DETERMINATION OF OBESITY LEVELS OF VAN LIVING INDIVIDUALS

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Abstract:

Objective: This study was conducted to determine the relationship between the obesity levels of the individuals living in Van in terms of some variables.

Methods: A total of 1000 people participated in the survey, with 399 women and 601 men with a mean age of 35.89 ± 8.60. The results obtained from the study were analyzed with the SPSS 20.0 package program. In the analysis of the data, the t test and the One Way Anova test were applied to determine the difference between the groups.

Results: As a result of the analyzes, % 3.5 of the participants were weak, 60.1% were normal weight, 28.3% were overweight, % 6.5 were 1. degree obese, % 1.3 II the grade is obese and % 0.3 is III. degree obese. The grade was determined to be obese. There was a statistically significant difference between the BMI values of the participants and regular sporting, gender and marital status ($p < 0.01$). However, a significant difference was observed when body weight, gender and marital status were examined ($p < 0,01$). On the other hand, there was no significant difference between body weight and regular sport ($p > 0,05$).

Conclusions: As a result, it was determined that % 28.3 of the participants were overweight and 8.1% obese. Regular sporting can have a positive effect on BMI.

Keywords: BMI, body weight, gender, obesity

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1. Introduction

Body weight can be maintained by the balance between calorie value of consumed foods and consumed energy. If the energy obtained from the received food is equal to the energy consumed, the body weight remains constant. If the energy obtained from these equilibrium gauges is dominant, weight gain is attenuated when the energy consumption is higher than the energy consumed (Himas H., 1997, West J. B., 1991, Guyton A. C. and Hall J. E., 1997, Ganong W. F., 1995). Every extra 9.3 calories of food taken with food constitutes 1 gr of body fat, Obesity is considered to be 20% higher in men than in normal weight, and 25% higher in women than expected normal weight (Ganong W. F., 1995, Telatar H. and Şimşek H., 1993).

World Health Organization (WHO) obesity; the increase in the level of fat that can lead to adverse health outcomes (Athar K., 2004). One of the most common health problems in developed societies is obesity. In developed and developing countries and in our country, global warming has become a serious public health problem, reaching epidemic proportions and becoming increasingly frequent but preventable problem (Bakhshi E. et al, 2008, Insel P. et al, 2007). Obesity is caused by 30-70% of the general factors. However, high-calorie food consumption leads to a reduced lifestyle and reduced physical activity, leading to reduced energy consumption (WHO, 2005). On the other hand, obesity and overweight have been reported to be closely associated with sedentary lifestyle and low physical activity (Martinez-Gonzales M. A. et al., 1993, Z. Pancar et al., 2017). This leads to an increase in obesity throughout the world, especially in developed societies (Insel P. et al, 2007, Hajian-Tilaki K. O. and Heidari B., 2007).

WHO has reported more than 400 million obese and over 1.6 billion people worldwide. It is estimated that these numbers will rise to 700 million and 2.5 billion respectively in 2015 (WHO, 2005). According to the Risk Factors of Heart Disease Study in Turkish Adults, the prevalence of obesity in males aged 30 years and over is 25,2 %; and 44.2 % for women. The prevalence of females after 50 years of age was significantly increased (50,2 %) (Onat A et al, 2001). There are different methods used to determine obesity. One of them is the body mass index (BMI) it is obtained by proportioning the body weight to the body weight in meters.

It is the most commonly used method of determining obesity. The BMI value is <18.5 for weak, 18.5-24.9 for normal, 25-29.9 for overweight, 30-34.9 for obese, 35-39.9 for second-degree obese, and> 40 for advanced obesity (Booth M. L. et al., 2000, Sarria A et al., 2001).

This study was conducted to determine the relationship between the obesity levels of the individuals living in Van in terms of some variables.

2. Method

This study is composed of individuals living in the center of Van province in 2017 and the sample is composed of 1000 people in total with a mean age of 35 selected by random method.

2.1 Statistical Analysis

In the analysis of the data, SPSS 20.0 package program was used. Standard deviations and averages of the obtained data were taken. Independent T test was used for binary group comparison, One way ANOVA was applied for multiple groups, statistically evaluated at $p < 0.05$ level.

