Obesity is not related to individuals but to environmental conditions; from the perspective of obese patients

Mehmet E. Yuksel¹, Namik Ozkan²

Abstract: Background: The Beliefs About Obese Persons Scale (BAOP) is used among non-obese people in English speaking countries to evaluate their opinions on obese people. Nevertheless, the data are scarce from the view of obese people. Therefore, we wanted to test BAOP on obese patients in order to evaluate their opinions from the perspective of obese patients. Methods: Between August 2019-June 2020, 115 (76.7%) female and 35 (23.3%) male, a total of 150 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 (2019/08-10). These obese patients were asked to fill out BAOP, which included 8 statements in which each statement was valued between -3 to +3 points. Results: Mean score of BAOP within all obese patients was 34.87 ± 8.12 (range: 5-48). The average score of BAOP was 34.33 ± 8.60 (range: 5-48) in females and 36.62 ± 6.06 (range: 21-48) in males (p = 0.14). The frequency of the answers given by the male and female patients to the 5th statement, which was “Most obese people eat more than non-obese people”, showed a statistically significant difference (p = 0.03). Conclusions: Obese patients had higher BAOP scores compared to previous BAOP studies performed with non-obese people. Within this study, obese patients considered obesity as a condition which was not under their control. Keywords: bariatric, belief, obesity, surgery

INTRODUCTION

Obesity is a worldwide public health problem causing predisposition to diabetes, heart disease and malignancy such as breast and colon cancer [1-3]. In the United States, more than 20% of the population has obesity [4]. Moreover, the number of people with obesity is rapidly increasing in Turkey. Patients who suffer from obesity not only have health related problems but also experience weight-related discrimination [5]. Patients with obesity often claim that they are accused of lacking self-discipline, uncontrolled binge eating, sedentary lifestyle, inadequate exercise and laziness [6].

Until now, different kinds of measuring scales have been introduced to evaluate the thoughts and beliefs of non-obese people over obese people [7-14]. Allison et al. published the article entitled “The measurement of attitudes toward and beliefs about obese persons” in 1991 [15]. One of the aims of Allison et al. was to develop reliable measures of beliefs about obese people, thus The Beliefs About Obese Persons Scale (BAOP) was generated. Furthermore, Dedeli et al. tested and confirmed the validity and reliability of BAOP to measure beliefs about obese people in Turkish speaking countries [16].

Most of these previous studies with BAOP were performed on non-obese people. Nevertheless, the data are scarce from the point of view of obese people. Commenting on somebody else without having the same or similar conditions might be easy, however comments of obese people are of utmost importance to identify and solve obesity related problems within the society. Moreover, medical doctors should not only present a patient-oriented
approach to investigate the causes of obesity and treatment options but also include patients in the decisions about their health [3, 17]. Therefore, we wanted to test BAOP on obese Turkish patients in order to understand their beliefs about obesity and obese people. For this purpose, we asked 150 obese patients, who were admitted to the general surgery department to be evaluated for bariatric surgery such as sleeve gastrectomy, to fill out BAOP.

METHODS

Between August 2019-June 2020, 115 (76.7%) female and 35 (23.3%) male, a total of 150 obese patients who were admitted to the general surgery department to be evaluated for bariatric surgery, were included in this study. Aksaray University Ethics Committee approval was obtained (2019/08-10). The patients with body mass index (BMI) between 25 and 29.9 kg/m² were regarded as overweight and patients with BMI 30 kg/m² and above were regarded as obese [5, 18]. In addition, BMI between 35–39.9 kg/m², 40–49.9 kg/m² and over 50 pointed out severe obesity, morbid obesity and severe morbid obesity, respectively [19].

These 150 obese patients were asked to fill out BAOP. The Beliefs About Obese Persons Scale is an 8-statement questionnaire [15, 16]. 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 eight statements are: “1. Obesity often occurs when eating is used as a form of compensation for lack of love or attention., 2. In many cases, obesity is the result of a biological disorder., 3. Obesity is usually caused by overeating., 4. Most obese people cause their problem by not getting enough exercise., 5. Most obese people eat more than non-obese people., 6. The majority of obese people have poor eating habits that lead to their obesity., 7. Obesity is rarely caused by a lack of willpower., 8. People can be addicted to food, just as others are addicted to drugs, and these people usually become obese.”

All of the statements should be responded by the participants by the help of BAOP scale. In BAOP, points given to each statement by the participant are summed up. This final number is added to 24 in order to reach a total score, which varies between 0-48 [9, 20].

