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RESEARCH ARTICLE

Turkish adaptation of the Short Schema Mode Inventory

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Abstract

The purpose of the current study is to present the psychometric properties of the Short Schema Mode Inventory in the Turkish culture. The study sample comprised 1,287 participants, including both clinical and nonclinical participants. The age of the participants ranged between 18 and 48 years. The construct validity of the scale was tested using confirmatory factor analysis. The internal (Cronbach's alpha) and test–retest reliability coefficients were used to examine the reliability of the scale. Discriminant validity was investigated by comparing the nonclinical and clinical participants. Concurrent validity was tested via the Splitting Scale. The results of the study showed that the tested model had good data-model fit statistics. Additionally, the reliability analyses revealed that the scales had good internal and test–retest reliability coefficients. A significant association was found between the subscales of the Schema Mode Inventory. Furthermore, the scores of the clinical participants were significantly higher compared with the scores of the nonclinical participants for the maladaptive schema modes. Nonetheless, the participants in the nonclinical group had significantly higher levels of the healthy schema modes than individuals in the clinical group. The results of this study demonstrated that the Schema Mode Inventory was a reliable and valid instrument to measure schema modes in the Turkish population.

KEYWORDS

schema therapy, schema mode inventory, reliability, validity, schema modes

1 | INTRODUCTION

In recent years, schema-focused therapy (Young, 1990) in the field of mental health has begun to be used extensively. This therapy approach (Young, Klosko, & Weishaar, 2003), which was developed particularly for the purpose of treating disorders related to chronic and personality pathologies that were not treatable through a traditional cognitive-behavioural approach, is a model that harbours cognitive-behavioural, experiential, interpersonal, and psychoanalytic approaches rather than being a singular approach (Pearl, 2017). One of the most important concepts of this approach is the "schema mode." The schema mode specifies momentary, emotional, and cognitive situations that are active at a specific time and the means to cope with them (Lobbestael, Vreeswijk, Spinhoven, Schouten, & Arntz, 2010; Young et al., 2003). The individual can be in a multitude of modes simultaneously but can also be in a single dominant mode (Young et al., 2003) or shift from one mode to another after being triggered by emotional events (Lobbestael, van Vreeswijk, Spinhoven, Schouten, & Arntz, 2010). In this respect, mode refers to the rapid shift in emotion and behaviour displayed by patients with severe personality disorders (Lobbestael et al., 2010).

Young et al. (2003) have defined 10 schema modes under four main categories: child modes, maladaptive coping modes, maladaptive parent modes, and healthy adult mode. The first of these, child modes, manifest when certain basic emotional needs are not sufficiently satisfied during childhood. All children are born with these emotional

needs. Therefore, child modes are innate and universal. Angry child, impulsive child, vulnerable child, and happy child are the schema modes identified under the child modes category. Within the second category of maladaptive coping modes, there are three schema modes, detached protector mode, compliant surrenderer mode, and overcompensator mode, that reflect the extensive use of coping styles such as avoidance, surrender, and overcompensation. The maladaptive parent mode, which is another category, reflects parents' internalized behaviour towards the individual during childhood (Young et al., 2003). This mode category is related to the individuals' internalizing of their parent figures at an early age. Within this mode, the individuals become their own parents and behave as their parents behaved towards them in their earlier periods. In other words, individuals within the maladaptive parent mode think, feel, and move as their parents would towards them during their childhood (Rafaeli, Bernstein, & Young, 2011). There are two schema modes within maladaptive parent modes: punitive parent mode and demanding parent mode. Last, there is the healthy adult mode that contains functional cognitions, thoughts, and behaviours (Young et al., 2003). It is the part of the self that is capable and realistic to cope with problems. It encompasses functional cognitions and behaviours that are required to maintain appropriate adult functions such as working, parenting, and taking responsibility as well as committing to people and actions. This segment of the self also pursues pleasurable adult activities such as having intellectual, aesthetic, and cultural interests; sexuality; maintaining health; and athletic activities (Rafaeli et al., 2011).

Even though schema modes were initially developed for patients with borderline personality disorders, many psychopathological disorders can currently be treated via these modes. One basic aim is to amplify healthy modes, such as healthy adult mode and happy child mode, while silencing and organizing the other unhealthy modes (Young et al., 2003). Many people use different schema modes throughout their interactions with others. It is also specified that individuals with personality pathologies similarly use maladaptive/unhealthy schema modes (Reiss, Krampen, Christoffersen, & Bach, 2016; Young et al., 2003). Particularly due to environmental conditions and being resistant to change, schemas can become maladaptive in adulthood and become the basis of various Axis I and Axis II disorders (Young, 1990; Young, Klosko, & Weishaar, 2013). Thus, schema modes play an important role in the treatment processes aimed at personality disorders. Throughout the treatment process, the therapist helps the patients shift from maladaptive modes to healthy modes (Lobbestael, van Vreeswijk, & Arntz, 2007). According to the study of Aytaç (2018), splitting defence mechanism, which is related to many psychological disorders (Geçtan, 2003; Kernberg, 1975; Ogden, 1993; Westen, 1991), has been found to be associated with unhealthy schema modes. In this study (2018), treatment process of a patient with borderline personality disorder using splitting defence mechanism was used as the example to indicate effectiveness of schema mode therapy to break splitting mechanism and decrease the symptoms of borderline personality disorder. Studies have shown that the schema mode approach plays an important role, not only in the efficient treatment of borderline personality disorders but also in understanding the patient's thoughts and actions during the treatment process (Arntz, Klokman, & Sieswerda, 2005; Giesen-Bloo et al., 2007; Güneltay, Köse Karaca, & Tiyekli, 2018; Köse, 2009; Köse Karaca, 2014; Köse Karaca, 2015; Nordahl & Nysæter, 2005). Some researchers have compared schema focused therapy with transference focused psychotherapy and found schema therapy to be more efficient in the treatment process (Giesen-Bloo et al., 2007; Van Asselt et al., 2008). One study conducted with borderline personality disorder patients (Nadort et al., 2009) found that 42% of the patients recovered from their disorders. Another study (Farrell, Shaw, & Webber, 2009) showed that a schema-focused group therapy programme was effective in relieving the symptoms of borderline personality disorders and other psychopathological symptoms. It has also been found that the therapy process enhanced the positive functions of participants. This change persisted post-observation (Farrell et al., 2009). In conclusion, the conducted studies support schema-focused therapy as an efficient device in the treatment process. The positive effect of using schema modes on the treatment of psychological disorders highlights the importance of using assessment tools to determine and measure schema modes.

