RESEARCH ARTICLE

Validity and reliability of the Turkish version of the weight Self-stigma questionnaire

Zeynep Erdogan,[1] Mehmet Ali Kurcer,[2] Meltem Kurtuncu,[3] Safiye Catalcam[4]

Abstract

Objective: To test the validity and reliability of the Turkish version of the Weight Self-Stigma Questionnaire.

Methods: The methodological, descriptive study was conducted at the Bulent Ecevit University, Zonguldak, Turkey, from January to June, 2016, and comprised obese patients presenting at the Endocrinology and Diabetes polyclinic tied to the university. Data was collected using patient identification form and Weight Self-Stigma Questionnaire. SPSS 18 was used for statistical analysis.

Results: Of the 151 subjects, 97(64.2%) were female and 54(35.8%) were male. Two-factor structure explained 58% of the total variance in the Weight Self-Stigma Questionnaire. The Cronbach alpha internal consistency coefficient of the Turkish version was 0.876, indicating high internal consistency. The two factors found in the confirmatory factor analysis had Cronbach alpha values of 0.820 and 0.830.

Conclusion: The validity and reliability of Weight Self-Stigma Questionnaire was found to be high in Turkey.

Keywords: Obesity, Weight, Stigma, Nursing, Turkey. (JPMA 68: 1798; 2018)

Introduction

Obesity is a health problem presenting with excessive fat accumulation in the body seen both in Turkey and worldwide that can cause many diseases and has serious economic and social dimensions. The prevalence of obesity worldwide has doubled since 1980. By the year 2014, more than 1.9 billion people over the age of 18 years were overweight and 600 million people were obese.[1] According to the Ministry of Health, Directorate of First Step Health Services Obesity Prevention and Control Programme, the prevalence of obesity in Turkey is greater among women (41.5%) compared to men (21.2%).[2] According to the World Health Organisation (WHO), obesity is related to cardiovascular diseases, hypertension, diabetes, gall bladder diseases, cancer, endocrinologic and metabolic disorders, osteoarthritis, gout and pulmonary diseases as well as problems such as psychological problems, discrimination in social life, and stigma.[1] Studies have shown that obesity caused negative social and psychological situations apart from the health risks it carries.[3] Stigmatisation causes a person to lose favour to the point of being set apart from others, making them to be viewed as less than other people, and generally getting slandered. Stigma prevents patients from presenting for treatment and rehabilitation programmes and may thus cause them to be pushed further outside society.[4] Obese individuals are also exposed to prejudice and discrimination in academic and business environments and behaviour that surfaces as verbal abuse, humiliation, and physical abuse in many fields of life such as media and interpersonal relationships.[5] These cases cause psychological problems in obese individuals and harm interpersonal relationships.[6] Through studies regarding stigma in obese individuals, we can see that various scales and questionnaires, such as the Beliefs About Obese People Scale (BAOP), the Attitudes Towards Obese People Scale (ATOP), and the Rosenberg Self Respect Scale, designed not for obese individuals but for focussing on the attitude and beliefs of others regarding obese people, are used with no tool directly measuring stigma in obese individuals.[7-9] The Weight Self-Stigma Questionnaire (WSSQ) was developed in 2010 to determine the multi-dimensional components of stigma in obese individuals.[10] The current study was planned to test the validity and reliability of the WSSQ in the Turkish population.

Subjects and Methods

The methodological, descriptive study was conducted at the Bulent Ecevit University, Zonguldak, Turkey, from January to June, 2016, and comprised obese patients presenting at the Endocrinology and Diabetes polyclinic tied to the university. An average of 5 obese patients presented at the polyclinic per day, and one of them was selected per day through simple

[1]Ahmet Erdogan Vocational School of Health Services, [2]Faculty of Medicine, Public Health Department, [3]Faculty of Health Science, Nursing Department, [4]Endocrinology and Diabetes Nurse, the Endocrinology and Metabolism Diseases Department, Bulent Ecevit University, Zonguldak, Turkey.

