

The impact of occupational education on obesity prejudice of university students

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Summary. *Objective:* The aim of this study was to investigate the obesity related prejudices and negative attitudes of university students who study in health and non-health fields. *Subjective and Methods:* This is a descriptive study conducted to determine the obesity prejudice levels of students studying in health and social fields. A total of 732 students (577 females, 155 males) of different faculties of a university participated in the study voluntarily. The Prejudice was measured with Obesity Prejudice Scale (OPS). Analysis of Variance and Covariance were used to investigate relationships between of OPS scores and factors. *Results:* A total of 732 students, 577 (78.8%) females and 155 (21.2%) males, participated in this study, which was conducted to determine obesity prejudices of university students. According to their mean OPS scores, 18.4% of the students were found to be unprejudiced, 55.1% prone to be prejudiced, and 26.5% prejudiced. The intragroup comparisons of mean OPS scores of health and social field students indicated that the differences between the prejudiced and the unprejudiced were statistically highly significant ($p < 0.0001$). *Conclusions:* In order to prevent the development of internalized obesity prejudices emerging as a result of prejudices against obese individuals in the society and their stigmatization, this problem must be solved at an early age, especially during university education. It is necessary that state policies should be established to monitor the attitudes of individuals towards obesity, people should be educated and supervised on this subject, and that further research representing the society on this topic should be conducted.

Keywords: Obesity prejudice; University Student; Weight stigma; Healthcare providers

Introduction

Overweight and obesity are defined as abnormal or excessive accumulation of fat, which may impair health by the World Health Organization (WHO) (1). Although the majority of obesity-related research has been conducted in many physiological clinical areas, obesity is an important problem that needs addressing not only because of physiological and psychological disorders it causes but also due to the undesired effects on an obese individual resulting from other individuals' prejudice and negative attitudes against obesity (1-4).

The attitudes of people towards obesity consist of a complex interaction of moral judgments, social values, and scientific facts (5-9). The portrayal of obese individuals in the media and social environments as perpetually unsuccessful and weak-willed causes other individuals to adopt these ideas over time and to develop a prejudice against obese individuals (2, 3, 9-11). Obesity or body weight can increase the severity of physiological and psychological problems by causing negative attitudes and/or behaviors in almost all areas of social life. At this point, "obesity prejudice" emerges as an important social issue (1-3). Prejudice is

generally defined as a negative attitude against a group of people or the individual members of that group formed as a result of an incomplete/incorrect judgmental process (12).

In literature, body weight prejudice which is also called as weight stigma, anti-fat prejudice, anti-fat attitudes, and weightism consists of negative attitudes (dislikes), beliefs (stereotypes) or behaviors (discrimination) against the person perceived as fat (9, 13). Individuals who believe that body weight is a controllable factor exhibit more negative attitudes towards obese and extremely obese individuals than people who think body weight is uncontrollable (14).

Body weight prejudice is divided into two categories as explicit prejudice and implicit prejudice (9, 10, 15-17).

When members of society deliberately express their negative attitudes such as taunting or stigmatizing overweight and obese individuals, this means they show explicit prejudices (18, 19). While most people do not accept that they consciously have anti-fat prejudices, new studies on anti-fat prejudice show that individuals who are far from the socially desirable and/or exhibit implicit attitudes automatically develop negative attitudes and behaviors against obese individuals (13, 20, 21).

Negative attitudes against obesity, which is frequently encountered in environments that every individual has in different stages of their life such as school environment, work life, and health services environment cause negative psychological reflections in obese individuals (4, 7,10,11,13,22-25).

In a healthcare environment where individuals who are affected by obesity are susceptible to negative attitudes, prejudice, and stigmatization, exposure of obese individuals to the prejudices of healthcare providers considerably is worrisome (16,17,21,26,27). In healthcare institutions, the attitudes and behaviors of healthcare workers not only with their facial expressions or body language but also with their verbal expressions that reveal their prejudices during the treatment of obese individuals cause an important problem. On the other hand, the fact that healthcare workers have to work with equipment that is not suitable for obese individuals increases these prejudices and negative attitudes to increase, causing obese individuals

avoid receiving healthcare due to the increased feeling of discomfort (10,15,21,28,29).

