

# Comparison of Attachment Styles of Individuals with Opioid Use Disorder and Individuals with Obesity



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## SUMMARY

**Objective:** The aim of this study is to identify the attachment style displayed by obese individuals and to compare it with the attachment style of individuals diagnosed with opioid use disorder (OUD) and a healthy control group.

**Method:** A total of 201 participants were included in the study, consisting of 66 individuals diagnosed with obesity, 62 diagnosed with OUD and 73 healthy controls. Sociodemographic Data Form and Adult Attachment Style Scale were administered to all participants, the Addiction Profile Index (API) was administered to participants diagnosed with OUD and the Yale Food Addiction Scale was administered to those diagnosed with obesity.

**Results:** The results of the study revealed that the attachment styles of individuals diagnosed with obesity showed a similar distribution to those diagnosed with OUD, and the distribution of attachment styles in both groups was found to be different from that of the healthy control group. The mean scores for ambivalent/anxious attachment style and secure attachment style were found to be similar for the obesity group and the OUD group, while the OUD group had significantly higher avoidant attachment score. The avoidant attachment style score of OUD group increase as the severity of dependency increases. Additionally, 42.4% of the group was found to be food addicted, and in this group, the mean scores for ambivalent/anxious attachment style were found to be significantly higher.

**Conclusion:** In the study, significant similarities were obtained in terms of attachment styles among participants diagnosed with obesity and OUD. The differentiation of these similarities from the control group has increased the strength of the study.

**Keywords:** Attachment, obesity, opioid dependence

## INTRODUCE

Obesity is a significant health problem that is increasing in prevalence globally every day, characterized by an excessive increase in fat mass and body weight due to the intake of energy from food exceeding the expended energy. In the MONICA study conducted by the World Health Organization (WHO) over 12 years in Asia, Africa, and Europe, it was reported that there was a 10-30% increase in the prevalence of obesity (Molarius et al. 2000). This situation is associated with a variety of medical conditions, primarily cardiovascular and endocrine diseases (Fu et al. 2020). Genetic factors, environmental and sociocultural

influences, endocrine diseases, and psychological factors play a significant role in the etiology of obesity (Usubini et al. 2021).

In psychoanalytic theories related to obesity, it is emphasized that obese individuals have unresolved dependency needs and that these individuals are stuck in the oral stage of psychosexual development (Rasmussen 2012). Fixation at the oral stage creates a typical personality structure characterized by extreme optimism or pessimism, gluttony, ambition, dependency, and impatience, and this structure is often encountered in other dependencies as well (Lomax 1989). In psychoanalytic theories, overeating behavior is seen as a maladaptive or disruptive coping response to depression and

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anxiety. It is suggested that obese individuals learn to cope with anxiety by overeating and that these individuals' passive-dependent characteristics prevent them from developing alternative coping skills (Wilson 1992).

Neurobiological research outside of psychoanalytic views also shows that obesity and substance use disorders have common features in the reward system (Hone-Blanchet and Fecteau 2014). Many neurobiological changes that occur in addiction have also been demonstrated in patients with obesity (Devlin 2007). One of the topics that has come up and been discussed in this field in recent years is food addiction. It proceeds with symptoms seen in other types of addictions such as increased consumption over time despite the harm caused by certain types of foods, efforts to reduce food intake, and repeated failures in this regard. Food addiction can be one of the causes of obesity, but it can also occur in people with normal weight (Gearhardt et al. 2009). Eating disorders such as overeating, binge eating behaviors, which play a role in the etiology of obesity, are reported to be potentially associated with food addiction (Morena and Tandon 2011, Wilcox 2021). Despite these data in the literature, the concept of food addiction is still controversial (Gordon et al. 2018, Piccinni et al. 2021) and is not yet included in widely used classification systems such as the DSM (Diagnostic and Statistical Manual of Mental Disorders) published by the American Psychiatric Association, and the ICD (International Classification of Diseases) published by the World Health Organization.

Attachment styles determine how a person will perceive others in adulthood, how they will cope with stress, how they will regulate their emotions, and how they will react. According to the literature, early period attachment is important in regulating behaviors, including emotional and eating behaviors (Taube-Schiff et al. 2015). There are studies emphasizing the importance of attachment styles in emotional eating, eating disorders, and weight control, and that eating behavior can be used in the regulation of emotions in insecure attachment styles (Mikulincer et al. 1993). While secure attachment is more associated with healthy processes in the literature (Kesebir et al. 2011), insecure attachment styles have been associated with many psychopathologies, including eating disorders and substance addiction (Young and Cooper 2013).

This study aims to determine the type of attachment style exhibited by obese individuals and to compare it with the attachment styles of individuals diagnosed with opioid use disorder (OUD) and a healthy control group. Our hypothesis is that the attachment styles of individuals diagnosed with obesity show similarities with those diagnosed with OUD, and are different from the attachment styles of healthy individuals.

## METHOD

### Study Sample

The study was conducted between February 2018 and June 2018 at the Ankara Numune Training and Research Hospital Psychiatry Outpatient Clinic and the Alcohol and Substance Addiction Research and Treatment Center (AMATEM) outpatient clinic. The study included three volunteer groups: a group of patients with obesity, a group of patients with OUD, and a healthy control group. The obesity group included 66 consecutive individuals who were aged between 18 and 65, literate, agreed to participate in the study, had no history of alcohol or substance use disorder, and were evaluated at the psychiatric outpatient clinic prior to bariatric surgery. The OUD group included 66 consecutive participants who were aged between 18 and 65, literate, agreed to participate in the study, diagnosed with OUD according to DSM-5 diagnostic criteria, did not have obesity, and were gender-matched with patients with obesity. Four individuals were excluded from the study due to accompanying psychotic symptoms. The healthy control group included 73 healthy volunteers who were similar in age and gender to the obesity group, aged between 18 and 65, literate, without obesity, no alcohol or substance use disorder, and without any current or past psychiatric illness. The study was conducted in accordance with the Helsinki Declaration, all participants were informed about the study, and informed consent forms were obtained from the participants. All participants were administered a Sociodemographic Data Form, Adult Attachment Style Scale, in addition, the Yale Food Addiction Scale (YFAS) was applied to the obesity group, and the Addiction Profile Index (API) was applied to the OUD group.