Correspondence: Zeynep Erdogan. Email: zeynerdogan@hotmail.com

randomisation method, forming the study sample. Patients aged 18 years and above, diagnosed with obesity, who had a body mass index (BMI) of 30kg/m^2 or more, had no mental or communication related problems, and volunteered to participate in the study were included. Measurements for height and weight were taken by the diabetes nurse and BMIs were calculated using WHO classification.[11]

Permission was taken from the institutional ethics board and informed written consent was taken from the patients. The study was conducted in line with the Helsinki Declaration.[12]

Data was collected using a 10-item patient identification form that questioned the socio-demographic and disease-related characteristics of the patients. The WSSQ was also used which consists of 12 items. The scale measures whether obese individuals stigmatise themselves because of their weight. The scale was structured as a 6-way likert-type questionnaire (1- I certainly don't agree, 2- I don't agree, 3- I partially don't agree, 4- I partially agree, 5- I agree, 6- I certainly don't agree), and initially it was developed as a 22-item scale from a pool of 300 items. The developers determined 2 or 3 components that explained 56.33% of the post-varimax rotation variance of the scale via exploratory principal components analysis. Then, they decreased the number of items to 12 in the final version and found that the scale exhibited an internal consistency as high as Cronbach $\alpha = 0.878$. This 12-item scale exhibited a two-factor structure: 'self devaluation' and 'fear of enactment'.[10]

The language equivalency and cultural adaptation of the WSSQ was based on the translation-back-translation method. The translation of the scale into Turkish from its original English version was performed by 7 experts. Then, it was back-translated into English by a translator who knew both languages very well. The evaluation of the translations was performed by an independent expert, and a common text was developed. The last form of the scale was sent to the individual who was in charge of the communications of the original study.[10] Since no corrections came from him, the scale was applied in its final form to the study subjects. The scale, which could be seen to be easily understood by patients, was decided to be appropriate for Turkish obese patients culturally and with regard to language, and thus the Turkish WSSQ was formed.

Data was analysed using SPSS 18. Compliance of data with normal distribution was tested through Kolmogorov Smirnov test. Continuous variables that didn't comply with normal distribution were shown as median ± standard deviation (SD), while those that did were shown as mean ± standard deviation. The appropriateness of the sample size was shown through the Kaiser-Meyer-Olkin test (KMO). Measure of sampling adequacy was found to be 0.840, showing that the sample was adequate for analysis.[14] Factor analysis was used to show structure validity. The basic component analysis of the scale was performed. The three-factor structure of the scale was uncovered for the Promax rotation. A principal component analysis with varimax rotation was conducted.[13] In the reliability analyses of the scale applied to factors 1, 2, and 3 of the scale, Cronbach alpha values were calculated. Validity and reliability analyses were used on the basis of data obtained from the scale.

Results

Of the 151 subjects, 97(64.2%) were female and 54(35.8%) were male. The overall mean age was 41.4±7.41 years

Table-1: Weight Self-Stigma Questionnaire Items, Item-Total Correlations, and Factor Loadings.

Sub-dimension	Item	Item- Total Correlation	EFA 3 Factor loadings			EFA 2 Factor loadings		CFA Factor Loadings	Cronbach's Alpha
			Factor1	Factor2	Factor3	Factor1	Factor2		
Self devaluation	1. I'll always go back to being overweight.	0,367	0,221	0,096	0,449	0,341	0,282	0,522	0,820
	2. I caused my weight problems.	0,415	0,813	0,073	0,014	0,031	0,798	0,569	
	3.I feel guilty because of my weight problems	0,698	0,431	0,568	0,343	0,640	0,440	0,726	
	4. I became overweight because I'm a weak person.	0,684	0,677	0,277	0,375	0,420	0,707	0,831	
	5. I would never have any problems with weight if I were stronger.	0,682	0,797	0,197	0,362	0,343	0,829	0,912	
	6. I don't have enough self-control to maintain a healthy weight.	0,502	0,865	0,104	0,086	0,098	0,859	0,747	
Fear of participation	7. I feel insecure about others' opinions of me.	0,618	0,145	0,870	0,153	0,775	0,108	0,649	0,833
	8.People discriminate against me because I've had weight problems.	0,657	0,090	0,875	0,250	0,840	0,069	0,754	
	9. It's difficult for people who haven't had weight problems to relate to me.	0,519	0,116	0,176	0,753	0,594	0,221	0,890	
	10. Others will think I lack self-control because of my weight problems.	0,558	0,042	0,188	0,894	0,693	0,168	0,900	
	11. People think that I am to blame for my weight problems.	0,589	0,179	0,200	0,801	0,640	0,288	0,836	
	12.Others are ashamed to be around me because of my weight.	0,592	0,142	0,845	0,139	0,747	0,104	0,540	

Table-2: Mean WSSI Scores Based on Demographic and Medical Characteristics.

