

The article was received on April 23, 2021, and accepted for publishing on July 18, 2021.

VARIA

Evaluation of morbid obese patients with attitudes toward obese persons scale prior to bariatric surgery: Obesity from the perspective of real patients

Mehmet E. Yuksel¹, Namik Ozkan²

Abstract: *Background: The number of studies with the application of scales, such as Attitudes Toward Obese Persons Scale (ATOP), on morbid obese patients are limited. Therefore, we wanted to examine the attitudes toward obese people through the eyes of morbid obese patients.*

Methods: Between October 2019 - April 2020, 70 female and 20 male, morbid obese patients, who were admitted to the general surgery department to be evaluated for bariatric surgery were included in this study. These 90 morbid obese patients were asked to fill out ATOP, which included 20 statements.

Results: The mean ATOP score of all morbid obese patients was 63.44±18.58 (range:19-116). The mean ATOP score of female patients was 63.47±20.34 (range:19-116), whereas the mean ATOP score of male patients was 63.35±10.69 (range:43-80) (p=0.98). The frequency of the responses given by the male and female patients to the third statement, which was "Most obese people are more self-conscious than other people" pointed out a statistically significant difference (p=0.02).

Conclusions: Based on ATOP scores gained from morbid obese patients, 60% of morbid obese patients did not feel as happy as non-obese people, whereas 74.4% of the morbid obese patients thought that obese people were not as healthy as non-obese people. Moreover, ATOP scores which were slightly higher than 60 points in both female and male morbid obese patients indicated that morbid obese patients had neither negative nor highly positive attitudes toward obese people.

Keywords: *attitude, bariatric, morbid, obesity, surgery*

INTRODUCTION

Obesity is a chronic disorder that leads to an increasing public health problem worldwide [1, 2]. Obesity has a substantial psychosocial effect on a person's life [3]. It has been suggested that 20-60% of obese patients have a psychiatric disorder.

Depression, eating disorders such as binge eating, anxiety, low self-esteem, decreased quality of life, emotional neglect, stigma and discrimination have been associated with obesity. As weight loss improves the psychosocial functioning, psychosocial effects of obesity should be considered in the management of patients especially prior to bariatric surgery [4].

Obese patients may encounter stigmatization and weight bias not only at school and work but also within their social

environment. Stigmatization refers to presence of negative perceptions toward obese patients, whereas weight bias refers to negative attitudes and beliefs toward obese patients without a reason. Attitudes of stigmatization and weight bias have been investigated in various study populations such as healthcare professionals, medical students and university students [5]. However, the number of studies with the application of scales, such as Attitudes Toward Obese Persons Scale (ATOP), on morbid obese patients are limited. Attitudes Toward Obese Persons Scale is used to evaluate whether people have favorable attitudes against obese patients or not [5]. Within this study, we wanted to examine the attitudes towards obese people through the eyes of morbid obese patients using ATOP.

Corresponding author: Mehmet Eren Yuksel
doctormehmeteren@yahoo.com

¹ Yildirim Beyazit University School of Medicine, Intensive Care Unit, Ankara, Turkey; ORCID: 0000-0002-7110-0717

² Gaziosmanpasa University School of Medicine, Department of General Surgery, Tokat, Turkey; ORCID: 0000-0002-3080-6617

METHODS

Between October 2019 - April 2020, 70 (77.8%) female and 20 (22.2%) male, a total of 90 morbid obese patients, who were admitted to the general surgery department to be evaluated for bariatric surgery were included in this study. Local ethics committee approval was obtained prior to this study (2019/08-10). Patients with body mass index (BMI) greater than 40 kg/m² were regarded as morbid obese, and patients with BMI greater than 50 kg/m² were regarded as severe morbid obese [6]. These 90 morbid obese patients were asked to fill out ATOP, which included 20 statements. Each statement was valued between -3 to +3 points [7].

The participants were asked to mark each statement according to how much they agreed or disagreed with it, using a scale between, -3 to +3 points (-3: I strongly disagree, -2: I moderately disagree, -1: I slightly disagree, +1: I slightly agree, +2: I moderately agree, +3: I strongly agree).

