Testing the Psychometric Properties of the Turkish Version of the Stigma of Suicide Scale (SOSS) with a Sample of University Students

Üniversite Öğrencilerinde İntihara Yönelik Damgalama Ölçeği (İYDÖ)'nin Türkçe Formunun Geçerlik ve Güvenirlik Çalışması

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SUMMARY

Objectives: Since stigmatizing people who attempt suicide can have very serious consequences, learning about this form of stigmatization is important. The aim of this study is to examine the reliability and validity of the Turkish version of the Stigma of Suicide Scale (SOSS) with a sample of university students.

Methods: The study used a methodological design. Its sample included 1,100 university students. Validity and reliability analyses were done after verifying the scale's linguistic equivalence. The scale's applicability and understandability was pilot tested. Test-retest reliability was tested with 100 students. After the linguistic equivalence of the scale was assured, its relevance and reliability analyses were conducted.

Results: The intra-class correlation coefficient of the Turkish version of the SOSS was 0.93 (F=15.426, p<0.01), indicating good test-retest reliability (r=0.76-0.87, p<0.001). Exploratory factor analysis found that the SOSS has three factors (stigma, isolation/depression and glorification/normalization). Its three-factor structure was confirmed by confirmatory factor analysis. Of the 58 items assessed for inclusion on the scale, 3 items (a burden, punishing others and weak) did not load above 0.33 on any factor and were excluded from its final version, leaving 55 items. Its Cronbach's alpha coefficient was 0.90, and factor loading was between 0.36 and 0.69. Analyses showed that each factor structure of the Turkish version of the SOSS had high internal consistency.

Conclusion: The current study found that the Turkish version of the SOSS is a relevant and reliable scale for assessing the stigmatizing attitudes towards people who committed suicide. The SOSS is the first attitudes scale designed to directly measure the stigma of suicide in the community.

Keywords: Psychometric properties; Stigma of Suicide Scale; university students.

ÖZET

Amaç: Bu çalışmada İntihara Yönelik Damgalama Ölçeği'nin (İYDÖ) Türkçe'ye uyarlanması, geçerlik ve güvenirlik çalışmasının yapılması amaçlanmıştır.

Gereç ve Yöntem: Araştırma metodolojik olarak planlanmış ve üniversite öğrencileri (n=1100) üzerinde gerçekleştirilmiştir. İlk aşamada ölçeğin dil ve kapsam geçerliği çalışması yapıldı. Tüm örneklem grubuna uygulanmadan önce, ölçeğin uygulanabilirlik ve anlaşılabilirliğini pilot çalışmayla (n=30) sınanmıştır. Test-tekrar test güvenirliği 100 kişi üzerinde gerçekleştirilmiştir. Ölçeğin dilsel eşdeğerliği ve kapsam geçerliği sağlandıktan sonra geçerlik ve güvenirlik analizleri gerçekleştirilmiştir.

Bulgular: İntihara Yönelik Damgalama Ölçeği (İYDÖ) Türkçe formu İntraclass korelasyon katsayısı değeri 0,93 bulundu (F=15.426, p<0.01). Test-tekrar test güvenirliği iyi düzeyde (r=0.76–0.87, p<0.001) (n=100) bulunmuştur. Açımlayıcı faktör analizinde İYDÖ'nün üç faktörden oluştuğu (Damgalama, İzolasyon/Depresyon ve Yüceleştirme/Normalleştirme alt boyutları) sahip olduğu (n=1100) belirlendi. Doğrulayıcı Faktör Analizi ile bu üç faktörlü yapı doğrulanmıştır. Ölçeğin Cronbach alfa katsayısı 0.90; faktör yükleri 0.38–0.77 saptanmıştır. 58 maddeli ölçekteki 3 maddenin (bir yüktür, başkalarını cezalandırıyordur, zayıftır) faktör yükleri 0.332'nin altında olduğundan dolayo ölçekten çıkarılmıştır. Analizler sonucunda İYDÖ'nün Türkçe formunun yüksek iç tutarlılığa sahip olduğu gösterilmiştir.