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

RESULTS

This study included 150 obese patients, 115 (76.7%) were female and 35 (23.3%) were male. The mean age of the patients was 38.68 ± 12.09 years (range: 18-66). The mean age of women was 37.81 ± 11.53 years (range: 18-66), while the mean age of men was 41.51 ± 13.59 years (range: 21-66) (p = 0.11). The mean BMI of the patients was 42.03±7.24 kg/m² (range: 30.10-65.30 kg/m²). Average BMI was 42.29±7.70 (range: 30.10-64.30 kg/m²) in women and 41.16±7.41 (range: 30.16-65.30 kg/m²) in men (p = 0.42).

The mean score of BAOP within all obese patients was 34.87 ± 8.12 (range: 5-48). The mean score of BAOP was 34.33 ± 8.60 (range: 5-48) in females and 36.62 ± 6.06 (range: 21-48) in males (p = 0.14). The answers given by all patients, female patients, and male patients separately to the questions on the scale of beliefs about obese people are shown in Table 1, Table 2 and Table 3, respectively.

Table 1: The frequency of the answers given by the patients to the questions of the Beliefs About Obese Persons Scale

| Patients (n/%) | Q-1 | Q-2 | Q-3 | Q-4 | Q-5 | Q-6 | Q-7 | Q-8 |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Score        | -3  | 23  (15.3) | 10  (6.7) | 12  (8) | 8  (5.3) | 19  (12.7) | 4  (2.7) | 14  (9.3) | 14  (9.3) |
| -2           | 13  (8.7) | 11  (7.3) | 7  (4.7) | 7  (4.7) | 13  (8.7) | 4  (2.7) | 8  (5.3) | 4  (2.7) |
| -1           | 8   (5.3) | 16  (10.7) | 10  (6.7) | 13  (8.7) | 9   (6) | 7  (4.7) | 11  (7.3) | 12  (8) |
| 1            | 34  (22.7) | 31  (20.7) | 23  (15.3) | 28  (18.7) | 21  (14) | 21  (14) | 37  (24.7) | 25  (16.7) |
| 2            | 24  (16) | 37  (24.7) | 29  (19.3) | 32  (21.3) | 20  (13.3) | 28  (18.7) | 29  (19.3) | 29  (19.3) |
| 3            | 48  (32) | 45  (30) | 69  (46) | 62  (41.3) | 68  (45.3) | 86  (57.3) | 51  (34) | 66  (44) |

*Q: Question

48 (32%) patients gave 3 points to the first question, while 8 (5.3%) patients gave -1 points. (The first statement with “Obesity often occurs when eating is used as a form of compensation for lack of love or attention” has been answered as “I strongly agree” by 48 (32%) obese patients). 45 (30%) patients gave 3 points to the second question, while 10 (6.7%) patients gave -3 points. However, the patients gave most frequently 3 points “I strongly agree” to all questions.
Table 2: Replies of female patients to questions about Beliefs About Obese Persons Scale

| Score | Q-1 | Q-2 | Q-3 | Q-4 | Q-5 | Q-6 | Q-7 | Q-8 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| -3    | 17  | 8   | 10  | 8   | 15  | 3   | 13  | 11  |
| -2    | 9   | 7   | 6   | 5   | 13  | 4   | 6.1| 4   |
| -1    | 5   | 4.3 | 6.1 | 2   | 10  | 7.1 | 10  | 8.7 |
| 1     | 26  | 23  | 18  | 21  | 16  | 17  | 25  | 18  |
| 2     | 20  | 22  | 17  | 25  | 19  | 19  | 21  | 22  |
| 3     | 38  | 36  | 57  | 44  | 47  | 64  | 39  | 50  |

Q: Question
38 (33%) of the female patients gave 3 points, while 5 (4.3%) patients gave -1 points to the first question. Most of the female patients gave 3 points “I strongly agree” to all eight questions.

Table 3: Replies of male patients to questions within Beliefs About Obese Persons Scale

| Score | Q-1 | Q-2 | Q-3 | Q-4 | Q-5 | Q-6 | Q-7 | Q-8 |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| -3    | 6   | 2   | 2   | 0   | 4   | 0   | 1   | 3   |
| -2    | 4   | 5.7 | 1.2 | 2.5 | 0   | 0   | 1   | 0   |
| -1    | 3   | 8.6 | 8   | 3.8 | 1.2 | 4   | 0   | 2   |
| 1     | 8   | 22  | 14  | 7   | 5   | 4   | 12  | 7   |
| 2     | 11  | 34  | 34  | 7   | 1   | 9   | 8   | 7   |
| 3     | 10  | 25  | 12  | 18  | 21  | 22  | 12  | 16  |

Q: Question
While 10 (28.6%) of the male patients gave 3 points to the first question, 3 (8.6%) of them gave -1 points. Most patients (31.4%) gave 2 points to the second question. Twelve patients gave 2 points to the third question and the other 12 patients gave 3 points. None of the male patients gave -3 points to the fourth question and -2 points to the fifth question. None of the patients gave -3, -2 and -1 points to the sixth question. The seventh question was answered as 1 point and 3 points by 12 patients equally. Most of the male patients (45.7%) gave 3 points to the eighth question.

