

Evaluation of the Relationship Between Attitudes Toward Obese Individuals, Body Appreciation, and Eating Disorders in Nutrition and Dietetics Students*

Beslenme ve Diyetetik Öğrencileri Arasında Obez Bireylere Yönelik Tutum, Beden Takdiri ve Yeme Bozuklukları Arasındaki İlişkinin Değerlendirilmesi

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ABSTRACT

Aim: This study aimed to examine the attitudes of Nutrition and Dietetics students toward obese individuals, assess body appreciation and risk of eating disorder, and evaluate the relationship between these factors.

Method: This cross-sectional study included 297 participants aged between 18 and 45 years. Demographic characteristics and anthropometric measurements of the participants were recorded for analysis. Standardized scales were used to assess attitudes toward obese individuals (Attitudes Toward Obese Persons Scale, ATOP), body appreciation (Body Appreciation Scale, BAS-2), body image perception (Stunkard Figure Rating Scale, FRS), and risk of eating disorder (Eating Disorder Examination Questionnaire, EDE-Q).

Results: A weak but statistically significant negative correlation was found between the ATOP and EDE-Q scores ($p < 0.05$). Similarly, a weak but statistically significant negative correlation was observed between the BAS-2 and EDE-Q scores ($p < 0.001$).

Conclusion: No significant relationship was found between attitudes toward obese individuals and body appreciation. However, negative attitudes toward obese individuals may be associated with a higher risk of eating disorders. Additionally, lower body appreciation was linked to a higher risk of eating disorders.

Keywords: attitudes toward obese individuals, body appreciation, eating disorders

ÖZ

Amaç: Bu çalışma Beslenme ve Diyetetik bölümü öğrencilerinin; obez bireylere yönelik tutumlarını, beden takdirini ve yeme bozukluğu eğilimlerini belirlemek ve aralarındaki ilişkiyi değerlendirmek amacıyla yürütülmüştür.

Yöntem: Bu kesitsel çalışmanın verileri, 18-45 yaş arasındaki toplam 297 katılımcıdan elde edilmiştir. Katılımcıların demografik özellikleri ve antropometrik ölçümleri değerlendirilmiş; obez bireylere yönelik tutumları (Obez Bireylere Yönelik Tutum Ölçeği - OBYT), beden takdiri (Bedeni Beğenme Ölçeği - BBÖ), beden imajı (Stunkard Beden İmajı Değerlendirme Ölçeği - Stunkard Ölçeği) ve yeme bozukluğu eğilimleri (Yeme Bozukluğu Değerlendirme Ölçeği - YEDÖ) ölçekler aracılığıyla incelenmiştir.

Bulgular: OBYT ve YEDÖ puanları arasında çok zayıf ve negatif yönde istatistiksel olarak anlamlı bir ilişki saptanmıştır ($p < 0.05$). BBÖ ve YEDÖ puanları arasında negatif yönde zayıf bir korelasyon gözlemlenmiştir ($p < 0.001$).

Sonuç: Obez bireylere yönelik tutumların beden beğenisini etkilemediği ancak yeme bozukluğu için bir risk faktörü oluşturabileceği ve beden beğenisinin yeme bozuklukları ile ilişkili olduğu belirlenmiştir.

Anahtar Kelimeler: obez bireylere yönelik tutum, bedeni beğenme, yeme bozuklukları

INTRODUCTION

Obesity is a significant public health issue associated with reduced quality of life, higher mortality rates, and an increased risk of various

non-communicable diseases (1). Beyond the physical health risks, obese individuals face widespread social stigma and bias throughout their daily lives, unlike those with other chronic conditions, such as hypertension or diabetes (2). Negative societal judgments toward obese individuals are also prevalent among healthcare professionals, including those specializing in eating disorders and obesity, as well as among nutrition and dietetics students (3). Weight bias in healthcare settings can negatively impact the quality of care by diminishing respect for obese individuals, leading to poor communication and ineffective information exchange (4). Moreover, weight-related stigma increases the likelihood of unhealthy behaviors, including poor dietary habits,

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lack of weight control, disrupted eating patterns, excessive energy intake, and low motivation for physical activity, all of which may contribute to further weight gain and obesity (5)

The widespread societal preference for a thin physique influences body image perceptions, reinforcing the thin ideal as the dominant standard of attractiveness (6). When individuals internalize this ideal, they are more likely to experience body dissatisfaction, which can increase the risk of developing eating disorders (7). Although the etiology of eating disorders remains unclear, biological, psychological, and social factors are thought to play significant roles in their development (8). Among these, sociocultural pressures—particularly those related to beauty standards—are central to discussions of eating disorder pathology (9).

