Reliability, validity, and factorial structure of the Turkish version of the Weight Self-Stigma Questionnaire (Turkish WSSQ)

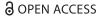Guzin M. Sevincer, Aysenur Kaya, Suleyman Bozkurt, Ercan Akin & Samet Kose

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Reliability, validity, and factorial structure of the Turkish version of the Weight Self-Stigma Questionnaire (Turkish WSSQ)

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ABSTRACT

OBJECTIVE: The Weight Self-Stigma Questionnaire (WSSQ) is a comprehensive instrument for the assessment of weight self-stigma in obesity and has been validated in several languages. The purpose of this study was to examine the psychometric properties and validate the Turkish version of the WSSQ in a sample of severely obese patients in Turkey.

METHODS: A cross-cultural adaptation of the WSSQ into Turkish was carried out, strictly according to recommended methods. The questionnaires including the Sociodemographic data form, the WSSQ, Beck Depression Inventory, Beck Anxiety Inventory, Eating Disorder Examination-Questionnaire, Rosenberg Self-esteem Scale, Dutch Eating Behavior Questionnaire Emotional Eating Subscale, and Impact of Weight on Quality of Life Questionnaire were completed by 120 consecutive severely obese patients (96 female, 24 male) in the outpatient clinics of the Department of Bariatric and Metabolic Surgery in a university setting in Turkey. All statistical analyses were performed by using SPSS version 23 for Windows.

RESULTS: The Cronbach's α (internal reliability) for the two subscales of the WSSQ-self-devaluation and fear of enacted stigma, and for the whole questionnaire (WSSQ Total) were 0.74, 0.81, and 0.83, respectively. The self-devaluation subscale, the enacted stigma subscale and the total WSSQ have a good internal consistency. Construct validity also appeared adequate as the WSSQ correlates with other measures largely in the manner we expected. Principal component factor analyses revealed a two-factor structure with an almost identical factor structure to that reported in the original study. Kaiser–Meyer–Olkin Measure of Sampling Adequacy was found to be 0.81 and Barlett's test of Sphericity χ^2 was found as 457.068 ($p < .01$).

CONCLUSIONS: Our results suggested that Turkish WSSQ was a valid and reliable tool with a robust factorial structure to use for measuring weight-related self-stigma in clinical population in Turkey.

Introduction

Obesity is a growing multidimensional problem, which is composited pervasively by stigmatization all around the world. Obese people are often exposed to stigmatization and discrimination due to their excess weight [1]. According to the common perception in the society, obese people are often perceived as lazy, lacking self-discipline and motivation, impulsive, and weak-willed [1]. Obesity is related to various poor health outcomes due to decreased physical and social functioning, and it is critical to understand these adverse outcomes in order to prevent them. Weight-related stigma has serious negative effects on mental health, social functioning, and physical health [2]. Stigmatized individuals are often devaluing themselves, feeling helplessness, falling into despair, fearing rejection, and losing their self-confidence [3]. Psychological consequences of weight stigma can be listed as a risk of

depression, body image dissatisfaction, losing coping strategies, low self-esteem, and so on [1]. Puhl and Heuer outlined a wide range of negative consequences of stigmatization in terms of individual and public health matters. On an individual level, perceived weight stigma might worsen unhealthy eating and activity behaviour, induce or enhance psychological problems, and lead to inadequate help-seeking behaviour and decreased health-care utilization for obesity-related health problems [4]

The stigma is also a multidimensional, multifaceted concept. *Enacted stigma* refers to directly experienced discrimination in social life such as employment, housing, interpersonal relationships, and reduced access to public services [5]. The internalized stigma or self-stigma is a form of stigma, which refers to self-devaluation and the fear of enacted stigma, which results from a person's identification with a stigmatized group of