Sonuç: İYDÖ'nün Türkçe formu toplumun intihar olgusuna yönelik damgalama tutumlarının değerlendirilmesi ve intihara yönelik damgalama tutumlarını azaltmaya yönelik mesajlar içeren psiko-eğitim çalışmaları öncesi ve sonrası kullanılabileceği düşünülen geçerli ve güvenilir bir araçtır.

Anahtar sözcükler: Psikometrik özellikler; İntihara Yönelik Damgalama Ölçeği, üniversite öğrencileri.

Introduction

Suicide is a major public health issue with a high burden.

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Stigmatization on people attempting suicide may have very serious consequences, so that determining stigmatization is crucial. Suicide arises due to interaction of many complex physical, social, cultural and environmental factors. For that reason, it is vital to take preventive measures especially for risk groups such people with chronic diseases or mental problems or people in risk groups (such as adolescents, youth groups).[1] Although death rates due to suicide are reported to be lower in Turkey and many European countries, the suicide attempts continue to be one of major problems worldwide.[2–4] It is well known that rates of suicide attempts or thoughts of suicide attempts is common among the young people especially for between 15–24 age group.[5–10] Research about the suicide show

that, university students are more tend for suicide with regard to age. Some researches carried out on student population in Turkey and abroad report the similar results.[11–14]

Suicide has important affects not only on individual but also on family, group of friends and society.[1] People with or without any mental diseases attempting to suicide are exposed to negative behaviors of society and stigmatized by the society. Both individuals who attempt to suicide or their families feel ashamed.[15,16] Stigmatizing attitudes towards suicide is common and affects the person who attempted to suicide, relatives of the person or the ones who had suicidal thoughts.[16] Negative behaviors and stigmatizing attitudes towards suicide or people with mental problems displayed by society interfere with the help seeking behaviors.[17]

Most of the people have suicidal thoughts or have high tendency for suicide. Although people tend not to express clearly their suicidal thoughts because they are incline to believe they would be stigmatized by society. A suicide attempts or thoughts need to be considered as a clear indication for high risk of suicide. Unfortunately, the society might seriously judge or stigmatize people who survive suicide attempts as people who want to attract attention.[18] There are also misconceptions and understandings about suicidal attempts or person who attempted suicide. Society also may consider the person who attempted suicide as a weak or selfish person.[19]

Helping someone, with suicidal thoughts, starts with recognizing the warning signs and increasing awareness for prevention of suicide. Suicide risk assessment and recognizing possible the signs of suicide and cry for help will develop timely prevention measures. People who show symptoms of depression and suicidal ideation and those who ask for professional medical advice at the time of crisis or depression should not be ignored. Forty five percent of the people who attempted suicide reported that they contacted with health experts for help during previous month before suicidal attempt and 32% of them applied to health organizations in order to get help from the mental health services in the period of last one year.[20,21] Family and friends may not be aware of or not notice the seriousness of suicide attempts and not know how to support someone after a suicide attempt. It is vital to know for saving lives that previous suicide attempt is considered as one of the biggest risk factors for suicide and to conduct accurate assessment followed by appropriate support and treatment.[21–23] Exploring stigmatizing attitudes towards suicide or people without mental problems using validated and reliable assessment tools will help developing strategies for prevention of suicide attempts and deaths.

The available scales for measuring the stigmatizing attitudes against suicide are mostly specific for people with mental problems. Similarly in Turkey, there is not any validated or reliable scales for measuring the stigmatizing attitudes of society against people attempted suicide with no history of mental disorders. Stigma of Suicide Scale (SOSS) is an easily applicable and a validated tool for assessment of stigmatizing attitudes towards suicide or people with history of suicidal attempts. Therefore, this study aimed to examine the reliability and validity of Stigma of Suicide Scale (SOSS) in a Turkish sample.

Materials and Method

Participants

Population of research composed of undergraduate students studying at one state university. The inclusion criteria were as follows: volunteering to participate into the study and giving informed consent, university students at undergraduate level, being at least the age of 18 or older.

