were determined in our sample according to the scale. The body sensory scores between male and female subjects are presented in Table 11. It was determined that between the ages of 12-29 and 40-49, there was a significant difference in body perception between male and female individuals.

| Null Hypothesis | Test | Sig. | Result |
|-----------------|------|------|--------|
| 1. In the mother education category, weight distribution is the same. | Independent Samples, Kruskal Wallis Test was applied. | 0.03 | The null hypothesis was rejected. |
| 2. In the mother education category, weight distribution is the same. | Independent Samples, Kruskal Wallis Test was applied. | 0.066 | The null hypothesis is preserved. |
| 3. In the mother education category, BMI distribution is the same. | Independent Samples, Kruskal Wallis Test was applied. | 0.048 | The null hypothesis was rejected. |

| Null Hypothesis | Test | Sig. | Result |
|-----------------|------|------|--------|
| 1. Height distribution is the same in the obesity category. | Independent Samples, Kruskal Wallis Test was applied. | 0.000 | The null hypothesis was rejected. |
| 2. Weight distribution is the same in the obesity category. | Independent Samples, Kruskal Wallis Test was applied. | 0.000 | The null hypothesis was rejected. |
| 3. BMI distribution is the same in the obesity category. | Independent Samples, Kruskal Wallis Test was applied. | 0.000 | The null hypothesis was rejected. |

Table 10. Comparison of size, weight and BMI variables according to obesity: Kruskal Wallis test results

| Male | Female |
|------|--------|
| Age | n | Mean | SD | n | Mean | SD |
| 18-29 | 167 | 158,86 | 27,28 | 185 | 152,68 | 28,23 |
| 30-39 | 118 | 150,27 | 31,40 | 182 | 147,87 | 28,86 |
| 40-49 | 93 | 147,33 | 28,13 | 113 | 137,75 | 31,15 |
| 50-64 | 49 | 137,89 | 36,87 | 63 | 132,01 | 29,53 |
| 65 and over | 11 | 126,18 | 39,34 | 19 | 114,00 | 30,18 |
| Total | 438 | 144,10 | 562 | 136,86 |

Table 11. Scoring body algebra according to age groups of female and male individuals
Discussion and Conclusions
It is now known that obesity has become widespread and serious. According to the World Health Organization’s estimates, in 2005, 400 million adult obese individuals worldwide were identified and by 2015, more than 700 million people worldwide are estimated to be obese (WHO, 2006). It is known that the prevalence of obesity in adolescents in America has increased by 10% between 2003 and 2007 (Singh et al., 2010). The reason for this increase is the increase in the consumption of ready-made foods, the decrease in physical activity, the increase in the level of income, and the ease of finding food and food, according to the results of the studies. When the anthropometric measurements obtained in studies on obesity in developed countries compare height and weight values with those of developing countries, these variables are observed to reach higher values.

Along with a considerable improvement in environmental factors, different amounts of anthropometric values have been shown to improve over time in length, weight and BMI literature (Tobias, 1985). According to NCHS data, in a short term in 2010, about 17% of young people were obese (Ogden et al., 2012). In Iran, the prevalence of obesity prevalence, especially in the elderly, is more pronounced in adult individuals (Heshmat et al., 2010, Yarahmadi et al., 2013). In our study, the prevalence of obesity was found to be 16.2% in men and 20.3% in women. It is concluded that obesity is more common in women. The increase in obesity as the age progresses is seen parallel to other studies (Table 12).

According to the results obtained in our research, the obesity rate was found to be 11.1% in 18-29 years, 16.3% in 30-39 years, 26.22% in 40-49 years, 31.3% in 50-64 years and 26.7% in 65 years and over. The prevalence of obesity in women was 20.3% and 16.2% in men.

The average weight values for for men were 77.8 kg in 18-29 years, 79.93 kg in 30-39 years, 82.50 kg in 40-49 years, 83.51 kg in 50-64 years and 80.36 kg in 65 years and over. As a result, weight rates increase in individuals aged 50 years and older. The average weight values for women were 67.42 kg in 18-29 years, 70.49 kg in 30-39 years, 75.85 kg in 40-49 years, 79.06 kg in 50-64 years and 77.55 kg in 65 years and over. In females, we can say that there is an increase in weight with age.

The average value of height seen in men was 175.53 cm and 164.48 cm in women. According to the BMI> 30 formula, our overall obese percentage is 26.27% for males and 26.58% for females. We can say that women have higher BMI and that obesity is more common in women.

Diseases and relationships with BMI
In men (n: 44, mean: 10.0), the disease rates are as follows: cardiovascular disease (n: 29, mean: 6.6), blood pressure (n: 75, mean: 17.1), goitre n: 40, mean: 9.1) and brain-vascular disease (n: 9, mean: 2.1), whereas in women (n: 84, mean: 14.9), they follow as blood pressure (n: 99 mean: 17.7), goitre (n: 47, mean: 8.4), diabetes (n: 70, mean: 12.5), cardiovascular disease (n: 47, mean: 8.4) and brain-vascular disease (n: 12, mean: 2.1).

Relation to body perception and obesity
The results of this research show that there is a need for a more detailed and extensive research to study the factors that affect obesity more intensively. The results obtained in the research should be evaluated not only with an academic care, but also from the societal perspective. The publicity of this information is crucial to prevent obesity.
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