Obesity is one of the most easily diagnosed but arduously treated diseases. The positive interaction between the pathophysiology of obesity and its treatment costs is known, so the method and process of obesity treatment are of great importance. In this process, compliance of the patient with treatment and his/her motivation play an important role. An empathetic, supportive, illuminating, realistic, and guiding approach to individuals demanding for treatment increases compliance with treatment (6,7,13). On the other hand, health expenditures will increase due to the growing severity of health problems which are untreated as a result of obese patients' reluctance to receive health services because of their exposure to the prejudice of healthcare workers (10,15,24,26,30).

The aim of the present study was to investigate the obesity-related prejudices and negative attitudes of university students who study in health and non-health fields.

Methods

Design

The method of current study is an observational cross-sectional.

Participants and recruitment

The study sample consisted of a total of 732 1st, 2nd, 3rd, and 4th-grade students (577 females and 155 males) who were studying at all departments of Başkent University Faculty of Health Sciences and the Faculty of Commercial Sciences and volunteered to participate in the study.

Questionnaire

The questionnaire consisted of two parts: The first part had questions about the demographic and anthropometric characteristics of the students. The second part involved GAMS-27 Obesity Prejudice Scale. This scale was developed by Ercan, Akçil Ok,

Kızıltan and Altun in 2015 (2). When the authors analyzed the validity of the scale using exploratory and confirmatory factor analyses, they concluded that all scale items gathered under a single dimension, and therefore the scale were one-dimensional. In addition, they conducted the item analysis for the reliability of the scale and found the Cronbach's Alpha coefficient of the remaining 27 items as 0.847, which meant high reliability.

"GAMS-27 Obesity Prejudice Scale", which was employed in the study, was administered in the spring semester of the 2014 -2015 academic year. Necessary explanations were made to the students about the confidentiality of the responses given to the scale. The standard directive was read to the students and the administration of the scale took 20 minutes.

In the current study, Cronbach's alpha coefficient of the scale was found to be 0.821 when the reliability of the scale (internal consistency) was examined in accordance with the responses given by 732 students to 27 items of the scale. This value indicated that the internal consistency of the scale was considerably high proving that the scale had high reliability.

The scale consists of 27 items describing obese individuals and is scored according to a 5-point Likert type scoring system. The responses to the items are "strongly agree", "agree", "undecided", "disagree", and "strongly disagree". Positive items are scored from 5 to 1 starting with "strongly agree", whereas negative items are scored from 1 to 5 starting with "strongly agree".

The lowest score that can be obtained from the "Obesity Prejudice Scale" consisting of 27 items is 27 and the highest is 135. The mean and standard deviation of the scores that the students obtained from the scale was 78.32 ± 11.30 . First of all, the descriptive statistics of the scores were analyzed. The mean score of the scale was 76.394 and the median score was 76. The examination of the percentiles of the scores indicated that the score corresponding to the 5th percentile was 58; the 25th percentile 68; the 50th percentile 76; the 75th percentile 84; and the 95th percentile 96. The analysis of the descriptive statistics of the scores in terms of the positive and negative items revealed that a decreased total score from the scale meant individuals were unprejudiced against obesity, whereas that an

Table 1. The Evaluation of the Obesity Scale Score

Scale score Classification	The Status of Obesity Prejudice
68.00 and below (below the 25 th percentile)	Unprejudiced
68.01-84.99 (25 th – 75 th percentile)	Prone to be prejudiced
85 and above (above 75 th percentile)	Prejudiced

increased total score from the scale meant individuals were prejudiced against obesity. The normal distribution of the scale score was analyzed with the Kolmogorov-Smirnov test and it was found to have a normal distribution ($p = 0.147$). The obesity prejudice classification of the scale was made according to the scores corresponding to the percentiles of the scale score (Table 1).