These twenty statements are:

1. Obese people are as happy as nonobese people.
2. Most obese people feel that they are not as good as other people.
3. Most obese people are more self-conscious than other people.
4. Obese workers cannot be as successful as other workers.
5. Most nonobese people would not want to marry anyone who is obese.
6. Severely obese people are usually untidy.
7. Obese people are usually sociable.
8. Most obese people are not dissatisfied with themselves.
9. Obese people are just as self-confident as other people.
10. Most people feel uncomfortable when they associate with obese people.
11. Obese people are often less aggressive than nonobese people.
12. Most obese people have different personalities than nonobese people.
13. Very few obese people are ashamed of their weight.
14. Most obese people resent normal weight people.
15. Obese people are more emotional than nonobese people.
16. Obese people should not expect to lead normal lives.
17. Obese people are just as healthy as nonobese people.
18. Obese people are just as sexually attractive as nonobese people.
19. Obese people tend to have family problems.
20. One of the worst things that could happen to a person would be for him to become obese.

All of these statements were responded by the participants by the help of ATOP scale. In ATOP, points given to each

statement by the participant are summed up. This final number is added to 60 in order to reach a total score, which varies between 0-120 [8].

Statistical analysis was performed using the SPSS 20.0 statistical package programme. Numerical variables were stated as the mean (\pm) standard deviation and medians (minimum–maximum). Categorical variables were stated as percentages. The Mann Whitney U test and independent samples t test were used to compare differences between two groups. The p-value <0.05 was considered significant.

RESULTS

This study included 90 – 70 female (77.8%) and 20 male (22.2%) – morbid obese patients. The mean age of the patients was 36.26 \pm 10.28 years (range: 18-65). The mean age of female patients was 36.77 \pm 10.22 years (range: 18-65), while the mean age of male patients was 34.50 \pm 10.54 years (range: 21-51). The mean BMI of the patients was 45.83 \pm 5.70 kg/m² (range: 40-65.3). The mean BMI of the female patients was 45.54 \pm 5.34 kg/m² (range: 40-64.3), while the mean BMI of the male patients was 46.84 \pm 6.86 kg/m² (range: 40-65.3) (p=0.57). The mean ATOP score of all morbid obese patients was 63.44 \pm 18.58 (range: 19-116). The mean ATOP score of female patients was 63.47 \pm 20.34 (range: 19-116), whereas the mean ATOP score of male patients was 63.35 \pm 10.69 (range: 43-80) (p=0.98). The responses of the patients to the statements within ATOP are depicted in Tables 1, 2, 3.

The frequency of the responses given by the male and female patients to the third statement pointed out a statistically significant difference (p=0.02). Nevertheless, the frequency of the responses of the patients to the rest of the statements did not show any statistically significant difference (s1:p=0.95, s2:p=0.58, s4:p=0.40, s5:p=0.08, s6:p=0.38, s7:p=0.11, s8:p=0.40, s9:p=0.59, s10:p=0.98, s11:p=0.50, s12:p=0.68, s13:p=0.33, s14:p=0.97, s15:p=0.69, s16:p=0.44, s17:p=0.48, s18:p=0.66, s19:p=0.28, s20:p=0.73. s: statement)

Statement 1 was given -3 points by 42 (46.7%), -2 points by 4 (4.4%), -1 point by 8 (8.9%), 1 point by 11 (12.2%), 2 points by 9 (10%) and 3 points by 16 (17.8%) patients, respectively. The majority of morbid obese patients (60%) did not agree with the statement that obese people were as happy as non-obese people.

Statement 2 was given -3 points by 7 (7.8%) , -2 points by 6 (6.7%), -1 point by 8 (8.9%), 1 point by 10 (11.1%), 2 points by 12 (13.3%), 3 points by 47 (52.2%) patients, respectively. 76.6% of morbid obese patients agreed with the statement

that most obese people felt that they were not as good as other people.

Table 1: Points given by the patients to the statements within attitudes toward obese persons scale. 60 (66.7%) patients strongly disagreed and 4 (4.4%) patients strongly agreed with the 8th statement, which was “most obese people are not dissatisfied with themselves”. In addition, most patients (58.9%) strongly disagreed with the 17th statement, which was “obese people are just as healthy as nonobese people” while only 7.8% of the morbid obese patients stated that they strongly agreed with this statement.