### Measurement and Evaluation Tools

**Sociodemographic Data Form:** This is a form developed to determine the sociodemographic characteristics of the participants in the study. It aims to evaluate participants in terms of gender, age, body mass index, marital status, employment status, and duration of education.

**Adult Attachment Style Scale:** It is a scale used to determine the attachment styles of adults and consists of two parts. The first part, developed by Hazan and Shaver (1987), consists of three statements that describe the characteristics of the relationship with parents during childhood and general behavioral characteristics, and it serves to classify adults' attachment styles as secure, avoidant, and ambivalent. The second part of the scale, developed by Mikulincer and colleagues (1993), contains five items for each attachment style, with each item being scored between 1-7. The Turkish validity and reliability study of the scale was conducted by Kesebir and colleagues, and it has been suggested to compare the mean scores in comparative studies (Kesebir et al. 2012).

In this study, the second part of the scale developed by Mikulincer and colleagues was used.

The reliability of the scale for the study sample was measured, with Cronbach's alpha coefficient determined as 0.52 for secure attachment, 0.658 for avoidant attachment, and 0.681 for anxious-ambivalent attachment.

**The Addiction Profile Index (API):** Is a Likert-type self-report scale consisting of 58 items and 11 subscales, designed to measure the dimensions and severity of addiction, assess some mental states and personal characteristics potentially related to addiction. The scale was developed by Ogel and colleagues (2012), and its validity and reliability studies have been conducted. The reliability of the scale was measured, with the Cronbach's alpha coefficient determined as 0.7 for substance users.

**Yale Food Addiction Scale (YFAS):** The Food Addiction Scale was developed in 2009 by Gearhardt and colleagues based on the DSM-IV-TR substance addiction diagnostic criteria. Gearhardt and colleagues (2009) found the Food Addiction Scale to be valid and reliable (2009). It was adapted to Turkish by Bayraktar and colleagues in 2012. In our country, the reliability of the scale was demonstrated in a study conducted by Sevinçer and colleagues on bariatric surgery patients (Sevinçer et al. 2015)

### Statistical Analysis

The analysis of the data obtained in this research was performed using the SPSS 24 program. Descriptive statistical methods (frequency, mean, standard deviation) for the sociodemographic characteristics of the groups that constitute the sample, chi-square test for comparing categorical data, ANOVA and Tukey for parametric data in triple group comparisons of continuous variables where variances are equal, and Brown-Forsythe Welch and Tamhane tests where they are not equal have been used. In the comparison of continuous variables in non-parametric data, the Mann-Whitney U test was used for binary group comparisons, and the Kruskal Wallis test was used for triple group comparisons. Spearman Correlation Analysis was performed to understand the relationship between variables in non-parametric data. Logistic regression analysis was conducted to identify factors predicting presence in the groups. The significance level was taken as  $p < 0.05$ .

### Ethical Approval

The study was unanimously deemed ethically appropriate by the Clinical Research Ethics Committee of Ankara Numune Training and Research Hospital, with the decision dated February 14, 2018, and numbered E.Kurul-E-18-1760.

## RESULTS

A total of 201 volunteers were included in the study, consisting of 66 diagnosed with obesity, 62 diagnosed with OUD according to DSM-5 diagnostic criteria, and 73 in a healthy control group.

### Sociodemographic Features

Of the 66 people who made up the obesity group, 48 were women (72.7%) and 18 were men (27.3%); of the 62 people diagnosed with OUD, 42 were women (67.7%) and 20 were men (32.3%); of the 73 people who made up the control group, 53 were women (72.6%) and 20 were men (27.4%). No significant difference was found between the groups in terms of gender (Pearson Chi-Square test,  $p = 0.777$ ). The age distribution of the participants was examined: The average age of those in the obesity group was 35.36; those in the OUD group was 26.95; and those in the control group was 36.01. There was no significant difference in terms of age distribution between the obesity patients and the control group (ANOVA test,  $p = 0.972$ ), but there was a significant difference between obesity patients and the OUD group (ANOVA test,  $p < 0.001$ ). The average ages according to the attachment styles of the participants were compared, and no significant difference was found (ANOVA test:  $p = 0.141$ ). The sociodemographic characteristics of the participants are presented in Table-1.

### Evaluation of Participants' Attachment Styles

The attachment styles of participants, as assessed by the Adult Attachment Style Scale, revealed a significant difference between the obesity group and the control group (Pearson Chi-Square test:  $p < 0.001$ ). Secure attachment was identified in 60.6% of the obesity group and 87.7% of the control group. Looking at the subcategories of insecure attachment, both avoidant and anxious attachment rates were found to be equally prevalent (19.7%) in the obesity group, whereas the control group showed a 12.3% prevalence of avoidant attachment and no cases of anxious attachment. When comparing the attachment styles of the obesity group and the OUD group, no significant difference was observed (Pearson Chi-Square test:  $p = 0.267$ ). Secure attachment was identified in 60.6% of the obesity group and 51.6% of the OUD group. The subcategories of insecure attachment in the obesity group revealed equal rates (19.7%) for both avoidant and anxious attachment, while the OUD group had a 32.3% prevalence of avoidant attachment and a 16.1% prevalence of anxious attachment. A significant difference was found in the attachment styles of the OUD group and the control group (Pearson Chi-Square test:  $p < 0.001$ ). Secure attachment was present in 51.6% of the OUD group and 87.7% of the control group. In the subcategories of insecure attachment for