Statistical Analyses

Pearson's Chi-Square test was used to compare the groups in terms of qualitative variables. The Kolmogorov-Smirnov test was employed to analyze whether the data of the continuous variables were distributed normally. As the normal distribution was provided, student's t-test was used to compare the mean score for two independent groups. One-way analysis of variance (ANOVA, F test) was employed for comparing three or more independent groups when a single factor was analyzed, whereas two-way ANOVA (F test) was used to analyze the effect of two factors. SPSS Version 22 statistical software package was used to analyze the data. The significance level was accepted as $p < 0.05$ in all statistical tests.

Results

A total of 732 students, 577 (78.8%) females and 155 (21.2%) males, participated in this study, which was conducted to determine obesity prejudices of university students. 75.4% of the students were health students and 24.6% were from social fields. The mean age of the female students was 21.3 ± 1.57 years and this

value was 22.6 ± 2.23 years for the male students. The mean body mass indexes (BMI) of male and female students were $21.2 \pm 3.55 \text{ kg/m}^2$ and $23.9 \pm 2.87 \text{ kg/m}^2$, respectively.

When the students participating in the study were asked to define their attitudes towards obese individuals, 10.9% reported that they had prejudices against obese people and 89.1% stated that they were unprejudiced. 66.8% of these students, who had obesity prejudice, were students from social fields, whereas 22.3% were health students.

Students' prejudice against obesity was evaluated according to their field of study with the obesity prejudice scale and their scores for OPS were given in Table 1. The difference between the mean scores of the students who reported that they had obesity prejudice and the mean scores of those who stated they were unprejudiced was found statistically highly significant ($p_3 < 0.0001$). The mean score of the students who considered themselves as prejudiced was 72.5 ± 10.40 and the mean score of the students who stated that they were unprejudiced was 79.0 ± 11.20 . This difference was statistically significant ($p < 0.0001$).

Similarly, the intragroup comparisons of mean OPS scores of health and social field students indicated that the differences between the prejudiced and

the unprejudiced were statistically highly significant ($p_1 < 0.0001$; $p_2 < 0.0001$). The examination of both field-specific and overall results revealed that the mean OPS scores of the students who reported that they were unprejudiced were higher than the scores of the students who reported they were prejudiced (Table 2).

The examination of students' OPS score classification indicated that 18.4% of the students were unprejudiced, 55.1% were prone to be prejudiced, and 26.5% were prejudiced (Table 3).

Table 4 presents OPS scores according to the demographic characteristics of the students. No significant difference was found between the mean OPS scores of the students in terms of their gender, field study, BMI, and grade levels ($p = 0.882$; $p = 0.209$; $p = 0.196$; $p = 0.445$, respectively) (Table 4).

The distribution of students' mean OPS scores by BMI classification

Table 5 gives the distribution of mean OPS scores based on the classification of BMI values, which were calculated using self-reported height and weight data of the students.

Table 2. OPS scores of the students by their obesity prejudices and field of study

Obesity prejudice	Health		Social		Total	
	$\bar{X} \pm \text{SD}^\#$	p_1	$\bar{X} \pm \text{SD}$	p_2	$\bar{X} \pm \text{SD}$	p_3
Prejudiced	73.0 ± 10.6	< 0.0001	70.3 ± 9.5	< 0.0001	72.5 ± 10.4	< 0.0001
Unprejudiced	78.7 ± 11.0		80.2 ± 11.7		79.0 ± 11.2	

P_1 : Comparison of health students in terms of their obesity prejudice

P_2 : Comparison of students from commercial sciences faculty in terms of their obesity prejudice

P_3 : Overall comparison of students in terms of their obesity prejudice

$\#$: Standard Deviation

Table 3. The classification of students' prejudices according to their mean OPS scores