In order to obtain reliable and precise results of reliability and factor analyses, it is important to conduct the study on sufficient and larger samples. Suggested minimum number for sample size include from 5–10 times the number of scale items.[24] In line with recommendation, for sample size for validity and reliability study, the study sample size was calculated as 580 subjects (58 scale items x 10=580). Sample size was set as 1,100 university students.

Number of students that is included into the sample from faculties and vocational schools was determined using stratified sampling method. Test-retest assessments were conducted at least 30 students. Test-retest reliability was conducted on 100 students.

Design

The research design for this study is a methodological research. Validity and reliability analyses were done following linguistic equivalence. Applicability and understandability of the scale was tested in a pilot study. Exploratory and confirmatory factor analyses were performed on data obtained from 1,100 university students.

Ethics

The study was approved by ethical committee (2015/29-240). A written approval was received from the university administration. Permission was obtained from the researcher who developed the scale in order to do the validity and reliability analysis of the Turkish version SOSS. Students gave informed consents. The aim of the research was explained to the students and participants were assured to keep data confidential.

Data Collection Tools

The participants were asked to fill out the Sociodemographic Questionnaire and the Stigma of Suicide Scale (SOSS). The participants were asked not to write any identi-

fiable information on the forms. Filling out the data collection tools took 10-15 minutes.

The Sociodemographic Questionnaire includes questions about the students' age, gender, faculty and year of study.

The Stigma of Suicide Scale (SOSS) was developed by Batterham et al. (2013) to assess the stigmatizing attitudes towards suicide or people with a history of suicide attempts. It is a five-point scale (strongly disagree=1, disagree=2, neutral=3, agree=4, strongly agree=5) that rates a number of single or two word item descriptions of suicides. The scale includes 58 items, some of which are positive statements and some of which are negative. The scale includes three subscales (stigma subscale [e.g., weak, punishing others, useless], isolation/depression subscale [e.g., disconnected, alienated), and glorification/normalization subscale [e.g., noble, understandable]).[17] Batterham et al. reported that the three subscales of the original SOSS showed high internal consistency with Cronbach's alpha values of 0.95, 0.90 and 0.88, respectively, and 0.93 for overall scale. The three factors accounted for 46% of total variance, and all items loaded at least 0.45 on a single factor. The three subscales were scored as the mean response to the items loading on each subscale.[17]

Psycho-linguistics and Psychometric Properties

Bilingual Equivalence of the Turkish Version of the SOSS: The translation of the SOSS was done by five translators who are nursing professor. Without seeing the original scale, the Turkish version was then back-translated by a professional English translator.

The back-translated English version of the scale was compared with the original version of the SOSS for congruence. Each statement was checked by a specialist in Turkish language and literature. The English and the final version of Turkish scales were pilot tested with 35 advanced English students at the School of Foreign Languages at a two-week interval (first the English scale, then its Turkish version). Their responses to both scales were analyzed using the paired-samples t-test and Pearson's correlation coefficient (r). Pearson's correlation analysis p values of less than 0.05 are expected to be statistically significant. Also, the matched p values of Paired samples t-test and Pearson's correlation analysis are expected to be higher than 0.05 which was considered statistically significant.

The Content Validity of the Turkish Version of the SOSS: The items on the Turkish version of the SOSS were evaluated by 14 academic experts in psychiatric nursing. The content validity of the scale was determined using the Davis Technique. [25] Each expert was asked to rate each item on a 4-point scale (1=not relevant, 2=somewhat relevant, 3=quite relevant, 4=highly relevant. The average content validity index (CVI) coefficient of 0.80 is considered the lowest acceptable coefficient.[25]

Applicability of the Turkish Version of the SOSS (Pilot Study): A pilot study was performed with a group of 30 students. The reliability of the ratings was tested using the intraclass correlation coefficient (ICC). Intraclass correlation coefficients between 0.70 and 0.79 are interpreted as strong agreement, and ≥0.80 is interpreted as almost perfect agreement.

