


The Adaptation of the Substance Use Stigma Mechanism Scale (SU-SMS) Into Turkish: A Validity and Reliability Study

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Abstract

BACKGROUND: Substance users are among the most highly stigmatized individuals by both the public and health care providers. However, no multidimensional scale for measuring substance use stigma for substance use disorders (SUDs) currently exists in Turkey. **AIMS:** The aim of this study was to determine the validity and reliability of the Turkish version of the Substance Use Stigma Mechanism Scale (SU-SMS). **METHOD:** The study was conducted at the AMATEM (Alcohol and Substance Addiction Treatment Center Clinic). The sample group of this methodological study consisted of 156 participants with SUDs who met the inclusion criteria. “Social-demographics Questionnaire,” “The Substance Use Stigma Mechanism Scale,” and “Internalized Stigma of Mental Illness Scale” were used for data collection. In the validity–reliability analysis of the scale, language and content validity, explanatory and confirmatory factor analysis, criterion-concurrent validity, Cronbach’s alpha coefficient, item–total score correlation, split-half reliability analysis, and test–retest reliability methods were used. **RESULTS:** Using exploratory factor analysis, it was found that the SU-SMS has five factors. Its five-factor structure was confirmed using confirmatory factor analysis. Its Cronbach’s alpha coefficient was .828, and factor loading was between .402 and .971. Analyses indicated that each of the factors of the Turkish version of the scale had high internal consistency. The test–retest correlation value was .752, $p = .000$. **CONCLUSIONS:** It was concluded that the Turkish version of the SU-SMS is a reliable and valid instrument for assessing substance use-related stigma in individuals with SUDs.

Keywords

adaptation, scale, stigma, substance use

Introduction

Substance use disorders (SUDs) are one of the most common and serious mental illnesses. The World Health Organization (WHO) estimates that 275 million people worldwide use illicit drugs such as cannabis, amphetamines, opioids, cocaine, opiates, and ecstasy. Evidence suggests that 31 million individuals have an SUD, and 76.3 million individuals globally suffer from alcohol use disorders (WHO, 2018). SUDs are a worldwide issue that have also become an important problem in Turkey (European Monitoring Centre for Drugs and Drugs Addiction, 2018). A variety of adverse consequences are associated with SUDs, including social, physical, mental, medical, and legal issues (Deng et al., 2012), and the estimated annual cost of substance use in Turkey in 2017 increased by 11.7% compared with the previous year (TUBİM, 2017).

Despite the high prevalence of SUDs and the associated impact on individuals, families, and society,

treatment for these disorders is quite modest (Cohen et al., 2007). For example, an examination of inpatient applications shows a decrease of 6.9% in 2017 compared with the previous year (European Monitoring Centre for Drugs and Drugs Addiction, 2018). Several factors are identified as potential obstacles preventing the decision to seek treatment for substance use, such as the associated stigma (Kulesza, 2013). Conceptual studies on stigmatization shows that there are two types of stigma: self-stigma and public stigma. Self-stigma refers to the

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internalization of other people's stereotypes. Public stigma refers to public attitudes toward individuals with a mental disorder (Corrigan, 2004).

According to Corrigan and Watson (2002), both public and self-stigma may be understood in terms of three components based on cognitive and behavioral structures: stereotypes, prejudice, and discrimination (Corrigan & Watson, 2002). Through these components, stigma can lead to negative consequences for individuals with mental health problems. Several studies have shown that mental illness-related stigma and discrimination are linked to many negative effects, including diminished self-efficacy, increased feelings of guilt and shame (Corrigan et al., 2009; Link et al., 2001; Perlick et al., 2001), decreased social functioning (Can & Tanriverdi, 2015), lower quality of life, an increase in distress (Room, 2005), depression, and anxiety (Akdağ et al., 2018). Furthermore, inequality in the provision of medical care services, low quality of maintenance (Miller et al., 2001), and difficulties obtaining employment and housing can also occur (Corrigan et al., 2009). Also, Corrigan and Shapiro (2010) have suggested that opinions and prejudices about patients seeking help for mental illnesses can generally contribute to various types of discrimination, such as loss of opportunity, reduction in self-determination, and segregation.