The first important step in the evaluation of schema modes is the development of an efficient measuring tool and the study of psychometric qualities. For this purpose, based on transmitted conceptualizations, Young et al. (2007) developed a 270-item Schema Mode Inventory (SMI) that measures 16 schema modes. Later, based on the longer form of this scale, Lobbestael et al. (2010) evaluated its psychometric properties and developed the 118-item Short SMI measuring 14 dimensions. The results of the confirmatory factor analysis showed that the 14-factor scale produced adaptive values at a good level. In addition, within the scope of reliability analysis, internal consistency (α) and test–retest reliability values were measured. The findings demonstrated that the scale has strong validity and reliability in measuring schema modes. When looking at the item distributions in the subdimensions of the scale, happy child mode, punitive parent mode, vulnerable child mode, self-aggrandizer mode, healthy adult mode, and angry child mode all consist of 10 items. From the remaining seven subscales, bully and attack, enraged child, and detached protector mode have 9 items. The number of items for demanding parent and compliant surrenderer mode is seven; for impulsive child, it is eight; for undisciplined child mode, it is five; and for detached self-soother, it is four.

In recent years, studies have been conducted by researchers to adapt the SMI to different cultures (Reiss et al., 2012; Reiss et al., 2016; Riaz, Khalily, & Kalsoom, 2013). For example, Panzeri, Carmelita, Ronconi, Dadamo, and De Bernardis (2016) conducted a validity and reliability study of the short form of the SMI for the purpose of adapting it to the Italian culture. The study found that the 118 item and 14-factor scale produced adaptive values at a good level to measure schema modes, and the internal consistency coefficient ranged between.66 and.95 for the subscales. Accordingly, similarities related to higher order factors were found in western cultures. Despite these conducted studies, there has been a limited number of other studies pertaining to the validity and

reliability of the scale developed in 2007 (Lobbestael et al., 2010). When considering the importance of measurement tools in schema therapy applications (Soygüt, Çakır, & Karaosmanoğlu, 2008), adapting measurement tools in order to use them with schema-focused therapy applications in Turkey is essential. Therefore, this research serves as the first study where the psychometric qualities of the short form of SMI, which was developed by Lobbestael et al. (2010), is analysed in Turkey in a nonwestern culture. In other words, the purpose of this study is to examine the validity and reliability qualities of the Short SMI within the Turkish clinical and nonclinical groups. To reach this aim, the goals for the reliability analyses were set to examine the internal consistency for the samples that are used in the study and to calculate the test–retest reliability coefficient, whereas the goals for validity analyses were set to conduct confirmatory factor analysis, to utilize independent sample *t*-test between clinical and nonclinical groups, and to conduct correlation analyses between the Short SMI and the Splitting Scale and between the dimensions of the Short SMI. It is thought that this study will provide significant contributions to schema-focused clinical studies in Turkey.

2 | METHOD

2.1 | Participants

Students who study in different faculties and departments at Hacettepe and Fırat University, as well as clinical participants who applied between 2012 and 2017 to a private psychiatry clinic in İstanbul which belonged to a psychiatrist, advanced certificated by International Society of Schema Therapy, constitute the sample of this research study. Although the nonclinical sample consisted of only students, the clinical sample comprised different occupation types. In the nonclinical group, 636 students initially participated in the study. To control their psychological condition, their psychiatric history related to psychiatric diagnosis and treatment was asked to the participants via an open-ended question in demographic form. From these participants, 36 participants reported any psychological diagnosis and treatment history in the past or now were extracted from the study. Furthermore, the missing data in these remain were eliminated, and 537 people remained as the nonclinical participants. Participants in the clinical group who usually directed from other clinicians due to their chronical problems with personality were evaluated by one psychiatrist using DSM-IV diagnoses in the first session. This psychiatrist certificated as the advanced schema therapist by International Society of Schema Therapy has been working with patients diagnosed with chronical problems via schema therapy approach. Those with psychotic symptoms were eliminated. After psychotherapy sessions started with these patients, according to the clinical evaluation during ongoing process, it was thought that one third of the group indicated features of one or more Cluster B and Cluster C personality disorders. Moreover, Symptom Checklist 90-R (SCL-90) was applied to the remaining participants in order to determine symptom levels and distribution. The most prevalent symptoms were depression and anxiety along with co-occurring symptoms of interpersonal sensitivity (see Table 1 and Table 2). From this population, a selection was made parallel to the demographic characteristics of the nonclinical group. Thus, the final sample for this study formed was 1,287 (750 patient group and 537 student group) participants ranging from 18 to 48 years of age (M = 29.700, SD = 9.079). Of the participants, 859 were female participants (66.7%), and 428 were male participants (33.3%).