Internal Consistency and Construct Validity: Explanatory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to test and evaluate the construct validity of the scale. The suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin test of sampling (KMO) and Bartlett's sphericity test.

The internal consistency of the Turkish version of the SOSS was examined using test-retest coefficients, Cronbach's alpha coefficients and item-total scale correlation coefficients. The test-retest reliability of the Turkish version of the SOSS was evaluated at 15-day intervals (n=100). Cronbach's alpha (α) coefficient was calculated for internal consistency reliability.

Pearson's correlation and intraclass correlation coefficients were calculated. The item-total correlations of scale were calculated using Pearson's correlation analysis.

Statistical Analyses

Statistical analysis of the data was done using the Number Cruncher Statistical System (NCSS) 2007 and Power Analysis and Sample Size (PASS) 2008 statistical software (NCSS LLC, Kaysville, Utah, USA). The means, frequencies and percentages (descriptive statistics) were calculated for individual and scale scores. The Kaiser-Meyer-Olkin coefficient (KMO) and Bartlett's sphericity test were used to verify the suitability of the data for explanatory factor analysis (EFA) and confirmatory factor analysis (CFA).[26–27] The authors measured inter-rater and test-retest reliability using Cronbach's alpha coefficient, Pearson's correlation analysis and intraclass correlation coefficients. P values of less than 0.05 were considered statistically significant.

Results

Sample Characteristics

Nearly sixty percent of the sample (58.6%, n=645) were female students. The students' mean age was 20.52±1.84 years. The largest percentage of them were in the Faculty of Education (36.4%) and in their second year of study (31.8%) (Table1).

Results for the Bilingual Equivalence of the Turkish Version of the SOSS

Pearson's correlation analysis found positive relationships between subscales and total scare scores on the Turkish

Table 1. The Turkish Students' Sociodemographic Characteristics (n=1.100)

	n	%
Age		
Mean±SD	20.52±1.84	
Minimum-maximum	18—36	
Gender		
Female	645	58.6
Male	455	41.4
School/faculty		
Faculty of art and sciences science	120	10.9
Faculty of education	400	36.4
Faculty forestry	64	5.8
Faculty of economics and administrative sciences	130	11.8
Faculty of communication	70	6.4
Faculty of theology	83	7.5
Faculty of engineering and architecture	33	3.0
School of physical education and sports	67	6.1
Faculty of tourism	53	4.8
School of health	80	7.3
Class		
1st class	283	25.7
2nd class	350	31.8
3rd class	282	25.6
4th class	185	16.8

and English forms of the SOSS (r=0.95 for stigma subscale scores, r=0.90 for isolation/depression subscale scores, r=0.92 for glorification/normalization subscale scores and r=0.93 for scores on the entire scale) (p=0.001). The paired samples t-test was carried out to compare the means of items and determine the linguistic equivalence between the Turkish and English scale items. There were differences between the average scores for all items on the Turkish and English forms of the scale, but most were not statistically significant (p>0.05). This showed that most of the translated items had the same meaning and linguistic equivalence with the English form. Statistically significant differences were found between some English and Turkish items (15, 37, 39, 46 and 57) (p<0.05). These items were reviewed and revised, and the scale was pilot tested again with a second group of 30 students for applicability and understandability of the revised items.

Content Validity Results for the SOSS

The means of the content validity index (CVI) for most items were between 0.80 and 1.00. The CVI coefficients of items 3, 4, 7, 8, 15, 41 and 53 were below 0.80. These items were reassessed and revised to finalize the Turkish scale.

Pilot Study Assessment of the Applicability of the SOSS

The item fit index for all items on the SOSS was 0.80 or higher. The intraclass correlation coefficient for the SOSS was 0.93 (F=15.429, p<0.01). This showed that all items were easy to understand for participants and did not need modification.

