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| **Prejudice Against Obesity Among Students in A Faculty of Health Sciences:**  **A Cross-Sectional Study in Turkey** |
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| **ABSTRACT**  **Aim:** This study aimed to determine prejudice against obesity among students in the school of health, and the determinants of this prejudice. **Materials and Methods:** This cross-sectional study was conducted in Balikesir Faculty of Health Sciences. In determining the study group, the multistage sampling method was used, 768 people who agreed to participate in the study were included in the study. The data were analyzed using the descriptive statistics, chi-square test and logistic regression analysis. **Results:** The results of the logistic regression model demonstrated that obesity prejudice was 5.04 times higher among age group of 18-20 years old (95% CI:1.42-17.01), 4.02 times higher among single (95% CI:1.21-13.02), 3.74 times higher among medium income levels (95% CI:1.67-8.68), 3.43 higher in high income level (95% CI:1.34-8.61), 2.25 times higher among with a normal body perception (95% CI:1.14-6.15), 5.0 times higher among spent most of their life in the city center (95% CI:2.44-10.15), 2.88 times higher among spent 0-2 hours of watching TV per day (95% CI:1.34-6.27), 2.30 times higher among smokers (95% CI:1.11-4.84). **Conclusion:** The obesity prejudice scale score was found to be high in the study group. The obesity prejudice was high among those who had a better body perception, a higher socioeconomic status and had a healthy lifestyle.  **Keywords:** Obesity, Prejudice, Student, Cross-sectional Study. |
| **Sağlık Bilimleri Fakültesi Öğrencilerinde Obeziteye Karşı Önyargı:**  **Türkiye’de Kesitsel Bir Çalışma**  **ÖZ**  **Amaç:** Bu çalışmanın amacı Balıkesir Üniversitesinde öğrenim gören öğrencilerin obezite önyargı düzeylerinin ve ilişkili faktörlerin saptanmasıdır. **Gereç ve Yöntem:** Araştırma kesitsel tipte olup Şubat- Haziran 2017 tarihleri arasında Balıkesir Üniversitesi Sağlık Yüksekokulu öğrencileriyle görüşülerek yürütülmüştür. Araştırmanın evrenini Balıkesir Sağlık Yüksekokulunda öğrenim gören 1074 öğrenci oluşturmakta olup örnekleme yapılmamış evrenin tümüne ulaşılmaya çalışmış araştırmaya katılmayı kabul eden 768 öğrenci (%71.5) oluşturmuştur. Araştırmanın bağımlı değişkeni obezite ön yargı puanı bağımsız değişkenleri ise yaş, cinsiyet, bölüm, gelir medeni durum, beden kütle indeksi, aile öyküsü, sigara içme ve fiziksel aktivite yapma durumudur. Araştırmada sosyodemografik özelliklere ilişkin sorular ve **GAMS 27-Obezite Önyargı Ölçeği kullanılmıştır.** Veriler SPSS 22.0 programında çözümlenmiş verilen çözümlenmesinde sayı, yüzdeler, ki kare testi ve lojistik regresyon analizi kullanılmıştır. **Bulgular:** Araştırma grubunda bazı bağımsız değişkenlere göre obeziteye önyargılı olma, 18-20 yaş grubunda 5.04 kat (%95 GA = 1.42-17.01), bekar olanlarda 4.02 kat (%95 GA = 1.21-13.02), geliri 501-1000 TL olanlarda 3.74 kat (%95 GA = 1.67-8.68), beden algısı normal olanlarda 2.25 kat (%95 GA = 1.14-6.15), yaşamının büyük çoğunluğunu il merkezinde geçirenlerde 5.0 kat (%95 GA = 2.44-10.15), günlük 0-2 saat TV izleyenlerde 2.88 kat (%95 GA = 1.34-6.27), sigara içmeyenlerde 2.30 kat (%95 GA = 1.11-4.84) yüksektir. **Sonuç:** Araştırma grubunun obezite önyargı ölçeği puanı yüksektir. Gelir durumu arttıkça, kız öğrencilerde, ilçede yaşayanlarda, kendini zayıf olarak tanımlayanlarda ve TV izleme süresi kısa olanlarda obez kişilere önyargılı olma durumu yüksektir.  **Anahtar Kelimeler:** Obezite, Önyargı, Öğrenci, Kesitsel Çalışma. |
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**INTRODUCTION**