2.2 | Data collection tools

2.2.1 | The Short Schema Mode Inventory

The Short SMI is a self-report type measuring tool comprising 14 factors and 118 items. The scale consists of long and short forms. The

TABLE 1 Distribution of psychological symptoms in clinical group

	Symptom level					
	Mild		Moderate		Severe	
Symptom	*n*	%	*n*	%	*n*	%
Somatization	539	71.9	172	22.9	39	5.2
Obsessive–compulsive	291	38.8	341	45.3	119	15.9
Interpersonal sensitivity	349	46.5	292	38.9	109	14.5
Depression	201	26.8	329	43.9	220	29.3
Anxiety	448	59.7	222	29.6	80	10.7
Hostility	464	61.9	207	27.6	79	10.5
Phobia	629	83.3	87	11.6	34	4.5
Paranoid ideation	457	60.9	224	29.9	69	9.2
Psychoticism	612	81.6	122	16.3	16	2.1
Additional subscales	419	55.9	281	37.5	50	6.7
SCL90-R total	440	58.7	277	36.9	33	4.4

TABLE 2 Descriptive statistics of SCL-90-R scores for clinical group

	Minimum	Maximum	*M*	*SD*
Somatization	.00	44.00	13.689	9.167
Obsessive–compulsive	3.00	39.00	18.094	7.094
Interpersonal sensitivity	.00	36.00	14.690	7.090
Depression	4.00	52.00	26.598	9.657
Anxiety	.00	40.00	14.356	7.939
Anger and hostility	.00	20.00	6.781	4.248
Phobia	.00	26.00	5.602	5.276
Paranoid ideation	.00	24.00	8.629	4.775
Psychoticism	.00	37.00	9.981	6.263
Additional subscales	.00	24.00	10.001	4.814
SCL90-R total	44.00	329.00	129.436	52.601

long form of the scale contains 270 items, whereas the short form contains 118 items. The short scale was developed with reference to the long scale. The items of the scale are measured using a Likert structure ranging from 1 (*never*) to 6 (*always*). The results of the confirmatory factor analysis demonstrated that the 14-factor scale produced a good level of adaptive value (chi-square test [χ^2] [degrees of freedom; *df*] = 18,374.70 [6,694], comparative fit index [CFI] = .980, non-normed fit index [NNFI] = .980, standardized root mean square [SRMR] = .066, and root mean square error of approximation [RMSEA] = .053). The internal consistency (α) values of the scale were between.79 and.96. In addition, test–retest reliability values ranged from.65 to.92 (Lobbestael et al., 2010). The results of the analysis demonstrated that the scale was a valid and reliable tool in measuring schema modes.

2.2.2 | The Splitting Scale

The Splitting Scale developed by Gerson (1984) is a 14-item self-report measurement tool. The measurement tool was developed to examine the splitting defence mechanism, usually seen in borderline and narcissistic personality disorders. The items of the scale are scored using 7 Likert-type scales, and high scores indicate a high level of use of the splitting mechanism. The lowest score that can be obtained from the scale is 14, and the highest score is 98. The results of an exploratory factor analysis showed that the scale had three factors. The first 10 items (2, 3, 4, 5, 6, 10, 11, 12, 13, and 14) of the total items in the scale were collected in the first factor. This factor explained 45.8% of the total variance. The second factor explained 16.1% of the total variance, and the last factor explained 15.9% of the total variance. The internal consistency of the scale was .70. The test–retest reliability coefficient was calculated as .85 at 3-week intervals. The findings of the criterion validity were found to be negatively correlated with self-esteem (r = −0.408, p < .001) and positively (r = .25, p < .01) with narcissistic personality disorder. The analysis results showed that the scale was a valid and reliable measurement tool (Gerson, 1984). The scale was adapted to Turkish culture by Alkan (2010), and it was found that the scale had a four-factor structure. Four factors explained 51% of the total variance. The test–retest reliability coefficient of the scale was .85, and the internal consistency (α) value was.70. However, the exploratory factor analysis results showed that the factor distribution of the scale was different from the original study and consisted of several overlapping items. The Splitting Scale was used to provide support for the concurrent validity of the SMI in the current study.

2.2.3 | Symptom Checklist 90-R

The SCL-90, a self-report 5 Likert-type measure, developed by Derogatis (1979) to examine intensity of psychological symptoms. This scale consists of 90 items and 10 subscales. These subscales are somatization, obsessive–compulsive features, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoid thoughts, psychotic symptoms, and additional scale (providing additional information; Derogatis, 1979). Internal consistency of the scale changed between.77 and.90. The scale was adapted to Turkish by Dağ (1991). Cronbach's α scores of the subscales ranged from.65 to.87 (Dağ, 1991). It was found that the SCL-90 had positive correlation with the Minnesota Multiphasic Personality Inventory and the Beck Depression Inventory. In the scale, scores from 0.00 to 1.5 were considered as “mild”; scores from 1.51 to −2.5 were considered as “moderate symptom level”; and scores from 2.51 to 4.00 were considered as “severe symptom level” (Dağ, 1991). In the current study, this scale was used to determine psychological symptoms of the clinical participants.