		n (%)	Weight Self-Stigma Questionnaire Total				Self Devaluation				Fear of Participation			
			Ort	Ss	F / t*	p	Ort	Ss	F / t*	p	Ort	Ss	F / t*	p
Gender	Female	97 (%64,2)	42,2	8,3	1,467	0,144	21,9	4,4	1,100	0,273	20,4	4,8	1,486	0,139
	Male	54 (%35,8)	40,2	7,0			21,1	3,8			19,2	4,5		
Age Group	<29	23 (%15,2)	38,5	8,4	1,667	0,177	20,4	4,5	1,097	0,353	18,1	5,0	1,684	0,173
	30-39	27 (%17,9)	40,7	8,6			21,0	4,2			19,7	5,0		
	40-49	62 (%41,1)	42,1	7,8			22,0	4,1			20,1	4,6		
	>50	39 (%25,8)	42,8	7,1			21,9	4,1			20,8	4,4		
Level of income	Poor	14 (%9,3)	42,5	9,8	0,124	0,883	22,1	5,1	1,655	0,195	20,4	5,2	1,486	0,230
	Moderate	101 (%66,9)	41,4	7,8			21,1	4,0			20,3	4,7		
	Good	36 (%23,8)	41,3	7,6			22,6	4,1			18,8	4,6		
Education	Elementary School	44 (%29,1)	44,6	7,5	4,554	0,004	22,5	4,2	1,053	0,371	22,1	4,3	7,786	<0,0001
	Secondary School	25 (%16,6)	42,4	7,1			21,4	4,1			21,0	3,7		
	High School	50 (%33,1)	40,2	7,5			21,4	3,7			18,8	4,8		
	College	32 (%21,2)	38,6	8,5			20,8	4,9			17,8	4,5		
Chronic Disease	Yes	68 (%45)	42,1	7,6	0,904	0,368	21,4	4,4	-0,397	0,692	20,7	4,3	1,889	0,061
	No	83 (%55)	41,0	8,1			21,7	4,0			19,3	4,9		
Medical Treatment	Yes	85 (%56,3)	41,7	8,0	0,273	0,785	21,6	4,4	0,040	0,968	20,1	4,6	0,423	0,673
	No	66 (%43,7)	41,3	7,9			21,6	3,9			19,7	4,9		
Regulary Exercise	Yes	52 (%34,4)	40,4	8,1	-1,239	0,217	21,5	4,6	-0,243	0,808	18,9	4,8	-1,877	0,062
	No	99 (%65,6)	42,1	7,8			21,6	4,0			20,4	4,6		
Bmi Class	Obese Class I (30.00 - 34.99)	31 (%20,5)	36,6	8,7	8,910	<0,0001	19,4	4,3	6,137	0,003	17,2	5,0	7,611	0,001
	Obese Class II (35.00 - 39.99)	55 (%36,4)	41,9	7,5			21,7	4,2			20,2	4,6		
	Obese Class III (=>40.00)	65 (%43)	43,5	7,0			22,5	3,8			21,0	4,2		

* T test was used for comparing two groups; One Way Anova Test was used for comparing multiple groups.
WSSI: Weight Self-Stigma Item.

(range: 19-63 years). Of all the obese individuals, 44(29%) were elementary school graduates, 60(40%) were housewives, 111(73.5%) were married, and 101(67%) had a medium level of income. Besides, 68(45%) subjects had at least one chronic disease. The mean BMI of the subjects was 39.9±6.9 (range: 30-73). Besides, 85(65.3%) individuals received medicine treatment, while 52(34.4%) regularly exercised.

Initial exploratory factor analysis resulted in three factors with eigen values larger than 1, which explained 69.63% of the total variance. Eigen values for 'fear of participation' was 5.276, for 'self-devaluation' 1,684, and for 'social exclusion' 1.397.

When the factor structure of the scale was limited to two factors as in the original study,[10] it was found that the two-factor structure explained 58% of the total variance. Examination of the factor structure showed that Items 1 and 3 were not included in the expected factor and that they had high factor loadings on the factor named 'fear'. However, these items included statements on low self-value rather than fear. It was concluded that the data fits the factor analysis results, but the three-factor and two-factor structures were not in line with theory and literature.[10] When the factor structure was limited to a single factor, it explained 44% of the total variance which was deemed adequate for a single factor. In this context, the factor structure pf the original study[10] was maintained and confirmatory factor analysis (CFA) was conducted in order to test whether data obtained from the Turkish sample fitted the original factor structure. WSSQ items, item-total correlations, and factor loadings were all noted (Table-1). In CFA, the generalised least square method was used for estimation. CFA goodness of fit indices were also worked out (Figure).

