

# The Relationship Between Childhood Trauma and Body Image, Self-Esteem and Eating Attitudes in Patients undergoing Bariatric Surgery



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## ABSTRACT

**Objective:** Psychiatric evaluation of candidate patients before bariatric surgery (BS) has an important place in the success of the treatment. In this study, it was aimed to examine the relationship between childhood trauma (CT) and body image, self-esteem and eating attitudes of individuals who applied for BS.

**Method:** A total of 87 BS candidate patients with morbid obesity, 57 women and 30 men, were included in the study. Sociodemographic Information Form, Childhood Trauma Questionnaire (CTQ), Body Perception Scale (BPS), Rosenberg Self-Esteem Scale (RSES), and Eating Attitude Test (EAT-40) were used as data collection tools in the study.

**Results:** CT was detected in 47.1% of the cases. RSES ( $t=3.296$ ;  $p<0.01$ ) and BPS ( $t=3.267$ ;  $p<0.01$ ) scores were found to be significantly higher in those with a history of CT. A positive and significant relationship was found between EAT-40 and CTQ -sexual abuse (SA) sub-dimension ( $r=0.570$ ;  $p<0.01$ ). A significant relationship was found between all sub-dimensions of CTQ and RSES. A significant relationship was found between CTQ physical neglect (PN), emotional neglect (EN), and emotional abuse (EA) sub-dimensions and BPS. In addition, CTQ total score was found to significantly and negatively predict self-esteem ( $\beta=-4.432$ ;  $p<0.001$ ) and body image ( $\beta=-3.700$ ;  $p<0.001$ ).

**Conclusion:** In our study, it was found that those with CT were dissatisfied with their bodies and had lower self-esteem. Questioning CT in the psychological evaluation of pre-BS cases may contribute to the understanding of the etiology of obesity and may play an important role in planning the follow-up after BS.

**Keywords:** Bariatric surgery, body image, self-esteem

## INTRODUCTION

Obesity is an important public health problem defined as a disease today. Despite the increasing knowledge about the negative effects of obesity on health and prevention methods, the incidence of obesity continues to increase every year all over the world (Stokes et al. 2017, Chooi et al. 2019). Obesity, which has become a global epidemic, is also an important cause of mortality and morbidity rates (Flegal et al. 2013, Kinlen et al. 2018, Ladhani et al. 2017). There is a complex interaction between genetic predispositions, environmental and psychological factors in the development of obesity (Wright and Aronne 2012). Changing dietary habits, insufficient physical activity and psychosocial factors play an important role in the etiology of

obesity (Fock and Khoo 2013, Asghari et al. 2017, Wu and Berry 2018). Considering the serious physical complications caused by obesity and the increase in healthcare costs, methods related to the treatment and prevention of obesity gain importance. In recent years, bariatric surgery (BS) has been frequently preferred as a treatment option for morbidly obese patients with a body mass index (BMI) of 40 and above (Wolfe et al. 2016, El Abd et al. 2021). BS, which is widely used both in the world and in our country in cases where traditional methods used in the treatment of obesity fail, is an effective treatment method for weight loss and improvement of physical comorbidity (Güler et al. 2018, Xu and Song 2021). However, in addition to the positive results of BS, there are also studies reporting that there are negative consequences such as insufficient weight loss and regaining

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of weight after BS (Athanasiadis et al. 2021, Arterburn et al. 2021, El Ansari et al. 2021). For this reason, the necessity of making comprehensive evaluations before and after BS has been stated in many studies (Kalarchian and Marcus 2015, David et al. 2020). In particular, the importance of detailed psychiatric evaluation before BS was emphasized. In this evaluation, questioning the existence of childhood trauma (CT) has a very important place (Walsh et al. 2017). It is because CTs are accepted as an important risk factor in the etiology of psychiatric disorders (Aktepe 2009).

It is known that negative life experiences during childhood, which have negative effects on the self-perception of children in the developmental period, can cause many lifelong negative consequences on both mental and physical health in adulthood, as well as the problems they cause in childhood (Schneider et al. 2020). The possible interaction between obesity and CTs is not fully known. Although the researchers noted that not everyone with a history of trauma had an eating disorder, they reported that complex traumatic symptoms were more common in morbidly obese individuals presenting for BS (Luo et al. 2020, Wiss et al. 2020). Obesity that starts at an early age affects individuals more, causing psychiatric problems and negative eating behaviors (Ata et al. 2014). Body satisfaction is considered as an individual's own subjective evaluation of their body parts and their functions. It has been reported that morbidly obese individuals are more dissatisfied with their body appearance than the healthy control group (Hamurcu et al. 2015). Self-esteem is a state that emerges as a result of an individual's self-evaluation and self-acceptance. Behavioral motivation has an important place in the integration of personality and the formation of psychological health (Karairmak and Siviş 2011). Self-esteem is a state that is affected by life events. The results of studies examining the relationship between self-esteem and obesity are not consistent. It is debated whether low self-esteem is a consequence or a cause of obesity. In addition to studies showing that obese individuals have lower self-esteem than non-obese individuals, there are also studies reporting the opposite (Deveci et al. 2005, Abiles et al. 2010).