Table 2. Items on the Stigma of Suicide Scale (SOSS), Their Rotated factor Loadings and Their Cronbach's Alpha Coefficients on the Subscales (n=1,100) (55 items)

The Stigma of Suicide Scale (SOSS)	Factors (Subscales)		
	1	2	3
Stigma subscale			
Cronbach's alpha=0.90			
41. Shameful	0.65		
44. Stupid	0.61		
22. Immoral	0.61		
24. Irresponsible	0.60		
39. Senseless	0.59		
40. Shallow	0.59		
9. Cruel	0.58		
38. Selfish	0.57		
15. An embarrassment	0.56		
26. Lazy	0.56		
48. Unforgivable	0.54		
52. Useless	0.54		
21. Ignorant	0.54		
20. Hurtful	0.51		
47. Unfair	0.51		
50. Unjustifiable	0.51		
4. Barbaric	0.50		
32. Pathetic	0.49		
42. Strange	0.48		
17. Failures	0.48		
16. Evil	0.46		
2. Arrogant	0.44		
8. Cowardly	0.42		
53. Vengeful	0.42		
51. Unnatural	0.42		
54. Violent	0.39		
36. Reckless	0.39		
3. Attention-Seeking	0.37		
Isolation/Depression subscale			
Cronbach's alpha=0.87			
12. Depressed		0.59	
13. Disconnected		0.66	
23. Inpain		0.65	
19. Hurt		0.65	
27. Lonely		0.64	
37. Sad		0.63	
49. Unhappy		0.61	
28. Lost		0.58	
25. Isolated		0.55	
6. Broken		0.54	
14. Disturbed		0.54	
55. Withdrawn		0.52	
10. Cutt off		0.49	
45. Trapped		0.49	
1. Alienated		0.47	
29. Miserable		0.44	
Glorification/Normalization subscale			
Cronbach's alpha=0.79			
35. Realistic			0.69
34. Rational			0.69
31. Noble			0.68
33. Powerful			0.65
5. Brave			0.59
18. Fearless			0.59
43. Strong			0.55
46. Understandable			0.52
11. Dedicated			0.40
7. Committed			0.38
30. Motivated			0.36

Extraction Method: Principal Component Analysis Rotation Method: Varimax with Kaiser Normalization.

Results of Construct Validity

Factor Analysis

Explanatory Factor Analysis (EFA)

Before the exploratory analysis, the Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity tests were used to measure sampling adequacy. The results showed that the KMO value was 0.91 (very good), and the significance of Bartlett's sphericity test was 0.000 (χ^2=21633.132, p=0.000), indicating that the sample met the criteria for factor analysis.

Principal component factor analysis was performed using varimax rotation with Kaiser normalization. The principal components analysis of the SOSS items revealed a three-factor solution. The first factor was labeled as stigma, the second factor was labeled as isolation/ depression, and the third was labeled as normalization/glorification. Factor analysis yielded a 3-factor solution with an explained variance of 33.28% and eigenvalues greater than 1.00. The minimum factor loading to use as a cut-off for items was set at 0.33. A total of 58 items were assessed for inclusion on the scale. The factor loading of 3 of the 58 items (a burden, punishing others and weak) was below 0.33 on any factor. These items were excluded from the final version of the scale, leaving 55 items on the Turkish version of the SOSS.

Exploratory factor analysis was used for a second time to assess the structure analysis of the Turkish version of the SOSS. The second exploratory factor analysis yielded a 3-factor solution which had eigenvalues greater than 1.00 (factor 1=8.184, factor 2=6.423, factor 3=4.133). The items included in each factor are shown in Table 2 with rotated factor loadings. Factor loads were found to vary between 0.36 and 0.69. The first factor was stigma. The second factor was isolation/ depression, and the third factor was normalization/glorification. These factors accounted for 14.88%, 11.68%, and 7.51% of total variance, respectively (34.07% total) (Table 3). Exploratory factor analysis (EFA) found that the Turkish form of the SOSS consisted of three factors: factor 1 (items 2-4, 8, 9, 15-17, 20-22, 24, 26, 32, 36, 38-42, 44, 47, 48, 50-54), factor 2 (items 1, 6, 10, 12-14, 19, 23, 25, 27-29, 37, 45, 49, 55) and factor 3 (items 5, 7, 11, 18, 30, 31, 33-35, 43, 46).