3. Results

Table 1: Classification of participants according to their BMI values

BMI values kg/m²	N	%	Condition
< 18,5	35	3,5	Weak
≥ 18,5 - < 24,9	601	60,1	weight
≥ 25,0 - < 29,9	283	28,3	Overweight
≥ 30,0 - <34,9	65	6,5	I. degree obese
≥ 35 - < 39,9	13	1,3	II. degree obese
≥ 40,0	3	,3	III. degree obese
Total	1000	100	

When Table 1 was examined according to the BMI values of the participants, 60.1% of the participants were weight, 28.3% were overweight, 6.5% were first degree obese and 1.3% were found to be II. degree obese.

Table 2: Participants' BMI and body weight distribution according to some variables

	Variable	Option	N	Mean	Standard Deviation	t	p
BMI (kg / m²)	Regular sport	Yes	396	23,60	3,15	-5,033	,000
		No	604	24,85	4,23		
	Gender	Female	399	24,80	3,34	4,396	,000
		Male	601	23,70	4,52		
Body weight (kg)	Regular sport	Yes	396	71,20	11,63	-1,534	,125
		No	604	72,47	13,40		
	Gender	Female	399	64,80	12,22	16,300	,000
		Male	601	76,72	10,69		

When the data in Table 2 are examined in terms of BMI values, it is seen that the average values of BMI values of regular sportsmen are 23,60 ± 3,15 kg / m² and 24,85 ± 4,23 kg / m² for those who do not regular sports. When the BMI values were compared according to gender variables, the mean BMI of women was found to be 24,80 ± 3,34 kg / m², and that of men was 23,70 ± 4,52 kg / m². When the body weight values of the participant in the same table were examined, it was determined that the average body weight of the regular sportsmen was 71.20 ± 11.63 kg and that of the non-sportsmen was 72.47 ± 13.34 kg. In addition, the average body weight of women is 64,80 ± 12,22 kg, and men are 76,72 ± 10,69 kg.

Table 3: Participants' BMI and body weight averages according to marital status

	Variable	Option	N	Mean	Standard Deviation	t	p
BMI (kg / m²)	Marital status	married	565	25,09	3,90	29,607	,000
		single	390	23,21	3,45		
		widow	45	25,19	4,87		
Body weight (kg)	Marital status	married	565	73,92	12,37	17,186	,000
		single	390	69,08	12,44		
		widow	45	72,44	15,14		

Table 3 shows that when the BMI values of participants were analyzed according to marital status, the mean BMI of married persons was 25,09 ± 3,90 kg / m², those of single persons were 23,21 ± 3,45 kg / m² and those who were widowed were 25,19 ± 4,87 kg / m².

In the same table, when the body weight values of the participants were examined, it was determined that the average weight of the married ones was 73,92 ± 12,37 kg, that of single ones was 69,08 ± 12,44 kg and that of widows was 72,44 ± 15,14 kg.

4. Conclusions

When the participants included in the study were classified according to their BMI values, 60.1% of the participants were weight, 28.3% were overweight, 6.5% were I. degree obese, 1.3% of them are in the II. degree of obesity. And 0.3% It has been determined that it is III. degree obese. According to this data, approximately 36% of participants were found to be above normal weight. The prevalence of obesity according to Turkish Diabetes, Hypertension, Obesity and Endocrinological Disease Prevalence Study-II (TURDEP II) results was 38% in females; in males and 22% in males (Satman I Et al, 2010). According to Turkey Obesity Profile study, the total prevalence

was 34.3%; 16.9% for men; and 48.4% in women (Ministry of Healthy, 2008-2012). The literature supports the findings of the study.

The mean BMI of the participants was 24.36 ± 3.89 kg / m². When the BMI values were evaluated according to whether the participants did regular sports or not, it is seen that the average value of BMI values of regular sportsmen is $23,60 \pm 3,15$ kg / m² and that of regular sportsmen is $24,85 \pm 4,23$ kg / m². When these mean values were compared statistically, it was seen that the difference was significant at $p < 0.01$ level.

Tortumluoğlu et al. (2005) reported that the BMI values before and after exercise also decreased significantly ($p < 0.01$). Chen et al. (2001) reported a significant reduction in the BMI average of subjects before and after exercise training in a study they conducted. The data in the literature support the findings of the study.