Nutritional style and eating attitude is one of the areas that should be examined in BS candidate patients (Akkayaoğlu and Çelik 2020). The rates of binge eating disorder, eating addiction and predisposition to eating behavior disorder are higher in candidates applying for BS compared to the general population (Opolski et al. 2015, Kops et al. 2021). For this reason, it is important to question the eating attitudes and nutritional behaviors before BS. It is because changes in gastrointestinal anatomy with BS may cause differences in eating attitudes with their effects on gut hormones, bile acids and microbiota. It has been reported that individuals who are prone to eating behavior disorder before BS develop eating

attitudes that can cause rapid weight gain after BS (Adler et al. 2018).

To date, studies investigating CT, body satisfaction, self-esteem, and eating attitudes have been conducted on patients who applied for BS. However, as far as we can reach, there is no study that evaluates CT and body satisfaction, self-esteem and eating attitude together. In this study investigating whether morbidly obese individuals who applied for BS had CT or not, it was aimed to investigate whether there was a difference between the groups with and without CT in terms of body satisfaction, self-esteem and eating attitude, and to examine the relationship of these variables with each other, with age and with BMI. In this view, it is aimed to contribute to the literature and clinical practices in terms of which markers should be considered in the process of determining suitable candidates before BS, addressing risky groups and reducing possible risks in the post-BS period.

## METHOD

### Sample

Our study, which was carried out between 18 March 2019 and 31 December 2019 using the cross-sectional research method and the relational screening model, included 87 morbidly obese patients who were referred to Recep Tayyip Erdoğan University Rize Training and Research Hospital Psychiatry Outpatient Clinic for consultation before BS. Cases older than 18 years of age, who could read and who did not have a history of psychiatric treatment in the last 6 months were included in the study. Those who were illiterate, younger than 18 years of age, did not want to participate in the study, had mental retardation, a psychotic disorder and an organic mental disorder, and had speech and communication difficulties were excluded from the study. Psychiatric evaluation was requested for a total of 104 morbid obese cases, BS candidates, within the specified dates. 17 cases who did not meet the inclusion criteria were excluded from the study. 8 of these cases were not included in the study because they still used psychiatric drugs, 3 cases did not fill out and submit the questionnaires, 4 cases were illiterate, and 2 cases did not volunteer to participate in the study.

This study was initiated after the approval of the Istanbul Okan University Non-Invasive Clinical Research Ethics Committee at the meeting dated 13.03.2019 and the permission obtained from the Rize Provincial Health Directorate and the Chief Physician of Rize Training and Research Hospital (decision numbered 40986104-799). Before the study, all participants were informed about the study and their written informed consent was obtained. All practices in this study were made in accordance with the ethical standards of the institutional and/or national research committee and the 1964 Declaration

of Helsinki and its later revisions or comparable ethical standards.

### Data Collection Tools

**Sociodemographic Data Form:** It was created by the researchers and filled in by asking questions to the participants during the pre-interview. There are questions that include basic information such as age, education level, marital status, occupation, socioeconomic level, height and weight of the participants, questions about family and genealogical histories, and questions about detecting physical and psychiatric diseases.

**Childhood Trauma Questionnaire (CTQ):** This scale was developed by Bernstein et al. (2003) to quantitatively screen abuse and neglect experiences before the age of 20 years. The Turkish validity and reliability study of the scale was performed by Şar et al. (2012). The scale consists of 28 items, 3 of which measure the minimization of trauma, and it is a 5-point Likert-type self-report scale. The scale measures 5 subtypes of CTs. These are emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect. The Cronbach's alpha value indicating the internal consistency of the scale was 0.93, and the Guttman half test coefficient was found to be 0.97. In our study, the methods used by Sar et al. and the cut-off scores they reported were taken into account in the application of the scale.

**Body Perception Scale (BPS):** The BPS, developed by Secord and Journad in 1953, was used to determine the body image levels of the participants in the study. The Turkish validity and reliability study of the scale was performed by Hovardaoglu in 1992. It is a self-report scale consisting of 40 items in total. Each item is related to an organ of the body, a part of the body or their functions. Each item is a 5-point Likert-type item. For each item in the scale, there are answer options such as "I don't like it at all", "I don't like it", "I am undecided", "I like it" and "I like it very much". The total score of BPS is between 40 and 200. The cut-off point of the scale is 135. Individuals who score below this score are evaluated as dissatisfied with their bodies, and the high score obtained from the scale is related to high body satisfaction. The Cronbach Alpha coefficient has been reported as .91 (Hovardaoglu and Özdemir 1990; Hovardaoglu 1992).

**Rosenberg Self-Esteem Scale (RSES):** The RSES, which was used to determine the self-esteem levels of the participants in the study, was developed by Rosenberg (1965). The validity and reliability study in our country was carried out by Çuhadaroglu (1986). While the validity coefficient was reported as 0.71, the test-retest reliability coefficient was reported as 0.89. The scale is a self-report scale consisting of 63 questions in total. The score range of the scale is 0-30. While a score between 15 and 25 indicates that the level

of self-esteem is sufficient, a score below 15 indicates low self-esteem.

**Eating Attitude Test (EAT-40):** In the study, the Eating Attitude Test developed by Garner and Garfinkel (1979) was used to evaluate the eating attitudes of the participants and to detect the eating behavior disorders. The validity and reliability study of the test in our country was conducted by Savaşır and Erol (1989). While the Cronbach alpha coefficient of the test was reported as 0.70, the test-retest reliability coefficient was reported as 0.65. The EAT consists of 40 items and 6-point Likert-type response options. The cut-off point of the test is 30. It is accepted that people who score above 30 points may have problems in their eating attitudes.