Sociocultural pressures contribute significantly to body image disturbances (10), which are among the most persistent symptoms of eating disorders. Its severity significantly influences the long-term treatment outcomes (11). Individuals who experience body-related embarrassment due to discrepancies between their appearance and idealized beauty standards may engage in persistent attempts to alter, control, or suppress their physical appearance. These behaviors, in turn, may increase the risk of developing eating disorders (12)

A review of the literature suggests that weight bias, body appreciation, and tendencies toward eating disorders are interrelated. Given that dietitians play a pivotal role in maintaining and promoting individual and public health, addressing weight bias during their academic training may help them provide higher-quality care and reduce stigma toward obese individuals. Fostering body appreciation in nutrition and dietetics students may also contribute to the prevention of disordered eating patterns. However, research on the attitudes of nutrition and dietetics students toward obese individuals, as well as the relationship between body satisfaction and eating disorders, remains limited. Understanding these factors is crucial for developing effective interventions and educational

strategies in dietetics training programs. Such interventions could ultimately enhance the quality of care for obese individuals and mitigate weight-related stigma in healthcare settings. Therefore, this study aimed to examine the perspectives of Nutrition and Dietetics students regarding obesity, body appreciation, and eating behaviors, and to investigate the associations among these variables.

MATERIALS AND METHOD

Research Time, Place, and Sample

This study was approved by the Ankara Medipol University Non-Interventional Clinical Research Ethics Committee (Decision No. 74791132-604.01.01/505, No. 45). Data for this cross-sectional study were collected between February and August 2021 from 297 Nutrition and Dietetics students (18 male and 279 female) aged 18–45 years who voluntarily agreed to participate. Individuals who were not enrolled in the Nutrition and Dietetics program, had physical or mental disabilities, and were younger than 18 or older than 45 years were excluded from the study. University students were recruited using the snowball sampling technique. Eleven participants were excluded due to the eligibility criteria.

The survey instrument comprised sections on demographic information, anthropometric measurements, and several validated scales for a comprehensive assessment. Stunkard's Figure Rating Scale (FRS) was used to evaluate participants' body image dissatisfaction. Attitudes toward individuals with obesity were assessed using the Attitudes Toward Obese People (ATOP) scale. Body appreciation was measured using the Body Appreciation Scale-2 (BAS-2), while eating disorder tendencies were assessed using the Eating Disorder Examination Questionnaire (EDE-Q).

Anthropometric Measurements The participants' height (in meters) and body weight (in kilograms) were self-reported. The body mass index (BMI) was calculated by a researcher based on the World Health Organization classification. The BMI was categorized into three groups: underweight ($< 18.5 \text{ kg/m}^2$), normal weight ($18.5 - 24.99 \text{ kg/m}^2$), and overweight ($\geq 25 \text{ kg/m}^2$) (13).

ATOP

The ATOP scale was developed by Allison, Basile, and Yuker (14) in 1991 and consists of 20 items rated on a 6-point Likert scale. ATOP scores range from 0 to 120, with higher scores indicating more positive attitudes toward obese individuals. The Turkish adaptation was validated by Dedeli et al. (15) in a study involving 302 undergraduate students from various departments of a university in Türkiye. Cronbach's alpha for the original scale was reported to be 0.86, while in this study, it was 0.74.

BAS-2

The BAS-2 is a 10-item scale developed by Tylka et al. (16) to measure body appreciation. Scores range from 10 to 50, with higher scores indicating greater body appreciation. The Turkish validity and reliability of the scale were established by Anlı et al. (17), with an internal consistency (Cronbach's alpha) of 0.88. In this study, the Cronbach's alpha coefficient for the scale was 0.95.

FRS

The Figure Rating Scale (FRS), developed by Stunkard et al. (18) as a self-report measure, was used to assess participants' body image perceptions. Participants rated their current body size, desired body size, and body image dissatisfaction, calculated as the difference between perceived current and ideal body size (19).

EDE-Q

The eating disorder examination interview was developed by Fairburn and Beglin in 1994 (21). The 28-item scale comprises five subscales: Restraint (R), Binge Eating, Eating Concern (EC), Weight Concern (WC), and Shape Concern (SC). However, the Binge Eating subscale is not included in the total score. Scores on the subscales and overall scale range from 0 to 6. Higher scores on this scale indicate greater levels of eating pathology. Yücel et al. (22) established the Turkish validity and reliability of the scale,

with a reported Cronbach's alpha of 0.93. In this study, Cronbach's alpha coefficient was 0.96.