2.2.4 | Process

Approval for this research study was obtained by the ethics committee of the Institute of Social Sciences at İstanbul Arel University. After permission was obtained and before the application, participants were informed about the purpose of the research, and data collection tools were distributed to participants who agreed to participate in the study. With a cover letter notifying participants that the study was on a voluntary basis, the demographic information form and the Short SMI were provided to participants to complete as the data collection tools. However, especially considering the confidentiality of the clinical group, only age and gender were asked in the form. The nonclinical samples also completed the Splitting Scale to provide support validity studies as well as other tools. The data collection tools for the university group were put together by the researcher and applied to university students attending different courses and universities in Elazığ and Ankara. The data collection process lasted approximately 45 min. Due to a

second application to be conducted with the groups going through a test–retest process, participants were asked to identify themselves with their school numbers, which they would be asked to remember later. For the posttest, 81 participants completed the SMI. Participants in the clinical group logged into an online database and completed the scales after their first sessions at the therapy centre. On the first page of the online database, they were informed that they were a part of an ongoing project. They completed the scales after their confirmation to participate. From the obtained clinical data, those without any missing data were used in the study.

2.2.5 | Statistical evaluation

Throughout the analyses of the data, latent factors were allowed to covary freely due to the large number of items (see Figure 1). Accordingly, confirmatory factor analysis, first-order correlated model, was used to test factorial structure of the 118-item and 14-dimension scale suggested by Lobbestael et al. (2010). In the confirmatory factor analysis, the factor loading was accepted as.32 (Tabachnick & Fidell, 2007). Several coincident indicators were taken advantage of evaluating the model-data fit. χ^2/df, RMSEA, SRMR, NNFI, and CFI were used in the evaluation of the model-data fit. χ^2/df being ≤ 3, RMSEA and SRMR ≤ .05, and CFI and NNFI ≥ .90 are accepted as an indication of the goodness of fit (Hooper, Coughlan, & Mullen, 2008). To evaluate the reliability of the scale, Cronbach's alpha (α) values and test–retest results were analysed as indicators of internal consistency. The analyses were tested via SPSS 22 and LISREL 8.88 programs with a 0.05 significance level.

2.3 | Prestudy

2.3.1 | Translation study

The scale was translated to Turkish by three psychologists and one faculty member with an advanced level of English and extensive knowledge on schema therapy literature. Subsequently, it was proofread by a clinical psychologist faculty member with an advanced level of English. With its translation completed, then the scale was uploaded to an online database, and feedback was received on the pilot applications before being proofed for adaptation.

3 | RESULTS

The results were produced through two stages. In the first stage, descriptive statistics and reliability analysis results were presented regarding the Short SMI. In the second stage, confirmatory factor analysis results and other analyses related to validity studies were presented regarding the factorial structure of the scale. The descriptive statistics of the inventory's subscales are presented in Table 3.

Skewness and kurtosis scores were used to examine the normality assumptions, and estimates ≤|3|were considered to be adequately normal distributions (D'Agostino, Belanger, Ralph, & D'Agostino, 1990). The descriptive outcomes indicated that skewness and kurtosis values ranged between −.579 and 1.436, suggesting that all variables had relatively normal distributions (see Table 3). The multivariate normality assumption was examined by using Mahalanobis distance, and the critical chi-square value was identified by the degrees of freedom (at α =.001; Tabachnick & Fidell, 2007). After examining the multivariate normality and outliers, 25 participants were excluded from data sets.

3.1 | Reliability analyses

As part of the scale's reliability studies, internal consistency was examined for clinical samples, nonclinical samples, and a combination of two samples (see Table 4). Additionally, the test–retest study was conducted on a group of 81 (72 female and 9 male participants) participants. The participants' ages ranged from 18 to 21 years (19.061 ± 1.426). When the results of the reliability analysis were examined, the Cronbach's α value for the total of 118 items was calculated as.960. The internal consistencies regarding the dimensions ranged from.669 to.924. The results of the reliability analysis regarding the scale are given in Table 4.

Pearson correlation analysis was conducted to evaluate the test–retest reliability of the Short SMI. The test–retest results of the scale demonstrated that the scale's test–retest values ranged between.658 and.889 in relation to its subscales. The test–retest reliability coefficient for total of the scale was.822. All values were found to be statistically significant (p < .001). Test–retest reliability results regarding the scale, and its subscales have been presented in Table 4.

Finally, within the context of reliability studies, whether there was a difference between the scale's pretest and posttest points was tested with a t-test for independent samples. When examining the results of the analysis, no significant difference was found between the pretest and posttest scores for all the subscales (p > .05). The t-test results for all the conducted independent samples are presented in Table 5.

3.2 | Validity analyses

Within the scale's validity studies, the factorial structure of the scale was primarily examined with confirmatory factor analysis. The outcomes of the factor analysis, which structured the 118 items in the Turkish version of the SMI as indicators of 14 fully correlated first-order latent factors, demonstrated that the scale produced good data-model fit statistics (see Table 6). When the results regarding the scale's factorial structure were analysed, 14 factors were determined. Additionally, there were no cross loadings or overlapping items under these factors. Nevertheless, five items under happy child mode, undisciplined child mode, healthy adult, bully and attack, and self-