Obesity is a chronic metabolic illness in which there is an increase in the fat mass-fat free mass ratio (Wells, 2012). The World Health Organization (WHO) defined overweight and obesity as abnormal or excessive fat accumulation that may impair health. Obesity is now a global epidemic. WHO reported that in 2016, more than 1.9 billion adults, 18 years and older, were overweight of these over 650 million were obese (Usta & Akyolcu, 2014; World Health Organization, 2017). A majority of studies emphasized that obesity is usually associated with physical and psychological disorders. However, obesity is a serious health problem that should be socially addressed because of the stigma, prejudice, and discrimination against obese persons (Ercan, Akçil Ok, Kızıltan, & Altun, 2015; Hansson & Rasmussen, 2014; O’Brien et al., 2013; Puhl & Heuer, 2010; Stein et al., 2014; World Health Organization, 2017). Evidence regarding stigmatization, bias and discrimination against overweight and obese individuals has been increasing in recent years (Puhl, Luedicke, & Grilo, 2014). Obesity prejudice is the exposure to prejudices and negative attitudes related to obesity in educational, business and health care environments (Hansson & Rasmussen, 2014; Öztürk, Alpkaya, Keskin, & Çubuk, 2017). It is noted that 28% of teachers in one study said that becoming obese is the worst thing that can happen to a person; 24% of nurses said that they are "repulsed" by obese persons. Studies on the social effects of prejudice indicated that overweight people are less likely to be hired, are paid less, have fewer opportunities, are often outright bullied in the workplace, and usually face some negative outcomes in their working environment (Altun & Ercan, 2016; Puhl & Heuer, 2009). Negative attitudes towards obese patients are commonly seen among the healthcare professionals. Due to these negative experiences in healthcare institutions, a majority of patients leave treatment, which can cause delays in the cure of their illnesses (Puhl & Heuer, 2009; Şimşek & Karaca Sivrikaya, 2016). Stigma, prejudice, and discrimination against obese persons by healthcare providers and healthcare students increase the severity of their physical and psychological problems (Altun & Ercan, 2016).

This study aimed to determine prejudice against obesity in future healthcare providers and the relationship between sociodemographic characteristics and obesity prejudice.

**MATERIALS AND METHODS**

**Study type**

This cross-sectional study was conducted through face-to-face interviews with Balıkesir University School of Health students from February-June 2017.

**Study group**

The research universe consisted of all students enrolled in Balıkesir University School of Health during the 2016-2017 academic year (N=1074). Balıkesir University is located in Balıkesir province, at the northern west coast of Turkey. The sample size was not calculated as the researchers attempted to reach the maximum study size. Participation in this research was voluntary, students who did not agree to participate in the research or did not respond to all of the questions in the questionnaire forms

(306 students, 29.5%) were excluded from the study, and the study was conducted with 768 (71.50%) students.

**Dependent and independent variables**

The independent variables of this research are gender, department, income, marital status, body mass index, family history, smoking, and physical activity. The dependent variable is prejudicial attitude toward obesity.

**Procedures**

The sociodemographic characteristics form and the obesity prejudice scale were used to collect data. The obesity prejudice scale (GAMS 27-Obesity) is a 27-item, 5-point Likert type scale which was developed by Ercan et al. in 2015 to assess prejudicial attitudes of health care students. Possible scores obtained from this scale are between 27 and 135 (Ercan et al., 2015). Higher scores mean a higher level of prejudice. Scores which are ≤68.00 indicate unprejudiced attitudes. Scores from 68.01-84.99 reveal an inclination to prejudicial attitudes, and scores ≥ 85 indicates prejudicial attitudes. Written permission for the study was obtained from the Balıkesir School of Health Directorate, and the students who agreed to participate were asked to give the researchers their verbal consent.

**Statistical analysis**

Data were analyzed using SPSS 22.0. The descriptive statistics were evaluated using numbers and percentages, the relationship between the dependent variable and sociodemographic variables were determined by the Chi-square test and the Fisher’s exact test, and the variables affecting the prejudice against obesity which were found as significant in the literature were evaluated by the logistic regression model. Type 1 error was accepted as p<0.05.