OPS Score classification	Health		Social		Total	
	n	%	n	%	n	%
Unprejudiced	101	18.3	34	18.9	135	18.4
Prone to be prejudiced	314	56.9	89	49.4	403	55.1
Prejudiced	137	24.8	57	31.7	194	26.5
Total	552	100.0	180	100.0	732	100.0

Table 4. The descriptive statistics of OPS scores according to the demographic characteristics of the students

		n	min	max	\bar{X}	SD	t or F	p
Gender	Female	577	42	121	78.3	11.19	t = -0.148	0.882
	Male	155	52	117	78.2	11.72		
Faculty	Health	552	42	121	78.0	11.11	t = -1.257	0.209
	Social	180	52	118	79.2	11.84		
Grade	1	204	51	114	77.4	11.17	F = 0.892	0.445
	2	246	47	121	78.9	11.63		
	3	156	42	117	78.0	10.85		
	4	126	46	114	79.1	11.43		
BMI	Underweight	100	51	114	78.8	10.80	F = 1.633	0.196
	Normal	521	42	121	77.9	11.12		
	Overweight	105	53	114	80.0	11.96		

Table 5. The mean OPS scores according to the students' perception of their own body and BMI classification

Students' perception of their own body	Health			Social			Total		
	\bar{X}	SD	p ₁	\bar{X}	SD	p ₂	\bar{X}	SD	p ₃
Underweight	77.8	9.98		80.0	13.61		78.5	11.19	
Normal	77.8	11.08	0.634	78.8	11.44	0.687	78.1	11.16	0.514
Overweight	79.1	12.34		81.0	11.49		79.5	12.15	
BMI classification of the students									
Underweight	78.1	10.98		80.7	10.19		78.7	10.80	0.196
Normal	77.4	10.79	0.031	79.1	12.07	0.502	77.8	11.13	
Overweight	81.1	12.36		77.1	11.26		79.9	11.96	

p₁: Comparison of health students according to BMI classification

p₂: Comparison of students from commercial sciences faculty according to BMI classification

p₃: Overall comparison of students according to BMI classification

When the students were considered as a whole and according to their field of study, no significant difference was found between the groups in terms of their mean OPS scores. The mean OPS scores of the health students according to their BMI classification were 78.1 ± 10.98 for the underweight, 77.4 ± 10.79 for the normal, and 81.1 ± 12.36 for the overweight. The difference between the BMI groups in terms of their mean OPS scores was found statistically significant ($p = 0.031$). The difference was determined to stem from the difference between the mean OPS scores of the 'normal' and "overweight" groups.

The mean OPS scores were compared based on students' evaluation of their own body and their actual BMI classification (Table 6). The mean OPS score of the students who evaluated themselves as overweight but were actually normal according to their BMI classification was 76.5 ± 11.33 , being the lowest in the comparison. The highest mean OPS score was 82.1 ± 12.43 , which belonged to students who defined themselves as overweight and were also found to be overweight according to BMI classification. However, the difference between

the mean OPS scores according to these two factors was not found statistically significant ($p = 0.089$).

Discussion

Prejudiced and discriminatory social attitudes towards obesity are reported to cause negative emotions to take root in obese individuals (6,9,30,31). Obesity prejudice is defined as a pathological fear of obesity or as fatphobia leading to negative attitudes and stereotypes towards overweight and obese individuals (10,13). Exposure to obesity prejudice coming from other individuals may reduce the self-esteem of obese individuals and cause them to be susceptible to depression (6,7,10,13,20). Obesity prejudice is generally encountered in interpersonal relationships, at workplace, school, and healthcare settings (12,25,32,34-37). A substantial level of obesity prejudice has also been found to exist among healthcare workers as reported by a few studies on obesity prejudice (10, 17, 35, 38, 40).