The frequency of the answers given by the male and female patients to the 5th question showed a statistically significant difference (p = 0.03). However, the frequency of their answers to the 1st, 2nd, 3rd, 4th, 6th, 7th and 8th questions did not show a statistically significant difference (p = 0.82, p = 0.89, p = 0.18, p = 0.35, p = 0.28 p = 0.32).

**DISCUSSION**

BAOP scale is used to evaluate the beliefs about obese people. A low score on BAOP suggests that obesity is controllable as obese individuals cause their obesity by themselves. Nevertheless, a high score on BAOP scale indicates a stronger belief that obesity is not under the control of the obese person [20, 21]. Moreover, lower BAOP score points out tendency towards anti-obese attitudes such as accusing obese individuals as lazy and deprived of self-control [22]. Mean score of 17.9 with BAOP scale was reported to be associated with anti-obesity attitude [21]. Sonneville et al. explored weight bias among 322 public health trainees by an cross-sectional online survey assessing explicit beliefs about the controllability of obesity using BAOP [8] The mean BAOP scores within public health trainees was 22.9. Relative to male students, female students had a stronger belief that obesity was not within the control of the individual (p = 0.03) [8]. Soto et al. performed BAOP scale on 528 students (250 medical students, 278 psychology students), where 56.3% of the participants were women. The average age was 20.7 ± 3.0. The mean BAOP scores were 18.6±5.7 and 16.6±5.5 in psychology and medical students, respectively. No differences were observed between BAOP scores of the participants related to age, gender or BMI [23]. Darling et al. investigated BAOP scale scores of 403 nursing students, 35 graduate education students, and 88 graduate social work students. BAOP scores were inbetween 14.35-25.39 which indicated that there was room for improvement for the belief that obesity was not under the individual’s control. BAOP scores were not significantly different between male and female students. Moreover, Darling et al. reported that perception of one’s own body as obese and having a friend or family member who was obese did not lead to more
positive beliefs that obesity was not under the individual’s control [3]. Usta et al. aimed to determine beliefs of 658 nursing students about obese people [9]. The 76.6% of the students was female and the mean age of the students was 20.63 ± 1.52. The percentage of the students who were overweight was 15.2%. In addition, 18.2% of the students claimed to have had discrimination related to their weight. More interestingly, 17.5% of the nursing students did not want to get involved in daily care of obese patients. The mean BAOP score was 23.36 ± 0.83 (minimum 21.38, maximum 26). Usta et al. found out that nursing students who had a previous history of diet and regular physical exercise believed that obesity was controlled by individuals [9]. Kasar et al. tried to assess the obesity bias among 143 preclinical and clinical chiropractic students and 30 faculty members [24]. Average scores of BAOP scale were 31.68±5.19, 31.26±4.83, 27.93± 4.85 and 30.07±7.85 in the student and faculty member groups, respectively. BAOP scores of preclinical faculty group was significantly higher than each student groups. As a result, obesity bias was common among students and faculty members [24]. Yilmaz et al. aimed to assess whether there was prejudice towards obese people among 190 student nurses and 189 registered nurses using BAOP [14]. The most of both student nurses and registered nurses had negative beliefs about obese people. The mean scores of BAOP scale were 17.4± 4.8 and 15.7±5.8 in student nurses and registered nurses, respectively which revealed that both groups had negative beliefs about obese people [14].

Within our study, the mean score of BAOP within all obese patients was 34.87 ± 8.12 which revealed that obese patients considered obesity as a condition that was not under their control. In addition, we identified that majority of obese patients gave 3 points to each question of the 8-item survey as they strongly agreed. Therefore, obese patients within this study had higher BAOP scores compared to BAOP studies performed with non-obese people. The results obtained from this study revealed that non-obese and obese people had different opinions about the reasons of obesity. Moreover, mean BAOP scores within our study did not differ statistically in relation to gender as male and female. Nevertheless, the fifth statement within BAOP which questioned if most obese ate more than non-obese people was replied by female patients statistically different from male patients (p = 0.03). Thus, this might be a clue pointing out the different eating habits of male and female obese patients.