people [5]. According to Durso and Latner, internalized weight bias is different from body image in that it is not a measure of one's internal feelings about one's body, but is a measure of belief in social stereotypes related to obesity and negative self-evaluations due to one's weight [6]. Although weight-related stigma internalization may relate to self-esteem, it is a more specific measure of an individual's beliefs about himself or herself that relate directly to stereotypes about weight and shape. Durso and Latner's results suggested that the higher the internalized weight-related stigma, the greater were a person's body image concern, depression, anxiety, stress, and self-esteem [6]. Bariatric surgery patients are a special stigmatizing group because they are both more likely to be stigmatized because of their higher body mass index (BMI) and because of the belief that they take the easy way out and they are viewed taking less responsibility for their loss of weight compared to obese individuals who lost weight by diet and exercise [6,7]. The internalized weight stigma was found to be higher in bariatric surgery patients compared to other obese and overweight subjects, and in their study, Lillis et al. showed that there is a relationship between BMI and internalized weight stigma [5]. Moreover, internalized weight stigma has been shown to be predictive of achieved weight loss after bariatric surgery [8]. According to Vartanian and Fardouly, stigma towards obesity surgery may interfere with obese individuals' motivation to adhere to the recommended behavioural changes after surgery and this may result in less successful weight loss and less health benefits associated with losing weight [9]. According to Raves et al., internalized stigma and general experiences of weight-related stigma would predict worse dietary adherence, even after the weight is lost. The qualitative data in this study showed that patients did not generally recognize this connection and health professionals explained it as poor patient compliance. [10]

The Weight Self-Stigma Questionnaire (WSSQ) is a 12-items Likert-type self-report measure of weight-related self-stigma in overweight and obese individuals. The WSSQ has two distinct subscales that measure weight-related self-devaluation and fear of enacted stigma; however, it functions well as a single measure. The validity and reliability of WSSQ in bariatric surgery patients have already been demonstrated in German [11]. Also, studies about the Chinese and French versions of the WSSQ have been published recently [12,13]. To the best of our knowledge, there is no valid psychometrics scale in Turkish to evaluate weight-related stigmatization.

The main objective of the present study was to establish the psychometric properties and factorial validity of the Turkish version of the WSSQ in bariatric surgery candidates and obtain normative data for future clinical and epidemiological studies conducted in clinical populations in Turkey.

Methods

Participants

The study was approved by the Istanbul University Cerrahpasa School of Medicine's Ethics Review Board. All of the patients gave written informed consents before participation. The WSSQ was translated by a Turkish eating disorders expert. The Turkish version was then back-translated by bilingual translator who was blind to the original items. The back-translated English version was checked with respects to its congruence with the original WSSQ. The final Turkish version of the WSSQ was approved and administered to the participants. Overall 120 consecutive severely obese patients (BMI at least 35 kg/m^2) older than 18 years were evaluated in the outpatient clinics of the Department of Bariatric and Metabolic Surgery in the Bezmialem Vakıf University Faculty of Medicine in Istanbul, Turkey. Exclusion criterion was educational status of illiteracy. Participants completed a packet of comprehensive questionnaires. Written informed consents were obtained from the participants following the study protocol being thoroughly explained.

Psychometric measures

Sociodemographic Data Form
This form includes demographic variables including age, gender, marital status, number of children, education, location, household members, occupation, and employment status. We also asked the number of glasses of raki (local hard liquor) and wine consumed per week in that form.

The WSSQ
The WSSQ is a 12-items Likert-type self-report measure of weight-related self-stigma in overweight and obese individuals. The WSSQ is a 12-item Likert-type measure of weight-related self-stigma. The WSSQ has two distinct subscales that measure weight-related self-devaluation and fear of enacted stigma; however, it functions well as a single measure. The WSSQ original version appeared to have good psychometrics and preliminary construct validity. Cronbach's α coefficients were good for both the full scale and two subscales [5]. Principal component analyses revealed a two-factor structure consistent with the theory. The German and French versions of the WSSQ also reported good psychometric properties [11,13]. WSSQ items are rated on a scale of 1 (completely disagree) to 5 (completely agree). Sum scores are calculated for the full scale and each subscale. Items 1–6 constitute the self-devaluation subscale, and items 7–

12 constitute the fear of enacted stigma subscale. There are no reverse-scored items [5].

Beck Depression Inventory

The Beck Depression Inventory (BDI) is a self-report scale composed of 21 items and measures somatic, emotional, cognitive, and impulsive symptoms of depression. Each item takes a point between 0 and 3. The point that can be taken from inventory varies between 0 and 63, and high points indicate a rise in the depressive mood. The scale aims not to diagnose but to convert the symptoms level to the objective numbers. Overall scores for all questions is evaluated like this: a score between 10 and 16 shows low depression symptom, a score between 17 and 29 is middle depressive symptom, and a score between 30 and 63 is severe depressive symptom [14]. The BDI has been adapted into Turkish, and the reliability and validity have been examined by Hisli [15].

