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Determination of the relationship between obesity prejudice status and eating behaviors of faculty of health sciences students

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Abstract

Background People living with obesity receive treatment services from health professionals for their weight or other health needs. In order for the students of the Faculty of Health Sciences, who will be a member of the health team in the future, to raise awareness of the society, it is necessary to first determine their obesity prejudices and eating habits.

Methods The study is a cross-sectional and descriptive research. The study data were collected from 406 students studying at the Faculty of Health Sciences by online questionnaire method using a personal characteristics identification form, GAMS 27-Obesity Bias Scale and University Students Eating Behavior Scale (USEBS). The data were analyzed with SPSS 26 statistical software.

Results In this study, all students were found to be prone to prejudice according to the mean total score of the Obesity Bias Scale and Obesity Bias Scale was higher in female students studying in perfusion department. In the sub-dimensions of the University Students Eating Behavior Scale, the enjoyment of food score was found to have the highest mean score.

Conclusion According to the results of the study, there is a need to develop educational planning that will both increase the awareness of university students about the relationship between eating behaviors and obesity and eliminate obesity prejudice tendencies due to the fact that they are educated to provide services in the field of health.

Highlights

- It was determined that students were prone to prejudice against individuals with obesity.
- It was found that the satiety sensitivity sub-dimension score of the students studying in the nutrition department was high.
- The mean Obesity Bias Scale score of the students studying in the perfusion department was found to be high.
- There was a negative relationship between age and food sensitivity, eating pleasure, emotional overnutrition, hunger and obesity bias, and a positive relationship between satiety sensitivity.

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Keywords Faculty of health sciences students, Obesity, Prejudice, Eating behaviors

Introduction

While obesity is recognized as one of the risk factors for many chronic diseases, it also brings with it a number of socio-economic consequences such as economic burdens, loss of labor force and reduced quality of life [1, 2].

Combating obesity requires a multidisciplinary approach. For this reason, health professionals such as nurses, dietitians, psychologists and physiotherapists collaborate to support the holistic health of patients [3].

Promoting healthy eating habits and encouraging individuals to adopt an active lifestyle are important tasks for health professionals [4]. In addition, providing motivation to individuals in the fight against obesity and supporting them to maintain lifestyle changes are among the responsibilities of the health team [5]. In order for the students of the Faculty of Health Sciences, who will be a member of the health team in the future, to raise awareness of the society, it is necessary to first determine their obesity prejudices and eating habits. This study was conducted to determine the relationship between obesity prejudice and eating behaviors of the students of the Faculty of Health Sciences in order to create a healthy society.

Material and method

Study design

The research is a descriptive and cross-sectional study.

Sample of the research

The population of the study consists of students studying at the Faculty of Health Sciences of a university. In the sample size calculation made by taking 95% confidence interval and 5% margin of error, the sample size was found to be 341. However, this number was accepted as the minimum and 406 students who accepted to participate in the study constituted the sample.

Data collection method

The data of the study were collected from the participants in the form of an online survey between November 25, 2023 and April 10, 2024.

Data collection

The data of the study were collected using the personal characteristics identification form (age, gender, department), GAMS 27-Obesity Bias Scale and University Students Eating Behavior Scale (USEBS).

GAMS 27-Obesity Bias Scale

The Obesity Prejudice Scale GAMS 27 developed by Ercan et al. [6] consists of 27 items and the highest

score can be 135 and the lowest score can be 27. The scale is graded according to a 5-point Likert rating system as “strongly agree”, “agree”, “undecided”, “disagree” and “strongly disagree”. Positive items (2, 4, 7, 10, 11, 11, 14, 15, 17, 20, 22, 25, 27) were scored from 5 to 1 starting from “strongly agree”; negative items (1, 3, 5, 6, 8, 9, 9, 12, 13, 16, 18, 19, 21, 23, 24, 26) were scored from 1 to 5 starting from “strongly agree”. As the total score obtained from the scale decreases, individuals are evaluated as having no prejudice against obesity, and as the score increases, they are evaluated as having prejudiced thoughts. In the evaluation phase of the scale, a classification is made according to the 25th, 50th and 75th percentiles used by the developers of the scale. Accordingly, below the 25th percentile (68 points and below) is considered as non-biased, between the 25th-75th percentile (68.01–84.99 points) is considered as biased, and above the 75th percentile (85 points and above) is considered as biased. The Cronbach-alpha coefficient of the scale is 0.847 [6]. In this study, the Cronbach-alpha value was 0.767.