**Ethical considerations**

Before the study was started, written permissions were obtained from the administrations of the universities whose students were to be included in the study’s sample. Written approval was obtained from the author’s Balikesir University Ethics Committee (Approval no.: 71522473/050.01.04.101).

**RESULTS**

Of the students, 56.1% were nursing students, 63.3% were at least 21 years old, 88.3% were female, 96.1% were single, 35.9% had a high income level, 79.9% spent most of their life living in a city center, 63.5% watched 2 hours of TV per day, 74.1% had normal body perception, 58.9% did not have a family history of obesity, 75.1% were non-smokers, and 93.7% had a prejudice/tendency to be prejudiced against people who are obese (Table 1).

The mean age of the research participants was 21.07±1.79, their mean BMI was 21.97±3.26, and the mean obesity prejudice score was 83.14±8.93. In the research group, the prejudice against obesity or inclination to prejudice was significantly higher in the 18-20 year old age group (χ2 = 15.244, p = 0.001), in female students (χ2 = 8.730, p = 0.003), in single students (χ2 = 10.073, p = 0.002), in students with a high level of income (χ2 = 8.056, p = 0.004), in those who lived in a city center (χ2 = 32.768,p = 0.001), watched 0-2 hours TV a day, (χ2 = 23.242, p = 0.001), had thin body perception (χ2 = 6.245, p = 0.005), and were non-smokers (χ2 = 5.371, p = 0.003), while it was significantly lower in the fourth year students (χ2 = 19.348, p = 0.001). No significant difference was found in terms of department, BMI, or family obesity history (p > 0.05).

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| **Variables** | | **n** | **%\*** |
| **Department** | Nursing  Midwifery | 431  337 | 56.10  43.90 |
| **Year in school** | 1  2  3  4 | 173  127  211  257 | 22.50  16.50  27.50  33.50 |
| **Age group** | 18-20 years  21 years | 282  486 | 36.70  63.30 |
| **Sex** | Female  Male | 678  90 | 88.30  11.70 |
| **Marital status** | Married  Single | 30  738 | 3.90  96.10 |
| **Income** | Low  Medium  High | 238  276  254 | 31.00  35.90  33.10 |
| **Spent most of life’s** | Village/district  City center | 154  614 | 20.10  79.90 |
| **Hours of TV watching per day** | 0-2 hours  3-5 hours  At least 6 hours | 488  92  188 | 63.50  12.00  24.50 |
| **Body perception** | Fat  Normal  Thin | 93  569  106 | 12.10  74.10  13.80 |
| **Family obesity history** | Yes  No | 316  452 | 41.10  58.90 |
| **Smoking** | Yes  No | 191  577 | 24.90  75.10 |
| **Obesity prejudice** | Unprejudiced  Prejudiced  Prejudice/tendency | 48  342  378 | 6.30  44.50  49.20 |
| **Total** |  | **768** | **100.0** |

**Table 1. Sociodemographic characteristics of the study group.**

\*Column percentage

Evaluation of the prejudice or inclination toward prejudice against obesity according to some independent variables in the research group, using the logistic regression model, it was determined that prejudice or an inclination toward prejudice was 5.04 times higher in people who were in the age group of 18-20 years old, compared with those who were at least 21 years old (95% CI = 1.42-17.01), 4.02 times higher in single people compared with the married ones (95% CI = 1.21-13.02), 3.74 times higher in people with medium income levels compared with the ones with low income levels (95% CI = 1.67-8.68), 3.43 higher in the ones with a high income level than the ones with a low income level (95% CI = 1.34-8.61), 2.25 times higher in those with a normal body perception than those who had a fat body perception (95% CI = 1.14-6.15), 4.35 times higher in the people with a thin body perception than the people with a fat body perception (95% CI = 1.51-16.54), 5.0 times higher in the people who spent most of their life in the city center compared with the ones who spent the majority of their life in a village/district (95% CI = 2.44-10.15), 2.88 times higher in the people who spent 0-2 hours of watching TV per day than the people who spent at least 6 hours of watching TV per day (95% CI = 1.34-6.27), 2.30 times higher in smokers than non-smokers (95% CI = 1.11-4.84), while it was 0.25 times lower in the third year students than the first year students (95% CI = 0.07-0.84), and 0.44 times lower in the fourth year students than the first year students (95% CI = 0.21-0.96) (Table 2).

