

Adult Obesity Prevalence in Public Institutions in Mersin Province

Mersin İlinde Kamu Kurumlarında Yetişkinlerde Obeziteprevalansı

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Özet

Amaç: Bu çalışmanın amacı, Mersin ilinde obezite sıklığı ve etkenlerini içeren en yeni bilgileri yansıtmaktır.

Yöntem: Araştırmaya toplam 8272 kişi dahil edildi. Vücut kitle indeksi, vücut ağırlığınınboyun karesine metre cinsinden (ağırlık / yükseklik², kg / m²) orantılı olarak formülünden elde edildi. 26 soru içeren anket formundakisosyodemografik özellikler, fiziksel aktivite, beslenme alışkanlıkları ile ilgili sorular katılımda bulunmayı kabul eden personele uygulanmıştır.

Bulgular: Araştırmaya katılanların 3872'si (%46.81) kadın, 4277'si (%52.48) erkekti. Katılımcıların yaş ortalaması 39.09, en düşük yaş 16, en yüksek 65 idi. Hem yaş hem de cinsiyet yetişkin obeziteprevalansını etkiledi. Araştırmamızda katılanların % 48.05'i aşırı kilolu ve% 12.45'i obez olarak değerlendirildi. Tüm yetişkinlerde ortalama vücut kitle indeksi 25.45 idi. Ankette sorulduğunda; 2867 kişi (% 35.1) fiziksel aktivite yapmadığını ve 3343 kişi (% 40.9) arada sırada egzersiz yaptığını belirtti. Katılımcıların% 24'ü düzenli olarak egzersiz yapıyordu.

Sonuç: Obezite, 21. yüzyılda hızla yayılmakta olan önemli bir halk sağlığı problemidir. Ülkemizde insidansı da artmaktadır. Halk sağlığı girişimleri ile obeziteyi önleme önem kazanmakta ve bu da daha maliyet etkinliği göstermektedir. (**Sakarya Med J 2017, 7(4):223-228**)

Anahtar Kelimeler: Obezite;Komorbidite;Prevalans

Abstract

Objective: Theaim of this study is to reflect the latest information about obesity frequencies and involving factors in Mersin province, Turkey.

Method: A total of 8272 people were included in the study. Body mass index (BMI) was obtained from the formula by proportioning body weight to the square of the height in meters (weight / height², kg / m²). Socio-demographic characteristics, physical activity, nutrition habits related questions have been applied under the 26-question survey to the staff who agreed to participate.

Results: 3872 of the respondents (47.52%) were women, 4277 (52.48%) were male. The mean age of the participants was 39.09, the lowest age of 16, the highest was 65. Both age and sex effects adult obesity prevalence. %48.05 of participants was overweight and %12.45 was obese in our study. The mean body mass index for all adults was 25.45. When asked in the survey; 2867 people (35.1%), said they are not making physical activity, and 3343 people (40.9%) perform occasionally, 24% of the respondents exercise regularly.

Conclusion: Obesity is a major public health problem in the 21st century which is rapidly spreading. The incidence is also increasing in our country. Preventing obesity with public health initiatives is gaining importance, which is more cost effective (**Sakarya Tıp Dergisi 2017, 7(4):223-228**)

Keywords: Obesity; Comorbidities;Prevalance

Introduction

According to World Health Organisation (WHO), obesity means the accumulation of excess fat abnormally which may impair the health of the body. The Body mass index (BMI) calculations are the most commonly used method in the world. According to BMI; 25 and over is overweight, 30 and over is defined as obese.¹

Major weakness of BMI measurement is that it does not provide information about the distribution of body fat. Because not only increase in the fat tissue but also where it is accumulating, is important. Because while subcutaneous; especially accumulated fat in the buttocks (pear type of obesity, female-type obesity), does not show a very tight relationship with obesity-related diseases, apple shaped buildup (excess fatty tissue in umbilical region) or also known as paternal obesity constitute a greater risk in terms of obesity related heart and other possible diseases. Waist circumference (WC) is used to measure abdominal obesity.² In spite of more commonly use of body mass index, waist circumference indicates insulin resistance better than the BMI which is one of the main factors in obesity and its complications.³

Obesity is a serious chronic disease which has genetic and environmental interactions. It depends on many factors and require medical treatment. The most important risk factors for obesity are decreased physical activity, eating habits, age, gender, education level, marriage, births and genetics.⁴