Confirmatory Factor Analysis (CFA)

The acceptability of the a model was examined using certain fit indexes in confirmatory factor analysis. For confirmatory factor analysis, many fit indexes can be used (the goodness of fit index [GFI], the comparative fit index [CFI], the normed fit index [NFI], the relative fit index [RFI], the incremental fit index [IFI], the standardized root mean square residual [SRMR] and the root mean square error of approximation [RMSEA]). Fit indexes are expected to be above 0.90 for GFI, CFI, NFI, RFI and IFI and to be below 0.05 for RMSEA and SRMR.[27,28]

The construct validity of the scale found that three-factor model had acceptable to good fit to the data (chi-square fit test=21,633.132, p < 0.001, for RMSEA=0.067, NFI=0.90, SRMR (standardized root mean square residual) =0.076 and RFI=0.88. Factor loadings for the scale's construct validity indicated that the three-factor model had acceptable to good fit to the data. The results of the present study indicated that fit index values of the adapted scale were acceptable (Table 4). The factor loadings of confirmatory factor analysis model of the Turkish version of the Suicide Stigma Scale are shown in Figure 1.

Internal Consistency. The Cronbach's alpha for the final scale and its three subscales indicated strong internal consistency: 0.90 for total scale, 0.90 for the stigma subscale, 0.87 for the isolation/depression subscale and 0.79 for the normalization/glorification subscale.
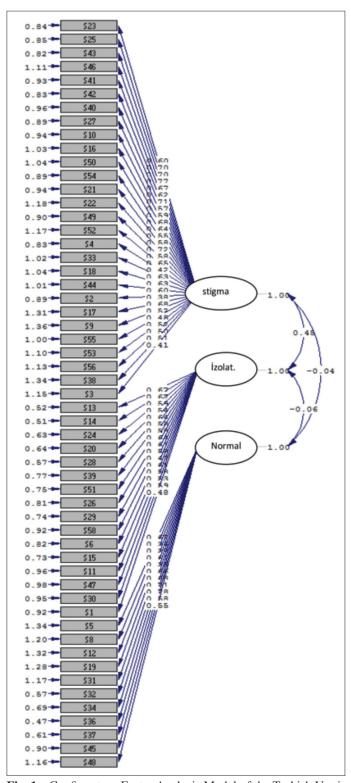
Table 3. Eigenvalues, Cumulative Percentage of Variance Explained by Three Factors on the Stigma of Suicide Scale (SOSS) (n=1.100)

Factor	Factor label	Eigenvalue	Variance explained	Cumulative percentage %
1	Stigma	8.18	14.88	14.88
2	Isolation/depression	6.42	11.68	26.56
3	Glorification/normalization	4.13	7.51	34.07

Table 4. Fit measures of the Confirmatory Factor Analysis of the Stigma of Suicide Scale (SOSS) (55 Items)

Fit index	Goodness of fit index	Model fit indices results		
RMSEA	0<RMSEA<0.05	0.05≤ RMSEA ≤0.10	0.067	Acceptable
NFI	0.95≤ NFI ≤1	0.90≤ NFI ≤0.95	0.90	Acceptable
SRMR	0≤ SRMR ≤0.05	0.05≤ SRMR ≤0.10	0.076	Acceptable
RFI	0.90≤ RFI ≤1	0.85≤ RFI ≤0.90	0.88	Acceptable

RMSEA: Root Mean Square Error of Approximation; NFI: Normed Fit Index; SRMR: Standardized Root-mean-Square Residual; RFI: Relative Fit Index.

Fig. 1. Confirmatory Factor Analysis Model of the Turkish Version of the Suicide Stigma Scale (SOSS).

Test-retest Reliability. The test-retest results of 100 university students participated in the survey were investigated. There was a statistically significant positive relationship between the SOSS subscale scores and the test-retest score averages (p<0.001). The test-retest correlation coefficient was

between 0.76 and 0.87.