**Table 2. Evaluation of obesity prejudice in terms of some variables.**

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| **Variables** | | **ß** | **p** | **OR** | **(95% CI)** |
| **Age group** | 21+  18-20 | 1.618 | 0.009 | 5.04 | 1.00  (1.42-17.01) |
| **Sex** | Male  Female | 0.789 | 0.051 | 2.20 | 1.00  (0.93-4.85) |
| **Marital status** | Married  Single | 1.393 | 0.020 | 4.02 | 1.00  (1.21-13.02) |
| **Year in school** | 1  2  3  4 | 0.535  -1.376  -0.817 | 0.543  0.021  0.034 | 1.70  0.25  0.44 | 1.00  (0.31-9.55)  (0.07-0.84)  (0.21-0.96) |
| **Income** | Low  Medium  High | 1.319  1.232 | 0.002  0.009 | 3.74  3.43 | 1.00  (1.67-8.68)  (1.34-8.61) |
| **Body perception** | Fat  Normal  Thin | 0.926  1.471 | 0.043  0.031 | 2.25  4.35 | 1.00  (1.14-6.15)  (1.51-16.54) |
| **Place of residence** | Village/District  City center | 1.609 | 0.001 | 5.0 | 1.00  (2.44-10.15) |
| **Hours of TV watching per day** | At least 6 hours  3-5 hours  0-2 hours | 0.325  1.060 | 0.476  0.008 | 1.38  2.88 | 1.00  (0.55-3.36)  (1.34-6.27) |
| **Family obesity history** | Yes  No | 0.118 | 0.743 | 1.12 | 1.00  (0.54-2.25) |
| **Smoking** | Yes  No | 0.836 | 0.026 | 2.30 | 1.00  (1.11-4.84) |

Nagerkerke R2 = 0.30, χ2 = 94.170, (p = 0.001)