The most significant findings that support the role of genetics in obesity come from the data obtained from studies on body mass index's of monozygotic twins. In these researches, compliance found in monozygotic twins becoming higher than dizygotic twins show genetics' effect to become obese.⁵

Obesity which is considered to have hereditary roots is spreading rapidly, especially in developed and developing countries. Worldwide, at least 2.8 million people die each year as a result of being overweight or obese, and an estimated 35.8 million (2.3%) of global DALYs (Disability Adjusted Life Years) are caused by overweight or obesity. In 2008, 35% of adults aged 20+ were overweight (BMI \geq 25 kg/m²) (34% of men and 35% of women) The

prevalence of overweight and obesity were highest in the WHO Regions of the Americas (62% for overweight in both sexes, and 26% for obesity).^{1,6} In studies conducted across the country (TUR-DEP Study); among adults aged 20 years and over, obesity prevalence was found to be 29.9% in women.⁷

Obesity related diseases

Disdain, prejudice and disrespect against obese people is extremely widespread. Stove and Stunkard said about obesity that "the last socially acceptable form of prejudice / socially accepted prejudice". It was seen that even the health staff thought obese people are lazy, stupid and worthless. Prejudice and discrimination begins in childhood. Nearly 40 years ago, Staffer found that a 6-year-old child has thoughts like "lazy, dirty, stupid, ugly" about another child of overweight appearance. Obese individuals' social spaces "are affected." Discrimination reduce their self-esteem, and this leads to obese people's becoming more prone to depression. The reduction of self-esteem in obese individuals cause them to become depressive and dysphoric. Obese people face discrimination also in their working life. 16% of employers do not give work to obese women, 44% employer agrees to run such individuals well but in special circumstances.⁸

Obesity causes a significant increase in morbidity and mortality. With the increasing prevalence of obesity, the incidence of obesity-related diseases are also on the rise. There is an increased risk of heart disease and hypertension. Increased circulating blood volume, increased vasoconstriction and increase in cardiac output plays a role in the development of hypertension with obesity. In overweight people, the presence of hypertension makes ventricular wall thickness and consequently the volume of the heart chambers increase the risk of heart failure.⁹

Regarding gastrointestinal effects; obesity which is rapidly increasing in Western countries and around the world is an important risk factor that has an impact on Nonalcoholic Steatohepatitis (NASH) level. Therefore, treatment of weight is the most suitable method in NASH treatment.

25 kg / m² or more Body Mass Index (BMI) is an important risk

factor for some common types of cancer. Overall cancer incidence in obese person is more than 33% (37% women and 25% men). In epidemiological studies, esophagus, thyroid, colon, renal, liver cancer, melanoma, multiple myeloma, rectum and bladder cancer, leukemia, lymphoma, of post-menopausal breast and endometrial cancer in women was found to be associated with obesity. To understand the link between cancer and obesity, insulin and insulin-like growth factor (IGF) axis, endogenous hormones, inflammatory markers, and their molecular interactions are important.¹⁰

Significantly affecting the quality of life and posing a risk for hypertension, coronary artery disease; severe obstructive sleep apnea syndrome incidence is very high in patients whose BMI is higher than 30kg/m². BMI and WC increase the apnea-hypopnea index independent of other factors.¹¹

The polycystic ovary syndrome (PCOS) is a condition characterized by hyperandrogenesis and chronic oligo-anovulation. However, many features of the metabolic syndrome are inconsistently present in the majority of women with PCOS. Approximately 50% of PCOS women are overweight or obese and most of them have the abdominal phenotype. Obesity may play a pathogenetic role in the development of the syndrome in susceptible individuals.¹²

Treatment of Obesity

The aim of treatment of obesity should be to reduce the energy input or to increase energy output or to improve the system's energy balance by applying both.¹³ Realistic targets should be set at the beginning of treatment. As a realistic target of 5-10% weight loss should be aimed at 6 months. Even a 10% reduction in body weight helps to reduce the obesity-related risk factors. Therefore, the current treatment recommendations are focused on the 10% weight loss and the goal is to ensure long-term maintenance of weight loss. Maintaining weight depends on long-term behavior change, balanced and healthy diet and increasing physical activity. For this purpose, the main point of the treatment is to increase the energy spent and reduction of energy intake.¹⁴

Material and methods

The population of the study was all the staff of the National Educa-

tion Directorate in Mersin. After sending a letter with an explanation of the means of working with the Governor, necessary permits and approvals are obtained from Mersin Governor's Office. After taking appointments from Mersin Directorate of Education, the public health directorate staff made measurements and survey was conducted on people who agreed to fill out questionnaire under observation method. A total of 8272 people were included in the study. Turkish Public Health Institution, Primary Health Care Field Research Assessment Commission granted Ethical approval to carry out the study. There were some missing values, because everyone did not answer all the questions.