University Students Eating Behavior Scale (USEBS)

The validity and reliability of the scale was conducted by Şengül [7]. The scale consists of 31 items. A 5-point Likert type was used in the questionnaire. 5 is expressed as “strongly agree” and 1 as “strongly disagree”. “Food Sensitivity” dimension 19,20,21, “Slowness in Eating” dimension 28,29,30,31, “Food Restlessness” dimension 14, 15, 16, 17, 18, “Emotional Malnutrition” 9,10,11,13, It consists of 8 sub-dimensions: “Satiety Sensitivity” dimension 32,33,34,35, “Enjoyment of Food” dimension 1,2,3, “Emotional Overfeeding” dimension 4,5,8, “Hunger” dimension 23,24,25,26,27. Questions 16,17,18 and 31 are reverse scored. The Cronbach-alpha coefficient of the scale was above the limit of 0.70. In this study, the Cronbach-alpha coefficient was 0.712 [7].

Statistical analysis

IBM SPSS statistics 26.0 program was used for statistical analysis in the study. While evaluating the study data, in addition to descriptive statistical methods (mean, standard deviation, frequency, percent). Student T test was used to compare data with normal distribution, and Mann-Whitney U test was used for comparison of data that did not show normal distribution. One-way ANOVA and Kruskal-Wallis tests were used to evaluate more than two normally and non-normally distributed variables, respectively. Pearson and Spearman correlation analysis were used to evaluate the correlation between variables.

Table 1 Personal characteristics of students, obesity Bias Scale and University students eating Behavior Scale total score ($n=406$)

	<i>n</i>	%
Age (year)	21.82±2.18	
Gender		
Female	300	73.9
Male	106	26.1
Departments		
Audiology	12	3.0
Child development	12	3.0
Healthcare management	2	0.5
Nursing	262	64.5
Nutrition and Dietetics	4	1
Perfusion	10	2.5
Speech and language therapy	104	25.6
Obesity Bias Scale total score	78.18±10.95 (min:27; max:135)	
University Students Eating Behavior Scale (min:1; max:5)		
Food sensitivity	2.84±1.09	
Slowness in eating	2.85±1.21	
Food restlessness	2.43±0.99	
Emotional malnutrition	3.27±1.24	
Satiety sensitivity	2.82±0.97	
Enjoyment of food	4.23±0.79	
Emotional overfeeding	2.70±1.22	
Hunger	2.71±0.95	

Descriptive statistical methods (mean, standard deviation, frequency, percentage)

The results were evaluated at the 95% confidence interval and the significance level of $p < 0.05$.

Ethical considerations

All procedures conducted in studies involving human participants complied with the ethical standards stated in the Declaration of Helsinki. Ethics committee approval was obtained from the İstanbul Gelişim University Ethics Committee Presidency with the decision number 2023-09-74 dated 20.11.2023. Before the survey, participants were informed about the study and their consent was obtained through signed consent forms. In addition, publication permission was obtained from all participants.

Results

The personal characteristics of the individuals and the mean total scores of the Obesity Bias Scale and University Students Eating Behavior Scale subscales are shown in Table 1. The mean age of the individuals was 21.82±2.18 years, 73.9% of the participants were female, and the highest participation was from the nursing department (64.5%). The mean total score of the Obesity Bias Scale was 78.18±10.95 (bias-prone), and the dimension with the highest mean score among the sub-dimensions of the

Table 2 The relationship between students' personal characteristics and obesity Bias Scale and University students eating Behavior Scale ($n=406$)

Scale	Age* (<i>p</i>)	Gender (<i>p</i>)	Departments (<i>p</i>)
Obesity Bias Scale total score	0.031	0.006	0.054
University	0.064	0.001	0.001
Students	0.442	0.321	0.069
Eating	0.994	0.122	0.001
Behavior	0.291	0.812	0.382
Scale			
malnutrition			
Satiety sensitivity	0.001	0.051	0.028
Enjoyment of food	0.001	0.001	0.001
Emotional	0.472	0.172	0.031
overfeeding			
Hunger	0.154	0.003	0.011

Student T test, Mann-Whitney U test, One-way ANOVA and Kruskal-Wallis tests

* Since the mean age of the students was 21.82±2.18, ≥ 21 was compared with < 21

University Students Eating Behavior Scale was "enjoyment of food" (4.23±0.79) (Table 1).