Compared with the stigma associated with other physical and mental health problems, individuals with SUDs are among the most highly stigmatized by their community and by health care providers (Berger et al., 2005; Corrigan et al., 2005; Ronzani et al., 2009; Schomerus et al., 2011), which is thought to be an important barrier to detection and treatment efforts (Kulesza, 2013). In particular, major worries about stigma have been associated with reduced initial behaviors and intent toward seeking individual counseling (Vogel et al., 2007) and early completion of treatment (Sirey et al., 2001), as well as reduced voluntariness for repeat treatment sessions (Wade et al., 2011). Therefore, stigma may have a negative impact on physical and psychological health by impeding access to the health care system for patients with SUDs (Ahern et al., 2007).

Due to the potential impact of stigma for individuals with SUDs, the need to understand this phenomenon has increased. Smith et al. (2016) defined a theoretical framework that provides a conceptual model to consider how stigma related to substance use affects individuals, and how measures can be developed to evaluate these structures. According to their proposed Stigma Framework, individuals with SUDs possess highly socially-devalued and unreliable characteristics. Such information is attained through three major mechanisms among substance users: enacted, anticipated, and self-stigma (Smith et al., 2016). Furthermore, these mechanisms are

considered interrelated but independent of each other, and when measured, the unique relationship of stigmatized individuals with health and well-being should be taken into account. Enacted stigma refers to experiences of personal discrimination, stereotyping, and prejudice from other people both in the present and the past (Earnshaw et al., 2013). For example, individuals with SUDs may face poor medical care from health care workers, and/or social rejection from family members or friends. Anticipated stigma refers to potential experiences of stereotyping, discrimination, and prejudicial expectations from others in the future. For example, individuals with an SUD may anticipate poor health care or social rejection regardless of whether they have experienced these in the past (Earnshaw & Chaudoir, 2009; Earnshaw et al., 2013; Smith et al., 2016). Internalized stigma defines the degree to which people feel ashamed and guilty because of their stigma (Chaudoir et al., 2013). General perceptions of individuals with substance abuse include negative associations, such as being considered weak, dangerous, bad, and blameworthy. After acquiring the label of "drug addict," they then have to consider the impact of these personal beliefs and thoughts, which may result in internalization of the stigma arising from feelings of "disgrace." Can and Tanriverdi (2015) showed that individuals with SUD had a high level of internalized stigmatization. This is important, because in previous studies it has been shown that the source of stigma is also important (Earnshaw et al., 2012; Jackson et al., 2010). For example, stigma from health care providers and family members can have a significant influence on the welfare and well-being of individuals with SUDs (Smith et al., 2016).

In summary, this framework provides an approach for understanding and determining personal stigmatization processes, by advancing efforts to measure and appraise stigma through the application of stigma theory (Earnshaw & Chaudoir, 2009). Furthermore, this has led Smith et al. (2016) to develop the Substance Use Stigma Mechanisms Scale (SU-SMS). The SU-SMS is a valid and reliable tool for measuring different stigma mechanisms (including anticipated, enacted, and internalized stigma) from two stigma sources (Smith et al., 2016).

No multidimensional scale that measures substance use stigma for SUDs currently exists in Turkey. To advance the development of programs for the prevention of stigmatization further, scales for the appropriate assessment of substance use stigma are required. As well as there being a limited amount of research, there is currently only one tool for assessing self-stigma related to mental disorders (Ritsher et al., 2003); therefore, a new tool is required that specifically addresses substance use stigma. To address this gap, we aim to appraise the reliability and validity of the Turkish version of the SU-SMS for individuals with SUDs.

Method

Design

The study used a methodological design.

Participants and Setting

The study was conducted at the AMATEM (Alcohol and Substance Addiction Treatment Center Clinic). The inclusion criteria for participants in this study were as follows: a specified level of literacy, meeting the *Diagnostic and Statistical Manual of Mental Disorders–Fifth Edition* diagnostic criteria for SUDs (American Psychiatric Association, 2013), being physically fit and able, aged 18 years or older, being either an inpatient or outpatient in the AMATEM, and volunteering to participate in the study.

In the adaptation of a scale to a different culture, the suggested minimum number for sample size should be 5 to 10 times the number of the items in the instrument (Gözüm, 2002). Based on this recommendation, the sample size of the study was 156 individuals with SUD.

Instruments

Social-Demographics Questionnaire. The Social-Demographics Questionnaire was developed by the research team in the light of literature. It consists of eight questions to collect information about the participants' sociodemographic characteristics including age, gender, the level of income, education status and substance use-related characteristic.