**Table 1.** Sociodemographic Characteristics and Attachment Styles of Participants

| Categorical Variables                           |                  | Obesity             |      | OUD                |      | Control            |      | Total               |      |
|-------------------------------------------------|------------------|---------------------|------|--------------------|------|--------------------|------|---------------------|------|
|                                                 |                  | Number              | %    | Number             | %    | Number             | %    | Number              | %    |
| Gender                                          | Male             | 18                  | 27.3 | 20                 | 32.3 | 20                 | 27.3 | 58                  | 28.9 |
|                                                 | Female           | 48                  | 72.7 | 42                 | 67.7 | 53                 | 72.6 | 143                 | 71.1 |
| Marital Status                                  | Married          | 36                  | 54.5 | 27                 | 43.5 | 48                 | 65.8 | 111                 | 55.2 |
|                                                 | Single           | 21                  | 31.8 | 31                 | 50.0 | 18                 | 24.7 | 70                  | 34.8 |
|                                                 | Divorced/Widowed | 9                   | 13.6 | 4                  | 6.5  | 7                  | 9.6  | 20                  | 10.0 |
| Employment Status                               | Working          | 26                  | 39.4 | 13                 | 21.0 | 65                 | 89.0 | 104                 | 51.7 |
|                                                 | Not Working      | 40                  | 60.6 | 49                 | 79.0 | 8                  | 11.0 | 97                  | 48.3 |
| Attachment Style                                | Secure           | 40                  | 60.6 | 32                 | 51.6 | 64                 | 87.7 | 136                 | 67.7 |
|                                                 | Avoidant         | 13                  | 19.7 | 20                 | 32.3 | 9                  | 12.3 | 42                  | 20.9 |
|                                                 | Ambivalent       | 13                  | 19.7 | 10                 | 16.1 | 0                  | 0    | 23                  | 11.4 |
| <b>Continuous Variables (Mean±SD/(min-max))</b> |                  |                     |      |                    |      |                    |      |                     |      |
| Age                                             |                  | 35.36±10.11 (20-61) |      | 26.95±5.88 (18-44) |      | 36.01±9.38 (18-60) |      | 33±9.59 (18-61)     |      |
| Education Duration (Years)                      |                  | 11±2.98             |      | 8.56±2.15          |      | 13.37±3.41         |      | 11.11±3.52          |      |
| Body Mass Index (BMI)                           |                  | 44.24±5.57 (35-66)  |      | 20.73±3.42 (14-29) |      | 23.11±2.93 (17-29) |      | 29.31±11.28 (14-66) |      |

SD: Standart Deviation, min: minimum, max: maXimum, OUD: Opioid Use Disorder

**Table 2.** Comparison of Average Attachment Style Scores of Thegroups

| Attachment Style<br>(Mean±SD/(min-max)) | Obesity (n=66)        | OUD<br>(n=62)        | Control<br>(n=73)    | Total<br>(n=201)     | P                | P<br>(Obesity-<br>OUD) | P<br>(Obesity-<br>Control) | P<br>(OUD-<br>Control) |
|-----------------------------------------|-----------------------|----------------------|----------------------|----------------------|------------------|------------------------|----------------------------|------------------------|
| Secure                                  | 24.35±5.22<br>(13-35) | 22.27±5.55<br>(9-33) | 24.7±4.44<br>(13-35) | 23.84±5.15<br>(9-35) | <b>0.014</b>     | 0.056                  | 0.913                      | <b>0.017</b>           |
| Avoidant                                | 16.62±5.94<br>(6-29)  | 22.05±6<br>(6-31)    | 15.52±5.46<br>(5-32) | 17.9±6.41<br>(5-32)  | <b>&lt;0.001</b> | <b>&lt;0.001</b>       | 0.503                      | <b>&lt;0.001</b>       |
| Ambivalent                              | 17.91±6.16<br>(8-34)  | 19.77±6.52<br>(6-33) | 14.04±4.63<br>(5-29) | 17.08±6.23<br>(5-34) | <b>&lt;0.001</b> | 0.269                  | <b>&lt;0.001</b>           | <b>&lt;0.001</b>       |

SD: Standart Deviation, min: minimum, max: maximum, OUD: Opioid Use Disorder

\*ANOVA test (p&lt;0.05 is considered significant)

the OUD group, avoidant attachment was found in 32.3% and anxious attachment in 16.1%. In contrast, the control group had a 12.3% prevalence of avoidant attachment and no cases of anxious attachment (Table 1).

### Average Attachment Style Scores of the Groups

While there was a statistically significant difference between the averages of the secure attachment scores of the OUD and control groups (p=0.017), no statistically significant difference was found between the averages of the secure attachment scores of the obesity and OUD group and between the obesity and control group. The comparison of the average attachment style scores of the groups is presented in Table 2.

When the average scores of avoidant attachment were compared, statistically significant differences were observed between the obesity and OUD groups (p<0.001) and between the OUD and control groups (p<0.001). In contrast, no statistically significant difference was detected between the average scores of avoidant attachment for the obesity

and control groups (p=0.503). The average score of avoidant attachment in the OUD group was significantly higher compared to the other two groups. The comparison of the groups' average avoidant attachment scores is presented in Table 2.

While no statistically significant difference was found between the average scores of anxious attachment of the obesity and OUD groups (p=0.269), a statistically significant difference was observed between the obesity and control groups and between the OUD and control groups (p<0.001). The comparison of the groups' average anxious attachment scores is presented in Table 2.