Previous BAOP scale-related studies performed on non-obese people revealed low BAOP scores which indicated that obesity was related solely to individuals. Therefore, obese people were accused of lacking self-control, for example not controlling enough their eating habits. However, in our study, obese individuals reached high BAOP scores which indicated that obesity was not related to individuals but to environmental conditions. This discrepancy within the BAOP scale points of obese and non-obese individuals require detailed investigation of the beliefs towards obese people and reasons of obesity. We hope these results encourage our colleagues not only to present a patient-oriented approach to investigate causes of obesity but also include obese patients in the decision process of their further medical or surgical treatment options.

**Acknowledgements**

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

All the authors agreed on the content of the manuscript.

The manuscript has not been published previously.

Local ethics committee approved this study.

**References:**

1. Haslam DW, James WP. Obesity. Lancet. 2005;366(9492):1197-1209.
2. Fontana MA, Wohlgemuth SD. The surgical treatment of metabolic disease and morbid obesity. Gastroenterol Clin North Am. 2010;39(1):125-133.
3. Darling R, Atav AS. Attitudes toward obese people: a comparative study of nursing, education, and social work students. J Prof Nurs. 2019;35(2):138-146.
4. Ip EH, Marshall S, Vitolins M, Crandall SJ, Davis S, Miller D, et al. Measuring medical student attitudes and beliefs regarding patients who are obese. Acad Med. 2013;88(2):282-289.
5. Müller MJ, Geisler C. Defining obesity as a disease. Eur J Clin Nutr. 2017;71(11):1256-1258.
6. Kliem S, Puls HC, Hinz A, Kersting A, Brähler E, Hilbert A. Validation of a Three-Item Short Form of the Modified Weight Bias Internalization Scale (WBIS-3) in the German population. Obes Facts. 2020;13(6):560-571.
7. Osberg TM, Poland D, Aguayo G, MacDougall S. The Irrational Food Beliefs Scale: development and validation. Eat Behav. 2008;9(1):25-40.
8. Sonneville KR, Rose KL, Lambrecht NJ, Barry MR, Weeks HM, Leung CW. Weight bias among public health trainees. Public Health Nutr. 2021;24:1566-1569.
9. Usta E, Bayram S, Altnbaş Akkaş Ö. Perceptions of nursing students about individuals with obesity problems: Belief, attitude, phobia. Perspect Psychiatr Care. 2021;57(2):777-785.
10. Kes D, Aydin Yildirim T. The Relation between levels of media literacy and attitudes and beliefs concerning obesity in university...
students. Soc Work Public Health. 2020;35(8):645-654.

11. Kliem S, Puls HC, Hinz A, Kersting A, Brähler E, Hilbert A. Validation of a Three-Item Short Form of the Modified Weight Bias Internalization Scale (WBIS-3) in the German population. Obes Facts. 2020;13(6):560-571.

12. Elboim-Gabyzon M, Attar K, Peleg S. Weight Stigmatization among Physical Therapy Students and Registered Physical Therapists. Obes Facts. 2020;13(2):104-116.

13. Cebolla A, Botella C, Galán L, Fernández-Aranda F, Toledo E, Corella D, et al. Psychometric properties of the Weight Locus of Control Scale (MWLCS): study with Spanish individuals of different anthropometric nutritional status. Eat Weight Disord. 2020;25(6):1533-1542.

14. 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):262-268.

15. Allison DB, Basile VC, Yuker HE. The measurement of attitudes toward and beliefs about obese persons. Int J Eat Disord. 1991;10(5):599-607.

16. 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):105-117.

17. Nicholls W, Pilsbury L, Blake M, Devonport TJ. The attitudes of student nurses towards obese patients: A questionnaire study exploring the association between perceived causal factors and advice giving. Nurse Educ Today. 2016;37:33-37.

18. Sturm R, Hattori A. Morbid obesity rates continue to rise rapidly in the United States. Int J Obes (Lond). 2013;37(6):889-891.

19. Abdelaal M, le Roux CW, Docherty NG. Morbidity and mortality associated with obesity. Ann Transl Med 2017;5(7):161.

20. Swami V, Monk R. Weight bias against women in a university acceptance scenario. J Gen Psychol. 2013;140(1):45-56.

21. 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.

22. Puhl RM, Brownell KD. Psychosocial origins of obesity stigma: toward changing a powerful and pervasive bias. Obes Rev. 2003;4(4):213-227.

23. Soto L, Armendariz-Anguiano AL, Bacardi-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.

24. 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