The measurements of all personnel were made by the trained relevant staff in public health directorate. Weight measurements are made by the most light clothing possible with necessary corrections. Weight is measured by Seca brand standard portable scale at 0.1 kg sensitivity. Height measurement made without shoes, standing upright, deep inspiration with thin rods parallel to the floor in contact with the soles of the feet and head's highest point was measured at 0.5 cm accuracy.

Body mass index was obtained from the formula by proportioning body weight to the square of the height in meters (weight / height², kg / m²). Respondents have been classified as <18.5 weak, 18.5 to 24.9 normal, 25 - 29.9 overweight and > 30 obese based on World Health Organization's groupings.

26-item questionnaire including questions about habits such as weight loss methods, sociodemographic characteristics, nutrition, meal scheme, skipping meals status, physical activity applied with under observation method to the staff who agreed to participate in the survey.

SPSS 19.0 software was used for statistical analysis assessment.

Results

Both age and sex have an impact on adult obesity prevalence. According to Scottish Health Survey in 2014, 65% of adults were overweight, including 28% who were obese. %48.05 of participants were overweight and %12.45 were obese in our study.

The mean body mass index for all adults was 27.6 kg/m² which is 25.45 in our study. A higher proportion of men than women were overweight including obese (69% compared with 61%), while women were more likely than men to be obese (29% compared with 26%). On the contrary overweight percent for man was %69,49 and %32,21 for women. it was %6,97 among women to %17,29 percent for men in our study. A majority of the population is overweight including obese from the 25-34 age group upwards, with levels rising to 77-78% of those aged 55-74. Around a third of people aged 45-74 were obese. See Table 1

| AgeGroup | Obesity | | Total |
|----------|----------------|---------------|--------------|
| | Normal | Obese | |
| 19-24 | 163 98,18% | 3 1,82% | 165 100% |
| 25-34 | 2168 94,43% | 128 5,57% | 2296 100% |
| 35-44 | 2345 87,86% | 324 12,14% | 2669 100% |
| 45-54 | 1214 78,22% | 338 21,78% | 1552 100% |
| 55-64 | 344 76,79% | 104 23,21% | 448 100% |
| 65-74 | 2 100% | 0 0% | 2 100% |
| Total | 6236 87,42% | 897 12,58% | 7133 100% |

Height, weight data were taken from 8045 of the 8272 people participated in the survey. 227 people are missing value. According to the WHO classification; under 18.5 is underweight, 18.5 to 25 are normal, 25 to 30 are overweight, over 30 is classified as obese. Obesity is divided into 3 categories according to severity. See Table 2

As the disease in employees; 350 patients (4.2%) have cardiovascular disease, 312 patients have diabetes (3.8%), 590 have digestive system disorders (7.1%), mental health problems at 209 (2.5%), endocrine diseases at 295 (3.6%), high blood pressure at 522 (6.3%), 49 had cancers (0.6%), 321 (3.9%) had respiratory system diseases, 637 (7.7%) have muscle disorders, 239 (2.9%) had other diseases. 5641 of employees (68.9%) believes that they

take adequate and balanced diet.

| ValueLabel | Frequency | Percent | ValidPercent | CumPercent |
|-------------|-----------|---------|--------------|------------|
| Underweight | 158 | 1,91 | 1,96 | 1,96 |
| Normal | 3708 | 44,83 | 46,09 | 48,05 |
| Overweight | 3177 | 38,41 | 39,49 | 87,55 |
| ObeseClass1 | 863 | 10,43 | 10,73 | 98,27 |
| ObeseClass2 | 116 | 1,40 | 1,44 | 99,71 |
| ObeseClass3 | 23 | ,28 | ,29 | 100,00 |
| | 8045 | 100 | 100 | |

3872 of the respondents (46.81%) were women, 4277 were male. The mean age of the participants is 39.09, the lowest age of 16, the highest is 65. Standard deviation is 8,84.