Statistical Evaluation of Data

Data analysis was performed using SPSS (Statistical Package for the Social Sciences – IBM SPSS Statistics) version 25.0. Continuous variables were examined using descriptive statistical methods, including the mean, standard deviation, median, minimum, and maximum values. The Chi-square test was applied to analyze categorical variables. For comparisons of two independent groups, parametric tests were used if normality assumptions were met, specifically the independent samples t-test. If normality assumptions were not met, the Mann-Whitney U test was applied. For comparisons of three or more independent groups, One-way ANOVA was used when normality assumptions were satisfied. Kruskal-Wallis variance analysis was used when normality assumptions were not met, followed by the Bonferroni-corrected Mann-Whitney U test for post hoc multiple comparisons. The relationships between variables that did not follow a normal distribution were assessed using Spearman's correlation analysis. Statistical significance was set at $p < 0.05$, with $p < 0.001$ considered highly significant.

RESULTS

This study included 297 adults, 18 males (6.1%) and 279 females (93.9%). The mean age of male participants was 23.72 ± 4.24 years, while the mean age of female participants was 21.74 ± 3.66 years. The mean body weight was 80.81 ± 9.16 kg for males and 58.13 ± 10 kg for females. The mean height was 177.33 ± 5.39 cm for males and 164.28 ± 5.74 cm for females. The mean body mass index (BMI) was 25.68 ± 2.48 kg/m² for males and 21.55 ± 3.63 kg/m² for females. The mean BMI of the male participants was significantly higher than that of the female participants ($p < 0.001$) (Table 1).

	Male		Female		MWU	p
	(n=18)		(n=279)			
	$\bar{X} \pm SD$	(Min-Max) Median	$\bar{X} \pm SD$	(Min-Max) Median		
Age (years)	23.72 ± 4.24	(18-32) 22.5	21.74 ± 3.66	(18-41) 21	-5.176	< 0.001
Body weight (kg)	80.81 ± 9.16	(67-102) 79	58.13 ± 10	(41-102) 57		
Body height (cm)	177.33 ± 5.39	(167-185) 177	164.28 ± 5.74	(152-180) 165		
BMI (kg/m²)	25.68 ± 2.48	(20.68-30.46) 24.8	21.55 ± 3.63	(15.57-37.17) 20.7		
<i>MWU</i> Mann-Whitney-U						
<i>BMI</i> : Body Mass Index						

	Gender					BMI Class								
	Male		Female		X ²	Underweight		Normal		Overweight		Total		X ²
	(n=18)		(n=279)		p	(n=44)		(n=209)		(n=44)		(n=297)		p
	n	%	n	%		n	%	n	%	n	%	n	%	
Current size and shape														
Underweight	-	-	63	22.6	-	29	65.9	34	16.3	-	-	63	21.2	191.032
Normal weight	5	27.8	155	55.6	-	15	34.1	143	68.4	2	4.5	160	53.9	< 0.001
Overweight	13	72.2	61	21.9		-	-	32	15.3	42	95.5	74	24.9	
Ideal body size														
Underweight	1	5.6	79	28.3	-	9	20.5	66	31.6	5	11.4	80	26.9	27.906
Normal weight	12	66.7	191	68.5	-	35	79.5	137	65.6	31	70.5	203	68.4	< 0.001
Overweight	5	27.8	9	3.2		-	-	6	2.9	8	18.2	14	4.7	
Body image dissatisfaction														
Too small	2	11.1	48	17.2	6.113	28	63.6	20	9.6	2	4.5	50	16.8	195.194
Satisfied	2	11.1	94	33.7	0.106	14	31.8	81	38.8	1	2.3	96	32.3	< 0.001
A bit too large	9	50	79	28.3		2	4.5	81	38.8	5	11.4	88	29.6	
Much too large	5	27.8	58	20.8		-	-	27	12.9	36	81.8	63	21.2	
X ² : Chi-square test														

Table 2 presents body image perception by gender and BMI classification. While 22.6% of females perceived their current body as thin, no male participants did. Regarding ideal body size, 5.6% of males and 28.3% of females selected a thin silhouette. Body satisfaction was higher among females (33.7%) compared to males (11.1%). However, gender differences in body image perception were not statistically significant ($p > 0.05$). Among overweight individuals, 95.5% accurately classified their BMI status. However, in terms of body image perception, 81.8% overestimated their body size, perceiving themselves as significantly larger than their actual dimensions. In contrast, only 12.9% of normal-weight participants exhibited this overestimation. Similarly, while the majority of underweight (79.5%) and normal-weight (65.6%) individuals identified a normal silhouette as their ideal body shape, only 18.2% of overweight participants preferred a normal silhouette, with a significant proportion selecting a thinner ideal ($p < 0.001$). These results suggest that although overweight individuals demonstrate an accurate awareness of their BMI classification, they tend to overestimate their body size, indicating a potential discrepancy between objective anthropometric measures and subjective body image perception ($p < 0.001$).