Score	-3	-2	-1	1	2	3
Statement	Patients n (%)					
S-1	42 (46.7%)	4 (4.4%)	8 (8.9%)	11 (12.2%)	9 (10%)	16 (17.8%)
S-2	7 (7.8%)	6 (6.7%)	8 (8.9%)	10 (11.1%)	12 (13.3%)	47 (52.2%)
S-3	17 (18.9%)	7 (7.8%)	3 (3.3%)	8 (8.9%)	10 (11.1%)	45 (50%)
S-4	28 (31.1%)	5 (5.6%)	6 (6.7%)	9 (10%)	13 (14.4%)	29 (32.2%)
S-5	13 (14.4%)	5 (5.6%)	10 (11.1%)	6 (6.7%)	21 (23.3%)	35 (38.9%)
S-6	17 (18.9%)	8 (8.9%)	7 (7.8%)	14 (15.6%)	20 (22.2%)	24 (26.7%)
S-7	19 (21.1%)	14 (15.6%)	11 (12.2%)	21 (23.3%)	15 (16.7%)	10 (11.1%)
S-8	60 (66.7%)	12 (13.3%)	5 (5.6%)	3 (3.3%)	6 (6.7%)	4 (4.4%)
S-9	25 (27.8%)	9 (10%)	11 (12.2%)	14 (15.6%)	12 (13.3%)	19 (21.1%)
S-10	18 (20%)	13 (14.4%)	15 (16.7%)	12 (13.3%)	15 (16.7%)	17 (18.9%)
S-11	20 (22.2%)	9 (10%)	11 (12.2%)	15 (16.7%)	14 (15.6%)	21 (23.3%)
S-12	12 (13.3%)	14 (15.6%)	15 (16.7%)	19 (21.1%)	8 (8.9%)	22 (24.4%)
S-13	24 (26.7%)	9 (10%)	7 (7.8%)	9 (10%)	6 (6.7%)	35 (38.9%)
S-14	11 (12.2%)	9 (10%)	6 (6.7%)	11 (12.2%)	12 (13.3%)	41 (45.6%)
S-15	7 (7.8%)	3 (3.3%)	3 (3.3%)	17 (18.9%)	15 (16.7%)	45 (50%)
S-16	27 (30%)	8 (8.9%)	9 (10%)	8 (8.9%)	14 (15.6%)	24 (26.7%)
S-17	53 (58.9%)	3 (3.3%)	11 (12.2%)	10 (11.1%)	6 (6.7%)	7 (7.8%)
S-18	47 (52.2%)	12 (13.3%)	10 (11.1%)	9 (10%)	3 (3.3%)	9 (10%)
S-19	16 (17.8%)	15 (16.7%)	12 (13.3%)	7 (7.8%)	11 (12.2%)	29 (32.2%)
S-20	12 (13.3%)	5 (5.6%)	7 (7.8%)	14 (15.6%)	13 (14.4%)	39 (43.3%)

Statement 3 was given -3 points by 17 (18.9%), -2 points by 7 (7.8%), -1 point by 3 (3.3%), 1 point by 8 (8.9%), 2 points by 10 (11.1%), 3 points by 45 (50%) patients, respectively. 70% of morbid obese patients agreed that most obese people were more self-conscious than other people.

Statement 4 was given -3 points by 28 (31.1%), -2 points by 5 (5.6%), -1 point by 6 (6.7%), 1 point by 9 (10%), 2 points by 13 (14.4%) and 3 points by 29 (32.2%) patients, respectively. 56.6% of morbid obese patients believed that obese workers could not be as successful as other workers.

Statement 5 was given -3 points by 13 (14.4%), -2 points by 5 (5.6%), -1 point by 10 (11.1%), 1 point by 6 (6.7%), 2 points by 21 (23.3%), 3 points by 35 (38.9%) patients, respectively. The majority of the morbid obese patients (68.9%) thought

that most non-obese people would not want to marry anyone who was obese.

Statement 6 was given -3 points by 17 (18.9%), -2 points by 8 (8.9%), -1 point by 7 (7.8%), 1 point by 14 (15.6%), 2 points by 20 (22.2%) and 3 points by 24 (26.7%), respectively. The majority of the morbid obese patients (64.5%) believed that severely obese people were usually untidy.