Cronbach qlpha internal consistency coefficient of the Turkish version was 0.876, indicating high internal consistency. The two factors found in the CFA had Cronbach alpha values of 0.820 and 0.830, respectively. The item total correlation coefficients of the scale items varied between 0.36 and 0.70.

Mean WSSQ total score was 41.5±7.91. Mean self devaluation subscale score was 21.6±4.18 and mean fear of participation subscale score was 19.9±4.71. Total and subscale scores did not show significant differences according to gender, age, level of income, presence of a

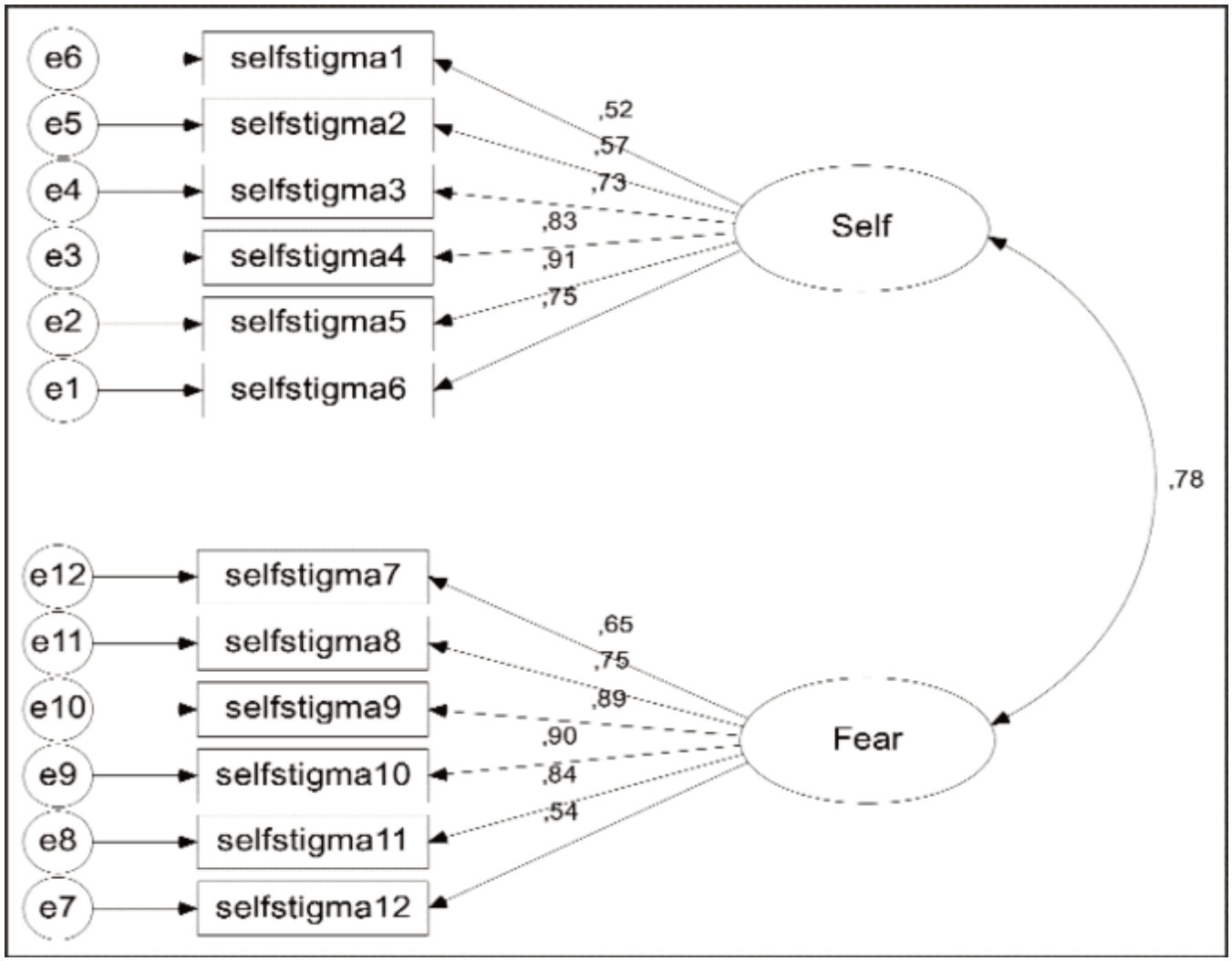

Figure: Confirmatory factor analysis.

chronic disease, drug treatment, and regular exercise habits ($p > 0.05$). People with low educational status had higher weight self stigma and fear of participation ($p < 0.05$). Total and subscale scores increased with the level of obesity ($p < 0.05$) (Table-2).