Substance Use Stigma Mechanism Scale (SU-SMS). SU-SMS was developed by Smith et al. in 2016 to explain stigmatization mechanisms (enacted, anticipated, and internalized stigma) related to substance use, and the distinction between two different stigma sources (family members and health care workers) that could possibly cause stigmatization among this particular population.

The scale was based on the HIV Stigma Framework developed by Earnshaw and Chaudoir (2009). It has a total of five subscales and assesses items as follows: three items related to enacted stigma from family (e.g., "Family members have looked down on me"), three items related to enacted stigma from health workers (e.g., "Health care workers have given me poor care"), three items related to anticipated stigma from family (e.g., "Family members will treat me differently"), three items related to anticipated stigma from health workers (e.g., "Health care workers will give me poor care"), and six items related to internalized stigma (e.g., "I feel ashamed of having used alcohol and/or drugs"). It consists of 18 items scored on a 5-point Likert-type scale.

Participant's responses to each item vary from 1 (*least stigmatizing*) to 5 (*most stigmatizing*). There is no reverse coded item in the scale. The composite scores were created by averaging responses to items comprising the relevant scale. The original Cronbach's alpha values of substance use stigma subscales ranged from 0.90 to 0.95 (Smith et al., 2016).

Internalized Stigma of Mental Illness Scale (ISMIS). ISMIS was developed by Ritsher et al. in 2003 and its adaptation into Turkish was made by Ersoy and Varan in 2007. The scale was designed to determine the personal experience of stigma. It has a total of five subscales: alienation (6 items), discrimination experience (5 items), stereotype endorsement (7 items), social withdrawal (6 items), and stigma resistance (5 items). It consists of 29 items scored on a 4-point Likert-type scale. Higher scores indicate greater internalized stigma. The internal consistency of the original version was 0.90 (Ritsher et al., 2003). Based on the Turkish validity and reliability study, the internal consistency of the scale was 0.94 (Ersoy & Varan, 2007). In this study, the Cronbach's alpha coefficient was calculated as .778.

Psychometric Testing and Statistical Analysis

Data were analyzed using SPSS (Statistical Package for Social Sciences) version 18 and LISREL (Linear Structural Relations) version 8.8. The statistical methods used in this study are as follows.

The Validity of the Scale

Language Validity. Before commencing the study, the researchers obtained permission to translate the SU-SMS from its developers. Next, the researchers formed a bilingual team, including two English language experts, two Turkish language experts, and two field experts, unlike the previous language experts. The scales (which were translated into Turkish by three different language experts) were presented to the language and field experts. English language experts from this team reviewed the previous translations linguistically. The Turkish language experts reviewed the suitability of the statements in Turkish. In the final stage, the field experts assessed whether each item on the scale was theoretically appropriate. The translated version was examined and converted into a single form by the researchers. This form was back-translated into English by two experts according to linguistic and cultural sensitivities. The translated and original instruments were compared and controlled for congruence.

The final Turkish version and the original English version were both submitted to an expert group that included eight academics working in health-related fields. They

examined the items of the scale in terms of cultural equivalence, relevance, and clarity of wording (Seçer, 2015).

Content Validity. The Davis Technique was used to measure the content validity of the scale. Each expert was asked to score each item on a 4-point scale (1 = *not appropriate*, 2 = *the item needs to be modified to do it appropriate*, 3 = *appropriate, but needs minor appropriate*, 4 = *completely appropriate*). After assessing the content validity index (CVI), a value of greater than 0.80 suggested that the item is sufficient in terms of content validity (Davis, 1992).

Applicability of the Turkish Version of the SU-SMS (Pilot Study). A pilot study should be conducted before claiming that a new scale is ready for data collection (WHO, 2017). Accordingly, a pilot test was conducted with 31 individuals with SUDs. None of the results from the pilot test was included in the data set or analysis. Participants each completed the questionnaire within 5 to 7 minutes. Internal consistency was calculated by Cronbach's alpha coefficient and item-total correlations. Internal consistency with an $\alpha > .9$ was described as excellent, $> .8$ to $.9$ as good, $> .7$ to $.8$ as acceptable, $> .6$ to $.7$ as questionable, $> .5$ to $.6$ as poor, and $\leq .5$ as unacceptable (Cronbach, 1951). Item-total correlations with a value $> .2$ were considered satisfactory (Karagöz, 2016).