Beck Anxiety Inventory

The Beck Anxiety Inventory (BAI) is a 21-item self-report questionnaire that lists symptoms of anxiety [16]. The respondent is asked to rate how much each symptom has bothered him/her in the past week. The symptoms are rated on a four-point scale, ranging from "not at all" (0) to "severely" (3). The instrument has excellent internal consistency measure Chronbach's alpha of 0.92 and high test–retest reliability ($r = 0.75$) [17]. Its reliability and validity in Turkish were shown by Ulusoy et al. [17].

The Eating Disorder Examination-Questionnaire

It is a self-report version consisting of 32-items that assess the core symptoms of eating disorders and a range of eating-related psychopathology. The Eating Disorder Examination-Questionnaire (EDE-Q) is based closely on the EDE interview [18]. The EDE-Q assesses the frequency of different forms of problematic overeating behaviours, including binge eating (labelled objective bulimic episodes) and different forms of inappropriate weight compensatory behaviours (e.g. purging methods). The EDE-Q has four subscales each consisting of 5–8 items: Dietary Restraint, Eating Concern, Weight Concern, and Shape Concern. The 23 items that comprise the four EDE-Q subscales are each rated using a seven-point forced-choice format (0–6), with higher scores reflecting either greater severity or frequency. The Turkish version was validated by Yücel et al. with an internal consistency measure Chronbach's alpha of 0.93 [19].

The Dutch Eating Behavior Questionnaire

The Dutch Eating Behavior Questionnaire (DEBQ) contains three subscales: emotional eating (DEBQ-E), restrained eating (DEBQ-R), and external eating (DEBQ-X). The DEBQ-E contains 13 items, 4 of which describe eating in response to diffuse emotions and 9 of which describe eating in response to clearly labelled emotions. All questions are rated on a 5-point Likert-type scale with "never" and "very often" as the anchors. The DEBQ is reliable in both obese and nonobese men and women; Cronbach's $\alpha = 0.94$ for emotional eating [20]. The DEBQ was adapted into Turkish by Bozan et al., with a sufficient factorial validity and the reliability. The internal consistency of Turkish DEBQ subscales has been found to be 0.90 for external eating, 0.92 for emotional eating, and 0.96 for restrained eating subscales [21].

Impact of weight on quality of life (IWQOL-Lite)

It is a validated 31-item, self-report measure of the obesity-specific quality of life. It is made up of scores of five domains/subscales: Physical Function (11 items), Self-esteem (7 items), Sexual life (4 items), Public Distress (5 items), and work (4 items). All items in IWQOL-Lite are rated from 5 (always true) to 1 (never true) [22]. Subscale scores are obtained by adding item scores and transformed to a range of 0–100. Higher scores indicate poor quality of life. For the purposes of this paper, scores of >90 indicated severe/marked impairment in quality of life.

Rosenberg Self-esteem Scale

The scale was developed in 1965 by Rosenberg [23]. It is a 10-item, Likert-type scale with items scored on a 4-point scale, ranging from "strongly agree" to "strongly disagree." Five of the items have positively worded statements and five have negatively worded ones. The items are then scored, and the final score is a valid and relatively sensitive indicator of one's self-esteem. The Rosenberg Self-esteem Scale (RSES) is considered a reliable and valid quantitative tool for self-esteem assessment. In our country, Cuhadaroglu has tested the reliability and validity of this scale, and the validity coefficient was demonstrated to be $r = 0.71$. The test–retest reliability method was adopted, and the reliability coefficient was demonstrated to be $r = 0.75$ [24].

Statistical analysis

The data analysis was performed using SPSS for Windows Version 23.0 (SPSS Inc., Chicago, IL, USA). To compare WSSQ mean scores of female and male participants, Independent Sample t-test was used. Cronbach's alpha coefficients were calculated for each item to identify the internal consistency of the Turkish WSSQ. Convergent and Discriminant validities were examined by correlation coefficients between the WSSQ scale scores and total BDI, total BAI, total EDE-Q, and total DEBQ-E scores. Based on the theoretical structure, exploratory factorial analyses were performed. Principal factor analyses with promax

rotations were used. A p value less than .05 was considered statistically significant.

Results

Sociodemographic characteristics of the sample

The mean age of the study participants was 37.65 ± 12.419 years ($X \pm SD$); 20% ($n = 24$) of participants were male and 80% ($n = 96$) were female. The majority of the participants in the study were married (52.5%) and 40% of participants were single. The mean BMI of the study participants was $46.05 \pm 6.052 \, kg/m^2$ ($X \pm SD$) with a range of 36.44–65.69 kg/m^2. Among the study participants, 5 (4.2%) had a very low, 18 (15%) had a low, 78 (65%) had a moderate, and 19 (15.8%) had a good socioeconomic status. 40.8% ($n = 49$) of participants had a job, the majority of participants (89.9%) were living with their families.