When the entire sample was examined, the difference between mean OPS scores in terms of comparisons between both faculties and genders was not found statistically significant ($p > 0.05$). Similarly, in a study conducted on two student group, one of which had a mean age of 21.2 ± 1.5 years and studied dietetics and the other with a mean age of 21.4 ± 3.9 years studying a non-health field, Berryman, Dubale, and Manchester⁴¹ observed similar attitudes and scale scores in both groups. In another study comparing 22 negative attitudes in students studying dietetics and those from non-health fields, the researchers determined that there was no difference in general attitudes between students studying dietetics and a group of

control students from various non-health disciplines with the same age and weight. This shows that receiving health education does not encourage these prejudices, as well as not reducing them. The fact that health students, who are going to provide healthcare services in the future, have a level of prejudices similar to those of other individuals is worrying in that this is likely to affect their professional skills and performances in guiding overweight and obese individuals in the future.

When the students within the same field of study were compared by gender in terms of whether they were fat in any period of their life, the difference between genders was found to be significant in both health and social fields ($p < 0.0001$; $p = 0.015$).

In a study by Schwartz, Chambliss, and Brownell⁵ conducted to determine the personal characteristics of healthcare professionals specialized in obesity relating to both implicit and explicit prejudice and their anti-fat attitudes, the Implicit Associations Test (IAT) was used to determine the implicit prejudices (form of association: 'obese people' and 'underweight people' with 'good' or 'bad') and 3 types of stereotypes (lazy-moving, smart-stupid, and worthy-worthless). The healthcare workers in this study exhibited a high level of anti-fat prejudice in IAT, and in addition, they approved the 'lazy', 'stupid', and 'worthless' stereotypes considerably. The level of prejudice was observed to be associated with different personal characteristics, and participants with characteristics such as being male, being older, having a positive appearance in life, having more weight, having obese family members, and having obese friends were found to show less implicit prejudice.

Miller, Spangler, Davis, et al. (42) in their study investigating whether medical students were aware of their anti-fat prejudices, determined that 39% of the

Table 6. The mean OPS scores according to the students' evaluation of their own body and BMI classification

Students' evaluation of their own body	BMI classification of the students*		
	Underweight	Normal	Overweight
	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
Underweight	79.1±10.24	76.8±11.34	N/A
Normal	78.1±10.72	78.1±11.09	77.7±11.09
Overweight	N/A	76.5±11.33	82.1±12.43

* Two way ANOVA $F=2.428$, $p=0.089$

students had anti-fat prejudice and that 67% of them were not aware of their implicit anti-fat prejudice. In the current study, the mean OPS score of the students who declared that they were prejudiced was lower compared to the score of the students declaring they were unprejudiced ($p < 0.0001$). This suggests that the group of students stating that they were prejudiced were aware of their existing prejudices, whereas that others stating they were unprejudiced were not aware of their prejudices and they had implicit prejudices.

In their study with 439 dietitians, McArthur and Ross (43) reported that neither the length of work experience nor the length of education created a significant difference in attitudes of dietitians towards their overweight patients. In a study conducted in 1969 in a medical clinic, 100 physicians and interns were evaluated for their obesity prejudices by using self-report measures. The participants in the study defined obese patients as mindless, unsuccessful, inactive and weak-willed, and they stated that they did not prefer to give care to overweight patients and did not expect success when they were responsible for their management (44). The mean OPS score of the 1st-grade health students in the current study was found lower than the score of the 4th-grade health students. Although the difference between the groups is not statistically significant, it suggests that the increased communication of these students, who receive health education, with obese patients during the classes they take in the 4th year and the difficulties they experience while working with these patients led to an increase in their OPS scores. This shows that stereotypes do not replace the negative attitudes forming through experience. Similar studies in the literature support the results of this study.