### Statistical Analysis

SPSS for Windows 18.0 program was used for statistical evaluation in our study. In the study, before the analysis, it was evaluated whether the data provided by the sample showed a normal distribution, and the Independent Sample t-Test was applied in paired groups for the variables with normal distribution and homogeneous distribution of the groups. If the distribution of the sample in the groups did not show homogeneity, the Mann Whitney U Test was applied for the paired groups. Pearson correlation was applied to examine the relationship between the research variables, eating attitude, childhood traumas, self-esteem and body image. Linear Regression Analysis was applied to examine the predictive relationship of the correlated variables. The significance value was taken at the 0.05 level.

## RESULTS

65.5% of the cases included in the study were women (57 people) and 34.5% (30 people) were men. The mean age was 36.15+9.19 years for women and 45.23+13.45 years for men. The mean age of all participants was 39.28+11.61 years. When the average BMI was examined, it was 46.16+5.27 for women and 45.59+4.20 for men. The mean total BMI was determined as 45.96+4.92. The sociodemographic characteristics of the cases included in the study are given in Table 1. When the variables related to the health status were examined, the rate of those with a family history of obesity was 72.4% (63 people). The rate of people with physical illness was 43.7% (38 people). The rate of those who had previously received psychiatric treatment is 39.1% (34 people).

When the frequency distributions of whether or not there was a traumatic history according to CTQ total and sub-dimension scores were examined, the number of participants who stated that they had CT was 47.1% (41 people). Of the participants, 24.1% (21 people) were with physical abuse trauma, 16.1% (14 people) were with sexual abuse trauma,

**Table 1.** Demographic Characteristics of the Sample Group

| Demographic Variables |                      | N  | %    |
|-----------------------|----------------------|----|------|
| Gender                | Female               | 57 | 65.5 |
|                       | Male                 | 30 | 34.5 |
| Education             | Primary school       | 26 | 29.9 |
|                       | Middle School        | 13 | 14.9 |
|                       | High school          | 30 | 34.5 |
|                       | License              | 18 | 20.6 |
| Marital status        | married              | 69 | 79.3 |
|                       | single               | 9  | 11.5 |
|                       | divorced             | 5  | 5.7  |
|                       | widow                | 3  | 3.4  |
| Number of children    | has no children      | 26 | 29.9 |
|                       | 1                    | 14 | 16.1 |
|                       | 2                    | 22 | 25.3 |
|                       | 3 and above          | 25 | 28.7 |
| Income                | 1600 TL and below    | 12 | 13.8 |
|                       | Between 1600-2500 TL | 28 | 32.3 |
|                       | Between 2500-5000 TL | 39 | 44.8 |
|                       | 5000 TL and above    | 8  | 9.2  |
| Living place          | Center / City        | 38 | 43.7 |
|                       | District             | 36 | 41.4 |
|                       | Rural / Village      | 13 | 14.9 |

40.2% (35 people) were with history of physical neglect, 37.9% (33 people) were with emotional abuse trauma, and 28.7% (25 people) were with emotional neglect trauma. When their self-esteem levels were examined, 25.3% (22 people) received scores corresponding to low self-esteem, while 74.7% (65 people) had sufficient self-esteem. When the level of satisfaction with body image was evaluated, it was seen that while 59.8% (52 people) had low body image satisfaction, 40.2% (35 people) had high body image satisfaction. When EAT-40 scores were examined, it was seen that while 64.4% (56 people) had normal eating attitudes, 35.6% (31 people) were prone to eating behavior disorder. The comparison of the scale scores used in the study according to the CT history variable is given in Table 2. RSES ( $t=3.296$ ;  $p<0.01$ ) and BPS ( $t=3.267$ ;  $p<0.01$ ) scores were significantly higher in those

with a history of CT. The comparison of the scale scores used in the study with the CTQ subscales is given in Table 3. When the RSES, BPS and EAT-40 scores were compared according to the CTQ-Physical abuse (PA) and CTQ-Sexual abuse (SA) trauma history variables, it was seen that RSES scores were significantly higher in participants without a history of CTQ-PA, CTQ-SA. ( $U=476.000$ ;  $p=0.031$ ,  $U=274.000$ ;  $p=0.006$ ). When the RSES, BPS and EAT-40 scores were compared according to the CTQ-Physical neglect (PN), CTQ-Emotional abuse (EA) and CTQ-Emotional neglect (EN) trauma history variables; RSES scores ( $U=2.521$ ;  $p=0.014$ ;  $U=2.638$ ;  $p=0.010$ ;  $U=552.000$ ;  $p=0.036$ ) and BPS scores ( $U=2.795$ ;  $p=0.006$ ;  $U=2.766$ ;  $p=0.007$ ;  $U=477.000$ ;  $p=0.005$ ) CTQ-FN, CTQ-EA, and CTQ-EN were found to be significantly higher in those without a history.