Statement 7 was given -3 points by 19 (21.1%), -2 points by 14 (15.6%), -1 point by 11 (12.2%), 1 point by 21 (23.3%), 2 points by 15 (16.7%) and 3 points by 10 (11.1%) patients, respectively. These results revealed that tendency of morbid obese patients was towards thinking that obese people were usually sociable (51.1%).

Statement 8 was given -3 points by 60 (66.7%), -2 points by 12 (13.3%), -1 point by 5 (5.6%), 1 point by 3 (3.3%), 2 points

by 6(6.7%) and 3 points by 4(4.4%) patients, respectively. statement that “most obese people are not dissatisfied with themselves”.
 85.6% of morbid obese patients strongly disagreed with the

Table 2: Points given by the female patients to the statements within attitudes toward obese persons scale. 57.1% of the female patients strongly agreed with the 3rd statement, which was “most obese people are more self-conscious than other people”, while only 15.7% of them stated that they strongly disagreed with this statement.

Score	-3	-2	-1	1	2	3
Statement	Female patients n (%)					
S-1	33 (47.1%)	2 (2.9%)	6 (8.6%)	9 (12.9%)	9 (12.9%)	11 (15.7%)
S-2	6 (8.6%)	5 (7.1%)	7 (10%)	3 (4.3%)	11 (15.7%)	38 (54.3%)
S-3	11 (15.7%)	5 (7.1%)	2 (2.9%)	6 (8.6%)	6 (8.6%)	40 (57.1%)
S-4	21 (30%)	4 (5.7%)	4 (5.7%)	6 (8.6%)	11 (15.7%)	24 (34.3%)
S-5	8 (11.4%)	4 (5.7%)	5 (7.1%)	6 (8.6%)	18 (25.7%)	29 (41.4%)
S-6	15 (21.4%)	7 (10%)	6 (8.6%)	9 (12.9%)	14 (20%)	19 (27.1%)
S-7	16 (22.9%)	13 (18.6%)	9 (12.9%)	14 (20%)	11 (15.7%)	7 (10%)
S-8	48 (68.6%)	11 (15.7%)	2 (2.9%)	1 (1.4%)	4 (5.7%)	4 (5.7%)
S-9	18 (25.7%)	8 (11.4%)	10 (14.3%)	12 (17.1%)	10 (14.3%)	12 (17.1%)
S-10	14 (20%)	11 (15.7%)	11 (15.7%)	9 (12.9%)	11 (15.7%)	14 (20%)
S-11	16 (22.9%)	7 (10%)	9 (12.9%)	9 (12.9%)	9 (12.9%)	20 (28.6%)
S-12	9 (12.9%)	10 (14.3%)	14 (20%)	13 (18.6%)	5 (7.1%)	19 (27.1%)
S-13	21 (30%)	8 (11.4%)	6 (8.6%)	5 (7.1%)	2 (2.9%)	28 (40%)
S-14	8 (11.4%)	7 (10%)	6 (8.6%)	8 (11.4%)	9 (12.9%)	32 (45.7%)
S-15	7 (10%)	3 (4.3%)	3 (4.3%)	9 (12.9%)	11 (15.7%)	37 (52.9%)
S-16	23 (32.9%)	3 (4.3%)	6 (8.6%)	5 (7.1%)	12 (17.1%)	21 (30%)
S-17	42 (60%)	2 (2.9%)	10 (14.3%)	8 (11.4%)	3 (4.3%)	5 (7.1%)
S-18	37 (52.9%)	11 (15.7%)	6 (8.6%)	7 (10%)	2 (2.9%)	7 (10%)
S-19	11 (15.7%)	12 (17.1%)	9 (12.9%)	6 (8.6%)	7 (10%)	25 (35.7%)
S-20	9 (12.9%)	5 (7.1%)	5 (7.1%)	9 (12.9%)	11 (15.7%)	31 (44.3%)

Statement 9 was given -3 points by 25(27.8%), -2 points by 9(10%), -1 point by 11(12.2%), 1 point by 14(15.6%), 2 points by 12(13.3%) and 3 points by 19(21.1%) patients, respectively. According to these results, half of the morbid obese agreed with the view that obese people were just as self-confident as other people, while the other half of morbid obese patients did not.

Statement 10 was given -3 points by 18(20%), -2 points by 13(14.4%), -1 point by 15(16.7%), 1 point by 12(13.3%), 2 points by 15(16.7%), 3 points by 17(18.9%) patients, respectively. As a result, 50% of the morbid obese patients were in favor of the statement that most people felt uncomfortable when they associated with obese people, while the other 50% disagreed with this statement.