Construct Validity. Explanatory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to test and evaluate the factor construct validity of the scale. Before the factor structure of the SU-SMS was examined, Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity tests were performed to evaluate the sample size and suitability of the instrument for factor analysis. The KMO index value used to decide the adequacy of the sample size was expected to be 0.70 and higher. The statistical significance of Bartlett's test of sphericity suggested that the data set was suitable for factor analysis (Seçer, 2015).

In the EFA, the principal component factor analysis was performed using varimax rotation with Kaiser normalization. The factor load value of each item was expected to be .32 and above (Seçer, 2015).

In the CFA, the acceptability of the model was examined using certain fit indexes including the chi-squared test (χ^2), the root mean square error of approximation (RMSEA), the normed fit index (NFI), the nonnormed fit index (NNFI), the incremental fit index (IFI), the relative fit index (RFI), the goodness of fit index (GFI), the adjusted goodness of fit index (AGFI), the comparative fit index (CFI), the root mean square residual (RMR), and the standardized root mean square residual (SRMR). The model was expected to have good construct validity if the value of χ^2 divided by the degrees of freedom (χ^2/df)

[degrees of freedom]) was below 3.0; if the values for GFI, CFI, NFI, NNFI, RFI, and IFI were more than 0.9; and if the RMSEA, SRMR, and RMR were less than 0.5 (Marcoulides & Schumacker, 2014).

Criterion-Concurrent Validity. To assess the scale's criterion-related validity, both the SU-SMS and the ISMIS were administered simultaneously to 156 participants. Criterion-concurrent validity was evaluated by analyzing the correlations between the Turkish versions of both scales. The correlation between the scales was evaluated by Pearson Moments Multiplication Correlation Coefficient.

Reliability of the Scale

Three different methods of reliability analysis were used to test the reliability of the scale. These were the following: (a) internal consistency analysis (to determine the item reliability and the homogeneity), (b) split-half reliability analysis (to determine whether two halves of the test measure the same thing), and (c) test-retest reliability (to determine the stability of the scale over time; Seçer, 2015). To estimate test reliability based on split-half reliability analysis, the Spearman-Brown prophecy, Guttman split-half, and Cronbach's alpha coefficients were used. The value ≥ 0.6 was used as the criterion for reliability (Alpar, 2014). The Hotelling's T^2 test was used to check whether the item means were different from each other (Seçer, 2015).

Time Invariance (Test-Retest). The test-retest technique was applied to determine the time invariance criterion of reliability. This technique is based on repeating the same test on the same sample at two different points in time. The scores obtained at the two surveys were calculated with the Pearson product moment correlation analysis. The Paired Samples Test was performed to evaluate the difference between the mean scores obtained from the test and retest (DeVellis, 2014).

Ethics

Ethics approval was obtained from the Ethics Committee of the Faculty of Medicine at Pamukkale University in accordance with the Declaration of Helsinki (Application Number 60116787-020/90549). Formal written information was obtained from the hospital where the research was conducted.

Before commencing data collection, the ethical principle of "informed consent" was followed by explaining the purpose and duration of the research to participants. In addition, verbal consent was obtained from participants who decided to participate in the study. The principle of "autonomy" was fulfilled by recruiting participants on a

Table 1. Sample Characteristics ($n = 156$).

Variables	N	%
Sex		
Female	8	5.1
Male	148	94.9
Education		
Illiterate	11	7.1
Elementary	116	74.4
High school	24	15.4
University	5	3.2
Income		
Insufficient	72	46.2
Middle	66	42.3
Sufficient	18	11.5
Marital status		
Single	106	68
Married	50	32.1
Job		
Student	7	4.5
Officer	4	2.6
Worker	61	39.1
Self-employment	84	53.8
Substance type^a		
Alcohol use	15	9.6
Marijuana	26	16.7
Cocaine	4	2.6
Opiates	119	76.3
Amphetamine	53	34
Sedatives	4	2.6
Other	16	10.3
Age (years), $M \pm SD$	29.03 \pm 8.72	
Duration of substance use (years), $M \pm SD$	11.67 \pm 9.17	

^aLifetime.

voluntary basis, and the principle of “privacy and protection of privacy” was met by assuring participants that any information obtained would be kept confidential.

Results

Sample Characteristics

There were 156 participants of whom 94.9% were male with an average age of 29.03 years \pm 8.72 years. Some 74.4% had an elementary education, 46.2% had insufficient income, 68% were single, and 53.8% were self-employed. The types of substances used by the participants included opiates (76.3%). The mean duration of substance use was 11.67 \pm 9.17 years (see Table 1).