The relationship between age, BMI, CTQ, BPS, RSES, and EAT-40 of the subjects included in the study was analyzed by Pearson Correlation Analysis and is given in Table 4. Accordingly, a positive and significant relationship was found between the age variable and the CTQ-PA scores ( $r=0.211$ ;  $p<0.05$ ). There was also a negative and significant relationship between CTQ total scores and RSES ( $r=-0.433$ ;  $p<0.01$ ) and BPS ( $r=-0.372$ ;  $p<0.01$ ). It was determined that there was a positive and significant relationship between RSES and BPS ( $r=0.624$ ;  $p<0.01$ ). The relationship between the BMI, CTQ, BPS, RSES and EAT-40 scores of the participants who were found to be prone to eating behavior disorder in line with the EAT-40 cut-off score was examined by Pearson Correlation Analysis and is given in Table 5. Accordingly, a positive and significant relationship was found between EAT-40 and CTQ-SA sub-dimension ( $r=0.570$ ;  $p<0.01$ ).

According to the findings of linear regression analysis, in which the predictor of RSES by CTQ total scores was examined, age, BMI, CTQ total score ( $\beta=-4.432$ ;  $p<0.001$ ) predicted self-esteem significantly and negatively. In line with the findings, the high CTQ scores of the participants explained their low self-esteem. The explanatory level of the predictive relationship was found to be 18% (Adjusted  $R^2=0.178$ ). According to the results of linear regression analysis, in which the perception of body satisfaction was

**Table 2.** Comparison of Participants' Scale Scores Used in the Study According to CT History

|        | CT History | N  | X      | ss     | t     | p       |
|--------|------------|----|--------|--------|-------|---------|
| RSES   | yes        | 41 | 140.20 | 24.868 | 3.296 | 0.001** |
|        | no         | 46 | 121.59 | 27.485 |       |         |
| BPS    | yes        | 41 | 21.34  | 4.597  | 3.267 | 0.002** |
|        | no         | 46 | 18.09  | 4.675  |       |         |
| EAT-40 | yes        | 41 | 26.39  | 9.977  | 0.200 | 0.842   |
|        | no         | 46 | 25.91  | 12.033 |       |         |

t Test; CT: Childhood Trauma, RSES: Rosenberg Self-Esteem Scale, BPS: Body Perception Scale, EAT-40: Eating Attitude Test  
\*\*  $p<0.01$



**Table 3.** Comparison of Scale Scores Used in the Study and CTQ Sub-Dimensions

| Scales           | CTQ -EA                     |                              | CTQ -EN |         |                            |                           | CTQ -PA |         |                    |                    |         |        |
|------------------|-----------------------------|------------------------------|---------|---------|----------------------------|---------------------------|---------|---------|--------------------|--------------------|---------|--------|
|                  | Yes n(%)                    | No n(%)                      | U       | p       | Yes n (%)                  | No n (%)                  | U       | p       | Yes n (%)          | No n (%)           | U       | p      |
| RSES mean (SS)   | 33 (37.9)<br>(4.75)         | 54 (62.1)<br>(4.71)          | 2.638   | 0.010*  | 25 (28.7)<br>(35.08)       | 62(71.3)<br>(47.60)       | 552.000 | 0.036*  | 21 (24)<br>(33.67) | 66 (76)<br>(47.29) | 476.000 | 0.031* |
| BPS mean(SS)     | 33 (37.9)<br>(29.021)       | 54 (62.1)<br>(25.258)        | 2.766   | 0.007** | 25 (28.7)<br>(32.08)       | 62(71.3)<br>(48.81)       | 477.000 | 0.005** | 21 (24)<br>(41.60) | 66 (76)<br>(44.77) | 642.500 | 0.616  |
| EAT-40 mean(SS)  | 33 (37.9)                   | 54 (62.1)                    |         | 0.261   | 25 (28.7)                  | 62(71.3)                  |         | 0.866   | 21 (24)            | 66 (76)            |         | 0.402  |
|                  | 27.85<br>(11.909)           | 25.09<br>(10.469)            | -1.130  |         | 1118.00<br>(44.72)         | 2710.00<br>(43.71)        | 757.000 |         | 1008.50<br>(48.02) | 2819.50<br>(42.72) | 608.500 |        |
| Scales           | CTQ-PN                      |                              |         |         | CTQ-SA                     |                           |         |         |                    |                    |         |        |
|                  | Yes n (%)                   | No n (%)                     | U       | p       | Yes n (%)                  | No n (%)                  | U       | p       |                    |                    |         |        |
| RSES mean (SS)   | 35 (40.2)<br>18.06 (4.491)  | 52 (59.8)<br>20.67(4.910)    | 2.521   | 0.014*  | 20 (16.1)<br>14.00(27.07)  | 65(83.9)<br>73.00(47.25)  | 274.000 | 0.006** |                    |                    |         |        |
| BPS mean (SS)    | 35 (40.2)<br>120.60(27.450) | 52 (59.8)<br>136.92 (26.213) | 2.795   | 0.006** | 20 (16.1)<br>14.00 (37.79) | 65(83.9)<br>73.00 (45.19) | 424.000 | 0.315   |                    |                    |         |        |
| EAT-40 mean (SS) | 35 (40.2)<br>27.69 (11.517) | 52 (59.8)<br>25.10(10.712)   | -1.073  | 0.286   | 20 (16.1)<br>14.00(40.64)  | 65(83.9)<br>73.00 (44.64) | 464.000 | 0.587   |                    |                    |         |        |