WSSQ and sociodemographic characteristics

Inter-correlations between age and self-devaluation ($p = .427$), fear of enacted stigma ($p = .100$), and total WSSQ ($p = -.142$) were not found to be significant. Furthermore, to compare mean scores of females and males, we used Independent sample t-test and compared the means of both groups. Although self-devaluation, fear of enacted stigma, and total WSSQ scores were higher in males compared to the females, these difference were not statistically significant.

The correlations between BMI scores and fear of enacted stigma ($r = 0.302$, $p < .01$ scores and total WSSQ scores ($r = 0.206$, $p < .05$) were statistically significant. However, BMI scores were not statistically correlated with the scores of self-devaluation subscale of the WSSQ ($r = 0.038$, $p = .679$).

There was a statistically significant and positive correlation between the number of glasses of raki and wine per week, and the self-devaluation subscale of WSSQ ($r = 0.692$, $p < .01$). Moreover, the weight was statistically significantly correlated with fear of enacted stigma ($r = 0.180$, $p < .05$). WSSQ subscales were also highly and statistically significantly correlated with WSSQ total scores. The correlation between the self-devaluation subscale and WSSQ total scores was found to be 0.838 ($p < .01$), and the correlation between the fear of enacted stigma subscale and the WSSQ total score was found to be 0.867 ($p < .01$). Furthermore, there was statistically significant and positive correlation between two subscales of the WSSQ ($r = 453$, $p < .01$). The results of bivariate correlations are presented in Table 1.

Comparability of the WSSQ scores in terms of the BMI

BMI scores were categorized into three groups as scores lower than 40 formed the first group and scores between 40 and 50 as the second group and lastly scores greater than 50 as a third group and WSSQ scores compared by using a one-way ANOVA test. The results revealed that there were statistically significant differences between the groups [$F(2, 117) = 4.901$, $p < .01$]. The results of one-way ANOVA test are presented in Table 2.

Internal consistency

The Cronbach's alpha coefficients for the self-devaluation and fear of enacted stigma were 0.74 and 0.81, respectively. For the whole scale, the Cronbach's alpha coefficient was found to be 0.83. The Cronbach's alpha coefficients of both subscales were higher than 0.60 and it was relatively consistent within each of the scales.

Convergent validity

Convergent and discriminant validities were examined by correlations between the WSSQ scale scores and BDI, BAI, EDE-Q, RSES, DEBQ-E, and Impact of Weight on Quality of Life Questionnaire (IWQOL) scores. A positive and statistically significant correlation was found between the Turkish WSSQ and BDI ($r = 0.509$, $p < .01$), BAI ($r = 0.332$, $p < .01$), EDE-Q ($r = 0.337$, $p < .01$), RSES ($r = 0.403$, $p < .01$), DEBQ-E ($r = 0.293$, $p < .01$), and four subscales of IWQOL; physical function ($r = 0.302$, $p < .01$), self-esteem ($r = 0.434$, $p < .01$), public distress ($r = 0.560$, $p < .01$), and work ($r = 0.284$, $p < .01$).

The correlations between the WSSQ subscales and IWQOL and EDE-Q subscales were also examined. There were statistically significant and positive

Table 1. Bivariate correlations.

	Total WSSQ	Self-devaluation	Fear of enacted stigma
Age	NS	NS	NS
BMI	0.206*	NS	0.302**
Number of glasses of raki and wine per week	NS	0.692**	NS
Weight	NS	NS	0.180*
Total WSSQ		838**	867**
Self-devaluation			0.453**
Fear of enacted stigma			

Notes: WSSQ: Weight Self-Stigma Questionnaire; BMI: body mass index; NS: not significant.
*Correlation is significant at the 0.05 level (two-tailed).
**Correlation is significant at the 0.01 level (two-tailed).

Table 2. The results of one-way ANOVA test.