Validity of the scale

Content Validity. It was determined from the analysis that CVI scores for all items ranged between 0.8 and 1.0. No

item on the scale was excluded because of maintenance content validity.

Applicability of the Turkish Version of the SU-SMS (Pilot Study). The internal consistency analysis of the SU-SMS was found to be .818 ($n = 31$). It was evident during the pilot study phase that the internal consistency level of the scale was high. The item–total correlations of the scale ranged from .323 to .543. Since all items were easily understood by the participants, no items were removed from the scale.

Construct Validity

Explanatory Factor Analysis. In the analysis, the KMO value was 0.787, $\chi^2 = 1457.789$, $df = 153$, and Bartlett’s sphericity test value was found to be $p < .000$ ($n = 156$). These results indicated that the data was suitable for factor analysis.

After conducting EFA, a five-factor structure was obtained with an explained variance of 59.28% and eigenvalues greater than 1.00 (Factor 1 = 2.17, Factor 2 = 4.165, Factor 3 = 1.035, Factor 4 = 2.181, and Factor 5 = 1.117). The factors accounted for 12.07%, 23.13%, 5.75%, 12.11%, and 6.203% of the total variance (Table 3). The first is enacted stigma from family members subscale consisting of Items 1, 2, and 3. The second is the enacted stigma from health care workers subscale consisting of Items 4, 5, and 6. The third is anticipated stigma from family members subscale consisting of Items 7, 8, and 9. The fourth is the anticipated stigma from health care workers subscale consisting of Items 10, 11, and 12. The fifth is the self-stigma subscale consisting of Items 13, 14, 15, 16, 17, and 18. Factor loads were found to vary between .402 and .971. According to the obtained data, it can be said that the item factor load values of the five-factor structure of the scale were sufficient (Table 2).

Corrected item–total correlations were calculated to examine the item validity of the SU-SMS. Item–total correlations varied between .488 and .309. According to these results, it can be said that all items in the scale are related to the scale total score and item validity was achieved (Table 2).

Confirmatory Factor Analysis. The model fit of the SU-SMS in Turkish culture was examined by first level the CFA. CFA results clearly indicated that five-factor model was a good fit for the data ($\chi^2 = 146.13$, $df = 125$, $p = .09$, $\chi^2/df = 1.168$). Fit values were found as RMSEA = 0.033, SRMR = 0.052, RMR = 0.078, CFI = 0.98, GFI = 0.91, NFI = 0.92, NNFI = 0.98, AGFI = 0.87, IFI = 0.98, RFI = 0.91. When the fit index values of the model obtained from the first level DFA analysis are considered, it can be said that χ^2/df , p , RMSEA, CFI, NNFI, IFI, and GFI values demonstrated good fit, while the RMR, SRMR, NFI, RFI, and AGFI values had acceptable level

Table 2. Factor Loadings and Item Analysis of the Scale.

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Corrected item–total correlation
1	.542					.488
2	.971					.421
3	.402					.423
4		.882				.380
5		.686				.454
6		.651				.309
7			.732			.309
8			.741			.468
9			.645			.316
10				.817		.541
11				.865		.480
12				.890		.516
13					.528	.311
14					.568	.478
15					.698	.407
16					.693	.467
17					.629	.461
18					.663	.464

Note. Rotation method: Varimax with Kaiser normalization.

Table 3. Eigenvalues, Cumulative Percentage of Variance Explained by Five Factors on the SU-SMS.

Factor	Eigenvalue	Variance explained	Cumulative percentage %
1	2.174%	12.078	12.078
2	4.165%	23.136	35.214
3	1.035%	5.751	40.965
4	2.181%	12.115	53.080
5	1.117%	6.203	59.284

Note. SU-SMS = Substance Use Stigma Mechanism Scale.

of fit ($n = 156$; Table 4). The factor loadings of the CFA model of the Turkish version of the SU-SMS are shown in Figure 1.

Criterion-Concurrent Validity. To examine the criterion-related validity, correlations of the SU-SMS and the ISMIS were calculated. The obtained results are presented in Table 5. Pearson's analysis indicated a significant correlation between the two scales ($r = .548$; $p = .000$; Table 5). According to the findings, it can be said that the criterion validity of the SU-SMS was achieved.

