



Body Figure Perception And Relation With Eating Habits In Turkish Adults

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Received: Marc 25th2021. Revised: May 17th2021. Published: Dec 20th2021

DOI : [10.22219/sm.Vol17.SMUMM2.16095](#)

ABSTRACT

Body image problems are associated with several mental health problems: low self-esteem, depression, and eating disorders. This study aimed to determine the rate of impaired body figure perception and its relation with eating habits in Turkish adults. This cross-sectional study was carried with 446 participants. To determine body figure perception Stunkart Figure Scale was used. Dutch Eating Attitude Questionnaire was applied to determine the eating habits of all participants. Study data were analyzed with SPSS 21.0 package program. The concordance between Body Mass Index (BMI) and Stunkart Figure Scale was 66% ($r=0,660$; $p=0,000$). The concordance between BMI and Stunkart Figure scale gradually decreases from weak to morbidly obese. The mean scores obtained by the participants from the DEAQ showed that only external eating and restrictive eating behaviors of the participants are affected by the compliance with the scale ($p=0,000$; $p=0,000$ respectively). Concordance of body figure perception with actual BMI was good level in more than half of the participants and only extrinsic and restrictive eating behavior is affected by this concordance. Individuals need to make healthy evaluations about their bodies in terms of individual and public health to control weight gain.

Keywords : Body shape, eating behavior, obesity, perception.

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INTRODUCTION

Obesity is dramatically increasing throughout the world; one of the results of this increase is body dissatisfaction. Body dissatisfaction is defined as the negative perceptions of a person about their body because of the subjective evaluation of the body that mainly is conflicting with cultural norms (Mc Guinness & Taylor, 2016). Body dissatisfaction is a major health problem, especially in young adults and adolescents. Body image problems are mainly associated with several mental health problems: low self-esteem, depression, and eating disorders (Chen et al, 2010).

Body figure was defined as “the image of our body shape and size in our mind and our feelings about our body parts” (Slade, 1994). Body figure perceptions and especially dissatisfactions are often related to eating disorders. These disorders range from dieting to severe food restriction binge eating and purging (Mc Guinness & Taylor, 2016; Stice et al, 2011). Especially the society's pressure and media messages related to beauty standards result in body image dissatisfaction, which

is closely related to disordered eating habits (Mc Guinness & Taylor, 2016). In a study from Switzerland, it was shown that %71 of women wanted to be thinner although most of them were of normal weight (Allaz et al, 1998). In a study from Turkey, it was shown that %48, 6 of normal-weight participants defined themselves as overweight; %39, 0 of obese participants defined themselves as overweight (Hamurcu et al, 2015).

Eating behaviors are highly personal and related to many cofactors like gender, stress, social factors, and needs. It was postulated that there are three eating styles: restrained, emotional, and external (Van Strien et al, 1986). Whatever the style is, body perception and dissatisfaction are linked with this style. Restrained style is mainly associated with the promotion of weight loss and dietary reasons. Emotional style is related to emotional cues like anxiety, depression, or stress. External style is mainly a response to external food stimuli (Conner et al, 2004).

To our knowledge, this study is one of the limited studies examining the relationship between body image and eating styles in Turkey. Although many assessment tools are available to evaluate body image dissatisfaction, figural drawing scales have many advantages like high face validity, answered easily and quickly. Moreover, it was shown that figure rating and body dissatisfaction go along with weight changes (Thruby & Paxton, 2002). Therefore the assessment tool makes this study also more markable. The aim of this study was to explore in the present study the relationship between eating styles and body figure perceptions of Turkish adults.

METHODS

446 participants were included in this cross-sectional study. Participants were selected by randomization from family medicine polyclinics. Participants who were diagnosed with secondary obesity, psychiatric diseases, and/or psychiatric drug users were excluded. The data of this cross-sectional study were gathered by researchers by face-to-face interview technique. Stunkard Figure Scale and Dutch Eating Attitude Questionnaire were applied to all of the participants. Body Mass Index (BMI) was calculated with the formula of body weight (kg) / height (m)² using the body weight and height measurements specified by individuals. Written informed consents were taken from all the patients

The Stunkard Figure Scale is developed by Stunkard et al in 1983 (Stunkard et al, 1983). The main function of the scale is to enable the participants to evaluate their own body measurements. For this purpose, a scale paper with 9 figures for men and women is used. Figures go from thin to morbidly obese. Participants evaluate their own bodies on this scale and they were asked to choose the shape that most closely resembled their appearance.

The Dutch Eating Behaviors Questionnaire (DEBQ) consists of 33 items on this scale, which evaluates emotional, restrictive, and external eating styles. The first 10 items measure restrictive, the next 13 items measure emotional and the last 10 items measure external eating styles.