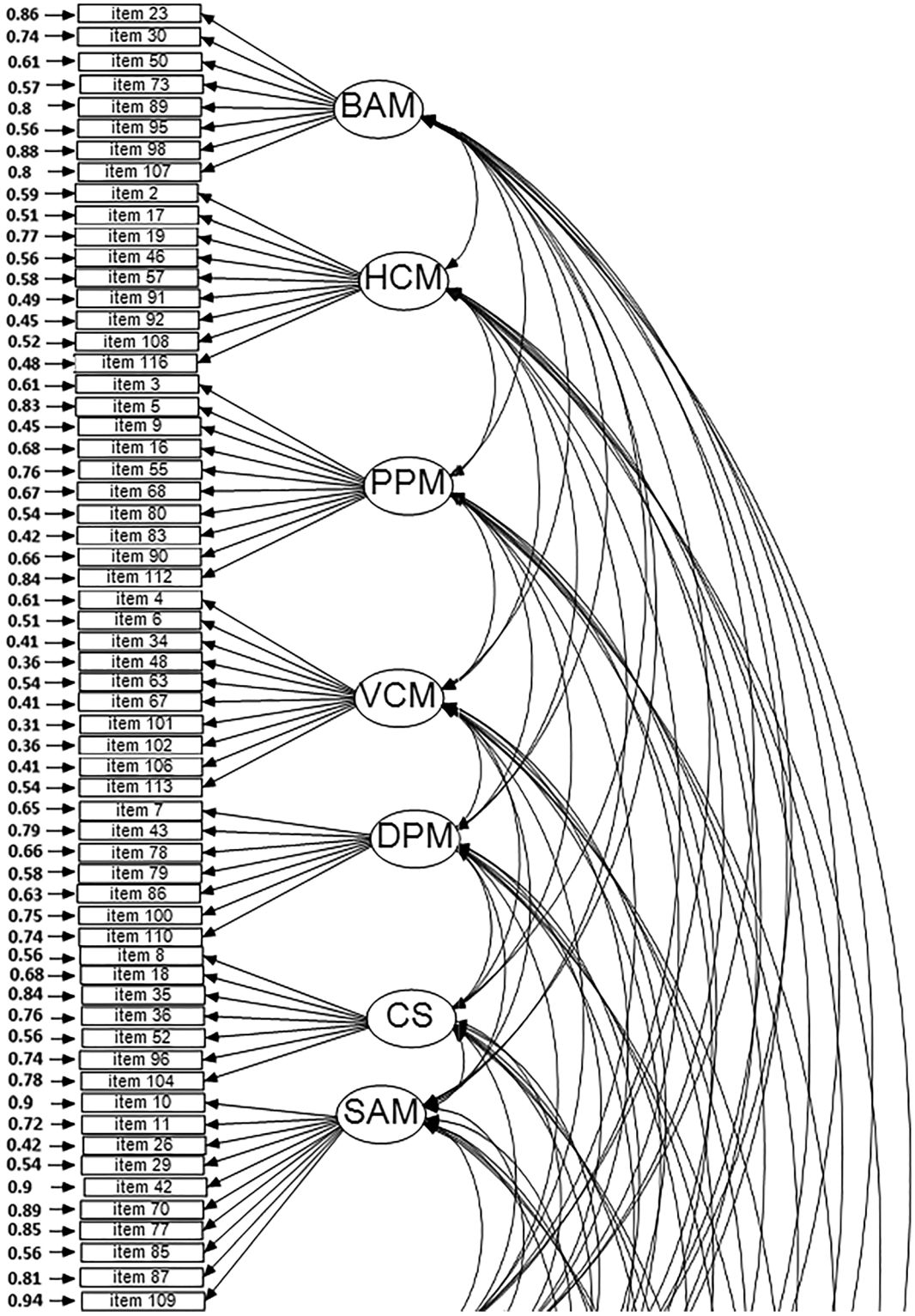

FIGURE 1 Item residuals of Schema Mode Inventory factors

aggrandizer mode were found to have a lower loading than.32, which was accepted as the criteria (see Table 7). These items were excluded from the Turkish version of the inventory, and the factor analysis was repeated. The results of the measure revealed that 113 items provided similar and better data-model fit statistics compared with the previous model (CFI = 0.96, NNFI = 0.95, SRMR = 0.068, and RMSEA