### Evaluation of Eating Addiction and Average Attachment Style Scores

Upon examining the distribution of the obesity group according to the YFAS, it was found that 28 (42.42%) were assessed as having eating addiction, while 38 (57.58%) were not considered to have eating addiction. When the average

**Table 3.** Comparison of Average Attachment Style Scores of the Obesity Group According to YFAS

| YFAS                                    |                       |             |                           |             | P             |
|-----------------------------------------|-----------------------|-------------|---------------------------|-------------|---------------|
| Attachment Style<br>( Mean±SD/(min-max) | Food Addict<br>(n=28) |             | Not Food Addict<br>(n=38) |             |               |
|                                         | Mean±SD               | min-max     | Mean±SD                   | min-max     |               |
| Secure                                  | 24.46±5.43            | 13-34       | 24.26±5.13                | 16-35       | 0.740         |
| Avoidant                                | 17.14±5.89            | 8-29        | 16.24±6.02                | 6-26        | 0.617         |
| Ambivalent                              | <b>19.5±6</b>         | <b>9-29</b> | <b>16.74±6.07</b>         | <b>8-34</b> | <b>0.047*</b> |

SD: Standart Deviation, min: minimum, max: maximum, YFAS: Yale Food Addiction Scale

\*Mann-Whitney U p&lt;0.05 is considered significant

**Table 4.** Comparison of Average Attachment Style Scores of the Individuals Identified As Food Addiction and OUD Group

| Attachment Style<br>( Mean±SD/(min-max) | Food Addict<br>(n=28) |             | OUD<br>(n=62)     |             | P                 |
|-----------------------------------------|-----------------------|-------------|-------------------|-------------|-------------------|
|                                         | Mean±SD               | min-max     | Mean±SD           | min-max     |                   |
|                                         |                       |             |                   |             |                   |
| Secure                                  | 24.46±5.43            | 13-34       | 22.27±5.55        | 9-33        | 0.087             |
| Avoidant                                | <b>17.14±5.89</b>     | <b>8-29</b> | <b>22.05±5.99</b> | <b>6-31</b> | <b>&lt;0.001*</b> |
| Ambivalent                              | 19.50±6.00            | 9-29        | 19.77±6.52        | 6-33        | 0.851             |

SD: Standart Deviation, min: minimum, max: maximum, OUD: Opioid Use Disorder

\*Mann-Whitney U p&lt;0.05 is considered significant

**Table 5.** Comparison of Average Attachment Style Scores and Addiction Severity in the OUD Group

| Attachment Style<br>(Mean±SD/(min-max) | API                              |                                     |                                   | P             |
|----------------------------------------|----------------------------------|-------------------------------------|-----------------------------------|---------------|
|                                        | Low Addiction Severity<br>(n=18) | Medium Addiction Severity<br>(n=12) | High Addiction Severity<br>(n=32) |               |
|                                        |                                  |                                     |                                   |               |
| Secure                                 | 22.61±5.81                       | 25±4.71                             | 21.06±5.46                        | 0.140         |
| Avoidant                               | <b>18.67±6</b>                   | <b>21.58±3.37</b>                   | <b>24.13±5.98</b>                 | <b>0.002*</b> |
| Ambivalent                             | 19.11±8.06                       | 18.25±4.41                          | 20.72±6.26                        | 0.443         |

SD: Standart Deviation, min: minimum, max: maximum, API: Addiction Profile Index \*Kruskal-Wallis p&lt;0.05 is considered significant

attachment style scores of those with and without eating addiction in the obesity group were compared according to the YFAS, the average scores of anxious attachment for those with eating addiction were found to be significantly higher (p=0.047 - Mann-Whitney U). The comparison of the average attachment style scores of the obesity group according to the YFAS is presented in Table 3.

When the attachment styles of individuals with eating addiction were compared with the OUD group, it was found that the avoidant attachment scores of the participants diagnosed with OUD were significantly higher than those with identified eating addiction (Table-4).

### Evaluation of Addiction Severity in the OUD Group

Upon examining the distribution of the OUD group according to the API, it was found that 18 (29.0%) were assessed as having low addiction severity, 12 (19.4%) as having moderate addiction severity, and 32 (51.6%) as having high addiction severity. The average attachment style scores of the participants in the OUD group were compared based

on the severity of their addiction. As a result of the analysis, it was found that as the severity of addiction in the opioid use disorder group increased, the average scores of avoidant attachment also increased, and the difference was statistically significant (p=0.002 - Kruskal Wallis). The comparison of the average attachment style scores of the OUD group according to the ASI is presented in Table 5. Upon investigating the relationship between the scores obtained from the ASI scale and the attachment style scores in the OUD group, a positive moderate correlation was found (r=0.451, p=0.01 - Spearman Correlation Analysis).

### Evaluation of Factors Predicting Group Membership

Binary logistic regression analysis was performed to identify factors predicting the likelihood of participants belonging to the obesity, OUD, and healthy control groups. Factors with significance values below 0.25 in individual analyses of predictors were included in the analysis.

In the logistic regression analysis between the control and OUD groups, factors increasing the likelihood of OUD

**Table 6.** Factors Predicting the Likelihood of Being in Control and OUD Groups

|                                    | B             | SE           | Wald          | df       | p            | Exp(B)       | %95 CI for ExpB.    |
|------------------------------------|---------------|--------------|---------------|----------|--------------|--------------|---------------------|
| Education Duration                 | <b>-0.412</b> | <b>0.140</b> | <b>8.631</b>  | <b>1</b> | <b>0.003</b> | <b>0.662</b> | <b>0.503-0.872</b>  |
| Marital Status                     | <b>1.403</b>  | <b>0.147</b> | <b>15.542</b> | <b>1</b> | <b>0.000</b> | <b>0.560</b> | <b>0.420-0.747</b>  |
| Employment Status                  | <b>2.225</b>  | <b>0.739</b> | <b>9.067</b>  | <b>1</b> | <b>0.003</b> | <b>9.253</b> | <b>2.174-39.378</b> |
| Attachment Style (Secure/Insecure) | <b>2.172</b>  | <b>0.768</b> | <b>8.002</b>  | <b>1</b> | <b>0.005</b> | <b>8.776</b> | <b>1.948-39.526</b> |
| Constant                           | 6.296         | 3.545        | 3.817         | 1        | 0.051        | 1018.900     |                     |