Statement 11 was given -3 points by 20 (22.2%), -2 points by 9 (10%), -1 point by 11 (12.2%), 1 point by 15 (16.7%), 2

points by 14 (15.6%) and 3 points by 21 (23.3%) patients, respectively. 40 patients (44.4%) disagreed while 50 patients (55.6%) agreed with the statement that obese people were often less aggressive than non-obese people.

Statement 12 was given -3 points by 12(13.3%), -2 points by 14(15.6%), -1 points by 15(16.7%), 1 point by 19(21.1%), 2 points by 8(8.9%) and 3 points by 22(24.4%) patients, respectively. The majority of the morbid obese patients (54.4%) indicated that most obese people had different personalities than non-obese people.

Statement 13 was given -3 points by 24(26.7%), -2 points by 9(10%), -1 point by 7(7.8%), 1 point by 9(10%), 2 points by 6(6.7%) and 3 points by 35(38.9%), respectively. According to these scores, 50 (55.6%) morbid obese patients had a positive tendency toward the statement that very few obese people were ashamed of their weight.

Table 3: Points given by the male patients to the statements within attitudes toward obese persons scale. Most of the male patients (30%) strongly disagreed with the 3rd statement, which was “most obese people are more self-conscious than other people”. Statistically significant difference was observed between the frequency of the responses given by the male and female patients to the third statement ($p=0.02$).

Score	-3	-2	-1	1	2	3
Statement	Male patients n (%)					
S-1	9 (45%)	2 (10%)	2 (10%)	2 (10%)	0 (0%)	5 (25%)
S-2	1 (5%)	1 (5%)	1 (5%)	7 (35%)	1 (5%)	9 (45%)
S-3	6 (30%)	2 (10%)	1 (5%)	2 (10%)	4 (20%)	5 (25%)
S-4	7 (35%)	1 (5%)	2 (10%)	3 (15%)	2 (10%)	5 (25%)
S-5	5 (25%)	1 (5%)	5 (25%)	0 (0%)	3 (15%)	6 (30%)
S-6	2 (10%)	1 (5%)	1 (5%)	5 (25%)	6 (30%)	5 (25%)
S-7	3 (15%)	1 (5%)	2 (10%)	7 (35%)	4 (20%)	3 (15%)
S-8	12 (60%)	1 (5%)	3 (15%)	2 (10%)	2 (10%)	0 (0%)
S-9	7 (35%)	1 (5%)	1 (5%)	2 (10%)	2 (10%)	7 (35%)
S-10	4 (20%)	2 (10%)	4 (20%)	3 (15%)	4 (20%)	3 (15%)
S-11	4 (20%)	2 (10%)	2 (10%)	6 (30%)	5 (25%)	1 (5%)
S-12	3 (15%)	4 (20%)	1 (5%)	6 (30%)	3 (15%)	3 (15%)
S-13	3 (15%)	1 (5%)	1 (5%)	4 (20%)	4 (20%)	7 (35%)
S-14	3 (15%)	2 (10%)	0 (0%)	3 (15%)	3 (15%)	9 (45%)
S-15	0 (0%)	0 (0%)	0 (0%)	8 (40%)	4 (20%)	8 (40%)
S-16	4 (20%)	5 (25%)	3 (15%)	3 (15%)	2 (10%)	3 (15%)
S-17	11 (55%)	1 (5%)	1 (5%)	2 (10%)	3 (15%)	2 (10%)
S-18	10 (50%)	1 (5%)	4 (20%)	2 (10%)	1 (5%)	2 (10%)
S-19	5 (25%)	3 (15%)	3 (15%)	1 (5%)	4 (20%)	4 (20%)
S-20	3 (15%)	0 (0%)	2 (10%)	5 (25%)	2 (10%)	8 (40%)

Statement 14 was given -3 points by 11(12.2%), -2 points by 9(10%), -1 point by 6(6.7%), 1 point by 11(12.2%), 2 points by 12(13.3%), 3 points by 41(45.6) patients, respectively. Majority of the morbid obese patients (71.1%) accepted that most obese people resented normal weight people.