The total ATOP scores of the participants ranged from 15 to 102, BAS-2 scores ranged from 11 to 50, and the EDE-Q scores varied between 0 and 5.72. The mean scores of the scales were as follows: 63.52 ± 14.28 for ATOP, 40.24 ± 8.19 for BAS-2, and 1.9 ± 1.39 for EDE-Q. The differences in the mean scores of the scales and their subdimensions based on participants' sex, BMI, and body image are shown in Table 3. Female participants had significantly higher BAS-2 scores than male participants ($p < 0.05$). The mean EDE-Q score of male participants was significantly higher than that of female participants ($p < 0.05$). Additionally, 50% of the male participants described their body image as slightly large, while 27.8% perceived it as very large (Table 2). Based on these findings, it can be suggested that lower body appreciation scores among male participants may be attributed to body image dissatisfaction.

There was no statistically significant difference in the mean ATOP scores across BMI classifications ($p > 0.05$). The mean BAS-2 score was the highest in the normal-weight group and lowest in the overweight group, with a statistically significant difference ($p < 0.001$). The mean global EDE-Q score was highest in the normal-weight group and lowest in the overweight group, with a statistically significant difference between the groups ($p < 0.001$). Table 3 presents the differences in the mean scores on the scales and their subscales based on the level of body image dissatisfaction among the study participants. There was no statistically significant difference between the groups in terms of mean ATOP scores ($p > 0.05$). However, the BAS-2 scores differed significantly according to body image dissatisfaction levels ($p < 0.05$). The difference in global EDE-Q scores between the groups was also statistically significant ($p < 0.001$). The findings indicate that individuals who perceived their body as too large had significantly lower BAS-2 scores compared to those who were satisfied or perceived themselves as slightly too large. Similarly, the global EDE-Q score was highest among individuals with greater body image dissatisfaction, particularly those who perceived themselves as too large. This suggests that as body image dissatisfaction increases, body appreciation decreases and disordered eating behaviors become more pronounced.

Table 4 presents the correlation analysis among the BMI values, ATOP scores, BAS-2 scores, and EDE-Q scores of the study participants. A statistically significant positive correlation was found between the global EDE-Q score, subscale scores, and BMI ($p < 0.001$). In contrast, BMI showed a statistically significant negative correlation with BAS-2 scores ($p < 0.001$), whereas no correlation was observed with ATOP scores ($p > 0.05$). Furthermore, a statistically significant negative correlation was found between global EDE-Q scores, weight concern subscale scores, and ATOP and BAS-2 scores. Additionally, concerns about body shape, eating concerns, and restraint subscale scores were negatively correlated with the ATOP and BAS-2 scores ($p < 0.001$). No significant correlation was found between BAS-2 and ATOP scores ($p > 0.05$).

Table 3. Relationship of variables to ATOP, BAS-2 and EDE-Q scales (Türkiye, Ankara-2021).											
Variables	Classification	n (%)	ATOP X̄ ± SD (Min-Max) Median	Statistics p-Value	BAS-2 X̄ ± SD (Min-Max) Median	Statistical Test p-Value	EDE-Q X̄ ± SD (Min-Max) Median	Statistics p-Value			
Gender	Male	18 (6.1)	56.89 ± 15.2 (21-77) 57	1.876 ^{MWU} 0.072	36.06 ± 9.59 (18-50) 36.5	1.773 ^{MWU} 0.036*	2.53 ± 1.33 (0.54-5.7) 2.48	1.726 ^{MWU} 0.026*			
			Female		279 (93.9)		63.95 ± 14.14 (15-102) 63		40.51 ± 8.04 (11-50) 42	1.86 ± 1.39 (0-5.72) 1.65	
	Underweight	44 (14.8)					68.3 ± 15.05 (42-94) 69		74.064 ^F 0.069	41.07 ± 6.65 ^a (28-50) 41	40.436 ^{KW} ≤ 0.001
			Normal weight		209 (70.4)		62.97 ± 13.63 (15-102) 62			41.7 ± 7.41 ^b (13-50) 43	
Overweight	44 (14.8)	61.36 ± 15.81 (27-90) 62.5		32.5 ± 8.94 ^{a,b} (11-50) 34.5		3.3 ± 1.14 ^a (0.54-5.72) 3.52					
		Body Image Distortion	Too small	50 (16.8)	65.56 ± 15.72 (36-94) 64.5	0.424 ^F 0.736	40.6 ± 7.97 ^a (18-50) 42	44.144 ^{KW} ≤ 0.001		0.9 ± 0.94 ^a (0.05-5.7) 0.71	
Satisfied	96 (32.3)				62.96 ± 14.61 (15-90) 64.5		43.33 ± 6.55 ^b (23-50) 44		1.56 ± 1.37 ^a (0-5.51) 0.96		
			A little bit too large	88 (29.6)	63.4 ± 11.62 (41-93) 62		41.14 ± 6.29 ^c (20-50) 41		2.01 ± 1.21 ^a (0.19-5.44) 1.82		
Much too large	63 (21.2)				62.94 ± 16.06 (21-102) 62		34 ± 9.66 ^{a,b,c} (11-50) 36		3.04 ± 1.13 ^a (0.8-5.72) 3.02		
		^F One-Way ANOVA test, ^{KW} Kruskal-Wallis test ^{a,b,c} There is a difference between the groups indicated by the same letter. ATOP: Attitudes toward Obese People Scale, BAS-2: Body Appreciation Scale, EDE-Q: Eating Disorders Examination Questionnaire, a,b,c= There is a difference between the groups indicated by the same letter.									