\*logistic regression analyses, p<0.05 is considered significant

**Table 7.** Factors Predicting the Likelihood of Being in the Control and Obesity Groups

|                                    | B            | SE           | Wald          | df       | p            | Exp(B)       | %95 CI for ExpB.     |
|------------------------------------|--------------|--------------|---------------|----------|--------------|--------------|----------------------|
| Attachment Style (Secure/Insecure) | <b>1.418</b> | <b>0.501</b> | <b>8.009</b>  | <b>1</b> | <b>0.005</b> | <b>4.127</b> | <b>14.546-11.016</b> |
| Employment Status                  | <b>2.139</b> | <b>0.491</b> | <b>18.950</b> | <b>1</b> | <b>0.000</b> | <b>8.490</b> | <b>3.241-22.242</b>  |
| Education Duration                 | -0.124       | 0.073        | 2.922         | 1        | 0.087        | 0.883        | 0.766-1.018          |
| Constant                           | 0.396        | 0.963        | 0.169         | 1        | 0.681        | 1.486        |                      |

\*logistic regression analyses, p<0.05 is considered significant

**Table 8.** Factors Predicting the Likelihood of Being in the OUD and Obesity Groups

|                       | B             | SE           | Wald          | df       | p            | Exp(B)       | %95 CI for ExpB. |              |
|-----------------------|---------------|--------------|---------------|----------|--------------|--------------|------------------|--------------|
|                       |               |              |               |          |              |              | Düşük            | Yüksek       |
| Education Duration    | <b>-0.353</b> | <b>0.090</b> | <b>15.373</b> | <b>1</b> | <b>0.000</b> | <b>0.703</b> | <b>0.589</b>     | <b>0.838</b> |
| Employment Status     | 0.176         | 0.487        | 0.131         | 1        | 0.718        | 1.193        | 0.459            | 3.096        |
| Secure Attachment     | -0.040        | 0.044        | 0.808         | 1        | 0.369        | 0.961        | 0.882            | 1.048        |
| Avoidant Attachment   | <b>0.166</b>  | <b>0.045</b> | <b>13.451</b> | <b>1</b> | <b>0.000</b> | <b>1.181</b> | <b>1.080</b>     | <b>1.290</b> |
| Ambivalent Attachment | -0.057        | 0.039        | 2.202         | 1        | 0.138        | 0.944        | 0.875            | 1.019        |
| Constant              | 2.020         | 1.782        | 1.285         | 1        | 0.257        | 7.535        |                  |              |

\*logistic regression analyses, p<0.05 is considered significant

were identified as a decrease in the duration of education (0.560 times, p=0.000), being single (4.07 times, p=0.019), and being unemployed (10.07 times, p=0.000). Secure attachment was found to decrease the likelihood of OUD by 8.78 times (Table-6).

In the logistic regression analysis between the control and obesity groups, factors decreasing the risk of obesity were identified as being employed (8.49 times, p=0.000) and having secure attachment (4.127 times, p=0.005) (Table-7).

In the logistic regression analysis between the obesity and OUD groups, it was found that a one-unit decrease in the duration of education increased the likelihood of OUD by 0.703 times (p=0.000), and a one-unit increase in avoidant attachment scores increased it by 1.181 times (p=0.000) (Table-8).

## DISCUSSION

In the study conducted, the attachment styles of obese patients were investigated and compared with individuals

diagnosed with opioid use disorder and healthy controls. As a result of the study, it was determined that the attachment styles of participants diagnosed with obesity showed similar characteristics with participants diagnosed with opioid use disorder, and also the distribution of attachment styles of both groups was different from the healthy control group.

When sociodemographic data were examined, it was found that the proportion of women was high among obesity patients (72.7%). Similar results have been identified in studies conducted with obese patients before bariatric surgery in the literature (Taube-Schiff et al. 2015, Sevinçer et al. 2015). To prevent attachment styles from being influenced by gender, similar proportions of genders were included in the study.

The average age of obesity patients was found to be similar to the control group, but higher than patients diagnosed with opioid use disorder. This may be due to the fact that the obesity group was selected from those applying for bariatric surgery and that treatment applications from the patient group diagnosed with opioid use disorder are generally in the 20-29 age range in our country (European Monitoring Centre

for Drugs and Drug Addiction 2018, Asan et al. 2019). The average ages of obesity patients and patients diagnosed with opioid use disorder are consistent with the literature (Eroğlu et al. 2018, Erbay et al. 2018, Altıntoprak et al. 2015, Şipka and Vardar 2018, Karabulut and Evren 2018).

To understand whether age has an effect on attachment style, participants' average ages were compared according to their attachment styles, and the distribution of average ages was found to be similar in all three attachment style subgroups. According to this result, it can be said that attachment styles in the participant group included in the study were not affected by age. There are also publications in the literature indicating that attachment styles are not affected by age (Kesebir et al. 2012). This result is consistent with publications reporting that attachment styles take shape at an early age and generally remain stable throughout adulthood (Hamilton 2000, Kesebir et al. 2011).

In our study, it was found that 60.6% of obese patients showed a secure attachment style. In the literature, there are studies that found the rate of secure attachment style similar to our study (Kiesewetter et al. 2012), as well as publications that found lower than our study (Pareek and Joshi 2018, Öyekçin et al. 2018). It is noteworthy that in the obese patient group, the rate of secure attachment is lower compared to healthy controls, while the rates of avoidant and anxious attachment are higher. These results are consistent with publications that indicate that attachment styles are important in the formation and continuation of obesity (Aarts et al. 2015) and that insecure attachment styles are associated with obesity (Stenhammar et al. 2010, Goossens et al 2012).