Mann Whitney U test; CTQ -EA: CTQ - Emotional abuse, CTQ -EN: CTQ - Emotional neglect, CTQ -PA: CTQ - Physical abuse, CTQ-PN: CTQ -Physical neglect, CTQ-SA: CTQ - Sexual abuse  
\*p<0.05 \*\* p<0.01

predicted by the total score of CTQ, age, BMI, total score of CTQ ( $\beta=-3.700$ ;  $p<0.001$ ) predicted the perception of body satisfaction significantly and negatively. In line with the findings, the high CTQ scores of the participants explained the low level of satisfaction with their body. The explanatory level of the predictive relationship was found to be 13%. (Adjusted  $R^2=0.129$ ). Predictive Linear Regression Analysis of BPS, RSES scores by CTQ is given in Table 6.

According to the variable of gender, the BPS ( $t=-3.950$ ;  $p<0.01$ ) scores were found to be higher in male participants, according to the comparison of the participants' CTQ total and sub-dimension scores, RSES, BPS and EAT-40 scores. According to the variable of having previously received psychiatric treatment, the CTQ total and sub-dimension scores, RSES, BPS and EAT-40 scores of the participants were compared. CTQ-EA ( $t=2.134$ ;  $p<0.05$ ) and BPS ( $t=-2.744$ ;  $p<0.01$ ) scores were higher in those who did not receive psychiatric treatment.

## DISCUSSION

Regarding the criterion of success in BS applications, it is now accepted that weight loss alone is not sufficient, and the psychiatric and psychosocial status of the cases plays an important role in the success of the treatment. For this

reason, psychiatric evaluation is frequently used in patient selection before BS. The presence of a psychiatric diagnosis in BS candidates, although not considered an absolute contraindication, may lead to the postponement or failure of the surgery. It is due to the fact that the presence of a psychiatric diagnosis can affect the treatment compliance and clinical course of the patient after BS is a situation that often causes concern. However, although attention has been drawn to the importance of pre-BS psychiatric evaluation, which has been a more widely-used treatment method for the last 10 years, there is no consensus and no specific standard regarding the general approach (Bauchowitz et al. 2005, Grothe et al. 2006, Snyder 2009, Poyraz and Savrun 2012). In this study, the effects of CTs on body satisfaction, self-esteem and eating attitudes in BS candidates were examined, and it was found that those who reported having CT had significantly lower self-esteems and were more dissatisfied with their bodies. In addition, it was concluded that those with a history of sexual abuse were prone to eating behavior disorder.

All of the cases included in our study were in the morbid obesity group, and a significant part of them were women. The high rate of female participants in our study was considered to be compatible with the results of other studies on the subject (Kolotkin et al. 2008, Villa-González et al. 2019, Farup and Valeur 2020, Soriano-Maldonado et al. 2020, Vieira et al. 2020). Compared to men, women are more interested in

**Table 4.** Correlation Between the Scales Used in the Study and the Clinical Parameters in the All Participants (Pearson Correlation Analysis)

| Variables (n=87) |   | Age    | BMI    | CTQ-<br>Total | CTQ<br>-EA | CTQ -PA | CTQ PN   | CTQ<br>-EN | CTQ -SA  | RSES    | BPS    | EAT-40 |
|------------------|---|--------|--------|---------------|------------|---------|----------|------------|----------|---------|--------|--------|
| Age              | r | 1      |        |               |            |         |          |            |          |         |        |        |
|                  | p |        |        |               |            |         |          |            |          |         |        |        |
| BMI              | r | -0.164 | 1      |               |            |         |          |            |          |         |        |        |
|                  | p | 0.128  |        |               |            |         |          |            |          |         |        |        |
| CTQ-Total        | r | 0.159  | -0.125 | 1             |            |         |          |            |          |         |        |        |
|                  | p | 0.142  | 0.248  |               |            |         |          |            |          |         |        |        |
| CTQ-EA           | r | 0.132  | -0.103 | 0.797**       | 1          |         |          |            |          |         |        |        |
|                  | p | 0.221  | 0.341  | 0.000         |            |         |          |            |          |         |        |        |
| CTQ-PA           | r | 0.211* | -0.112 | 0.674**       | 0.632**    | 1       |          |            |          |         |        |        |
|                  | p | 0.050  | 0.300  | 0.000         | 0.000      |         |          |            |          |         |        |        |
| CTQ-PN           | r | 0.152  | 0.063  | 0.683**       | 0.286**    | 0.312** | 1        |            |          |         |        |        |
|                  | p | 0.159  | 0.560  | 0.000         | 0.007      | 0.003   |          |            |          |         |        |        |
| CTQ-EN           | r | 0.158  | -0.117 | 0.882**       | 0.590**    | 0.396** | 0.638**  | 1          |          |         |        |        |
|                  | p | 0.143  | 0.279  | 0.000         | 0.000      | 0.000   | 0.000    |            |          |         |        |        |
| CTQ-SA           | r | -0.057 | -0.183 | 0.565**       | 0.449**    | 0.435** | 0.125    | 0.328**    | 1        |         |        |        |
|                  | p | 0.601  | 0.089  | 0.000         | 0.000      | 0.000   | 0.250    | 0.002      |          |         |        |        |
| RSES             | r | -0.142 | 0.161  | -0.433**      | -0.382**   | -0.273* | -0.270*  | -0.343**   | -0.292** | 1       |        |        |
|                  | p | 0.190  | 0.136  | 0.000         | 0.000      | 0.010   | 0.012    | 0.001      | 0.006    |         |        |        |
| BPS              | r | -0.087 | 0.195  | -0.372**      | -0.330**   | -0.120  | -0.337** | -0.379**   | -0.009   | 0.624** | 1      |        |
|                  | p | 0.424  | 0.070  | 0.000         | 0.002      | 0.266   | 0.001    | 0.000      | 0.934    | 0.000   |        |        |
| EAT-40           | r | 0.085  | 0.074  | 0.091         | 0.158      | 0.190   | 0.063    | -0.030     | 0.067    | -0.136  | -0.169 | 1      |
|                  | p | 0.434  | 0.495  | 0.399         | 0.144      | 0.078   | 0.561    | 0.782      | 0.540    | 0.209   | 0.117  |        |