The relationship between the age, gender, and department of the individuals and the scales is shown in Table 2. A significant relationship was found between Obesity Bias Scale and age, gender and department ($p < 0.05$). Those under 21 years of age, females and students studying in the perfusion department had a higher Obesity Bias Scale. A significant relationship was found between "food sensitivity" and age and department; between "food restlessness" and department; between "satiety sensitivity" and age, gender and department; between "food enjoyment" and age, gender and department; between "emotional overfeeding" and department; between "hunger" and gender and department ($p < 0.05$). Food sensitivity of female students and students studying in the department of audiology, food restlessness of students studying in the department of perfusion, satiety sensitivity of students aged 21 years and over, female students and students studying in the department of nutrition and dietetics, food enjoyment of female students, students under the age of 21 years and students studying in the department of health management, emotional overfeeding of students studying in the department of audiology, hunger score of students studying in the department of speech and language therapy and female students were found to be higher (Table 2).

The correlations between age, Obesity Bias Scale and University Students Eating Behavior Scale sub-dimensions are shown in Table 3. There was a negative correlation between age and food sensitivity, eating pleasure, emotional overfeeding, hunger and obesity bias, and a positive correlation between age and satiety sensitivity (Table 3).

Table 3 Correlation between students' age, obesity Bias Scale and University students eating Behavior Scale (n = 406)

		Age	Food sensitivity	Slowness in eating	Food restlessness	Emotional malnutrition	Satiety sensitivity	Enjoyment of food	Emotional overfeeding	Hunger	Obesity bias
Age	r	1	-0.162	-0.081	0.021	0.020	0.172	-0.147	-0.129	-0.073	-0.114
	p		0.001	0.103	0.674	0.695	0.001	0.003	0.009	0.143	0.022
Food sensitivity	r	-0.162	1	0.062	-0.170	-0.253	-0.192	0.457	0.438	0.606	-0.037
	p	0.001		0.212	0.001	0.001	0.001	0.001	0.001	0.001	0.453
Slowness in eating	r	-0.081	0.062	1	0.015	0.028	0.079	-0.007	0.019	0.102	0.008
	p	0.103	0.212		0.757	0.577	0.110	0.894	0.697	0.040	0.879
Food restlessness	r	0.021	-0.170	0.015	1	0.108	0.130	-0.217	-0.109	-0.020	0.013
	p	0.674	0.001	0.757		0.029	0.009	0.001	0.028	0.692	0.790
Emotional malnutrition	r	0.020	-0.253	0.028	0.108	1	0.172	-0.027	-0.661	-0.133	-0.165
	p	0.695	0.001	0.577	0.029		0.001	0.584	0.001	0.007	0.001
Satiety sensitivity	r	0.172	-0.192	0.079	0.130	0.172	1	-0.263	-0.236	0.030	-0.047
	p	0.001	0.001	0.110	0.009	0.001		0.001	0.001	0.543	0.340
Enjoyment of food	r	-0.147	0.457	-0.007	-0.217	-0.027	-0.263	1	0.168	0.204	0.040
	p	0.003	0.001	0.894	0.001	0.584	0.001		0.001	0.001	0.426
Emotional overfeeding	r	-0.129	0.438	0.019	-0.109	-0.661	-0.236	0.168	1	0.260	0.091
	p	0.009	0.001	0.697	0.028	0.001	0.001	0.001		0.001	0.067
Hunger	r	-0.073	0.606	0.102	-0.020	-0.133	0.030	0.204	0.260	1	-0.077
	p	0.143	0.001	0.040	0.692	0.007	0.543	0.001	0.001		0.120
Obesity Bias	r	-0.114	-0.037	0.008	0.013	-0.165	-0.047	0.040	0.091	-0.077	1
	p	0.022	0.453	0.879	0.790	0.001	0.340	0.426	0.067	0.120	

Pearson and Spearman correlation

Discussion

In this study, the relationship between obesity prejudice and eating behaviors of the students of the Faculty of Health Sciences was examined. It is thought that the study will contribute to the studies to be conducted on the eating habits and obesity prejudice status of university students.

Obesity is increasing worldwide [8]. Young adults in general, and university students in particular, are reported to lead highly unhealthy lifestyles [9]. According to World Health Organization [8] data, it has been reported that obesity in adolescents has quadrupled since 1990. This increase in obesity prevalence has increased the need for a detailed examination of individual eating habits against weight gain [10]. University years are an important period in the development of lifelong health behaviors such as transition from adolescence to adulthood, eating habits and physical activity [7]. Hunot-Alexander et al. [10] looked at the relationship between eating behaviors and body mass index (BMI) and found that the satiety sensitivity subscale score was associated with a lower BMI, while the emotional overeating subscale score was associated with a higher BMI. In this study, it was found that the enjoyment of food sub-dimension score had the highest mean, the emotional overfeeding sub-dimension score of students studying in the department of audiology and the satiety sensitivity sub-dimension score of students studying in the department of nutrition

were high. It can be said that the fact that nutrition and dietetics department students have received nutrition education unlike other departments is effective on their nutrition attitudes.