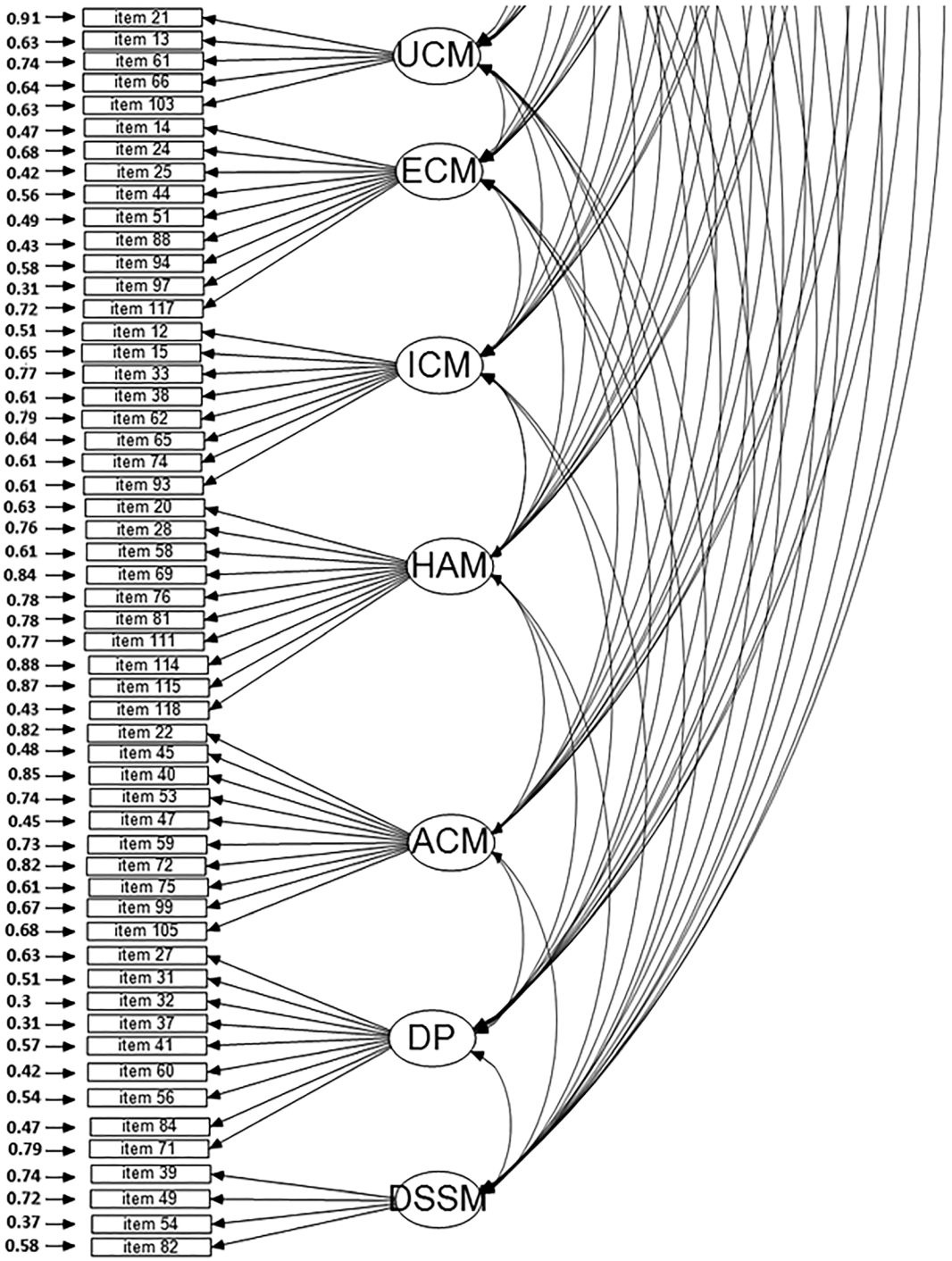

FIGURE 1 (Continued)

= 0.056; see Table 6). Based on these results, it was found that the 113-item SMI worked better for the Turkish sample.

As part of the scale's validity studies, the correlation values between the dimensions have been analysed, and the results of the correlation analysis regarding its subscales are presented in Table 8. The results indicated that there was a significant association among the subscales of the SMI ($p < .01$). In addition, to determine whether there was a difference between the clinical and nonclinical samples in terms of the SMI subscales, an independent sample *t*-test was utilized. The results showed that there was a significant difference between the clinical and nonclinical groups in terms of all schema modes apart from bully attack and enraged child.

When analysing the results, a significant difference at the.05 level was observed between the nonclinical and clinical groups within the

TABLE 3 Descriptive statistics of the Turkish version of the SMI

Subscales	*M*	*SD*	Skewness	Kurtosis
Bully and attack mode	22.693	7.032	.513	.152
Happy child mode	36.976	9.176	−.112	−.579
Punitive parent mode	20.448	7.572	.865	.428
Vulnerable child mode	26.734	10.856	.548	−.339
Demanding parent mode	22.682	6.467	.219	−.234
Compliant surrenderer	18.843	5.677	.383	.038
Self-aggrandizer mode	31.017	7.717	.272	−.082
Impulsive child mode	20.320	6.809	.728	.474
Undisciplined child mode	16.107	4.668	.339	−.219
Enraged child mode	17.985	7.875	1.216	1.436
Healthy adult mode	42.904	7.351	−.285	−.207
Angry child mode	30.669	8.878	.325	−.135
Detached protector mode	23.503	9.095	.556	−.254
Detached self-soother mode	13.429	4.012	.178	−.285

subscales excluding bully and attack mode and enraged child mode. Although the average score of clinical group participants was significantly lower than that of nonclinical group in happy child mode and healthy adult mode, the average score of the clinical group on all unhealthy modes was significantly higher in the clinical group compared with the nonclinical group. The analysis results regarding the difference between the nonclinical and clinical samples are presented in Table 9.

To provide support for the concurrent validity, correlations between the SMI and the Splitting Scale were analysed using the data collected from 537 students (364 female and 173 male students) from different universities in Elazığ and Ankara cities in Turkey. The Splitting Scale was especially selected because Aytaç's study (2018) indicated that there was a relationship between using a splitting mechanism and having tendencies to develop maladaptive schema modes. The age of the sample changed to between 18 and 34 years

TABLE 4 Results of reliability analysis of the turkish version of the SMI

		Results of reliability analysis			
		Total sample		Clinical	Nonclinical
Scale dimensions	Number of items	Cronbach's α	Test–retest	Cronbach's α	Cronbach's α
BAM	9	0.711	0.721	0.663	0.747
HCM	10	0.867	0.870	0.824	0.876
PPM	10	0.841	0.745	0.812	0.855
VCM	10	0.924	0.889	0.901	0.925
DPM	7	0.759	0.758	0.697	0.774
CS	7	0.743	0.852	0.682	0.744
SAM	10	0.761	0.824	0.722	0.781
ICM	8	0.811	0.778	0.738	0.840
UCM	5	0.669	0.804	0.599	0.718
ECM	9	0.891	0.795	0.883	0.898
HAM	10	0.757	0.753	0.775	0.744
ACM	10	0.808	0.820	0.749	0.832
DP	9	0.894	0.812	0.872	0.903
DSSM	4	0.704	0.658	0.623	0.759
Total	118	0.960	0.822	0.925	0.930

Abbreviations: ACM, angry child mode; BAM, bully and attack mode; CS, compliant surrenderer; DP, detached protector mode; DPM, demanding parent mode; DSSM, detached self-soother mode; ECM, enraged child mode; HAM, healthy adult mode; HCM, happy child mode; ICM, impulsive child mode; PPM, punitive parent mode; SAM, self-aggrandizer mode; UCM, undisciplined child mode; VCM, vulnerable child mode.