Discussion

This study involved Turkish adaptation of the WSSQ, which is a 12-item likert-type scale for the evaluation of weight self-stigmatisation. This is the first scale to be adapted to Turkish which was designed to measure stigmatising oneself for being overweight. In order to make measurements using the Turkish WSSQ, first the appropriateness of this tool for measurement was tested.[15] Additionally, whether the equivalent scale items in the original language exhibited similar meanings and structures in the Turkish culture or not was examined. After it was seen that the WSSQ scale adapted to Turkish was appropriate for the Turkish culture, the translation phase for the WSSQ into Turkish was initiated. At this phase, the scale was translated into Turkish, and was then back-translated into English.[15] The translated scale was then adapted to Turkish, was re-evaluated, and was given its final form.

When the WSSQ was administered to the Turkish sample, it was seen that similar responses to scale items were given, which indicated functional equivalency. In addition to showing cultural and functional equivalency in the Turkish culture, the WSSQ also showed the ability to present similar meanings, structures, and functions in the Turkish culture, discriminate the differences specific to the Turkish culture, exhibit the universal characteristics

between the cultures, and show which characteristics were specific to the Turkish culture.[15,16] By moving from the prediction that the WSSQ would be appropriate for the Turkish obese population, language equivalency, cultural adaptation, and validity and reliability studies were conducted. The results were found to be satisfactory beyond expectation.

Reliability is one of the main characteristics that a scale should have, and the results of the measurements of the reliability of this scale showed that this measurement tool gave stable, similar results in measurements on different group and individuals under different conditions, thus being consistent. This, in turn, showed that the measurement tool was reliable.[16,17] Reliability was calculated using various statistical methods and was termed using a correlation coefficient between 0 and 1. While evaluating the reliability coefficient of the scale, the value of the coefficient was desired to be as high as possible. As the value closed in on +1, reliability was considered to be high.[16-18]

In the internal consistency evaluation of the scale, Cronbach alpha, which is the most commonly used reliability coefficient, was calculated. Since the Cronbach alpha coefficient calculates statistical basis by taking all of the items into consideration, it is the coefficient that reflects the general reliability structure of the scale best compared to other scales.[19] In the internal consistency analysis of the WSSQ, item total correlations were found to vary between 0.36 and 0.69, with the Cronbach alpha reliability coefficient being 0.87. In a study, the internal consistency of the WSSQ was examined, and it was found that the item total correlations ranged between 0.47 and 0.78, with the Cronbach alpha reliability coefficient being 0.87.[10] The correlation values and Cronbach alpha reliability coefficient found in this study were consistent with the results of the earlier study.[10]

In the evaluation of validity, various methods including content, face, criterion, and construct validity were tested.[20] When the factor structure of the original scale was examined, it was found to have a two-factor structure, namely 'self devaluation' and 'fear of enactment'. When adapted to the Turkish psycholinguistic structure, the scale can be seen to have a structure similar to the original scale. The original internal consistency of the subscales was 0.869 and 0.812. In the current study, the internal consistency coefficients of the subscales were 0.820 and 0.830. It was seen that the data supported factor analysis, and that the factor structure obtained as a result of the analyses was in compliance with theory and the literature.[10] A structure similar to the original structure was obtained, and the structure obtained with the CFA was suggested for use. Items 1 to 6 were labelled as self devaluation items, while items 7 through 12 were included in the fear of participation factor. These findings showed that the Turkish version of WSSQ appropriately and completely measured the characteristics to be measured without mixing it with any other characteristic, and that the measurement tool is appropriate for its purpose.[20,21] However, the first version of a scale to be valid is the scale also being reliable. WSSQ is a measurement tool with high validity and reliability.

Conclusions

The Turkish version of WSSQ was highly valid and reliable. For this reason, the scale is suggested for use in studies to be conducted with obese patients in the Turkish population. Thus, a contribution would be made to the treatment and rehabilitation of the stigmatised obese individuals in society.

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