When we look at the impact of obesity on mental health, it is stated in the literature that due to prejudices about overweight and obesity, these people may be exposed to derogatory comments or behaviors and even stigmatized in social environments, workplace, private environments, educational environments and online environments [11]. As a direct consequence of their experiences of weight-related stigma, individuals with overweight and obesity may internalize negative weight-related attitudes. The internalization of stigma by individuals with obesity can lead to many mental health problems, including depression, anxiety, low self-esteem, poor body image, eating disorders, emotional difficulties, and suicidal ideation [12, 13]. People who are overweight or living with obesity seek treatment from health professionals for their weight or other health needs. Some studies indicate that health professionals are prejudiced against people who are overweight or living with obesity [14, 15]. The weight bias of health professionals often leads people living with obesity to cancel or postpone appointments, avoid preventive care, and reduce regular care, resulting in worse health outcomes [11]. In most of the studies conducted with university students studying in the health services department, the existence

of obesity prejudice or a tendency to prejudice is mentioned [16–19]. Indeed, in this study, similar to the literature, students were found to be prone to prejudice. The bias tendency suggests that students may be an obstacle to providing care to people living with obesity due to the fact that they are health professional candidates and obesity rates are constantly increasing. In the study, the mean Obesity Bias Scale score of the students studying in the perfusion department was found to be high. This finding suggested that the education received by the students due to the department was effective in the scale scores. Another finding was that perfusion department students had higher food uneasiness scores than other department students. These students also had higher mean scores on the Obesity Bias Scale, suggesting a parallelism between their nutritional behaviors and their view of obesity.

Since the mean age of the students in this study was 21.82 ± 2.18 years, the total score of the Obesity Bias Scale and the sub-dimensions of the University Students Eating Behavior Scale were compared between ≥ 21 and < 21 years. Table 2 shows that the total score of the Obesity Bias Scale was higher in students aged < 21 years. In the correlation analysis shown in Table 3, a negative correlation was found between age and food sensitivity, eating pleasure, emotional overeating, hunger and obesity bias, and a positive correlation was found between age and satiety sensitivity. Adolescence is defined in the literature as the period between the ages of 11 and 21, with 21 being the age at which puberty ends [20]. According to the results of the study, the age group below the age of 21 defines the adolescent group. Adolescence covers a period in which individuals experience physical, social and psychological changes. Cognitive development is a whole consisting of physical maturation, experience, social transfer and stabilization processes [21]. Accordingly, it is seen that individuals' cognitive processes are affected by their experiences and social transfers. According to some theorists, it is said that our prejudiced attitudes and behaviors are related to cognitive processes [22–24]. In line with the conclusion drawn from the literature, it can be said that our cognitive behaviors will develop with age, and at the same time, eating behaviors are affected according to the prejudice exhibited against obesity.

Conclusion

In the study, it was revealed that students studying at the Faculty of Health Sciences are prone to prejudice against individuals with obesity and show eating pleasure eating behavior. In line with the data obtained from this study, there is a need to develop educational planning that will both increase the awareness of university students about the relationship between eating behaviors and obesity

and eliminate obesity prejudice tendencies due to the fact that they are educated.

Abbreviations

GAMS	27 Obesity Bias Scale.
USEBS	University Students Eating Behavior Scale.
BMI	Body Mass Index.

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Author contributions

N.K conceptualized and designed the study. N.K and D.K.M analyzed and interpreted the data. N.K and D.K.M drafted the initial manuscript. N.K, D.K.M, M.R, A.M.S, M.A, A.N, B.N.A, S.Ç, D.C and H.F.A supervised the project, and all authors approved the final version of the manuscript as submitted.

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Data availability

The datasets cannot be made publicly available because public availability would compromise participant privacy. The datasets used and analysed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

All procedures conducted in studies involving human participants complied with the ethical standards stated in the Declaration of Helsinki. Ethics committee approval was obtained from the İstanbul Gelişim University Ethics Committee Presidency with the decision number 2023-09-74 dated 20.11.2023. Before the survey, participants were informed about the study and their consent was obtained through signed consent forms. In addition, publication permission was obtained from all participants.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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