Table 4. Analysis for Correlation between BMI, ATOP, BAS-2, and EDE-Q Scores (Türkiye, Ankara-2021).

		BMI	ATOP	BAS-2	EDE-Q RE	EDE-Q EC	EDE-Q SC	EDE-Q WC
ATOP	r	-0.097						
	p ^a	0.096						
BAS-2	r	-0.316	0.048					
	p ^a	< 0.001	0.408					
R	r	0.505	-0.174	-0.339				
	p ^a	< 0.001	0.003**	< 0.001				
EC	r	0.434	-0.156	-0.417	0.741			
	p ^a	< 0.001	0.007**	< 0.001	< 0.001			
SC	r	0.537	-0.176	-0.530	0.745	0.816		
	p ^a	< 0.001	0.002**	< 0.001	< 0.001	< 0.001		
WC	r	0.506	-0.158	-0.512	0.737	0.779	0.903	
	p ^a	< 0.001	0.006**	< 0.001	< 0.001	< 0.001	< 0.001	
EDE-Q	r	0.554	-0.182	-0.492	0.885	0.885	0.944	0.934
Total	p ^a	< 0.001	0.002**	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

^a=Spearman Correlation Coefficient, ** $p < 0.001$, BMI: Body Mass Index, ATOP: Attitudes toward Obese People Scale, BAS-2: Body Appreciation Scale, EDE-Q: Eating Disorders Examination Questionnaire, R: Restraint Subfactor, EC: Eating Concern, SC: Shape Concern, WC: Weight Concern.

DISCUSSION

The social pressure on students studying Nutrition and Dietetics to maintain a thin body shape may make them more critical in their body evaluations (23). Eating disorders often emerge in early adolescence, and their onset typically aligns with the average age of university students (24). Additionally, in the current sociocultural environment, weight gain or obesity may not be socially acceptable for dietitians. As exposure to weight bias is often considered normative in the field of dietetics, body image dissatisfaction may be more prevalent among Nutrition and Dietetics students (25). In this study, when analyzed by BMI categories, 38.8% of participants with an ideal weight for their height reported being satisfied with their body image, while 38.8% perceived their body as a bit too large, and 12.9% considered it much too large. A statistically significant difference in body image dissatisfaction was

found among participants according to BMI category ($p < 0.05$) (Table 2). In a similar study conducted with 500 female Iranian participants, a statistically significant difference in body image perception across BMI categories was reported. Among those with a normal weight, 54% were dissatisfied with their body image. When comparing their ideal body silhouette with their current body silhouette, participants tended to embrace a thinner ideal ($p < 0.001$) (26). Studies have reported a high prevalence of desire to be thinner among university students. For example, in a study conducted with 308 students, 57.5% ($n = 177$) expressed a desire for a thinner body (27).

In this study, a very weak but statistically significant negative correlation was found between the ATOP and EDE-Q scores (Table 4). According to Schilder (28), individuals experience not only their own body image but also that of others, and

these experiences are closely interconnected. Cramer (29), on the other hand, suggested that negative attitudes toward certain body structures in the perception of others may contribute to reduced food intake. Individuals exposed to perceiving or internalizing weight bias may exhibit disordered eating behaviors. The effects of weight bias on eating behaviors differ between overweight and normal-weight individuals, and this difference is evident in the context of dieting. Obese individuals are more likely to engage in dieting (30). Unlike societal prejudices or the socially desirable urge to be thin, “fat phobia” refers to an individual’s fear of becoming fat and experiencing a “fat self.” (31). Pepper and Ruiz (32) investigated whether negative perceptions of others’ bodies influence an individual’s body dissatisfaction and risk of developing eating disorders. Obese individuals with high levels of body dissatisfaction and eating-related anxiety have been found to exhibit stronger biases. Magallares (33), on the other hand, emphasized that patients with eating disorders perceive themselves as fatter than they actually are and reported that individuals at risk of developing eating disorders may tend to exhibit negative attitudes. Magallares et al. (34) evaluated anti-weight bias in a sample of individuals diagnosed with eating disorders and found that those with body dissatisfaction exhibited stronger anti-weight attitudes.

