Original Article

Obesity and Risk Factors in Women Aged Between 18 And 64

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Abstract

Objectives: This study aims to identify obesity and risk factors in women aged between 18 and 64.
Methodology: The present study has a descriptive and relational model. It was conducted with the participation of 1822 volunteer women in a city located in the Eastern part of Turkey between October and November, 2016. Data were collected using the Socio-demographic Form, and weight and height measurements.
Results: Of all the women participating in the study, 10.9% were obese, and 71.7 % of the obese women had first degree obesity. A significant relationship was found between Body Mass Index (BMI) and age, number of deliveries, education level, husband's education level, age of menarche, and age of first delivery ($p<0.01$, $p<0.001$).
Conclusions: Obesity, which has been increasing rapidly in the world and in our country, is associated with several risk factors. It is recommended that studies should be conducted in order to identify the risk factors underlying obesity and manage these risk factors. In addition, women's health is considered to be improved through national and international studies.

Key words: Obesity, Woman, Risk Factors

Introduction

Obesity is a common nutrition problem whose prevalence is increasing rapidly in specifically developed countries, in the whole world and in our country; it is also an important public health problem which causes various diseases. Obesity is defined by the World Health Organization as "abnormal or excessive fat accumulation that presents a risk to health". Obesity is indicated if body fat rate is over 25% in men, and over 35% in women (Bilge and Beji, 2016; Kanter and Caballero, 2012).

Obesity is reported to be affected by such factors as unhealthy and unbalanced nutrition, lack of activity, age, gender, education, occupation, marital status, income, race, socio-cultural socio-economic status, structure, genetics, stress, depression, cigarette, alcohol, medicine, number of deliveries, and delivery intervals as well as nutrition cost, city architecture, women's participation in workforce, urbanization, and regional differences (Ergin, 2014; Kalra and Unnikrishnan, 2012).

While obesity was perceived as a sign of being healthy in the past, it is now acknowledged both as a disease and as a serious social, psychological, and economic problem which triggers several lifelong diseases (Gurkas et al., 2014). Obesity, which is an epidemic problem, cause several chronic diseases to emerge (Laurie et al., 2014; Gee et al., 2013). Besides, obesity is reported to have caused the death of 3.4 million people in the world (Marie et al., 2014).

Obesity prevalence was doubled worldwide between 1980 and 2008. In 2008, 10% of all men and 14% of all women became obese (WHO, 2010). According to the 2009-2010 results of the USA National Health and Nutrition Examination Survey (NHANES) conducted by Centers for Disease Control and Prevention (CDC), obesity prevalence is 35.5% for men and 35.8% for women in America; and it is 35.7% for general total. Other developed countries demonstrate almost the same results, which clearly indicates the increasing rate of obesity (Laurie et al., 2014).

Studies conducted in our country report obesity prevalence as 22.3% for men and between 29.4% and 53.1% for women (Gurkas et al., 2014; Hatemi et al., 2002; Satman et al., 2002; Aydin et al., 2012; Erem et al., 2001; Yangin and Hincal, 2016).

Studies have revealed that obesity is one of the important health problems in our country that threatens public health. This case increases morbidity caused by obesity in women's advanced ages and affects quality of life negatively.

Therefore, the present study aims to identify obesity and risk factors in women who were aged between 18 and 64 and who lived in a city located in the Eastern part of Turkey.

Methodology

This study utilised a descriptive and relational model. It was conducted in Family Health Centers (FHC) in a city located in the Eastern part of Turkey between October and November 2016.

Target population of the study was 4650 women who applied to FHCs between the aforementioned dates. No sampling was performed, the study was conducted with 1822 women who were aged between 18 and 64, who were not pregnant, who could communicate, and who accepted to participate in the study.

Ethical considerations

Prior to the study, ethical committee approval was obtained from the Public Health Institution (13/05/2016-E.8791), with decision dated and numbered 12.05.2016 and 002; the participating women were informed about the study and their verbal consent was obtained.

Measurements

Data were collected using the Socio-demographic Form and height-weight measurements. BMI was calculated by bodyweight in kilograms divided by height in meters squared. BMI grouping was based on the measurements in the following table

Socio-demographic Form

The form, which was developed by the researchers, consists of 12 questions that aim to collect data about the socio-demographic features of the women participating in the study.

Data collection/Procedure

Data were collected by the researcher through face to face interviews with the participants who applied to FHCs and who accepted participate in the study. Each interview took about 8 to 10 minutes. Weight and height measurements were performed after the women answered the questions in the Socio-demographic form.

Data analysis

Data were analysed in SPSS package programming, using descriptive statistics, Kolmogorov Smirnov, and spearman correlation analyses. Statistical significance was taken $p<0.05$.

Results

An analysis of the participants' socio-demographic features showed that their average age was 28.43±10.84. Besides, 37.4% had college degree/ were collage graduates, 52.5% were married, and husbands of 29.1% were literate/primary school graduates. 70.9% of the women had social security, 47.4% were students/worked in daily jobs, and 48.8% had income equal to expenses. Average age for menarche was 13.74±1.52; average age for first delivery was 21.20±3.43, and average number of deliveries was 3.91±2.68 (see Table 2).