Reliability of the Scale

The internal consistency coefficient was determined to be .828 for the five-factor scale ($n = 156$), and the internal consistency coefficients of the subscales were .746, .835, .762, .957, and .805. The Cronbach's alpha values of stigma mechanisms scales (enacted, anticipated, and

internalized stigma) were .687, .774, and .805. Spearman-Brown correlation coefficient and Guttman split-half value were .869 and .868, respectively. The Spearman-Brown correlation coefficients of the subscales were determined to be .791, .852, .816, .966, and .820 (Table 6).

Hotelling's T^2 value was 1051.249, $p = .000$. The difference between the means of SU-SMS items was found to be highly significant. This finding suggests that the means for scale items are different, the level of difficulty for questions is not equal, responses given by participants for items are not similar, and all items are important for the scale.

Time Invariance (Test-Retest). The test-retest reliability of the scale was estimated by administering the same test twice over a 2-week period to 54 participants selected from the study group. The Pearson product-moment correlation analysis showed that the test-retest correlation coefficient was $r = .752$, $p = .000$. This finding suggests that the first and second measurement results were similar.

Table 4. Results of Confirmatory Factor Analysis for the Five-Factor Model ($n = 156$).

Fit indices	Values obtained from the scale	Result
χ^2/df	1.168	Good fit
RMSEA	0.033	Good fit
SRMR	0.052	Acceptable fit
RMR	0.078	Acceptable fit
CFI	0.98	Good fit
GFI	0.91	Good fit
NFI	0.92	Acceptable fit
NNFI	0.98	Good fit
AGFI	0.87	Acceptable fit
IFI	0.98	Good fit
RFI	0.91	Acceptable fit

Note. RMSEA = root mean square error of approximation; SRMR = standardized root-mean-square residual; RMR = root mean square residual; CFI = comparative fit index; GFI = goodness of fit index; NFI = normed fit index; NNFI = nonnormed fit index; AGFI = adjusted goodness of fit index; IFI = incremental fit index; RFI = relative fit index.

A paired-samples t test was applied to evaluate the difference between the mean scores obtained from the two measurements, and there was no statistically significant difference between the two measurements ($p > .05$; Table 6).

Discussion

In this study, the aim was to determine reliability and validity of a Turkish version of the SU-SMS (used to assess enacted, anticipated, and internalized stigma perceptions among past and current substance users). The scale (which was adapted from a previous scale for mental illnesses) measures a single stigma construct (Ritsher et al., 2003). This scale was needed because there was no instrument to determine three distinct stigma mechanisms and stigma sources for people with SUDs in Turkey.

In the process of adapting the scale to be appropriate for a Turkish context, language validity was assessed first with expert assessment to ensure it was fit for this purpose. To evaluate the expert opinion on the content validity of the scale, the Davis technique was used (Davis, 1992). According to expert opinion, the majority of items were “appropriate” and “completely appropriate.” The mean CVI coefficients of the Turkish version of the SU-SMS showed that content validity was fairly good.

For the final scale, a pilot study was performed and item–total correlation values and Cronbach’s alpha values indicating internal consistency of the SU-SMS were examined. In the reliability analysis, it was determined that the item–total correlation values of the 18 items in the scale were 0.30 and above, and the Cronbach’s alpha value of the scale was .818, which indicated internal consistency for the first version of the scale (Cronbach, 1951; Karagöz, 2016).

After evaluating the adequacy of the sample size and the suitability of the sample for factor analysis, EFA was performed to determine the factor structure of the scale. A five-factor structure explaining 59.28% of the variance was obtained. It is stated that the explained variance ratio in a measurement tool should be at least 52% and above (Henson & Roberts, 2006). Furthermore, the factor loading of items in this study was between .402 and .971. Accordingly, it can be said that the values obtained as a result of EFA are sufficient to determine the factor structure of the scale. The model fit of the five-factor structure of the scale was tested with the first level CFA. As a result of the first level CFA, the model fit indexes of the five-factor structure of the SU-SMS were found to be a good fit, and the scale was evaluated as having a model fit (Marcoulides & Schumacker, 2014). Also, it can be said that the five-factor structure that the scale had in its original form was preserved on the Turkish sample.