A weak negative correlation was found between BAS-2 and BMI ($r = -0.316$), while a strong positive correlation was observed between global EDE-Q and BMI ($r = 0.554$) ($p < 0.001$). Baceviciene et al. (35) validity, and factor structure of the Lithuanian version of the EDE-Q 6.0 (LT-EDE-Q 6.0 reported a moderately positive correlation ($r = 0.36$). A meta-analysis by He et al. (36) reported a weak negative correlation between the BAS-2 and BMI ($p < 0.001$). A negative correlation was observed between BAS-2 and EDE-Q (Table 4). In a study conducted with 387 females aged 18–25 years, a moderate negative correlation was reported between body appreciation and eating disorders ($r = -0.68$, $p < 0.001$). Similarly, in another study conducted with 253 females aged 18–50 years, a

moderate negative correlation was found between body appreciation and eating disorders ($r = -0.58$, $p < 0.001$) (38). Body appreciation is associated with overall well-being, and positive body image provides numerous mental and physical benefits (39). Therefore, increased body appreciation may be a protective factor against eating disorders.

This study has several limitations. One of the most significant limitations of this study is the small number of male participants. An analysis of statistics from Nutrition and Dietetics undergraduate programs revealed that most students were female. According to data from the Council of Higher Education, during the 2022–2023 academic year, 91.96% ($n = 4.644$) of graduates from Nutrition and Dietetics programs were female, and 8.04% ($n = 406$) were male (40). This gender imbalance in student demographics makes it difficult to ensure a representative sample, particularly for studies that require equal gender distribution. Consequently, recruiting male participants is challenging. Asil and Sürücüoğlu (41) reported that 86.3% of female participants were female, whereas Karakuş et al. (42) identified a similar proportion of 86% in their research. These findings highlight the predominance of female students in Nutrition and Dietetics programmes. Including individuals from various BMI categories in research may help to identify factors influencing body image, body appreciation, and eating disorders.

Previous research indicates that negative attitudes toward obesity contribute to the development of eating disorders by reinforcing body dissatisfaction and maladaptive eating behaviors. Our findings suggest that, while attitudes toward obese individuals and body appreciation do not directly influence each other, negative attitudes may be associated with an increased risk of eating disorders. In a similar vein, a negative correlation was found between body appreciation and eating disorders. The normalization of negative attitudes toward obese individuals, their integration into societal behaviors, and the idealization and internalization of thinness pose risks to both individuals and society. Understanding how negative attitudes toward obesity, body image

perceptions, and eating disorder tendencies influence professional practices within a cause-and-effect framework is crucial. A deeper examination of the relationship between attitudes toward obese individuals, body appreciation, and eating disorders may contribute to advancing knowledge in this field and developing more effective interventions. Future research should prioritize longitudinal studies to establish causal relationships among body image perception, obesity bias, and eating disorder tendencies, ultimately informing more effective interventions.

Conflict of interests: The authors declare that they have no conflict of interest.

Ethics Committee Approval: This study was approved by the Ankara Medipol University Non-Interventional Research Ethics Committee (decision date and number: 74791132-604.01.01/505-45)