Body Mass Index results showed that 58.6% of the women had normal weight, 10.9% were obese, 7.6% were thin; and 71.7% of the obese women had 1st degree obesity (see Table 3).

There was a positive, significant relationship between Body Mass Index and age and number of deliveries; and there was a negative, significant relationship between education level, husband's education level, age of menarche, and age of first delivery (see Table 4).

Table 1. The International Classification of adult underweight, overweight and obesity according to BMI (http://apps.who.int/bmi/index.jsp?introPage=intro_3.html)

Classification	BMI (kg/m^2)	
	Principal cut-off points	Additional cut-off points
Underweight	<18.50	<18.50
Severe thinness	<16.00	<16.00
Moderate thinness	16.00 - 16.99	16.00 - 16.99
Mild thinness	17.00 - 18.49	17.00 - 18.49
Normal range	18.50 - 24.99	18.50 - 22.99
		23.00 - 24.99
Overweight	≥25.00	≥25.00
Pre-obese	25.00 - 29.99	25.00 - 27.49
		27.50 - 29.99
Obese	≥30.00	≥30.00
Obese class I	30.00 - 34.99	30.00 - 32.49
		32.50 - 34.99
Obese class II	35.00 - 39.99	35.00 - 37.49
		37.50 - 39.99
Obese class III	≥40.00	≥40.00

Table 2. Socio-demographic Features of the Women

		N(%)
Education Level	Illiterate	295 (16.2)
	Literate/Primary School	297 (16.3)
	Secondary School	124 (6.8)
	High School	424 (23.3)
	College	682 (37.4)
Marital Status	Married	956 (52.5)
	Single	835 (45.8)
	Widow/Divorced	31 (1.7)
Husband's Education Level	Illiterate	91 (9.2)
	Literate/Primary School	287 (29.1)
	Secondary school	149 (15.1)
	High School	238 (24.1)
	College	222 (22.5)
Social Security	Yes	1292 (70.9)
	No	530 (29.1)
Occupation	Civil Servant	167 (9.2)
	Housewife	792 (43.5)

	Other (student, etc.)	863 (47.4)
Monthly Income	Income less than expenses	762 (41.8)
	Income equal to expenses	890 (48.8)
	Income more than expenses	170 (9.3)
	$\overline{X}$ **±SD**	
Age	28.43±10.84 (min. 18 max. 64)	
Age of Menarche	13.74±1.52 (min. 8 max. 23)	
Age of first delivery	21.20±3.43 (min. 14 max. 38)	
Number of Deliveries	3.91±2.68 (min. 1 max. 18)	

Table 3. Distribution of the Women according to Body Mass Index

	N	**%**
Thin	139	7.6
Normal	1067	58.6
Pre-obese	418	22.9
Obese (Total)	198	10.9
1st degree obese	*142*	*71.7*
2nd degree obese	*42*	*21.2*
3rd degree obese	*14*	*7.1*

Table 4. Relationship between Body Mass Index and Women's Features

		Age	Education level	Husband's education level	Age of Menarche	Age of First Delivery	Number of Deliveries
BMI	r	.592	-.486	-.243	-.059	-.206	.391
	p	**.000**	**.000**	**.000**	**.012**	**.000**	**.000**

Discussion

Obesity prevalence in the world range between 29.4% and 53.1% for women (Gurkas et al., 2014; Satman et al., 2002; Aydin et al., 2012; Erem et al., 2001; Yangin and Hincal, 2016; Cynthia et al., 2015; Sardinha et al., 2012). The results of this study showed that 10.9% of the women were obese, and 71.7% of the obese women had 1st degree obesity. This result is considered to be affected by individual, environmental, socio-cultural, and economic factors.

Studies show that obesity prevalence increases with age (Aydin et al., 2012; Yangin and Hincal, 2016; Onat et al., 2001; Pasco et al., 2012). This study also found that body mass index increased with age. Physiologically, with the effect of oestrogen hormone, body fat tissue increases in females in line with muscle mass at the beginning of adolescence period. With aging, a number of factors such as pregnancy and menopause

contribute to this weight increase (Kanter and Caballero, 2012; Ergin, 2014).

High prevalence of female obesity in our country is associated with higher number of deliveries (Yangin and Hincal, 2016; Saygin et al., 2015). This study also revealed a positive relationship between number of deliveries and BMI. This result is considered to be caused by women's excessive food intake and decreased physical activity in pregnancy and postpartum periods.

Studies show that obesity is associated with education level. Obesity is reported to decrease with the increase in education level (Zileli et al., 2017; Cetin et al., 2012). This study also found a negative relationship between education level and body mass index. Findings of this study are in line with the literature.

The present study found a negative relationship between age of menarche and age of first delivery and body mass index. Studies show that biological factors such as tendency to gain weight starting from adolescence years and pregnancies, are risk factors for obesity in women (Kanter and Caballero, 2012; Ergin, 2014).