TABLE 5 Results of pretest and posttest findings (*N* = 81)

	Pretest		Posttest		
Scale dimensions	Average	*SD*	Average	*SD*	*p*
BAM	18.382	5.562	19.975	6.488	.095
HCM	41.543	7.586	42.407	7.600	.470
PPM	16.642	4.886	16.963	5.375	.696
VCM	21.580	8.188	21.654	8.730	.956
DPM	19.148	5.291	20.530	5.663	.110
CS	17.308	5.120	17.762	5.210	.578
SAM	27.123	6.251	28.580	7.035	.166
ICM	17.024	5.709	17.740	6.180	.445
UCM	14.592	4.176	15.321	4.529	.289
ECM	14.925	6.086	15.074	5.917	.875
HAM	45.185	6.440	45.716	5.615	.577
ACM	26.135	7.638	27.086	7.805	.435
DP	19.271	6.476	19.975	7.628	.528
DSSM	13.629	3.554	14.506	3.931	.139

Abbreviations: ACM, angry child mode; BAM, bully and attack mode; CS, compliant surrenderer; DP, detached protector mode; DPM, demanding parent mode; DSSM, detached self-soother mode; ECM, enraged child mode; HAM, healthy adult mode; HCM, happy child mode; ICM, impulsive child mode; PPM, punitive parent mode; SAM, self-aggrandizer mode; UCM, undisciplined child mode; VCM, vulnerable child mode.

TABLE 6 Adaptive index for confirmatory factor analysis

Item	CFI	NNFI	SRMR	RMSEA	χ^2 (*df*)
118	0.95	0.95	0.068	0.056	32,704.17(6578)
113	0.96	0.95	0.068	0.056	30,825.68(6123)

Abbreviations: CMI, comparative fit index; NNFI, non-normed fit index; RSMEA, root mean square error of approximation; SRMR, standardized root mean square residual.

TABLE 7 Factor loadings of the SMI for the 14-factor model (*N* = 1,287)

Scale items	Subscales	Items loadings
1. I demand respect by not letting other people push me around.	BAM	**.23**
2. I feel loved and accepted.	HCM	.64
3. I deny myself pleasure because I don't deserve it.	PPM	.62
4. I feel fundamentally inadequate, flawed, or defective.	VCM	.62
5. I have impulses to punish myself by hurting myself (e.g., cutting myself).	PPM	.41
6. I feel lost.	VCM	.70
7. I'm hard on myself.	DPM	.58
8. I try very hard to please other people in order to avoid conflict, confrontation, or rejection.	CS	.66
9. I can't forgive myself.	PPM	.74
10. I do things to make myself the centre of attention.	SAM	.54
	SAM	.54

(Continues)

TABLE 7 (Continued)

Scale items	Subscales	Items loadings
11. I get irritated when people don't do what I ask them to do.		
12. I have trouble controlling my impulses.	ICM	.69
13. If I can't reach a goal, I become easily frustrated and give up.	UCM	.57
14. I have rage outbursts.	ECM	.72
15. I act impulsively or express emotions that get me into trouble or hurt other people.	ICM	.59
16. It's my fault when something bad happens.	PPM	.56
17. I feel content and at ease.	HCM	.69
18. I change myself depending on the people I'm with, so they'll like me or approve of me.	CS	.56
19. I feel connected to other people.	HCM	.48
20. When there are problems, I try hard to solve them myself.	HAM	**.31**
21. I don't discipline myself to complete routine or boring tasks.	UCM	**.29**
22. If I don't fight, I will be abused or ignored.	ACM	.42
23. If you let other people mock or bully you, you're a loser.	BAM	.39
24. I physically attack people when I'm angry at them.	ECM	.56
25. Once I start to feel angry, I often don't control it and lose my temper.	ECM	.76
26. It's important for me to be Number One (e.g., the most popular, most successful, most wealthy, most powerful).	SAM	.74
27. I feel indifferent about most things.	DP	.60
28. I can solve problems rationally without letting my emotions overwhelm me.	HAM	.48
29. I won't settle for second best.	SAM	.67
30. Attacking is the best defence.	BAM	.50
31. I feel cold and heartless towards other people.	DP	.69
32. I feel detached (no contact with myself, my emotions or other people).	DP	.83
33. I blindly follow my emotions.	ICM	.47
34. I feel desperate.	VCM	.76
35. I allow other people to criticize me or put me down.	CS	.40
36. In relationships, I let the other person have the upper hand.	CS	.48
37. I feel distant from other people.	DP	.82
	ICM	.62

(Continues)

TABLE 7 (Continued)

Scale items	Subscales	Items loadings
38. I don't think about what I say, and it gets me into trouble or hurts other people.		
39. I work or play sports intensively so that I don't have to think about upsetting things.	DSSM	.50
40. I'm angry that people are trying to take away my freedom or independence.	ACM	.39
41. I feel nothing.	DP	.65
42. I do what I want to do, regardless of other people's needs and feelings.	SAM	.33
43. I don't let myself relax or have fun until I've finished everything I'm supposed to do.	DPM	.46
44. I throw things around when I'm angry.	ECM	.66
45. I feel enraged towards other people.	ACM	.72
46. I feel that I fit in with other people.	HCM	.66
47. I have a lot of anger built up inside of me that I need to let out.	ACM	.74
48. I feel lonely.	VCM	.80
49. I like doing something exciting or soothing to avoid my feelings (e.g., working, gambling, eating, shopping, sexual activities, watching TV).	DSSM	.53
50. Equality doesn't exist, so it's better to be superior to other people.	BAM	.62
51. When I'm angry, I often lose control and threaten other people.	ECM	.71
52. I let other people get their own way instead of expressing my own needs.	CS	.65
53. If someone is not with me, he or she is against me.	ACM	.51
54. In order to be bothered less by my annoying thoughts or feelings, I make sure that I'm always busy.	DSSM	.79
55. I'm a bad person if I get angry at other people.	PPM	.49
56. I don't want to get involved with people.	DP	.67
57. I feel that I have plenty of stability and security in my life.	HCM	.64
58. I know when to express my emotions and when not to.	HAM	.61
59. I'm angry with someone for leaving me alone or abandoning me.	ACM	.52
60. I don't feel connected to other people.	DP	.76
61. I can't bring myself to do things that I find unpleasant, even if I know it's for my own good.	UCM	.55
62. I break rules and regret it later.	ICM	.46