The correlation between the SU-SMS total score and the ISMIS total score was calculated to examine the criterion correlation validity of the scale. It was found that the scale had a positive, moderate, and significant relationship with ISMIS. Akgul (2005) is reported that correlation coefficients between .50 and .69 are moderate, between .70 and .89 are strong, and between .90 and 1.00 are very strong. These findings indicate that there was a positive and significant relationship between the ISMIS total score and subdimensions (alienation, stereotype endorsement, perceived discrimination, social withdrawal) and family-related enacted stigmatization, family-related anticipated stigmatization, and self-stigmatization. At the same time, according to the averages obtained from the present study, participants experienced moderate stigmatization, and internalized stigmatization was higher than other sub-dimensions. These

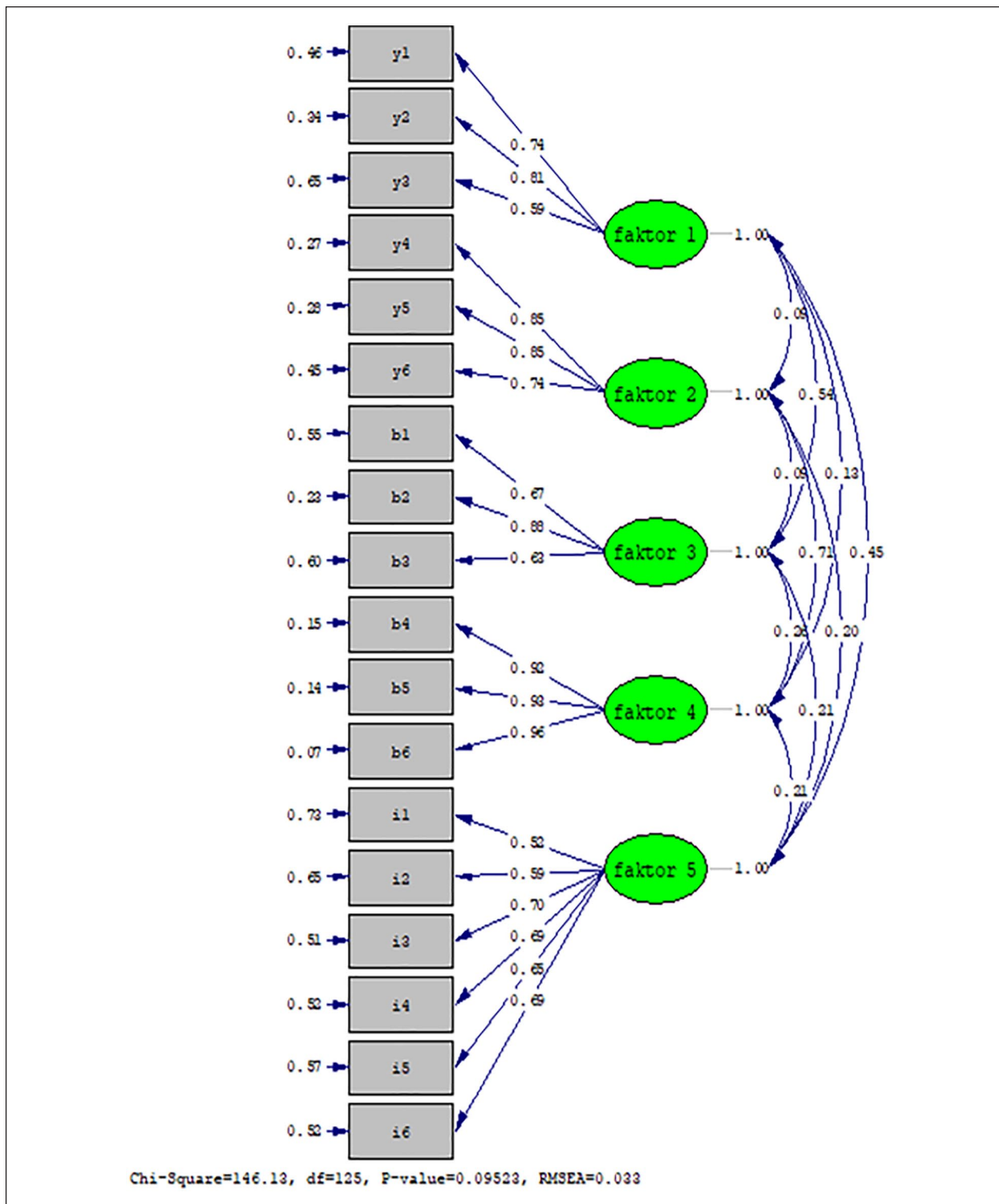


Figure 1. Results of confirmatory factor analysis.

findings should be taken into consideration in studies conducted with individuals who have an SUD.

Internal consistency, test-retest reliability, and split-half reliability methods were used to determine the

Table 5. Criterion Validity of the SU-SMS: Correlation With the ISMIS ($n = 151$).