	Sum of squares	df	Mean square	F	Sig.
Between groups	945.685	2	472.843	4.901	0.009
Within groups	11288.681	117	96.484		
Total	12234.367	119			

correlations between self-devaluation and self-esteem ($r = 0.315$, $r < 0.01$) and public distress ($r = 0.286$, $r < 0.01$) subscales of the IWQOL scale. There were statistically significant and positive correlations between self-devaluation and binge eating ($r = 0.190$, $p < .05$), eating concern ($r = 0.220$, $p < .05$), shape concern ($r = 0.230$, $p < .05$), and weight concern ($r = 0.226$, $p < .05$) subscales of EDE-Q. At the same time, there were statistically significant and positive correlations between fear of enacted stigma subscale of WSSQ and binge eating ($r = 0.259$, $p < .01$), eating concern ($r = 0.423$, $p < .01$), shape concern ($r = 0.303$, $p < .01$), and weight concern ($r = 0.307$, $p < .01$) subscales of EDE-Q and physical function ($r = 0.341$, $p < .01$), self-esteem ($r = 0.420$, $p < .01$), sexual life ($r = 0.215$, $p < .01$), public distress ($r = 0.653$, $p < .01$), and work ($r = 0.385$, $p < .01$) subscales of IWQOL. Correlations between the WSSQ and other scales are presented in Table 3.

Factor structure of the WSSQ

To examine the factorial structure validity of the WSSQ, exploratory factor analysis has been performed by various methods. Kaiser–Meyer–Olkin Measure of Sampling Adequacy (KMO) and Barlett's test of Sphericity were performed. In this study, KMO Sampling Adequacy was found to be 0. 81 and Barlett's test of Sphericity χ^2 was found to be 457.068 ($p < .01$).

The factor structure of the WSSQ scales was also explored with an exploratory factor analysis using a condition of Eigenvalues greater than 1 rule for retaining factors. The results indicated a three-factor solution did not provide a strong fit. On the other hand, a two-factor solution showed a better factor distribution as reported in the original scale study. The self-devaluation subscale loaded on factor 1 and the fear of enacted

stigma subscale loaded on factor 2 were as expected. These two factors accounted for 35.15% and 14.05% of the variance (49.2% cumulatively). The results of the two-factor structure of the WSSQ scales are presented in Table 4.

Discussion

The purpose of this study was to validate the Turkish version of the WSSQ in a sample of severely obese patients. This is the first study that has examined the Turkish version of the WSSQ in a sample of severely obese patients. Contrary to the studies like the one of Lillis et al. [5] which suggested that females experience higher levels of stigma overall, our results showed higher self-devaluation and fear of enacted stigma, as well as higher WSSQ total scores in the male participants, albeit the results were not statistically significant. This could be a result of cultural differences between the populations participating at the studies. On the other hand, taking into consideration that the males make up only 20% of the studied group could have also falsified the results, which make it necessary to perform other studies where males and females are represented at a nearly equal rate.

In addition, there was a statistically significant and positive correlation between the number of glasses of alcohol and wine consumed per week and the self-devaluation subscale of the WSSQ. When the significant relationship between self-devaluation, depression, and low self-esteem is evaluated altogether, the alcohol consumed could be considered as a coping mechanism. Therefore, alcohol use should be assessed specifically in the cases of high self-devaluation cases.

A comparison of the WSSQ scores of the BMI groups showed a significant statistical difference between the groups. There was also a statistically significant correlation between the BMI scores and fear of enacted stigma and the total WSSQ scores. This finding contradicted the findings of Hain et al. which did not find a significant correlation between WSSQ

Table 3. Correlation between WSSQ and other scales.

	WSSQ	Self-devaluation	Fear of enacted stigma
BDI	0.509**	0.357**	0.504**
BAI	0.332**	0.255**	0.310**
EDE-Q	0.337**	0.219*	0.350**
Restraint concern	NS	NS	NS
Binge eating	0.265**	0.190*	0.259**
Eating concern	0.382**	0.220*	423**
Shape concern	0.314**	0.230*	0.303**
Weight concern	0.315**	0.226*	0.307**
DEBQ-E	0.293**	0.313**	0.193*
RSES	0.403**	0.281**	0.401**
IWQOL			
Physical function	0.302**	NS	0.341**
Self-esteem	0.434**	0.315**	0.420**
Sexual life	NS	NS	0.215*
Public distress	0.560**	0.286**	0.653**
Work	0.284**	NS	0.385**

Notes: WSSQ: Weight Self-Stigma Questionnaire; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; EDE-Q: Eating Disorder Examination-Questionnaire; RSES: Rosenberg Self-esteem Scale; DEBQ-E: Dutch Eating Behaviour Questionnaire Emotional Eating Subscale; IWQOL: Impact of Weight on Quality of Life Questionnaire; NS: not significant.
*Correlation is significant at the 0.05 level (two-tailed).
**Correlation is significant at the 0.01 level (two-tailed).

