

Anthropometric Measurements and Body Mass Index of The Female Students of Uludağ University*

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SUMMARY

In our study, the relation between height and weight of female students aged 17-25 years in different faculties of Uludağ University have been examined. The findings are respectively: mean age is 19.7 years, mean weight and standart deviation is

55.96 ± 7.17 kg, mean height is 1.60 ± 0.05 m and body mass index is 21.92 ± 2.65 kg/m².

According to the findings of our study, 4.0% of students are mild obese, and 1.3% are severe obese. For female smokers body mass index are found 21.78 ± 2.61 kg/m², mild obesity rate is 16.95 % and severe obesity rate is 5.08%. These rates for non-smokers are respectively 21.95 ± 2.66 kg/m², 3.73% and 1.66%.

There is not significant difference in body mass index between smokers and non-smokers but it is found that the obesity rate is higher among smokers than non-smokers.

Comparison of our finding with the other countries reveald that BMI of the female students of Finland and North Australia is less then ours.

Keywords: Female, students of University, body mass index

ÖZET

ULUDAĞ ÜNİVERSİTESİ KIZ ÖĞRENCİLERİNDE ANTROPOMETRİK ÖLÇÜMLER VE VÜCUT KİTLİ ORANI.

Çalışmamızda Uludağ Üniversitesi'nin çeşitli fakültelerinde öğrenim gören 17-25 yaşları arasındaki kız öğrencilerde ağırlık ve boy arasındaki ilişki incelendi. Öğrencilerin yaşı ortalaması 19.7 yıl, vücut ağırlık ortalaması ve standart sapması 55.96 ± 7.17 kg, boy ortalaması 1.60 ± 0.05 m ve vücut kitle oranı (BMI) ortalaması 21.92 ± 2.65 kg/m² idi.

Vücut kitle oranına göre öğrencilerin % 4'ü ılımlı şişman, % 1.33'ü aşırı şişman olarak bulundu. Sigara içen kız öğrencilerin BMI ortalaması 21.78 ± 2.61 kg/m², ılımlı şişmanlık oranı % 16.95 ve aşırı şişmanlık oranı % 5.08 iken sigara içmeyenlerin BMI ortalaması 21.95 ± 2.66 kg/m², ılımlı şişmanlık oranı % 3.73 ve aşırı şişmanlık oranı % 1.66 olarak saptandı. Sigara içen ve içmeyenler arasında BMI ortalamaları arasında anlamlı farklılık saptanmamakla beraber sigara içenlerde şişmanlık oranlarının daha yüksek olduğu görüldü. Diğer ülkelerle karşılaştırma yapıldığında Finlandiya ve Kuzey Avustralya kız öğrencilerinde BMI ortalamaları daha düşük olarak bulundu.

Anahtar Kelimeler: Üniversite kız öğrencileri, vücut kitle oranı.

In the last years, the interest of public is concentrated on the body weight. Especially for

women the excessiveness of weight (slimness or obesity) takes more interest. In this study, we

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measured the height and weight of female students of Uludağ University in order to find body mass index and obesity rate.

MATERIALS AND METHODS

In this study, the height and weight of 300 female students of Uludağ University have been measured. The age range of the students is 17-25 years and the mean age is 19.7 years. The height of the students were measured bare foot and the decimal measurements are completed to the 0.5 cm. The weight measurement were made by thin clothes and again the decimal measurements are completed to 0.5 kg. Body mass index (BMI), as an indicator of obesity, is calculated in kg/m^2 (1). The distribution of BMI to the smoking is examined.

The percent distribution of mild obesity (BMI is 27-30) and severe obesity (BMI is more than 30) was calculated (2).

The datas were analyzed statistically with the student t test.

RESULTS

The mean height (and standart deviation-sd) of students is 1.60 ± 0.05 m and the mean weiht (and sd) is 55.96 ± 7.17 kg. According to the these findings the mean BMI is calculated as $21.92 \pm 2.65 \text{ kg}/\text{m}^2$.

In this study we found that the percentage of mild obesity 4 % and severe obesity 1.33 %. We analysed our findings according to the smoking. There were 59 smokers in 300 female students.

For 59 smokers (20 %) body mass index is $21.78 \pm 2.61 \text{ kg}/\text{m}^2$ and the ratio of mild obesity is 16.95 % and severe obesity is 5.08 %.

These findings for 241 non-smokers (80 %) are $21.95 \pm 2.66 \text{ kg}/\text{m}^2$ (the mean BMI), 3.73% (mild obesity ratio) and 1.66 % (severe obesity ratio). There is not significant difference in mean values of BMI between smokers and non-smokers, but the obesity ratio in smokers is a little higher than in non-smokers (Table I). In generally the obesity rate is very low among students.

Table I. The mean values of BMI (\pm sd) and the ratios of obesity in our study.

Group	n	BMI (kg/m^2)	Mild obesity %	Severe obesity %
Smokers	59	21.78 ± 2.61	16.95	5.08
Non-smokers	241	21.95 ± 2.66	3.73	1.66
Total	300	21.92 ± 2.65	4.00	1.33

DISCUSSION

Unhappiness due to weight and body form among female students is very common. The BMI which is the ratio of the weight to the square of height is used as an indicator of the obesity. The findings of weight, height and BMI of the other communities and our findings is given in Table II. Obesity and obesity ratio are also given is Table III.