Temur et al. (2017) reported a significant decrease in BMI values before and after the exercise program in a study in which they studied eight weeks of exercise on women's effects on body composition and some blood parameters in women. This significant reduction in post-exercise BMI values can be attributed to the positive effect of regular exercise on body fat reduction because adult men account for 15-18% of body fat, 20-25% for females and 25% in males and 30% in males is reported to result in Fefi obesity (Özkan A. et al). When the BMI values were analyzed according to the genders of the participants, it was determined that the mean BMI of women was $24,80 \pm 3,34$ kg / m² and that of men was $23,70 \pm 4,52$ kg / m². Statistical comparison of these values showed that the difference between the results was significant ($p < 0.01$).

Metinoğlu et al. (2012) reported that there was no meaningful relationship between BMIs in terms of gender in the study of individuals aged 10-12 years. The fact that the findings of the study are different from the literature shows that the mean age of the two study groups may be different.

All participants had a body weight average of 71.98 ± 12.71 kg. Given that participants in the body weight values do not regularly play sports, the mean body weight of subjects was $71,20 \pm 11,63$ kg and those who did not sports $72,47 \pm 13,40$ kg. Although these two mean values were higher in those who did not exercise, the difference was not statistically significant ($p < 0.05$).

When the body weights were compared according to gender, the mean body weight of women was found to be 64.80 ± 12.22 kg, and that of males was 76.72 ± 10.69 kg. These values were found to be significant ($p < 0.01$) in favor of men. This result is thought to be a natural consequence of the difference in body mass, muscle mass, between men and women. When the BMI values of the subjects included in the study were analyzed according to marital status, the mean BMI of married persons was $25,09 \pm 3,90$ kg / m², those of widowed were $25,19 \pm 4,87$ kg / m² and those who were single were $23,21 \pm 3,45$ kg / m². When these values were compared statistically, it was

determined that there was no significant difference (p <0,05) between married and widowed BMI values, but there was a significant difference (p <0.01) in BMI with single, married and widowed. Çayır et al. (2001) reported that obesity rates in the siblings were higher than single and married. In addition, different studies have shown that married people are more obese than the bachelors (Efil S., 2005, Fouad M. F. et al., 2006, Maskarinec G. et al., 2006).

This literature supports the research findings. In addition, participants' body weight values, when considered according to their marital status of 73.92 ± 12.37 kg, widows 72.44 ± 15.14 kg and single ones 69.08 ± 12.44 kg.

When statistical comparisons of these values were examined, it was seen that the average body weight of the unmarried people was significantly lower than both married and widowed (p <0.01). The emergence of such a pattern is thought to be caused by the reasons such as the weight of the pregnant period, the importance of exercise after the birth and the contribution of the child breastfeeding, the importance of this and the increase of the weight after each birth, the changing of the life style.

As a result, 28.3% of the subjects included in the study are overweight and 8.1% obese. This is a serious rate. Another consequence of having regular sports is that it has a significant effect in preventing obesity. It was also seen that being married again was a factor increasing obesity, it can be taken as a measure to raise public awareness and to spread sports areas in order to prevent this negative picture and at least to prevent it from getting higher.

References

1. Ali Özkan, Yusuf Köklü, Gürhan Kayıhan, Utku Alemdaroğlu, Gülfem Ersöz, Obezitenin Önlenmesi Ve Tedavisinde Fiziksel Aktivite Ve Egzersizin Rolü, Uluslararası Hakemli Akademik Spor Ve Sağlık Ve Tıp Bilimleri Dergisi, 2013, S7,C3,

2. Athar K. Who expert consultation Appropriate Body-Mass Index for Asian population sandit simplications for policy and ıntervention strategies. The lancet, 157-163 www.who.int/bmi/index.jsp?intropage=intro_3.html Erişim: (2004). 2.05.2009.

3. Bakhshi E, Eshraghian MR, Mohammad K, Foroushani AR, Zeraati H, Fotouhi A Et Al. Socio demographic and smoking associated with obesity in Adult women İn Iran: Results from the national health survey. J Public health 2008;30:429-35.

4. Booth ML, Hunter C, Gore CJ, Bauman A, Owen N. The Relationship between Body Mass İndex and Waist Circumference: İmplications for Estimates of the Population Prevalence of Overweight. Int J Obes. Relat. Metab. Disord. 2000;24:1058-61.