For the prevention of obesity, 20.5% of participants only makes diet while 19.8% only doing exercise. When asked for the second option it is doing exercise and diet together (39.9%) and 14.9% of the participants addressed weight loss products. 56.1% of the applied diet is without anyone's suggestion, 17.9% of the diets are the doctor's or dietitian's recommends, while 8.3% are trying to lose weight with which they heard from the media.

When asked in the survey; 2867 people (35.1%) said they are not making physical activity, and 3343 people (40.9%) perform occasionally. 24% of the respondents exercise regularly. The most frequent causes of physical activity was to be healthy (39.8%), the second most common cause (39.6%) was to relax. When asked the secondary most common answer was to be healthy (39%), the second most common (33%) were referred to lose weight. When asked why there is no activity, 55.8% of respondents said that they have no time, while 27.8% of the participants have shown work as the second cause. Also obese people do less physical exercise than people whose bmi is lower than 30 kg/m². There is strong scientific support for physical activity to be combined with modifications to energy intake as the most effective behavioral approach for addressing the obesity epidemic. Moreover, although 30 min/d of moderate-intensity physical activity may result in significant improvements in health, it appears that progressing to at

least 60 min of physical activity may be necessary for enhancing long-term weight loss outcomes.¹⁵ See table 3

| Obesity | Activity | | | Total |
|------------|----------------|----------------|----------------|--------------|
| | No activity | Regular | Sometimes | |
| Normal BMI | 2380 34,19% | 1729 24,83% | 2853 40,98% | 6962 100% |
| Obese BMI | 395 40,06% | 182 18,46% | 409 41,48% | 986 100% |
| Total | 2775 34,91% | 1911 24,04% | 3262 41,04% | 7948 100% |

Discussion

Obesity is increasingly rising as a problem that threatens the public health and it requires interventions to protect society from obesity. In this regard, especially health care workers involved in primary care has an important role and responsibility.¹⁶ Interventions for prevention of obesity has three stages: primary, secondary and tertiary prevention. Primary prevention aims to reduction of BMI in society, individual's having the appropriate weight for their age and intervention targets all individuals in society. Secondary prevention targets high-risk individuals who has obese parent or type 2 diabetes in family history. The purpose of the intervention carried out in this context is to increase individual competence to protect against excessive weight gain and develop positive health behaviors. Tertiary prevention includes applications that are performed in order to lose weight of overweight and obese individuals and to prevent further weight gain.¹⁷

Development of effective preventive solutions requires a sound understanding of the key forces that are driving the obesity epidemic. Genes are important, but societal changes are driving the epidemic; Economic growth, modernization, urbanization and globalization of food markets are just some of the societal and environmental forces thought to underlie the epidemic and also decreases in physical activity. Obesity rates will continue to increase in the next millennium if current diet and physical activity patterns do not improve.¹⁸

Even if obesity is associated with familial behavior, it is necessary

to break this cycle. To make this; guides are needed for education, school health, public health and clinical health care. While personally, diet and physical activity play a key role; duties are also available for primary health care units;

- To prepare, develop, implement intervention programs for sport and physical activity for regional and/or national level.
- To monitor risk factors of obesity and the society' physical activity condition, making periodic health impact assessment for each risk factor, according to monitoring results.
- To set the standards required by the profession, age, gender for preventing obesity and encouraging physical activity, and to prepare national guidelines.
- To develop and implement projects and education programs about obesity and physical activity for the whole society.
- In this context, to develop standards and recommendations for a diet based on individual needs and the society's need for the prevention of chronic diseases
- To determine service, performance quality standards and criteria of the nutrition and diet counseling service.
- In catering (schools, dormitories, hospitals, kindergartens, nursing homes, prisons, etc.) to provide nutrients for healthy nutrition at every stage until the service from the purchase order and to do the necessary work to carry out programs aimed at meeting the nutritional needs of those who use the service.¹⁹

Conclusion

Obesity is a major and rapidly spreading public health problem in the 21st century. Due to its increasing effect on inflammation by hormones and cytokines, it causes diseases including heart and circulatory system related diseases, some cancers, psychiatric disorders, infertility and fatty liver disease. The incidence increase in our country is in accordance with the rise around world. Preventing obesity with public health projects is gaining importance, which is more cost effective and not effecting the quality of life.

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