Answers are given as "1: Never", "5: Very often" in the 5-Likert type questionnaire. Turkish validity and reliability of the questionnaire were made by Bozan (Bozan et al, 2011).

Study data were analyzed with SPSS 21.0 package program. Descriptive statistics such as frequency, percentage, mean, median, minimum, maximum value, standard deviation, chi-square, and Kendal-Tau tests in bivariable analyzes were used in the study. The study protocol was approved by the local ethics committee (Ethics Committee Decision No: 2019/9852140/3).

RESULTS AND DISCUSSION

A total of 436 participants were included in the study. 73.6% (n = 321) of the participants were female and 26.4% (n = 115) were male. The mean age of the participants was 41.1 ± 12.2 years. Most of the participants were working (51.1%; n = 223). The mean BMI of the participants was 30.2 ± 7.4 kg/m² (Female: 30.5 ± 7.8 vs male: 29.4 ± 6.4 ; p=0,143). The majority of the participants were obese (35.6%; n = 155) and / or overweight (26.8%; n = 117). The sociodemographic characteristics of the participants were shown in Table 1.

The concordance between BMI and Stunkart Figure Scale was 66% ($r=0,660$; $p=0,000$). The concordance between BMI and Stunkart Figure scale gradually decreases from weak to morbidly obese. This deterioration in weak and normal individuals manifests itself as being overweight; and manifested as being weaker in overweight, obese, and morbidly obese patients ($p = 0.000$) (Table 2). When all the participants were considered, it was seen that 77.9% of those who did not match BMI and Stunkart Scale were women and 22.1% were men ($p = 0.040$).

Table 1. The sociodemographic characteristics of the participants

| | | %, (n=436) |
|--------------------------------|--------------|------------|
| Age (years) (mean±SD) | | 41,1±12,2 |
| Age (years) | 18-25 | 10,1 (44) |
| | 26-35 | 25,7 (112) |
| | 36-45 | 27,1 (118) |
| | 46-55 | 22,2 (97) |
| | ≥56 | 14,9 (65) |
| Gender | Male | 26,4 (115) |
| | Female | 73,6 (321) |
| Education (year) | ≤ 8 years | 40,5 (177) |
| | ≥ 9 years | 59,5 (259) |
| Income (Turkish Lira/month) | <2020 TL | 34,9 (152) |
| | 2020-4040 TL | 22,5 (98) |
| | ≥4041 TL | 26,4 (115) |

| | | |
|----------------|------------|------------|
| Working status | Employed | 51,1 (223) |
| | Unemployed | 33,5 (146) |
| | Retired | 10,6 (46) |
| | Student | 4,8 (21) |
| Marital status | Single | 22,9 (100) |
| | Married | 69,3 (302) |
| | Divorced | 3,7 (16) |
| | Other | 4,1 (18) |
| Smoking | Yes | 25,0 (109) |
| | No | 75,0 (327) |
| Alcohol | Yes | 10,8 (47) |
| | No | 89,2 (389) |

Table 2. The concordance of body figure perception with actual BMI of participants

| | | Body Figure perception * | | | | |
|-------------------|---|--------------------------|--------------|--------------|--------------|--------------|
| | | Weak | Normal | Overweight | Obese | Morbid obese |
| Body Mass Index** | Weak ($<18,5$ kg/m ²) | 77,8 (7) | 22,2 (2) | | | |
| | Normal (18,5-24,99 kg/m ²) | 2,7 (3) | 86,4 (95) | 10,9 (12) | | |
| | Overweight (25,0-29,99 kg/m ²) | 0,9 (1) | 43,6 (51) | 52,1 (61) | 3,4 (4) | |
| | Obese (30,0-39,99 kg/m ²) | | 14,2 (22) | 52,9 (82) | 28,4 (44) | 4,5 (7) |
| | Morbid obese ($\geq 40,0$ kg/m ²) | | | 22,2 (10) | 60,0 (27) | 17,8 (8) |

* Weak was defined as figure 1; normal was defined as figure 2,3,4; overweight was defined as figure 5,6; obese was defined as figure 7,8 and morbid obese was defined as figure 9 in Stuncard Figure Scale. ** Row percentages

The concordance between BMI and SFS was significantly decreased from underweight to morbid obesity. The concordance was 77.8% in weak participants. It was %86,4 in normal participants and dramatically decrease to %52,1 in overweight, %28,4 in obese, and %17,8 is morbidly obese participants. This is due to the decrease in body perception with increasing weight. Many studies have shown that body perception is greatly reduced in obese individuals (Albeeybe et al, 2018; Ata et al, 2014; Conti et al, 2013; Horwitz et al, 2006).When all the participants were

considered, it was seen that the majority of participants whose BMI was discordant with SFS were women (77.9% vs 22.1%). Similarly, it was reported in a study that women with normal or weak body mass index had more discordant compared to men; women had a tendency to see themselves as overweight or obese (Kuchler et al, 2003). In another study, only 39% of overweight men and 68% of women were perceived themselves to be overweight (Gross et al, 2005). Moreover, Rasheed et al showed that 36.8% of moderately obese women and 23.5% of extremely obese women were reported to see themselves at normal weight (Rasheed et al, 1998). In a study conducted in Brazil, compliance of the participant was found to be 67% like our study (Conti et al, 2013).