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REFERENCES

- Nyberg ST, Batty GD, Pentti J, Virtanen M, Alfredsson L, Fransson EI, et al. Obesity and loss of disease-free years owing to major non-communicable diseases: a multicohort study. *Lancet Public Health*. 2018;3(10):e490–7. DOI: 10.1016/S2468-2667(18)30139-7
- Allison DB, Downey M, Atkinson RL, Billington CJ, Bray GA, Eckel RH, et al. Obesity as a Disease: A White Paper on Evidence and Arguments Commissioned by the Council of The Obesity Society. *Obesity*. John Wiley & Sons, Ltd; 2008;16(6):1161–77. DOI: 10.1038/oby.2008.231
- Pearl RL. Weight Bias and Stigma: Public Health Implications and Structural Solutions. *Soc Issues Policy Rev*. John Wiley & Sons, Ltd; 2018;12(1):146–82. DOI: 10.1111/sipr.12043
- Phelan SM, Burgess DJ, Yeazel MW, Hellerstedt WL, Griffin JM, van Ryn M. Impact of weight bias and stigma on quality of care and outcomes for patients with obesity. *Obes Rev*. John Wiley & Sons, Ltd; 2015;16(4):319–26. DOI: 10.1111/obr.12266
- Puhl RM, Phelan SM, Nadglowski J, Kyle TK. Overcoming Weight Bias in the Management of Patients With Diabetes and Obesity. *Clin Diabetes*. American Diabetes Association; 2016;34(1):44–50. DOI: 10.2337/diaclin.34.1.44
- Aniulis E, Sharp G, Thomas NA. The ever-changing ideal: The body you want depends on who else you're looking at. *Body Image*. 2021;36:218–29. DOI: 10.1016/j.bodyim.2020.12.003
- Rodgers RF. The role of the "Healthy Weight" discourse in body image and eating concerns: An extension of sociocultural theory. *Eat Behav*. 2016;22:194–8. DOI: 10.1016/j.eatbeh.2016.06.004
- Moskowitz L, Weiselberg E. Anorexia Nervosa/Atypical Anorexia Nervosa. *Curr Probl Pediatr Adolesc Health Care*. 2017;47(4):70–84. DOI: 10.1016/j.cppeds.2017.02.003
- Sharan P, Sundar AS. Eating disorders in women. *Indian J Psychiatry*. 2015;57(Suppl 2):S286–95. DOI: 10.4103/0019-5545.161493
- Van Den Berg P, Paxton SJ, Keery H, Wall M, Guo J, Neumark-Sztainer D. Body dissatisfaction and body comparison with media images in males and females. *Body Image*. 2007;4(3):257–68. DOI: 10.1016/j.bodyim.2007.04.003
- Gledhill LJ, George HR, Tovée MJ. Perceptual Not Attitudinal Factors Predict the Accuracy of Estimating Other Women's Bodies in Both Women With Anorexia Nervosa and Controls. *Front Psychol*. 2019;10. DOI: 10.3389/fpsyg.2019.00997
- Fredrickson BL, Roberts T-A. Objectification Theory: Toward Understanding Women's Lived Experiences and Mental Health Risks. *Psychol Women Q*. 1997;21(2):173–206. DOI: 10.1111/j.1471-6402.1997.tb00108.x
- WHO Consultation on Obesity (1999: Geneva S, Organization WH. Obesity : preventing and managing the global epidemic : report of a WHO consultation [Internet]. World Health Organization; 2000 [cited 2022 Aug 12]. Available from: <https://apps.who.int/iris/handle/10665/42330>
- Allison DB, Basile VC, Yunker HE. The measurement of attitudes toward and beliefs about obese persons. *Int J Eat Disord*. John Wiley & Sons, Ltd; 1991;10(5):599–607. DOI: 10.1002/1098-108X(199109)10:5<599::AID-EAT2260100512>3.0.CO;2-#
- Dedeli O, Bursalioglu SA, Deveci A. Validity and reliability of the Turkish version of the attitudes toward obese persons scale and the beliefs about obese persons scale. *Clin Nurs Stud*. 2014;2(4):105. DOI: 10.5430/cns.v2n4p105
- Tylka TL, Wood-Barcalow NL. The Body Appreciation Scale-2: Item refinement and psychometric evaluation. *Body Image*. 2015;12:53–67. DOI: 10.1016/j.bodyim.2014.09.006
- Anlı G, Akın A, Eker H, Özçelik B. Bedeni beğenme ölçeği: geçerlik ve güvenilirlik çalışması. *J Acad Soc Sci Stud*.

2015;6(Number: 36):505–11. DOI: 10.9761/JASSS2906

18. Stunkard AJ, Sørensen T, Schulsinger F. Use of the Danish Adoption Register for the study of obesity and thinness. *Res Publ - Assoc Res Nerv Ment Dis.* 1983;60:115–20.

19. Bulik CM, Wade TD, Heath AC, Martin NG, Stunkard AJ, Eaves LJ. Relating body mass index to figural stimuli: population-based normative data for Caucasians. *Int J Obes. Nature Publishing Group;* 2001;25(10):1517–24. DOI: 10.1038/sj.ijo.0801742

20. Lynch E, Liu K, Wei GS, Spring B, Kiefe C, Greenland P. The Relation Between Body Size Perception and Change in Body Mass Index Over 13 Years: The Coronary Artery Risk Development in Young Adults (CARDIA) Study. *Am J Epidemiol.* 2009;169(7):857–66. DOI: 10.1093/aje/kwn412

21. Fairburn CG, Beglin SJ. Assessment of eating disorders: interview or self-report questionnaire? *Int J Eat Disord.* 1994;16(4):363–70.

22. Yucel B, Polat A, Ikiz T, Dugor BP, Elif Yavuz A, Sertel Berk O. The Turkish Version of the Eating Disorder Examination Questionnaire: Reliability and Validity in Adolescents. *Eur Eat Disord Rev. John Wiley & Sons, Ltd;* 2011;19(6):509–11. DOI: 10.1002/erv.1104

23. Toral N, Bauermann Gubert M, Spaniol AM, Alves Monteiro R. Eating disorders and body image satisfaction among Brazilian undergraduate nutrition students and dietitians. *Arch Latinoam Nutr. Archivos Latinoamericanos de Nutrición;* 2016;66(2):129–34.