**DISCUSSION**

This study was conducted to determine prejudice against obesity among students in a school of health. It was found that 93.8% of the students were prejudiced/inclined to prejudice against obesity. In examining the literature, it was found that there were studies examining the obesity prejudice level using the GAMS-27 Obesity Prejudice scale, the Fat Phobia scale, and questions based on the literature. Among the studies conducted with university students, the prevalence of obesity bias was found to be between 75% and 82% in the studies conducted using the GAMS-27 Obesity Prejudice Scale (Altınayak, Gür, Apay, & Özkan, 2017; Altun & Ercan, 2016; Okumuşoğlu, 2016; Sert, Seven, Çetinkaya, Pelin, & Aygın, 2016; Uluöz, 2016). It was found to be between 25% and 66% in the studies conducted using the Fat Phobia scale (Poon & Tarrant, 2009; Puhl & Heuer, 2010; Sikorski et al., 2013; Soto, Armendariz-Anguiano, Bacardí-Gascón, & Jiménez Cruz, 2014), and it was between 33% and 99% in the studies conducted with the questions based on the literature (Hansson & Rasmussen, 2014; Matharu et al., 2014; Pantenburg et al., 2012; Stein et al., 2014; Usta & Akyolcu, 2014). These differences may be associated with different study methods and specific characteristics of the research groups. Indeed, every other person was prejudiced/inclined to prejudice against obesity in social studies, and it was seen that in the studies conducted with the students, a majority of students were prejudiced/inclined to prejudice against obesity (Pantenburg et al., 2012; Sert et al., 2016; Soto et al., 2014; Stein et al., 2014). Similar to this study, in the study conducted with the students enrolled in the School of Health and the Faculty of Commercial Sciences, it was determined that four of each five participants were prejudiced against obesity (Altun, 2015). This higher ratio compared with the other studies may be associated with the higher ratio of female students and students with a better body perception. Aktaş et al. conducted a study with the nursing students and found that the students with a better BMI had a positive body perception (Aktaş, Aştı, Bakanoğlu, & Çelebioğlu, 2010). In this research, a relationship was found between sociodemographic characteristics and obesity prejudice. Obesity bias was high among the age group of 18-20 while there was no difference found among different age groups in the studies conducted with students by Altınayak and Usta (Altınayak et al., 2017; Usta & Akyolcu, 2014). This may be associated with the lower sample size of both of these studies compared with this study and different samples. Sikorksy et al. conducted a study with healthcare professionals using the Fat phobia scale and found that a higher age level was associated with a higher level of stigmatizing attitudes (Sikorski et al., 2013). In this study, it was found that single students had a higher obesity prejudice than the married students, while no significant difference was found between the single ones and married ones in the study conducted by Usta et al. This may be associated with the use of a descriptive study method with a small sample and a lower number of participants in the study conducted by Usta et al. (Usta & Akyolcu, 2014). In our study group, no significant difference was found between the nursing students and the midwifery students in terms of their obesity prejudice levels. Sert et al. found that obesity prejudice was higher in the midwifery students (Sert et al., 2016). In our study, obesity prejudice was found higher in the first- and second-year students compared with the third- and fourth-year students. Altınayak et al. found similar results (Altınayak et al., 2017), while Uluöz et al. found lower obesity prejudice in the fourth year students, as is different from this study (Uluöz, 2016). This may be associated with an increase in empathy levels as students in the school of health spent more time in school. Their empathy level and tolerance may have increased over time as they met with obese people in school, or in their personal life. It was found that students with a higher income status had a higher level of obesity bias, while in the literature, in the studies conducted with healthcare professionals by Latner et al. and Sikorsky et al., and in a social study carried by Hanson et al., it was found that there is an increase in obesity bias which parallels with an increase in income status (Hansson & Rasmussen, 2014; Latner & Stefano, 2016; Sikorski et al., 2013), but no relationship was found between income status and obesity bias in Sert, Altınayak, and Usta’s studies conducted with students (Altınayak et al., 2017; Sert et al., 2016). These differences among studies may be associated with the descriptive characteristics of this study group and the higher ratio of the students with a high-income status. A higher family socioeconomic status may increase obesity bias. In this study group, no significant difference was found in terms of obesity prejudice in the students who had a family obesity history, which is similar to the study of Sert, Altun, Altınayak, Uluöz et al. (Altınayak et al., 2017; Altun, 2015; Sert et al., 2016; Uluöz, 2016), while Usta et al. determined that people with a family obesity history had lower levels of prejudice against obesity (Usta & Akyolcu, 2014). Our study concluded that students with a normal body perception had a higher prejudice against obesity, which was similar to the studies conducted by Welborn, Altun, Okumuşoğlu, and Usta (Altun & Ercan, 2016; Okumuşoğlu, 2016; Usta & Akyolcu, 2014; Welborn, 2013). In our study, students who spent most of their lives in city centers compared with the students who spent most of their lives in villages/districts had a higher prejudice against obesity. This may be associated with the finding that body perception is more significant in people who live in urban areas. In our study, it was found that students who watched 0-2 hours TV per day, or who did not smoke, had a higher prejudice against obesity. This may be associated with the finding that students who has adopted healthy lifestyles had a higher prejudice against obese persons.

**CONCLUSION**

Obesity bias was found to be high in the study group. Although the nursing profession requires high empathy levels and the ability to form close relationships with others in society, future nurses have a high level of prejudice against obesity, which is the most significant conclusion of this study. To manage obesity, it is important to determine the opinions and views of healthcare providers and future healthcare providers, increase their empathy skills, and improve their interpersonal relationships. It is particularly remarkable that students who had a better body perception, had a higher income status, and did not have any family obesity history had higher levels of prejudice against obesity. A positive body perception and socioeconomic well-being increases the prejudice against obesity. In addition, students who maintained a healthy lifestyle had a higher level of prejudice against obesity. Educating healthcare students and healthcare professionals and increasing awareness will reduce the prejudice against obese people. This will make it easier for obese individuals to request help for obesity, and the many problems associated with it.

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**Conflict of Interest**

The author declare no potential conflicts of interest with

respect to the research, authorship and/or publication of

this article.

**Author Contributions**

**Plan, design:** CC; **Material, methods and data collection:**CC, KS; **Data analysis and comments:** CC, KS; **Writing and corrections:**CC, KS.

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