The fact that students who are prone to obesity prejudice in the field of health are more in number than already prejudiced students suggests that the prejudices of the students who receive health education can be changed and reduced with interventions during the education period. In a study conducted with medical students in the second and third year of their education, the students watched a seventeen-minute video titled 'Obesity Prejudice in Health Care' and scales were applied to evaluate the attitudes of the students before and after the intervention. According to the results obtained from the scales, the intervention

was found to decrease the belief in the lack of personal control and increase the belief that genetic and environmental factors play an important role in the pathophysiology of obesity. Also, a decrease in negative stereotypes against obese patients was observed. Implementation of a short educational intervention was effective in improving the beliefs and eliminating stereotypes of medical students about obese patients. This easily accessible and reproducible program can serve as a model and can be used for further development of educational interventions to reduce obesity prejudice among students (45).

In the literature, physical appearance is stated to influence body image as it is a strong stimulating factor in terms of the social evaluation of the person as well as his/her self-evaluation.⁴⁶ Gender factor in society creates differences in the perception of body image. Women's body perceptions are more negative, which supports the findings (47). In the current study, the body perception of social sciences students showed a difference between genders and it was found statistically significant ($p < 0.05$).

Studies have found that body image is affected by gender and body mass index, and the determination of significantly lower body image perception in the overweight group supports the study findings (48,49). In their study with 1649 individuals with a mean age of 28, O'Brien, Daniélsdóttir and Olafsson.⁴⁸ showed that the relationship between obesity prejudice and body perception was stronger in women than men, Aktaş et al.(49) in their study with 380 nursing students who had a mean age of 20.39 ± 1.68 , found that students who were content with their weight had a more positive body perception. In the same study, ideal body weight was determined to be an important factor on the perception of body image. The examination of students' mean OPS scores according to both the perception of their own body and the calculated BMI classification indicated that students who defined themselves as fat (79.5) and who were fat according to BMI classification (79.9) had the highest mean scores within their classification groups. Welborn's study with 26 graduates and 88 students of dietetics aiming to determine the anti-fat attitudes and fatphobia of the subjects showed that the participants with a healthy BMI based on their BMI classification had

less tolerance towards overweight and obese people, whereas that obese or overweight graduates of dietetics had less negative attitudes than dieticians with lower scores identified as normal or underweight according to their BMI classification (10). However, according to the results of this study, it can be said that fat participants show their 'internalized obesity prejudices'. Internalized obesity prejudice may emerge as a result of the stigma and prejudices exerted by other individuals and the acceptance of these negative attitudes by obese individuals. Internalized obesity prejudice has been found to be directly associated with psychological conditions such as lack of confidence, depression, impaired body perception, weight-related concerns and eating disorders (50). These individuals' self-stigmatization due to their impaired psychological status is considered to be the reason why their mean scores are higher than others.

Conclusion

In conclusion, according to their mean OPS scores in this study, 18.4% of the students were found to be unprejudiced, 55.1% prone to be prejudiced, and 26.5% prejudiced. Although 89.1% of the students reported they had no prejudice against obesity and 10.9% stated they had prejudices against obesity, the mean score of the students who stated that they were unprejudiced was higher than those who stated that they were prejudiced. Individuals who state they have no obesity prejudice are often unaware of their prejudices. In this context, making people aware of their implicit prejudices is the main point that will provide a change in their attitudes. Studies support the idea that educational activities and courses on obesity prejudice can make individuals notice their prejudices and can create attitude changes. In this study, the mean OPS scores of 4th-grade health students were found to be higher than those of 1st-grade students. This result shows that taking such educational courses is of great significance for university students who will give healthcare service in the future in terms of preventing increased health costs emerging due to avoiding or delaying receiving healthcare services. Making arrangements for obese individuals in the healthcare environment will reduce the patient's reservations and

facilitate the work of healthcare providers and prevent them from avoiding working with obese patients.

In order to prevent the development of internalized obesity prejudices emerging as a result of prejudices against obese individuals in the society and their stigmatization, this problem must be solved at an early age, especially during university education. Additionally, it is necessary that state policies should be established to monitor the attitudes of individuals towards obesity, people should be educated and supervised on this subject, and that further research representing the society on this topic should be conducted.

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