\*p&lt;0.05, \*\*p&lt;0.01

BMI: Body mass index, CT: Childhood Trauma, CTQ -EA: CTQ - Emotional abuse, CTQ -EN: CTQ - Emotional neglect, CTQ -PA: CTQ - Physical abuse, CTQ-PN: CTQ -Physical neglect, CTQ-SA: CTQ - Sexual abuse RSES: Rosenberg Self-Esteem Scale, BPS: Body Perception Scale, EAT-40: Eating Attitude Test

body appearance and health-related issues and seek more health services. When the marital status, educational status and average age of the cases were examined in our study, it was found that they were similar to the results of other studies on the subject (Riva-Moscoso et al. 2021, Villa-González et al.2019, Vieira et al. 2020).

Obesity is a chronic disease that increases the risk of mortality and morbidity with its negative effects on many body systems. There are studies that draw attention to the presence of many physical diseases such as diabetes mellitus, respiratory distress, coronary heart disease, peripheral artery disease, venous insufficiency, hypertension, and heart failure in morbidly obese individuals and BS candidates (Wei and Wu 2012, Stewart et al. 2020, Marco and Marco 2021). The fact that the diagnosis of physical disease was detected in 43.7% of the cases in our study supports these results. BS may be an appropriate treatment option for morbidly obese patients with cardiovascular disease and severe respiratory distress who cannot reach normal blood sugar levels despite diet, exercise and multi-drug therapy.

It has been reported in many studies that the prevalence of psychiatric disorders at admission and throughout the life of

candidate patients admitted for BS is high (de Zwaan et al. 2011, Hawkins et al. 2019, Giulietti et al. 2021). Especially depression, anxiety disorders and binge eating disorder are the most frequently reported psychiatric diagnoses (de Zwaan et al. 2011, Wrzosek et al. 2018). In our study, it was determined that 39.1% of the cases had previously received psychiatric treatment.

In our study, 41 people reported that they had CT. Studies on the subject also examined the relationship between the presence of CT and psychiatric symptoms in cases who applied for BC, and it was reported that the majority of the participants were maltreated during their childhood (Wildes et al. 2005, Martínez et al. 2013, Walsh et al. 2017, Federico et al. 2019). In our study, the ratios of participants who reported CT and those who reported that they did not have CT were very close to each other. There are several possible reasons why the CT ratio was not higher. First of all, it is known that the CT reporting rate is low and individuals have difficulty in declaring these situations. It can be thought that the traditional way of thinking, lifestyles of individuals, moral value understanding of the society, stigma anxiety, guilt and shame, which are common in our country, also

**Table 5.** Correlation Between the Scales Used in the Study and the Clinical Parameters in the Participants Predisposed to Eating Behavior Disorder (Pearson Correlation Analysis)

| Variables (n=31) | Age             | BMI             | BPS              | RSES              | EAT-40.          | CTQ-EA           | CTQ-PA           | CTQ-PN           | CTQ-EN           | CTQ-SA           | CTQ-total |
|------------------|-----------------|-----------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------|
| Age              | 1               |                 |                  |                   |                  |                  |                  |                  |                  |                  |           |
| BMI              | -0.208<br>0.262 | 1               |                  |                   |                  |                  |                  |                  |                  |                  |           |
| BPS              | 0.126<br>0.501  | 0.279<br>0.129  | 1                |                   |                  |                  |                  |                  |                  |                  |           |
| RSES             | -0.152<br>0.413 | 0.309<br>0.090  | 0.518**<br>0.003 | 1                 |                  |                  |                  |                  |                  |                  |           |
| EAT-40           | 0.300<br>0.101  | -0.285<br>0.120 | 0.314<br>0.085   | -0.021<br>0.909   | 1                |                  |                  |                  |                  |                  |           |
| CTQ-EA           | 0.036<br>0.847  | -0.065<br>0.730 | -0.291<br>0.113  | -0.529**<br>0.002 | 0.085<br>0.648   | 1                |                  |                  |                  |                  |           |
| CTQ-PA           | 0.204<br>0.272  | -0.189<br>0.308 | -0.189<br>0.310  | -0.428*<br>0.016  | 0.308<br>0.092   | 0.708**<br>0.000 | 1                |                  |                  |                  |           |
| CTQ-PN           | 0.020<br>0.915  | 0.061<br>0.743  | -0.136<br>0.464  | -0.123<br>0.509   | 0.110<br>0.554   | 0.186<br>0.317   | 0.331<br>0.069   | 1                |                  |                  |           |
| CTQ-EN           | 0.028<br>0.882  | -0.145<br>0.436 | -0.373*<br>0.039 | -0.367*<br>0.042  | 0.125<br>0.503   | 0.636**<br>0.000 | 0.418*<br>0.019  | 0.449*<br>0.011  | 1                |                  |           |
| CTQ-SA           | -0.024<br>0.897 | -0.095<br>0.612 | 0.036<br>0.848   | -0.233<br>0.207   | 0.570**<br>0.001 | 0.536**<br>0.002 | 0.480**<br>0.006 | 0.197<br>0.288   | 0.434*<br>0.015  | 1                |           |
| CTQ-total        | 0.056<br>0.764  | -0.123<br>0.509 | -0.300<br>0.101  | -0.469**<br>0.008 | 0.273<br>0.137   | 0.862**<br>0.000 | 0.764**<br>0.000 | 0.530**<br>0.002 | 0.845**<br>0.000 | 0.677**<br>0.000 | 1         |