Conclusion and Recommendations

Obesity tends to increase in the world and in our country. In this regard, due to causing chronic diseases and mortality, obesity leads to serious medical expenses and workforce loss. Identification of the risk factors underlying obesity, which is common especially in women, is highly important in terms of women's health so that the preventable risk factors can be managed. Therefore, education programs are considered to be beneficial in helping women to raise awareness and protect and improve their health.

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References

Aydin, Y. Celbek, G. Kutlucan, A. & Onder, E., et al. (2012). Obesity Prevelance in West Black Sea Region: The Melen Study. Turk Jem. 16, 52-7.

Bilge, C. & Beji, N. (2016). Obesity and Lower Urinary Tract Symptoms in Women. Florence Nightingale Nursing Journal. 24(2), 72-79.

Cynthia, L. Margaret, D. Cheryl, D. & Katherine, M. (2015). Prevalence of Obesity Among Adults and Youth: United States, 2011–2014. NCHS Data Brief. 219, 1-8.

Cetin, F. Gune s, G. & Ozer, A. (2012). Prevalence of metabolic syndrome, its relationship with mental health (anger) and sociodemographic characteristics in women residing in central district of Malatya: a cross-sectional observational study Anadolu Kardiyol Journal. 12, 53-9.

Erem, C. Yildiz, R. Kavgaci, H. & Karahan, C., (2001). Prevalence of Diabetes, Obesity, and Hypertension in a Turkish Population (Trabzon city). Diabetes Res Clin Practice. 54(3), 203-8.

Ergin, A.B. (2014). Evaluation of Obesity in Perspective of Women Health and Gender Roles. KASHED. 1(1), 41-54.

Gee, S. Chin, D. Ackerson, L. Woo, D. & Howell, A. (2013). Prevalence of Childhood and Adolescent Overweight and Obesity from 2003 to 2010 in an İntegrated Health Care Delivery System. Journal of Obesity. 1(1), 1-8.

Gurkas, E. Kiraz, M. & Temizer, M. (2014). Determination of the Family Planning Methods

Usage in 15–49 Aged Women at Gaziantep İstasyon Family Health Center Region. Konuralp Medical Journal. 6(2), 5-8.

Hatemi, H. Turan, N. Arık, N. & Yumuk, V. (2002). Turkey obesity and hypertension screening results (TOHTA). Journal of Endocrinology Orientations. (11), 1-16.

Kalra, S. & Unnikrishnan, A.G. (2012). Obesity in India: The Weight of the Nation. Journal of Medical Nutrition and Nutraceuticals. 1(1), 37-41.

Kanter, R. & Caballero, B. (2012). Global Gender Disparities In Obesity: A Review. Adv. Nutr. 3, 491–498.

Laurie, K. Deborah, M. Reddigan, J. & William, K. (2014). Current and Predicted Prevalence of Obesity in Canada: A Trend Analysis. CMAJ OPEN. 2(1), 18-26.

Marie, N.G. Fleming, T. Robinson, M. & Thomson, B., et al. (2014). Global, Regional, and National Pevalence of Overweight and Obesity in Children and Adults During 1980–2013: A systematic Analysis for The Global Burden of Disease Study 2013. Lancet. 384, 766-81.

Onat, A. Kele S, İ. Sansoy, V. Ceyhan, K. Uysal, O. Cetinkaya, A. & Basar, O. (2001). Rising obesity indices in 10-year follow-up of Turkish men and women: body mass index independent predictor of coronary events among men. Archives of the Turkish Society of Cardiology. 29(7), 430-436.

Pasco, J. A. Nicholson, G. C. Brennan, S. L. & Kotowicz, M. A. (2012). Prevalence of obesity and the relationship between the body mass index and body fat: cross-sectional, population-based data. PLOS ONE, 7(1), 29580.

Sardinha, L.B. Santos, D.A. Silva, A.M. & Manuel, J., et al. (2012). Prevalence of Overweight, Obesity, and Abdominal Obesity in a Representative Sample of Portuguese Adults. PLOS ONE. 7,10.

Satman, I. Sengul, A.M. Uygur, S. & Salman, F., (2002). Population Based Study of Diabetes and Risk Characteristics in Turkey: Results of the Turkish Diabetes Epidemiology Study (TURDEP). Diabetes Care. 25, 1551-1556.

Saygin, M. Ozturk, O. Akbulut, S. Kılınc, F. & Saygin, R. R. (2015). Obesity prevalence in patients of SDU School of Medicine Hospital diet policlinic. Medical Journal of Suleyman Demirel University, 22(3), 53-59.

WHO. BMI classification http://apps.who.int/bmi/index.jsp introPage=intro3.html 2004 (28.07.2017).

WHO.Global Status Report On Noncommunicable Diseases 2010. (2011). http://www.who.int/nmh/publications/ncd_report_full_en.pdf (27.07.2017).

Yangin, H. & Hincal, S. (2016). Prevalence and Risk Factors of Obesity among Married Women Living in Squatter Neighborhood Van Medical Journal. 23(1), 1-6.

Zileli, R. Semsek, O. Ozkamci, H. & Diker, G. (2016). The Attendance to Sport of Women Living in Bilecik, Obesıty Prevalence and Risk Factors. Marmara University Journal of Sport Science 2016;1(1): 83-96.