Statement 15 was given -3 points by 7(7.8%), -2 points by 3(3.3%), -1 point by 3(3.3%), 1 point by 17(18.9%), 2 points by 15(16.7%) and 3 points by 45(50%) patients, respectively. The vast majority of the morbid obese patients (80.6%) shared the idea that obese people were more emotional than non-obese people.

Statement 16 was given -3 points by 27(30%), -2 points by 8(8.9%), -1 point by 9(40%), 1 point by 8(8.9%), 2 points by 14(15.6%) and 3 points by 24(26.7%) patients. The vast majority of the morbid obese patients (78.9%) did not agree with the statement that obese people should not expect to lead normal lives.

Statement 17 was given -3 points by 53 patients by

53(58.9%), -2 points by 3(3.3%), -1 point by 11(12.2%), 1 point by 10(11.1%), 2 points by 6(6.7%) and 3 points by 7(7.8%) patients. 74.4% of the morbid obese patients did not agree with the statement that obese people were just as healthy as non-obese people.

Statement 18 was given -3 points by 47(52.2%), -2 points by 12(13.3%), -1 point by 10(11.1%), 1 point by 9(10%), 2 points by 3(3.3%) and 3 points by 9(10%) patients, respectively. 76.6% of morbid obese patients did not agree with the statement that obese people were just as sexually attractive as non-obese people.

Statement 19 was given -3 points by 16(17.8%), -2 points by 15(16.7%), -1 point by 12(13.3%), 1 point by 7(7.8%), 2 points by 11(12.2%), and 3 points by 29(32.2%) patients, respectively. 52.2% of the morbid obese patients agreed with the statement that obese people tended to have family problems.

Statement 20 was given -3 points by 12(13.3%), -2 points by

5(5.6%), -1 point by 7(7.8%), 1 point by 14(15.6%), 2 points by 13(14.4%) and 3 points by 39(43.3%). 58.9% of the patients agreed with the statement that becoming obese would be one of the worst things that could happen to a person.

DISCUSSIONS

Hereditary, social, economic and environmental factors have been included in the etiology of obesity [9, 10]. In accordance with increased obesity rates, bias about obese people has become more prevalent [11, 12]. Negative attitudes toward obese people which lead to prejudice and discrimination have a detrimental impact on the mental health of obese individuals (9). Obese people may experience discrimination in various aspects of life such as work, education and medical care [13-22].

In order to evaluate attitudes toward obese people, ATOP scale has been used in several studies [5]. However, ATOP scale which was used on different populations revealed conflicting results. Puhl et al. compared ATOP scores between female obese patients with and without binge eating disorder. The mean ATOP scores were similar in both groups. Puhl et al. suggested that obesity increased vulnerability to negative weight-based attitudes regardless of eating disorder [8]. Kadar et al. reported that obesity bias was common in chiropractic students and faculty members. Students and faculty members had anti-obesity attitudes according to ATOP. In addition, ATOP scores did not show significant difference between preclinical and clinical students [23]. Soto et al. reported more positive attitudes toward obese individuals in psychology students compared to medical students. Moreover, positive attitudes of the students according to ATOP were correlated with frequent contact with obese people [24]. Darling et al. investigated attitudes toward obese people in graduate and undergraduate nursing students, graduate education and graduate social work students. Darling et al. reported worse attitudes in nursing students, younger participants and participants without an obese family member or a friend [5]. Ambwani et al. reported that 92.5% of young adults aged 18 to 29 approved at least one negative attitude within ATOP. However, approval of negative attitudes did not show significant difference according to BMI [11].

It has been suggested that negative attitudes toward obese people might be observed in women more commonly than in men. However, Glenn et al. reported that women were significantly more positive in their attitude toward obese people compared to men [25]. On the other hand, Darling et al. reported similar ATOP scores in females and males, thus no gender difference in the attitudes toward obese

individuals was identified [5]. Moreover, several studies revealed that individuals who had a relative or a friend with obesity or had contact to obese people commonly tended to have more positive attitudes toward obese people [5, 24, 26]. However, attitudes of obese people toward other obese people have not been investigated in depth, yet.