The comparison of the values of Table II revealed that the values of the height, weight and BMI of Finland women (2), height and weight of the female students of Liverpool University (3), the height of the female students of Flinders University-South Australia (4) and the weight of female students of Windsor University (5) are significantly higher than the mean value of our female students ($p < 0.001$). On the other hand, the height and weight of Chines females (6) are significantly lower than our values ($p < 0.05$ and $p < 0.001$ respectively).

The weight of the female students of Simon Fraser University-Canada (mean age is 27.6 years and mean weight is 58.7 ± 9.3 kg) are significantly

higher than our students ($p < 0.001$) (7). The heights of the Mexican women aged 24-45 years are lower (154.85 ± 1.54 cm) but their body mass index ($25.36 \pm 2.60 \text{ kg}/\text{m}^2$) are significantly higher ($p < 0.001$) (8). The height of Swedish women with mean age 25 years (163.54 ± 6.48 cm) are higher ($p < 0.001$). The higher values of Canadian and Mexican women might be due to their mean age are higher than the age of our sample (7,8). The women skier who gained world cup aged 20.4 years (9) have higher height (166.0 ± 0.87 cm) and weight (63.07 ± 1.20 kg) ($p < 0.001$).

According to the measurement of Stuart and Stevenson, the mean values for 17 years of age in girls are weight: 54.02 kg, height: 162.5 cm and BMI $20.46 \text{ kg}/\text{m}^2$ and for 18 years of age 54.39 kg, 162.5 cm and $20.60 \text{ kg}/\text{m}^2$ respectively (10). These mean values are close to our findings.

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Table II: Comparison of height, weight and BMI (mean \pm sd) in different communities.

Country	n	Age (year)	Weight (kg)	Height (m)	BMI (kg/m^2)
Turkey (Bursa)	300	19.7	55.96 \pm 7.17	1.60 \pm 0.05	21.92 \pm 2.65
USA	79	22.7	-	-	21.80 \pm 3.20
Canada	125	19.7	61.80 \pm 9.90	-	22.50 \pm 3.50
England	30	20.4	61.60 \pm 7.90	1.66 \pm 8.30	22.40 \pm 2.20
Australia	38	23.3	56.80 \pm 8.60	1.64 \pm 6.90	21.10 \pm 3.10
Finland	911	15-19	54.20 \pm 7.70	1.62 \pm 5.70	20.70 \pm 2.60
	1545	20-29	59.70 \pm 9.40	1.62 \pm 5.70	22.60 \pm 3.20
China	1867	17-18	48.00 \pm 5.44	1.55 \pm 5.40	20.30

Table III: The distribution of obesity prevalence according to the countries (%).

Country	Age Group	BMI (kg/m^2)	
		25.0-29.9	>30
Turkey (Bursa)	17-25	4.0	1.3
United Kingdom	20-64	25.0	9.0
Holland	>20	24.0	6.0
USA	20-64	22.0	15.0
Canada	20-64	21.0	8.0
Finland	15-19	9.5	0.5
Finland	20-29	23.7	3.0

Table III shows that the obesity rate of female students of Uludağ University is quite low. In spite of the fact that they have lower height and weight value than other countries female students, the ratio

between height and weight is in harmony. It is found that the obesity ratios of non-smokers are higher in our study.

REFERENCES

- Rissanen A, Knekt P, Heliövaara M, Aromaa A, Reunanen A, Maatela J. Weight and mortality in Finns women. *J Clin Epidemiol.* 1991; 44(8):787-795.
- Rissanen A, Heliövaara M, Aromaa A. Overweight and anthropometric changes in adulthood: A prospective study of 17000 Finns. *International Journal of Obesity.* 1988; 12:391-401.
- Brodie DA, Slade PD, Riley VJ. Sex differences in body image perceptions. *Perceptual and Motor Skills.* 1991;72:73-74.
- Ben-Tovim DI, Walker MK, Murray H, Chin G. Body size estimates:Body image or body attitude measures? *International Journal of Eating Disorders.* 1990; 9(1):57-67.
- Gibson SG, Thomas CD. Self-rated competence, current weight and body-image among college women. *Psychological reports.* 1991; 69:336-338.
- Zhang X, Huang ZE. The second national growth and development survey of children in China, 1985: Children 0 to 7 years. *Annals of Human Biology.* 1985;15(4):289-305.
- Thomas CD, Freeman RJ. Body-image marking. Validity of body-width estimates as operational measures of body image. *Behavior Modification.* 1991;15(2):261-270.
- Hall SK, Cousins JH, Power TG. Self-concept and perceptions of attractiveness and body size among Mexican-American mothers and daughters. *International Journal of Obesity.* 1991;15:567-575.
- White AT, Johnson SC. Physiological comparison of international, national and regional Alpine Skiers. *Int J Sports Med.* 1991;12:374-378.
- Stuart HC, Stevenson SS. Physical Growth on Development. In : *Textbook of Pediatrics.* Ed. Nelson W. Saunders, Philadelphia 1959, 50-61.