Another notable result of the study is that insecure attachment styles were found at higher rates in individuals diagnosed with obesity and OUD compared to the control group. There are publications in the literature that consider substance use disorders as attachment disorders. It has been reported that the attachment style established with parents during childhood can determine substance use in later years (Morsünbül and Çok 2011). Moreover, it has been pointed out that there is a relationship between insecure attachment styles and substance addiction (Unterrainer et al. 2016, Schindler et al. 2009). Insecurely attached individuals may become more prone to psychopathology due to increased sensitivity to stress, using external methods to regulate their emotions, and impaired help-seeking behaviors (Mauder and Hunter 2001). These external interventions used to regulate mood states can be food as well as substances. The similarity in the distribution of attachment styles of both groups may be due to this reason.

In our study, when comparisons were made according to the scores obtained from the attachment styles of the groups, the average scores of anxious/ambivalent attachment style and secure attachment style were found to be similar between

the obesity group and the opioid use disorder groups. In a study comparing obese patients before bariatric surgery with healthy controls, it was reported that the average scores of anxious/ambivalent attachment style were high, and the average scores of avoidant attachment were low in obese patients (Nancarrow et al. 2018). Moreover, another study emphasized that the anxious/ambivalent attachment style is associated with obesity in adulthood (D'Argenio et al. 2009).

One of the most significant results of the study is that secure attachment is found to be an independent factor reducing the likelihood of obesity and OpUD. This result is consistent with the literature (Öyekçin et al. 2018, Aydoğdu and Çam 2013), and secure attachment can be considered as a factor preventing both obesity and OpUD.

In the study, obese patients and participants diagnosed with opioid use disorder were evaluated in terms of insecure attachment subgroups; the average avoidant scores of the OUD group were found to be significantly higher than the obesity group. Logistic regression analysis also showed that an increase in avoidant attachment scores is an independent factor increasing the likelihood of OUD compared to obesity. In a study about attachment and risk-taking behaviors in adolescents, it was reported that adolescents with an anxious/ambivalent attachment style showed the lowest level of compliance and the highest level of risk-taking behaviors, while those with an avoidant attachment style exhibited the highest level of problematic behaviors (Cooper et al. 1998). This data supports our conclusion. The fact that substance use is a more problematic behavior compared to eating may have pushed individuals with high avoidant attachment features towards illegal and more problematic behaviors. Additionally, there are studies in the literature showing that avoidant attachment is high in heroin addicts (Schindler et al. 2009, Cavaiaola et al. 2015). In the study, it was also found that the avoidant attachment scores of the opioid use disorder group increased proportionally with the severity of addiction.

The obesity group was divided into two groups as those who are food addicted and those who are not according to Binge Eating Disorder (BED), and it was determined that 42.4% of the obese patient group is food addicted. The literature suggests that certain foods high in fat, sugar, and salt can affect the central nervous system and have similar effects to addictive substances (Ziauddeen et al. 2012). Therefore, some researchers have recently suggested that the increase in obesity prevalence is due to the emergence of "food addiction" in a significant part of the population (Hebebrand et al. 2014, Lerma-Cabrera et al. 2016, Barry et al. 2009). Food addiction has also been found at high rates in obesity patients in the literature. In a study conducted with overweight and obese individuals in our country, the rate of food addiction was found to be 38% (Özkan et al. 2017). Rates around 42% have been detected in groups evaluated before bariatric surgery

(Meule et al. 2012), and higher rates have been identified in our country (Sevinçer et al. 2015) and abroad (Clark and Saules 2013). The average anxious attachment score in the food addicted group was found to be higher than in the non-addicted group. In studies on eating disorders in the literature, a connection was detected between insecure attachment styles and emotion regulation in patients with eating disorders (Tasca and Balfour 2014, Ward et al. 2000). There are also publications indicating that patients with anorexia nervosa and bulimia nervosa have less secure attachment styles than the control group, and more anxious/ambivalent and avoidant attachment styles (Latzer et al. 2002). Another study with adolescents has shown a connection between low body weight and anxious/ambivalent attachment style (Valenzuela 1990). These findings can be interpreted in favor of the need to define food addiction as an eating disorder.

In our study, significant similarities were obtained in terms of attachment styles in individuals diagnosed with obesity and Opioid Use Disorder (OUD). The divergence of these similarities from healthy controls has increased the strength of the study. Additionally, the fact that we have not encountered a publication comparing obese patients with patients diagnosed with opioid use disorder and healthy controls in our literature search is the original aspect of our study.

The Adult Attachment Style Scale is a self-report scale. The limitations present in self-report scales also apply to our study. Another limitation of the study is that although it has been shown that attachment styles are not affected by age in the participant group, the age of patients diagnosed with opioid use disorder is lower than that of patients with obesity. This may be due to the fact that the group of patients with obesity was taken from patients applying for bariatric surgery. Conducting the study with patients applying to the obesity clinic could partially reduce the difference between age groups. The Cronbach's alpha values of the addiction scale we used in the study being applicable but low for secure attachment in the participant group is another limitation. Considering that the type of substance used could lead to differences in addiction characteristics, only people with OUD were included in the study. Studies with larger samples that also include different substance use disorders could yield more useful results. Lastly, it would be beneficial to compare the attachment styles of the obesity group according to food addiction with a higher number of participants.

## CONCLUSION

The study concluded that the attachment styles of patients with obesity showed similarity to those of patients diagnosed with opioid use disorder, and the distribution of attachment styles in both groups was found to be different from the healthy control group. Furthermore, while the average scores

for ambivalent/anxious and secure attachment styles were similar for the obesity group and the OUD group, the average avoidance scores were significantly higher in the OUD group. It was determined that the avoidance attachment scores of the OUD group increased proportionally with the severity of addiction. Additionally, it was found that 42.4% of the obesity group was food addicted, and the average scores for the ambivalent/anxious attachment style were significantly higher in the group with food addiction.

Attachment is a factor that forms during childhood and significantly affects human life and behavior afterwards. Healthy attachment plays a preventive role in the development of obesity and substance use disorders. Firstly, in preventive health services, pregnancy schools, healthy child follow-ups, and risk group determination, the forms of attachment should be considered in the education given to parents. Afterwards, it should also be considered in the follow-up and treatment of both patient groups. Additionally, investigating attachment styles and food addiction during the patient evaluation before bariatric surgery, and creating therapy and education programs that include these, will be beneficial.