5. Efil S. Sağlık Calışanlarında Obezite Sıklığı Ve Etkileyen Faktorlerin Değerlendirilmesi. İc Hastalıkları Hemşireliği Anabilim Dalı Yuksek Lisans Tezi. Afyon2005;S:57.

6. Fouad MF, Rastam S, Ward KD, Maziak W. Prevalence of Obesity and Its Associated Factors İn Allepo, Syria. Prev Control2006;2:85-94.

7. Ganong WF. Review of Medical physiology, A Lange medical book, 17th Ed. 1995:1,215.

8. Guyton AC, Hall JE. Human Physiology and mechanisms of Disease, 16th Ed. WB Saunders, 1997:486,584.

9. Hajian-Tilaki KO, Heidari B. Prevalence of Obesity, Central obesity and the associated factors İn Urban Population aged 20-70 Years, İn The North of Iran: A Population-Based study and regression approach. Obesrev2007;8:3-10.

10. Himas-Hagen J. Technical comments: On Raising energy expenditure in Ob/Obmice. Science 1997; 276:1132-33.

11. Insel P, Turner E, Ross DS. Energy balance, Body Composition and weight Management. Nutrition, Third Edition2007;329-79.

12. T.C. Sağlık Bakanlığı Turkiye Obeziteİle Mucadele Programı Ve Ulusal Eylem Planı Taslağı. 3. Taslak (2008-2012).

13. Telatar H, Şimşek H. Gastroenteroloji. Mediko matbasm Yayım, 1993: 124-32

14. Temur H. B.,Öztürker M., Karaman M. E., Selçuk M., Çinar V., Effect Of Eıght Weeks Exercıse On Body Composıtıon And Some Blood Values In Women European Journal Of Physical Education And Sport Science, 2017, Volume 3, Issue 11.

15. The World Health organisation. Preventing chronic disease: A Vital investment: WHO Global report. Geneva: WHO, 2005:56.

16. Tortumluoğlu G, Hacıhasanoğlu R, Yılmaz S, Yazıcı M, Yaşlılara Verilen Planlı Egzersiz Eğitiminin Beden Kitle İndeksi (Bki), Arteriyal Kan Basıncı (Akb) Ve Egzersiz Davranışlarına Etkisi Atatürk Üniv. Hemşirelik Yüksekokulu Dergisi, 2005Cilt: 8, Sayı: 1.

17. Martinez-Gonzales MA, Martinez JA, Hu FB Et Al. Physical Activity, Sedentary Lifestyle and Obesity in the European Union. International Journal Of Obesity 1999; 3:1192-1201

18. Maskarinec G, Takata Y, Pagano I, Carlin L, Goodman M, Marchand L, Nomura A. Trends And Dietary Determinants Of Overweight And Obesity İn A Multiethnic Population. Obesity2006;14:717-26.

19. Onat A, Keleş I, Sansoy V, Ceyhan K, Uysal O, Çetinkaya A. et Al. Rising obesity indices İn 10-Year Follow-Up of Turkish Men and women: Body Mass index independent predictor of Coronary events among Men. Türk Kardiyoloji Derneği Arşivi 200129:430-36.

20. Sarria A, Moreno LA, Garcia-Clop LA, Fleta S, Morellan MP, Bueno M. Body Mass İndex, Triceps Skinfold And Waist Circumference İn Screening For Adiposity İn Male Children And Adolescent. Acta Pediatr, 2001; 90 :387-92

21. Satman I, Alagol F, Omer B, Kalaca S, Tutuncu Y, Colak N Et Al. Turkiye Diyabet, Hipertansiyon, Obezite ve Endokrinolojik Hastalıklar PrevalansCalışması-II. TURDEP II: On Sonuclar. Kronik Hastalıklar Oturumu, 13. Ulusal Halk Sağlığı Kongresi,18-22Ekim 2010, İzmir.

22. West JB. Best And taylor's physiological basis of Medical practice 12th Ed. Williams And Wilkins, 1991:741,774.

23. Pancar, Z., Özdal, M., & Çinar, V. (2017). The effect of 4-weekly low intensity physical activity program in thyroid hormone levels in obese and overweight children. European Journal of Physical Education and Sport Science.