	Total ISMIS	Alienation	Stereotype endorsement	Perceived discrimination	Social withdrawal	Stigma resistance
Total SU-SMS	.548**	.543**	.444**	.558**	.396**	.080
1 Factor	.458**	.406**	.346**	.490**	.272	.124
2 Factor	.100	.114	.49	.154	.117	-.055
3 Factor	.247**	.158	.232**	.184*	.191*	.075
4 Factor	.083	.111	-.015	.126	.145	-.076
5 Factor	.578**	.636**	.528**	.564**	.382**	.105

Note. SU-SMS = Substance Use Stigma Mechanism Scale; ISMIS = Internalized Stigma of Mental Illness Scale.
* $p < .05$. ** $p < .01$.

Table 6. Results of Reliability for SU-SMS ($n = 156$).

Factors and mechanisms	$M \pm SD$	Internal consistency coefficient (Cronbach's alpha)	Split-half reliability	Correlations*
Enacted stigma	($i = 6$)	2.26 ± 0.76	.687	.737
1 Factor	($i = 3$)	2.88 ± 1.19	.746	.791
2 Factor	($i = 3$)	1.63 ± 0.86	.835	.852
Anticipated stigma	($i = 6$)	2.01 ± 0.75	.774	.821
3 Factor	($i = 3$)	2.12 ± 1.02	.762	.816
4 Factor	($i = 3$)	1.89 ± 0.89	.957	.966
Internalized stigma				
5 Factor	($i = 6$)	3.82 ± 0.87	.805	.820
Total SU-SMS		2.69 ± 0.60	.828	.869
Test-retest value ($n = 54$)			.830	.748**
1. Application		2.66 ± 0.580		.000
		2.66 ± 0.562		
2. Application		$t = -0.130$		
		$p = .897$		

Note. t = paired samples test. i = Number of items in the factor or mechanism.

*Pearson's correlation. ** $p < .01$.

reliability of SU-SMS. According to the results presented in this article, it was determined that the scale had internal consistency, split-half reliability, and test-retest reliability both in terms of subscales and total score. Where a reliability coefficient of .60 and above is considered to be reliable with regard to scale development and adaptation processes, it can be stated that the internal consistency, split-half, and test-retest reliability coefficients of the scale were sufficient (Alpar, 2014; Seçer, 2015).

These results suggest that the Turkish version of the SU-SMS is a reliable and valid tool with the potential for use as a research and clinical tool to measure stigma in people with SUDs. As a result of this study, the SU-SMS is composed of 18 items, with each item collected under the same subscale as in the original form of the scale.

The strength of this scale lies in its short and understandable expressions. This indicates that the scale can be easily applied and interpreted, which ensures convenience for researchers. In addition, a parallel-form

technique was used to estimate the reliability of the scale. In the literature, it is suggested that findings obtained from a measurement tool that is to be adapted should be compared with another criterion already present and known to have both validity and reliability (Seçer, 2015).

This study has several limitations. First, our sample consisted of mostly male participants with an SUD, which may restrict the generalizability of our findings to women. The sample group was also limited to the substance use population in Turkey's southeastern region, and therefore may not be generalizable to other settings within Turkey.

There are various directions for future research. Substance use stigma is a global health problem, with potential implications for the quality of life of the substance user. We believe that it is necessary to determine different stigma mechanisms and provide counseling services to help cope with stigmatization. Accordingly, greater efforts should be made to raise awareness among

health care workers and families of people with an SUD to eliminate discrimination, prejudice, and stereotypes. This scale may provide evidence for future studies in determining the extent of the relationship between stigmatization and adherence to treatment. Furthermore, it could be used in studies of interventions intended to reduce stigmatization among substance users. Results could help determine how care systems for individuals with SUDs aggravate stigma and affect treatment outcomes.

Conclusion

As a result, it was determined that the SU-SMS is structurally valid and reliable measurement tool for Turkish society. This revised scale can be used by health care professionals to detect different stigma mechanisms and stigma sources for individuals with SUDs. Data obtained using this scale will help health care professionals develop strategies to deal with stigmatizing attitudes toward patients with SUDs.

Author Contributions

GCG conceived the study and determined the methodology. MA and DT collected the data and GCG analyzed the data. GCG took the lead in writing and organizing the manuscript. GCG wrote the methods section and DT and FÖÖ wrote the background section. All four authors reviewed the final manuscript before submitting for publication.

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