Since the ATOP score ranges from 0 to 120 and higher scores reveal more positive attitudes, the mean ATOP score of our patients (63.44±18.58) which was slightly higher than midpoint indicated that morbid obese had positive attitudes toward obese people. Previous studies reported the mean ATOP score was 60 in obese women, whereas 59.6 in obese women with binge eating disorder [8], 57.6 in preclinical chiropractic students, 59.7 in clinical chiropractic students, 49 in preclinical faculty members, 52.2 in clinical faculty members [8] and 68.5 in nursing students, 77.3 in social work students, 71.4 in graduate education students [5].

Within this study, the majority of the patients (77.8%) admitted to the general surgery clinic for bariatric surgery evaluation were female. This result may point out two different findings. First of all, obesity is more common in female than male individuals. Secondly, the number of obese women seeking medical help to fight against obesity is more than the number of male patients. Within this study, no significant difference was observed in mean ATOP scores of the female and male morbid obese patients ($p=0.98$). Therefore, our results revealed that both women and men with morbid obesity had similar attitudes toward obese people. However, points given by morbid obese patients to the 3rd statement "Most obese people are more self-conscious than other people" showed gender difference. More than half of female morbid obese patients (57.1%) stated that they strongly agreed to the 3rd statement while most of the male morbid obese patients (30%) stated that they strongly disagreed to the same statement. This result might reveal that morbid obesity might affect female and male patients differently in building relationship or in communicating with other people. Therefore, novel and gender specific scales about obesity may be helpful in evaluating obese patients before making an appropriate treatment plan prior to bariatric surgery.

Moreover, with the help of ATOP applied on morbid obese patients, we have gained insight into the attitudes of morbid obese patients on obese individuals. In addition, we had the opportunity to evaluate obesity from the perspective of morbid obese patients. Unfortunately, 60% of morbid obese patients did not feel as happy as non-obese people. 74.4% of the morbid obese patients thought that obese people were not as healthy as non-obese people. Moreover, 76.6% of morbid obese patients replied that obese people were not

as sexually attractive as non-obese people. Nevertheless, 80.6% of morbid obese patients shared the idea that obese people were more emotional than non-obese people.

In conclusion, ATOP has been investigated in various studies in order to determine whether non-obese individuals had negative attitudes toward obese individuals or not. However, the data are scarce in the English medical literature about the attitudes of morbid obese patients toward obese individuals. Therefore, we evaluated ATOP in morbid obese individuals to gain a sight whether morbid obese patients had negative perceptions about other obese people. Any ATOP score above the midpoint, which is 60 points, has been reported to indicate that the individual had

positive attitudes toward obese people [27, 28]. However, higher scores than 60 indicate more positive attitudes toward obese individuals. Therefore, ATOP scores identified within our study which were slightly higher than 60 in both our female and male patients indicated that morbid obese patients had neither negative nor highly positive attitudes toward obese people.

Acknowledgment

This research was conducted at Aksaray University School of Medicine, Department of General Surgery, Aksaray, Turkey.

All the authors agreed on the content of the manuscript.

Local ethics committee approved this study.