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## REFERENCES

- Aarts F, Geenen R, Gerdes et al (2015) Attachment anxiety predicts poor adherence to dietary recommendations: an indirect effect on weight change 1 year after gastric bypass surgery. *Obes Surg* 25: 666–72.
- Altıntoprak AE, Evren EC, Aydemir Ö et al (2015) Klinik Opiyat Yoksunluk Ölçeği (Clinical Opiate Withdrawal Scale-COWS) Türkçe sürümünün güvenilirliği ve geçerliliği. *Arch Neuropsychiatr* 52: 89–94.
- Asan Ö, Şahiner İV, Şahiner ŞY et al (2019) How probation affects treatment of Opioid Use Disorders: Comparison of early remission rates between Opioid Use Disorder patients admitted to medical clinic voluntarily and by probation. *Heroin Addict Relat Clin Probl* 21: 53–60.
- Avrupa Uyuşturucu Ve Uyuşturucu Bağımlılığı İzleme Merkezi (2018) Avrupa Uyuşturucu Raporu. Eğilimler ve Gelişmeler. s.52-53.
- Aydoğdu H, Çam MO (2013) Madde Kullanım Bozukluğu Olan ve Olmayan Ergenlerin Bağlanma Stilleri, Anne Baba Tutumları ve Sosyal Destek Algıları Yönünden Karşılaştırılması. *Psikiyatri Hemşireliği Dergisi* 4:137-44.
- Barry D, Clarke M, Petry NM (2009) Obesity and its relationship to addictions: is overeating a form of addictive behavior? *Am J Addict* 18:439-51.
- Bayraktar F, Erkman F, Kurtuluş E (2012) Yale yeme bağımlılığı ölçeğinin Türkçe uyarlama çalışması. *Klinik Psikofarmakoloji Bülteni* 22:38.