Item-total Scale Correlation. Item-total correlations ranged from 0.32 to 0.68 (stigma subscale=0.40-0.62, isolation/depression subscale=0.55-0.68 and glorification/normalization subscale=0.32-0.50).

Discussion

Suicide is a major public health issue with a high disease burden. Stigmatization of people attempting suicide can have very serious consequences, so learning about this form of stigmatization is vital. However, there are presently no validated scales to measure the stigmatization of suicide in communities in Turkey. The aim of this study was to perform a Turkish adaptation, relevance and reliability study for the SOSS.

The results of forward-back translation and analyses of language equivalence showed that the Turkish version of the SOSS was easily understandable and applicable to the Turkish population. Besides language equivalence, the content of the scale was tested. Experts reviewed the items on the Turkish version of the scale and rated them on a 4-point-scale. Comments were taken into consideration, and some minor revisions were made. After the pilot test, items with CVI coefficients below 0.80 were reviewed by feedback received from experts, and some expressions were revised. The average CVI coefficients of the Turkish version of the SOSS showed that content validity was quite good.

The Turkish version of the scale was evaluated by principal component analysis using exploratory factor analysis varimax rotation. It was determined that the Turkish version of the SOSS included three factors with eigenvalues exceeding 1.00. Like this study, Batterham et al. (2013) reported a three-factor structure for the SOSS scale.[17] The factor loading of 3 of the 58 items (a burden, punishing others and weak) was below 0.33 on any factor. These three items were excluded from the final version of the scale, leaving 55 items on the Turkish version of the SOSS.

A second exploratory factor analysis was done for used for the 55-item version of the SOSS. The second exploratory factor analysis yielded a 3-factor solution which had eigenvalues greater than 1.00 (factor 1 [stigma]=8.184, factor 2 [isolation/depression]=6.423, factor 3 [normalization/glorification]=4.133). Factor loads varied between 0.36 and 0.69. These factors accounted for 14.88%, 11.68%, and 7.51% of the total variance, respectively (34.07% total).

The structure of these three factors was confirmed using confirmatory factor analysis. The chi-square test was used to compute the difference between covariance matrices. The high value showed higher model fit. This study found that the chi-square test of model fit was high (chi-square test=21,633.132, p<0.001). It found that the value of root

mean square error of approximation (RMSEA) was 0.067, which is acceptable. The normed fit index (NFI)=0.90, the standardized root mean square residual (SRMR)=0.076 and the relative fit index (RFI)=0.88 had acceptable fit. Confirmatory factor analysis showed that factor structure of the Turkish version of the SOSS is similar to that of its original version.

This study found that Cronbach's alpha coefficients were high (alpha=0.90 for total scale: 0.90 for the stigma subscale, 0.87 for the isolation/depression subscale and 0.79 for the glorification/normalization subscale). These Cronbach's alpha reliability coefficients are similar to the original study's findings.[14] It found the item-total item correlation coefficients of scale was ranged between 0.32 and 0.68. Item-total correlation coefficients are expected to be at least 0.30. In order for an assessment tool to be reliable, test-retest correlation coefficients are expected to be at least 0.70.[29,30] Cronbach's alpha coefficients, test-retest reliability (r=0.76–0.87, p<0.001) and item-total scale correlation coefficients showed that the internal consistency of the Turkish version of the SOSS was good, and that it is a valid and reliable assessment tool.

Conclusion

In summary, this study tested the validity and reliability of the Turkish version of the SOSS with university students to assess stigmatizing attitudes toward people who commit suicide. Its results indicate that the Turkish version of the SOSS is a reliable and valid scale for assessing stigmatizing attitudes toward people committing suicide.

Data obtained using this scale will give help clinicians to develop strategies for dealing with stigmatizing attitudes toward people who commit suicide and increase society's awareness about suicide prevention. Examining society's negative and stigmatizing attitudes and beliefs will help people to plan educational programs to eliminate negative beliefs, misconceptions and stigmatizing attitudes toward people who commit suicide. This scale can be tested and then used with various populations such as healthcare staff, teachers, academics and other people who work with groups at risk for suicide.

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