References

1. Agha M, Agha R. The rising prevalence of obesity: part A: impact on public health. *Int J Surg Oncol (N Y)*. 2017;2(7):e17.
2. Pantenburg B, Sikorski C, Lupp M, Schomerus G, König HH, Werner P, et al. Medical students' attitudes towards overweight and obesity. *PLoS one*. 2012;7(11):e48113.
3. Tsai MC, Strong C, Latner JD, Lin YC, Pakpour AH, Lin CY, et al. Attitudes toward and beliefs about obese persons across Hong Kong and Taiwan: wording effects and measurement invariance. *Health Qual Life Outcomes*. 2019;17(1):134.
4. Sarwer DB, Polonsky HM. The Psychosocial Burden of Obesity. *Endocrinol Metab Clin North Am*. 2016;45(3):677-88.
5. Darling R, Atav AS. Attitudes Toward Obese People: A Comparative Study of Nursing, Education, and Social Work Students. *J Prof Nurs*. 2019;35(2):138-46.
6. Abdelaal M, le Roux CW, Docherty NG. Morbidity and mortality associated with obesity. *Ann Transl Med*. 2017;5(7):161.
7. Wang Y, Ding Y, Song D, Zhu D, Wang J. Attitudes Toward Obese Persons and Weight Locus of Control in Chinese Nurses: A Cross-sectional Survey. *Nurs Res*. 2016;65(2):126-32.
8. Puhl RM, Masheb RM, White MA, Grilo CM. Attitudes toward obesity in obese persons: a matched comparison of obese women with and without binge eating. *Eat Weight Disord*. 2010;15(3):e173-9.
9. Fulton M, Srinivasan VN. Obesity, Stigma And Discrimination. StatPearls. Treasure Island (FL): StatPearls Publishing. Copyright © 2021, StatPearls Publishing LLC.; 2021.
10. Hassamal S, Trutia A, Dalkilic A, Pandurangi AK. A pilot study of body image perceptions, and attitudes toward obesity in hospitalized psychotic and non-psychotic patients. *Asian J Psychiatr*. 2017;26:8-12.
11. Ambwani S, Thomas KM, Hopwood CJ, Moss SA, Grilo CM. Obesity stigmatization as the status quo: structural considerations and prevalence among young adults in the U.S. *Eat Behav*. 2014;15(3):366-70.
12. Hayran O, Akan H, Özkan AD, Kocaoglu B. Fat phobia of university students: attitudes toward obesity. *J Allied Health*. 2013;42(3):147-50.
13. Lacroix E, Alberga A, Russell-Matthew S, McLaren L, von Ranson K. Weight Bias: A Systematic Review of Characteristics and Psychometric Properties of Self-Report Questionnaires. *Obes Facts*. 2017;10(3):223-37.
14. Barra M, Singh Hernandez SS. Too big to be seen: Weight-based discrimination among nursing students. *Nurs Forum*. 2018;53(4):529-34.
15. Essex G, Miyahara K, Rowe DJ. Dental Hygienists' Attitudes Toward the Obese Population. *J Dent Hyg*. 2016;90(6):372-8.
16. Swami V, Monk R. Weight bias against women in a university acceptance scenario. *J Gen Psychol*. 2013;140(1):45-56.
17. Usta E, Bayram S, Altınbaş Akkaş Ö. Perceptions of nursing students about individuals with obesity problems: Belief, attitude, phobia. *Perspect Psychiatr Care*. 2020. Doi: 10.1111/ppc.12613. Epub ahead of print.
18. Jones CA, Forhan M. Addressing weight bias and stigma of obesity amongst physiotherapists. *Physiother Theory Pract*. 2019;1-9.
19. Gujral H, Tea C, Sheridan M. Evaluation of nurse's attitudes toward adult patients of size. *Surg Obes Relat Dis*. 2011;7(4):536-40.
20. Yılmaz H, Yabancı Ayhan N. Is there prejudice against obese persons among health professionals? A sample of student nurses and registered nurses. *Perspect Psychiatr Care*. 2019;55(2):262-8.
21. Robstad N, Siebler F, Söderhamn U, Westergren T, Fegran L. Design and psychometric testing of instruments to measure qualified intensive care nurses' attitudes toward obese intensive care patients. *Res Nurs Health*. 2018;41(6):525-34.
22. Blanton C, Brooks JK, McKnight L. Weight Bias in University Health Professions Students. *J Allied Health*. 2016;45(3):212-8.
23. Kadar GE, Thompson HG. Obesity bias among preclinical and clinical chiropractic students and faculty at an integrative health care institution: A cross-sectional study. *J Chiropr Educ*. 2019;33(1):8-15.

-
24. Soto L, Armendariz-Anguiano AL, Bacardí-Gascón M, Jiménez Cruz A. Beliefs, attitudes and phobias among Mexican medical and psychology students towards people with obesity. *Nutr Hosp.* 2014;30(1):37-41.
25. Glenn CV, Chow P. Measurement of attitudes toward obese people among a Canadian sample of men and women. *Psychol Rep.* 2002;91(2):627-40.
26. Puhl RM, Latner JD, O'Brien K, Luedicke J, Danielsdottir S, Forhan M. A multinational examination of weight bias: predictors of anti-fat attitudes across four countries. *Int J Obes (Lond).* 2015;39(7):1166-73.
27. Harvey EL, Summerbell CD, Kirk SF, Hill AJ. Dietitians' views of overweight and obese people and reported management practices. *J Hum Nutr Diet.* 2002;15(5):331-47.
28. Gormley N, Melby V. Nursing students' attitudes towards obese people, knowledge of obesity risk, and self-disclosure of own health behaviours: An exploratory survey. *Nurse Educ Today.* 2020;84:104232