24. Lipson S, Sonnevile K. Eating disorder symptoms among undergraduate and graduate students at 12 U.S. colleges and universities. *Eat Behav.* 2017;24:81–8. DOI: 10.1016/j.eatbeh.2016.12.003

25. Harris N, Gee D, d'Acquisto D, Ogan D, Pritchett K. Eating disorder risk, exercise dependence, and body weight dissatisfaction among female nutrition and exercise science university majors. *J Behav Addict.* 2015;4(3):206–9. DOI: 10.1556/2006.4.2015.029

26. Nikniaz Z, Mahdavi R, Amiri S, Ostadrahimi A, Nikniaz L. Factors associated with body image dissatisfaction and distortion among Iranian women. *Eat Behav.* 2016;22:5–9. DOI: 10.1016/j.eatbeh.2016.03.018

27. Radwan H, Hasan HA, Ismat H, Hakim H, Khalid H, Al-Fityani L, et al. Body Mass Index Perception, Body Image Dissatisfaction and Their Relations with Weight-Related Behaviors among University Students. *Int J Environ Res Public Health. Multidisciplinary Digital Publishing Institute;* 2019;16(9):1541. DOI: 10.3390/ijerph16091541

28. Schilder P. The image and appearance of the human body: studies in the constructive energies of the psyche [Internet]. London: Routledge; 1999 [cited 2022 Mar 15]. Available from: <http://public.ebookcentral.proquest.com/choice/publicfullrecord.aspx?p=1539468>

29. Cramer P, Steinwert T. Thin is good, fat is bad: How early does it begin? *J Appl Dev Psychol.* 1998;19(3):429–51. DOI: 10.1016/S0193-3973(99)80049-5

30. Cheng MY, Wang S-M, Lam YY, Luk HT, Man YC, Lin C-Y. The Relationships Between Weight Bias, Perceived Weight Stigma, Eating Behavior, and Psychological Distress Among Undergraduate Students in Hong Kong. *J Nerv Ment Dis.* 2018;206(9):705–10. DOI: 10.1097/NMD.0000000000000869

31. Rodgers RF, Fischer LE, DuBois RH, Naab P, Franko DL. Development and validation of the Sociocultural Influences on Fear of Fat Scale (SI-FAT). *Body Image.* 2021;37:181–7. DOI: 10.1016/j.bodyim.2021.02.009

32. Pepper AC, Ruiz SY. Acculturation's Influence on Antifat Attitudes, Body Image and Eating Behaviors. *Eat Disord.* 2007;15(5):427–47. DOI: 10.1080/10640260701667912

33. Magallares A. Well-Being and Prejudice toward Obese People in Women at Risk to Develop Eating Disorders. *Span J Psychol.* 2012;15(3):1293–302. DOI: 10.5209/rev_SJOP.2012.v15.n3.39415

34. Magallares A, Jauregui-Lobera I, Ruiz-Prieto I, Santed MÁ. Actitudes antiobesidad en una muestra de mujeres con trastornos de la conducta alimentaria. *Nutr Hosp. Sociedad Española de Nutrición Parenteral y Enteral (SENPE);* 2013;28(3):649–53. DOI: 10.3305/nh.2013.28.3.6383

35. Baceviciene M, Balciuniene V, Jankauskiene R. Validation of the Lithuanian version of the Eating Disorder Examination Questionnaire 6.0 in a student sample. *Brain Behav.* 2020;10(3):e01555. DOI: 10.1002/brb3.1555

36. He J, Sun S, Lin Z, Fan X. The association between body appreciation and body mass index among males and females: A meta-analysis. *Body Image.* 2020;34:10–26. DOI: 10.1016/j.bodyim.2020.03.006

37. Marta-Simões J, Ferreira C. Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eat Weight Disord - Stud Anorex Bulim Obes.* 2020;25(2):399–406. DOI: 10.1007/s40519-018-0612-0

38. Pinto C, Ferreira C, Mendes AL, Trindade IA. Social safeness and disordered eating: Exploring underlying mechanisms of body appreciation and inflexible eating. *Eat Weight Disord - Stud Anorex Bulim Obes.* 2017;22(2):303–9. DOI: 10.1007/s40519-017-0384-y

39. He J, Sun S, Zickgraf HF, Lin Z, Fan X. Meta-analysis of gender differences in body appreciation. *Body Image.* 2020;33:90–100. DOI: 10.1016/j.bodyim.2020.02.011

40. 2023-2024 Öğretim Yılı Yükseköğretim İstatistikleri [Internet]. Yükseköğretim Bilgi Yönetim Sistemi

[cited 2025 Feb 5]. Available from: <https://istatistik.yok.gov.tr/>

41. Asil E, Sürücüoğlu MS. Orthorexia Nervosa in Turkish Dietitians. *Ecol Food Nutr*. 2015;54(4):303–13. DOI: 10.1080/03670244.2014.987920

42. Karakus B, Hidiroglu S, Keskin N, Karavus M. Orthorexia nervosa tendency among students of the department of nutrition and dietetics at a university in Istanbul. *North Clin Istanbul*. 2017;4(2):117–23. DOI: 10.14744/nci.2017.20082