- Cavaiola AA, Fulmer BA, Stout D (2015) The impact of social support and attachment style on quality of life and readiness to change in a sample of individuals receiving medication-assisted treatment for opioid dependence. *Subst Abus.* 36:183-91.
- Clark SM, Saules KK (2013) Validation of the Yale Food Addiction Scale among a weight-loss surgery population. *Eat Behav* 14: 216-9.
- Cooper ML, Colins NL, Shaver PR (1998) Attachment styles emotional regulation and adjustment in adolescence. *J Pers Soc Psychol* 74: 1380-97.
- D'Argenio A, Mazzi C, Pecchioli L et al (2009) Early trauma and adult obesity: is psychological dysfunction the mediating mechanism? *Physiol Behav* 98:543-6.
- Devlin MJ (2007) Is there a place for obesity in DSM-V? *Int J Eat Disord* 40: 83-8.
- Erbay LG, Akyüz M, Şahin İ et al (2018) Bariatrik cerrahi adayları morbid obezite hastalarının yaşam doyumunun beden algısı ve benlik saygısı ile ilişkisi. *Firat Tıp Dergisi* 23: 1-5.
- Eroğlu MZ, Sertçelik Ş, Tamam L (2018) Haydarpaşa Numune Eğitim ve Araştırma Hastanesi'ne başvuran bariatrik cerrahi adaylarında yeme bozukluğu. *Anadolu Psikiyatri Dergisi* 19: 355-61.
- Fu X, Xu J, Zhang R et al (2020, Nisan 9) The association between environmental endocrine disruptors and cardiovascular diseases: A systematic review and meta-analysis. *Environ. Res.* 187: 109464. 9 Nisan 2023 'de <https://pubmed.ncbi.nlm.nih.gov/32438096/> adresinden indirildi.
- Gearhardt AN, Corbin WR, Brownell KD (2009) Preliminary validation of the Yale Food Addiction Scale. *Appetite* 52: 430-6.
- Goossens L, Braet C, Durme KV et al (2012) The parent-child relationship as predictor of eating pathology and weight gain in preadolescents. *J Clin Child Adolesc Psychol* 41: 445-57.
- Gordon EL, Ariel-Donges AH, Bauman V et al (2018) What is the Evidence for "Food Addiction?" A Systematic Review. *Nutrients* 10: 477.
- Hamilton CE (2000) Continuity and discontinuity of attachment from infancy through adolescence. *J Am Acad Child Dev* 71: 690-4.
- Hazan C, Shaver P (1987). Romantic love conceptualized as an attachment process. *J Pers Soc Psychol* 52: 511-24.
- Hebebrand J, Albayrak Ö, Adan R et al (2014) "Eating addiction", rather than "food addiction", better captures addictive-like eating behavior. *Neurosci Biobehav Rev.* 47: 295-306.
- Hone-Blancher A, Fecteau S (2014) Overlap of food addiction and substance use disorders definitions: analysis of animal and human studies. *Neuropharmacology* 85: 81-90.
- Karabulut V, Evren C (2018) Opioid sürdürüm tedavisindeki hastalarda intihar girişimi ile stresle başa çıkma stilleri arasındaki ilişki. *The Journal of Clinical Psychiatry* 21: 245-53.
- Kesebir S, Kavzoğlu SÖ, Üstündağ MF (2011) Bağlanma ve psikopatoloji. *Psikiyatride Güncel Yaklaşımlar* 3: 321-42.
- Kesebir S, Kökcü F, Dereboy F (2012) Erişkin Bağlanma Biçimi Ölçeği: geçerlilik ve güvenilirlik çalışması. *Yeni Sempozyum Dergisi* 50: 99-104.
- Kiesewetter S, Köpsel A, Mai K et al (2012) Attachment style contributes to the outcome of a multimodal lifestyle intervention. *Biopsychosoc Med* 6: 3.
- Latzer Y, Hochdorf Z, Bachar E et al (2002) Attachment style and family functioning as discriminating factors in eating disorders. *Contemporary Family Therapy* 24: 581-99.
- Jerma-Cabrera JM, Carvajal F, Lopez-Legarrea P (2016) Food addiction as a new piece of the obesity framework. *Nutr J* 15:5.
- Lomax JW (1989) Obesity in Comprehensive Textbook of Psychiatry, Ed: Kaplan Hİ, Sadock BJ, Williams and Wilkins, Baltimore: Williams and Wilkins, s.1176-86.
- Mauder RG, Hunter JJ (2001) Attachment and psychosomatic medicine: developmental contributions to stress and disease. *Psychosom Med.* 63: 556-67.
- Meule A, Heckel D, Kübler A (2012) Factor structure and item analysis of the Yale Food Addiction Scale in obese candidates for bariatric surgery. *Eur Eat Disord Rev* 20:419-22.
- Mikulincer M, Florian V, Weller A (1993) Attachment styles, coping strategies, and posttraumatic psychological distress: The impact of the Gulf War in Israel. *J Pers Soc Psychol* 64: 817-26.
- Molarius A, Seidell JC, Sans S et al Educational level, relative body weight, and changes in their association over 10 years: an international perspective from the WHO MONICA Project. *Am J Public Health* 90: 1260-8.
- Morena C, Tandon R (2011) Should overeating and obesity be classified as addictive disorder in DSM-5? *Curr Pharm Des* 17:1128-31
- Morsünbül Ü, Çok F (2011) Bağlanma ve ilişkili değişkenler. *Psikiyatride Güncel Yaklaşımlar* 3:553-70.
- Nancarrow A, Hollywood A, Ogden J et al (2018) The role of attachment in body weight and weight loss in bariatric patients. *Obes Surgery* 28: 410-4.
- Ögel K, Karadağ F, Evren C et al (2011) Kullanılan madde türüne göre bağımlılık profili değişiklik gösteriyor mu? *Bulletin of Clinical Psychopharmacology* 21: 154-5.
- Ögel K, Evren C, Karadağ F et al (2012) Bağımlılık Profil İndeksinin (BAPİ) Geliştirilmesi, Geçerlik ve Güvenilirliği. *Türk Psikiyatri Dergisi* 23: 264-73.
- Öyekçin DG, Şahin EM, Aldemir E (2018) Yetişkin obez bireylerde psikiyatrik ek tanı ve bağlanma stilleri: sağlıklı gönüllülerle karşılaştırılmalı bir çalışma. *The Journal of Clinical Psychiatry* 21: 326-33.
- Özkan İ, Devrim A, Bilgiç P (2017) Evaluation of the relationship between food addiction, nutritional status and depression in overweight and obese Women. *Beslenme ve Diyet Dergisi* 45: 242-9.
- Pareek A, Joshi U (2018) Relationship between attachment style and body mass index of children using ex-post facto research design. *Journal of Clinical and Diagnostic Research* 12: 13-7.
- Piccinni A, Bucchi R, Fini C et al (2021) Food addiction and psychiatric comorbidities: a review of current evidence. *Eat Weight Disord* 26: 1049-56.
- Rasmussen N (2012) Weight stigma, addiction, science, and the medication of fatness in mid-twentieth century America. *Sociol Health Illn.* 34: 880-95.
- Schindler A, Thomasius R, Petersen K et al (2009) Heroin as an attachment substitute? Differences in attachment representations between opioid, ecstasy and cannabis abusers. *Attach Hum Dev.* 11:307-30.
- Sevinçer GM, Konuk M, Bozkurt S et al (2015) Psychometric properties of the Turkish version of the Yale Food Addiction Scale among bariatric surgery patients. *Anatolian Journal of Psychiatry* 16:44-53.
- Stenhammar C, Olsson GM, Bahmanyar S et al (2010) Family stress and BMI in young children. *Acta Paediatr.* 99:1205-12.
- Şipka H, Vardar E (2018) Buprenorfin/nalokson tedavisi gören opiyat bağımlısı hastalarda tedavinin erken döneminde uyku kalitesinin değerlendirilmesi. *Anadolu Psikiyatri Dergisi* 19: 466-71.
- Tasca GA, Balfour L (2014) Attachment and eating disorders: a review of current research. *Int J Eat Disord.* 47: 710-7.
- Taube-Schiff M, Van Exan J, Tanaka R et al (2015) Attachment style and emotional eating in bariatric surgery candidates: the mediating role of difficulties in emotion regulation. *Eat Behav* 18: 36-40.
- Unterrainer HF, Hiebler M, Ragger K et al (2016) White matter integrity in polydrug users in relation to attachment and personality: a controlled diffusion tensor imaging study. *Brain Imaging Behav* 10:1096-107.
- Usubini AG, Varallo G, Granese V et al (2021) The Impact of Psychological Flexibility on Psychological Well-Being in Adults With Obesity. *Front Psychol* 22:12:636933.
- Valenzuela M (1990) Attachment in chronically underweight young children. *Child Dev* 61:1984-96.
- Ward A, Ramsay R, Treasure J (2000) Attachment research in eating disorders. *Br J Med Psychol* 73: 35-51.
- Wilcox CE (2021) The food addiction concept : history, controversy, potential pitfalls, and promises. In: *Food Addiction, Obesity and Disorders of Overeating*. Cham: Springer. p.69-75.
- Wilson CP (1992) Personality Structure and Psychoanalytic Treatment of Obesity. Ed:Wilson CP, Hogan CC, Mintz I *Psychodynamic Technique in the Treatment of the Eating Disorders*. Northvale, New Jersey, London. s.81-95.
- Young E, Cooper M (2013) Applying a cognitive model to binge eating in a female community sample. *Eating Behav.* 14: 295-8.
- Ziauddeen H, Farooqi IS, Fletcher PC (2012) Obesity and the brain: how convincing is the addiction model? *Nat Rev Neurosci.* 13: 279-86.