BMI: Body mass index, CT: Childhood Trauma, CTQ -EA: CTQ - Emotional abuse, CTQ -EN: CTQ - Emotional neglect, CTQ -PA: CTQ - Physical abuse, CTQ-PN: CTQ -Physical neglect, CTQ-SA: CTQ - Sexual abuse RSES: Rosenberg Self-Esteem Scale, BPS: Body Perception Scale, EAT-40: Eating Attitude Test  
\*p<0.05 \*\*p<0.01

**Table 6 .** Predictive Linear Regression Analysis of All Participants' RSES, BPS Scores by CTQ

| Model        | B       | SH     | $\beta$ | t      | p         |
|--------------|---------|--------|---------|--------|-----------|
| 1 (constant) | 26.938  | 1.718  |         | 15.679 | 0.000     |
| CTQ Total    | -0.198  | 0.045  | -0.433  | -4.432 | <0.001*** |
| 2 (constant) | 166.034 | 10.035 |         | 16.545 | 0.000     |
| CTQ Total    | -0.965  | 0.261  | -0.372  | -3.700 | <0.001*** |

1Dependent Variable: RSES

2 Dependent Variables: BPS

\*\*\*p<0.001

act as an obstacle in front of reporting trauma. As another possible cause, all of the participants in our study were hospital admissions for BC and volunteered for surgery. For this reason, they may tend to pretend they are well in order to avoid any psychiatric disabilities. In our study, BPS and RSES scores were found to be significantly higher in those without CT. When we look at our correlation findings, there is a negative correlation between CTQ total scores and self-esteem and body satisfaction. Since high BPS and RSES scores are considered positive, it is concluded that individuals with CT have lower body satisfaction and self-esteem levels. In studies dealing with the effect of CT on self-esteem, it has been reported that trauma has a corrosive effect on the selves of

individuals with traumatic experiences (Oflozöglu and Sabah 2016). In a study conducted with patients who applied to the psychiatry outpatient clinic in our country, it was reported that the clinical group had more traumatic experiences than the healthy control group, and their self-esteem levels were lower than the healthy control group (Ataoğlu et al. 2019). In another study, it was reported that physical abuse experienced in childhood is an important factor in the development of dissatisfaction with one's body in adult life (Treuer et al. 2005). These reported studies show the negative effects of CTs on self-esteem and body satisfaction. The findings of these studies with clinical and non-clinical groups are consistent with our findings. Therefore, it can be concluded that this relationship

seen in the general population also applies to morbidly obese individuals. There are a limited number of studies on BC and obesity in our country. Different results have been obtained in studies examining the relationship between CT experiences and body satisfaction in obese individuals. While it was reported in a study on the subject that there was a relationship between the presence of CT and dissatisfaction with one's body, another study reported no relationship (Capoccia et al. 2015, Bianciardi et al. 2019). In our study, it was determined that there was a positive and significant relationship between RSES and BPS scores. These findings are consistent with the results of two studies conducted in our country (Tekdemir 2014, Kocakaya, 2019). Similarly, another study reported a significant relationship between body dissatisfaction and low self-esteem (Green et al. 2009).

When we evaluated the relationship between CTQ sub-dimensions and BPS, RSES and EAT-40 in our study, the level of self-esteem was found to be lower in participants with a history of physical abuse, sexual abuse, physical neglect, emotional neglect and emotional abuse. According to Aktepe (2009), studies in the field of sexual abuse and self-esteem indicate that sexual abuse negatively affects the self-esteem of the individual. The effects of sexual abuse on children are encountered both at the time of the traumatic event and in the long term. It is known that depression in children who are victims of sexual abuse causes low self-esteem and harms their interpersonal and social relationships in their later life (Taner and Gökler 2004). Studies reporting the relationship between body satisfaction, self-esteem and eating attitude of CTQ sub-dimensions in obese individuals seem to be limited. Studies have generally focused on the impact of CT experiences on the development of obesity. Therefore, it is thought that this finding in our study is valuable. In a study conducted with university students, it was reported that those with a history of emotional and physical neglect had lower self-esteem (Onat et al. 2016). It is seen that detailed studies on obese individuals according to CTQ sub-dimensions are limited. In our study, it was concluded that all CTQ sub-dimensions had a negative effect on self-esteem in morbidly obese individuals.