Table 4. Factor structure of the WSSQ.

Eigenvalue		3.575	2.894
Cumulative variation		33.214	46.000
	Item	Factor 1	Factor 2
Self-devaluation	WSSQ1		0.452
	WSSQ2		0.621
	WSSQ3		0.656
	WSSQ4		0.777
	WSSQ5		0.810
	WSSQ6		0.534
Fear of enacted stigma	WSSQ7	0.558	
	WSSQ8	0.886	
	WSSQ9	0.724	
	WSSQ10	0.685	
	WSSQ11	0.503	
	WSSQ12	0.857	

Notes: WSSQ: Weight Self-Stigma Questionnaire. Values below 0.40 were not shown.

total score and BMI, while Lillis et al. also found a statistically significant difference among the BMI groups in terms of WSSQ scores [5,11]. However, the German WSSQ study showed significantly higher WSSQ scores for patients with BMI of 50 and above, compared to the two other groups. This was explained by the lower mean of BMI in Lillis et al. sample and the higher mean BMI in their own study [11]. Our sample also consisted of severely obese patients who applied for bariatric surgery in line with the study of Hain et al. Also the Canadian study among a sample of overweight/obese French-speaking adolescents showed no significant relationship between the WSSQ subscales and BMI [13]. On the other hand, the most recent Chinese study showed positive correlations between the WSSQ total and subscales and the BMI; hence, supporting our findings [12].

Cronbach's α (internal reliability) for self-devaluation, fear of enacted stigma, and total WSSQ were 0.74, 0.81, and 0.83, respectively. Both subscales and total WSSQ had a good internal consistency. In addition, WSSQ subscales were highly and statistically significantly correlated with WSSQ scores. The results of the self-devaluation in the study of original scale, as well as in the German and Chinese studies, were different from the results of the present study. As a general accepted rule, a Cronbach alpha value of the level of 0.70 and above is considered as "acceptable." It is also well known that greater number of items may artificially inflate the value alpha while a sample with a narrow range can artificially deflate it. Taking into consideration that the subscale score significantly correlates with the WSSQ total and fear of enacted stigma scores, and the low number of items used in the questionnaire, the low alpha value might be considered as artificially deflated. Nonetheless, the internal reliability of the self-devaluation, fear of enacted stigma subscales and total WSSQ account from acceptable to good.

In the original scale study of Lillis et al., the correlation of WSSQ with problematic eating behaviours was assessed and found to be unrelated to restrictive eating [5]. Our study also did not show statistically significant correlation coefficients between restraint eating and WSSQ scores. This may suggest that weight-related self-stigma is not strongly associated with the restrictive eating pattern.

A positive and statistically significant correlation was found between the WSSQ scores and depression, anxiety, problematic eating behaviour, emotional eating, self-esteem, and weight-related quality of life demonstrating the convergent and discriminant validities of the Turkish version of the WSSQ. Hain and colleagues claimed that WSSQ scores were statistically significantly correlated with weight-related quality of life and depression [11]. Baldofski et al. have shown that Weight Bias Internalization in bariatric surgery candidates increases their susceptibility to unusual eating behaviours (i.e. food addiction, emotional eating, and eating in the absence of hunger) through emotion dysregulation [25].

In this present study, we found a statistically significant relationship between WSSQ scores and psychopathology, problematic eating behaviours, and reduced quality of life. Palmeira et al. suggest that the self-devaluation dimension is more associated with psychopathology and problematic eating behaviours, while fear of enacted stigma is closely linked to diminished quality-of-life [26].

This study has certain limitations that must be considered. First, in our sample, we included patients with a BMI ≥ 35, severely obese bariatric surgery candidates. There is a need to cross-validate the present results using additional and larger samples of overweight or obese persons from general population. Second, the test–retest reliability of the Turkish WSSQ was not examined and should be tested in future research.

In general, the Turkish WSSQ total score was satisfactory for the usability of the scale with severely obese patients applied for bariatric surgery.

Our results suggest that Turkish WSSQ is a valid and reliable tool with a robust factorial structure to use for measuring weight-related self-stigma in the clinical population in Turkey. Psychometric properties of the Turkish WSSQ were comparable to the original version. The WSSQ may be valuable for assessing weight-related self-stigma among severely obese patients as it offers a quick evaluation.

Disclosure statement

No potential conflict of interest was reported by the authors.

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