Studies show that the body perception of obese individuals is low. Moreover, if abdominal obesity and low socioeconomic level are accompanied by obesity, perception rates further decrease (Ata et al, 2014). People's perception of their body image as positive or negative, correct or incorrect is a factor in determining self-esteem. This situation varies according to the societies and time. For women, having a slim body and for men, having a muscular and sportive body structure is a "positive" perception. As a result of subjective evaluation, the individual tends to see himself as more "ideal". This may be the reason for the discordance between the scales and actual BMI, especially in the "obese" group (Pinar, 2002; Post et al, 2011).

The mean scores obtained by the participants from the DEBQ questionnaire according to the compatibility between scales are compiled in Table 3. Only external eating and restrictive eating behaviors of the participants are affected by the compliance with the scale ($p = 0,000$; $p = 0,000$ respectively). While the extrinsic eating scores of those who are in compliance with the scale are significantly higher, the mean scores of restrictive eating behavior are higher in those who are not compatible.

Table 3. The mean scores of the participants from the DEBQ questionnaire according to the concordance between SFS and actual BMI

| | Corcondant | Non concordant | p value* |
|---------------------|------------|----------------|----------|
| Total score | 81,2±19,7 | 78,9±18,0 | 0,202 |
| External eating | 28,0±8,3 | 23,4±8,3 | 0,000 |
| Emotional eating | 26,7±13,8 | 25,7±12,9 | 0,436 |
| Restirictive eating | 26,4±7,6 | 29,6±7,8 | 0,000 |

*Mann Whitney U test

Considering the BMI and SFS compliance of the participants, it was found that the restrictive eating score of the DEBQ eating scale was significantly lower in concordant participants and the external eating score was significantly higher in the discordant participants. Emotional eating has been shown to be associated with body weight. Ganley et al (1989) was reported that emotional eating behavior emerged with negative emotions such as anger, depression, distress,

anxiety, and loneliness. It was revealed that emotional eating is common in individuals with a high body mass index as well as individuals with a low body mass index (Yılmaz & Aksoy, 2018). We can explain this as follows; Individuals with low BMI tend towards emotional eating as a method of coping both from negative emotions accompanying negative body perception and negative emotions experienced in general life, as in individuals with high BMI (Puhl & Brownell, 2001).

Emotional eating has often been associated with low self-esteem, feelings of inadequacy, and eating disorders (Taylor et al, 1996; Waller & Matoba, 1999). It has also been shown that emotional eating is more common in individuals with low weight control and high body mass index (BMI) (Blair et al, 1990). It was shown that women with early-onset obesity were more likely to eat in response to negative affect and to eat due to emotional arousal rather than hunger (McCrone et al,2000).

According to the "restriction theory" in emotional eating behavior, the desire for food and the effort to resist this desire determine our eating behavior, and restriction is a cognitive effort against this desire. People with restrictive eating behaviors complain about eating too much and restrict their eating behavior to avoid being overweight. Those who do not have restrictive behavior do not have this fear, they do not worry about the consequences of food intake. According to the "index inhibition hypothesis" included in the same theory, the self-control of those who eat in a restricted manner may be temporarily impaired as a result of some events. These events, which are confirmed by research, are strong emotional states such as anxiety and depression, cognitions such as the perception of overeating, and alcohol consumption. The most interesting point in this theory is the view that the perception of overeating interferes with restrictive eating (Sevinçer & Konuk, 2

As a result of our study, it was found that concordance of body figure perception with actual BMI was a good level in more than half of the participants. It was seen that only extrinsic and restrictive eating behavior is affected by the concordance of body figure scale perception with actual BMI. Because weight gain is directly related to insufficient body perception, it is very important for individuals to make healthy evaluations about their bodies in terms of individual and public health. To obtain true body perception measurements of individuals should be made periodically, giving information about their current situation, evaluating their body perceptions, and taking precautions early on people with incorrect body image perception should take their place in preventive medicine as soon as possible.

Conflict of interest : The authors declared no conflict of interest

Authors' contribution:

Study concept and design: CO, HC, AMU, and EES; acquisition of data: AMU; analysis and interpretation of data: CO, AMU; drafting of the manuscript: CO, HC, AMU and EES critical revision of the manuscript: EES, HC, and CO; statistical analysis: CO; and study supervision: CO, EES.

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