In our study, the level of body satisfaction was found to be lower in participants with a history of physical neglect, emotional abuse and emotional neglect. In the literature, there are studies that mainly show the relationship between CTQ sub-dimensions and self-esteem. It is seen that studies on body satisfaction are very limited. In addition, no study evaluating CTQ sub-dimensions and body satisfaction in obese individuals was found. As a result of a study conducted with obese women who were subjected to violence, it was reported that the mean score of women in BAI was below the cut-off point (Tortamış 2009). It can be said that this relationship, which we determined in our study, is valuable for the literature.

In our study, the rate of participants with normal eating attitudes is higher than the rate of participants who are prone to eating behavior disorder. In a study conducted with obese individuals, similar to the results of our study, the rate of participants prone to eating behavior disorder was reported to be low (Kaya et al. 2016). However, it was also stated in the same study that there was a positive correlation between EAT-40 scores and BMI. In our study, however, no significant relationship was found between BMI and any of the variables, including EAT-40. Because all of our participants are in the morbid obesity group, their BMI values are very close to each other. There are studies reporting that obese individuals and BS candidate patients are prone to eating behavior disorder (Eroğlu et al. 2018, Ünde 2017, Eroğlu et al. 2018, Akduman et al. 2021). The findings of our study are not compatible with the results of these studies. This may be related to the patients' tendency to present themselves as healthy before being evaluated for BS. It is because our participants who were willing and voluntarily for BS did not report an eating attitude problem in order to avoid any problems, and therefore the number of cases prone to eating behavior disorder may have been found to be lower.

In our study, no significant correlation was found between the sub-dimensions and total scores, BPS and RSES scores of the participants who were found to be prone to eating behavior disorder, except for the EAT-40 and CTQ-SA sub-dimension. In a study that overlaps with our finding, it was reported that there was no relationship between eating attitude, body satisfaction and self-esteem (Kocakaya 2019). This may be because the sample size of our study was not large enough to detect the relationship between EAT-40 and other variables. There are also studies in the literature stating that there is a relationship between having a history of CT and a predisposition to eating behavior disorder (Gürcan and Kolburan 2018, Belli et al. 2019, Akduman et al. 2021). It has also been reported that there is a relationship between self-esteem and eating attitude (Değirmenci 2006). In our study, only a positive and significant correlation was found between CTQ-SA sub-dimension and EAT-40. This result shows that our participants with a history of sexual abuse are prone to eating behavior disorder. There are studies showing a relationship between having a history of sexual abuse and susceptibility to eating behavior disorder (Opydo-Szymaczek 2018, Williams and Gleaves 2008). According to a study conducted in our country, it was reported that there was a positive and significant relationship between history of sexual abuse and emotional eating in obese individuals (Akduman et al. 2021). Similarly, in another study conducted in our country, it was reported that there was a relationship between sexual abuse and physical neglect and susceptibility to eating behavior disorder (Tunç 2019). However, in another study conducted in our country, it was stated that there was no



significant relationship between CTQ sub-dimensions and eating attitudes (Kocakaya 2019). The presence of a history of sexual abuse is one of the important factors affecting weight loss after BS (Steining et al. 2012). In our study, it was determined that there was a significant relationship between body satisfaction and gender. In addition, male participants have higher body satisfaction scores. Accordingly, it has been determined that women's body satisfaction levels are lower and men's satisfaction levels are higher. Studies that overlap with our findings have also reported that obese women have lower body satisfaction levels (Kurt 2010, Küçük et al. 2018). There are also studies reporting that there is no difference between the genders in terms of body satisfaction variable (Akman 2019, Ata et al. 2014). It is thought that expressing satisfaction with the body may be affected by cultural factors. In our study, we can explain the higher level of body satisfaction in men with cultural differences. Gender difference has an important impact on expressing emotions. Women and men differ in expressing emotions in that women express their feelings more than men (Akan and Barışkın 2015). The higher level of body satisfaction in men may be related to the fact that men express their dissatisfaction less.

This study has some limitations. Our study is cross-sectional in nature. Another limitation is that the sample was small and carried out in a single center. Therefore, it is not possible to generalize or establish a cause-effect relationship with our results. The strengths of our study are that all of our participants were evaluated by researchers through face-to-face interviews.

## CONCLUSION

In our study, lower self-esteem and high body dissatisfaction were found in BS candidates with CT, and those with a history of sexual abuse were found to be prone to eating behavior disorder. Questioning CT in the psychiatric evaluation of pre-BC cases may help to identify risky groups in terms of psychiatric symptoms and to understand possible psychological factors in the etiology of obesity. In addition, it may play an important role in planning the follow-up of possible psychiatric symptoms and disorders after BS. Because CT is involved in the etiology of many psychiatric symptoms and disorders, it may also be associated with the development of obesity for obese individuals and the emergence of psychiatric symptoms in these individuals. For this reason, it is seen that it is important to question CT while evaluating the cases admitted for BS. We think that the results of our study will contribute to the current literature and clinical applications. We believe that the relationship between CT and psychiatric symptoms in morbidly obese patients will be examined in detail, and this issue will be better understood, in the future, with larger sample studies, including those after BS.

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