(Continues)

TABLE 7 (Continued)

Scale items	Subscales	Items loadings
63. I feel humiliated.	VCM	.68
64. I trust most other people.	HCM	**.26**
65. I act first and think later.	ICM	.60
66. I get bored easily and lose interest in things.	UCM	.61
67. Even if there are people around me, I feel lonely.	VCM	.76
68. I don't allow myself to do pleasurable things that other people do because I'm bad.	PPM	.57
69. I assert what I need without going overboard.	HAM	.40
70. I feel special and better than most other people.	SAM	.33
71. I don't care about anything; nothing matters to me.	DP	.44
72. It makes me angry when someone tells me how I should feel or behave.	ACM	.41
73. If you don't dominate other people, they will dominate you.	BAM	.66
74. I say what I feel, or do things impulsively, without thinking of the consequences.	ICM	.63
75. I feel like telling people off for the way they have treated me.	ACM	.62
76. I'm capable of taking care of myself.	HAM	.48
77. I'm quite critical of other people.	SAM	.39
78. I'm under constant pressure to achieve and get things done.	DPM	.58
79. I'm trying not to make mistakes; otherwise, I'll get down on myself.	DPM	.64
80. I deserve to be punished.	PPM	.68
81. I can learn, grow, and change.	HAM	.49
82. I want to distract myself from upsetting thoughts and feelings.	DSSM	.64
83. I'm angry at myself.	PPM	.75
84. I feel flat.	DP	.72
85. I have to be the best in whatever I do.	SAM	.66
86. I sacrifice pleasure, health, or happiness to meet my own standards.	DPM	.60
87. I'm demanding of other people.	SAM	.43
88. If I get angry, I can get so out of control that I injure other people.	ECM	.75
89. I am invulnerable.	BAM	.45
90. I'm a bad person.	PPM	.58
91. I feel safe.	HCM	.71
92. I feel listened to, understood, and validated.	HCM	.74
93. It is impossible for me to control my impulses.	ICM	.62

(Continues)

TABLE 7 (Continued)

Scale items	Subscales	Items loadings
94. I destroy things when I'm angry.	ECM	.64
95. By dominating other people, nothing can happen to you.	BAM	.66
96. I act in a passive way, even when I don't like the way things are.	CS	.51
97. My anger gets out of control.	ECM	.82
98. I mock or bully other people.	BAM	.34
99. I feel like lashing out or hurting someone for what he/she did to me.	ACM	.57
100. I know that there is a "right" and a "wrong" way to do things; I try hard to do things the right way, or else I start criticizing myself.	DPM	.49
101. I often feel alone in the world.	VCM	.83
102. I feel weak and helpless.	VCM	.79
103. I'm lazy.	UCM	.62
104. I can put up with anything from people who are important to me.	CS	.47
105. I've been cheated or treated unfairly.	ACM	.57
106. I feel left out or excluded.	VCM	.76
107. I belittle others.	BAM	.43
108. I feel optimistic.	HCM	.69
109. I feel I shouldn't have to follow the same rules that other people do.	SAM	**.23**
110. I'm pushing myself to be more responsible than most other people.	DPM	.51
111. I can stand up for myself when I feel unfairly criticized, abused, or taken advantage of.	HAM	.48
112. I don't deserve sympathy when something bad happens to me.	PPM	.40
113. I feel that nobody loves me.	VCM	.67
114. I feel that I'm basically a good person.	HAM	.35
115. When necessary, I complete boring and routine tasks in order to accomplish things I value.	HAM	.38
116. I feel spontaneous and playful.	HCM	.72
117. I can become so angry that I feel capable of killing someone.	ECM	.53
118. I have a good sense of who I am and what I need to make myself happy.	HAM	.74

Note. Items that are indicated in bold are <.32.
Abbreviations: ACM, angry child mode; BAM, bully and attack mode; CS, compliant surrenderer; DP, detached protector mode; DPM, demanding parent mode; DSSM, detached self-soother mode; ECM, enraged child mode; HAM, healthy adult mode; HCM, happy child mode; ICM, impulsive child mode; PPM, punitive parent mode; SAM, self-aggrandizer mode; UCM, undisciplined child mode; VCM, vulnerable child mode.

(M = 20.37). According to the results, there was a significant positive relationship between splitting and the bully and attack (r = .33, p < .001), punitive parent (r = .35, p < .001), vulnerable child (r = .33, p < .001), demanding parent (r = .32, p < .001), compliant surrenderer (r = .26, p < .001), self-aggrandizer (r = .37, p < .001), impulsive child (r = .43, p < .001), undisciplined child (r = .29, p < .001), enraged child (r = .38, p < .001), angry child (r = .48, p < .001), detached protector (r = .34, p < .001), and detached self-soother modes (r = .31, p < .001). There was a significant negative relationship between splitting and the happy child mode (r = –.14, p < .001).

TABLE 8 Correlation values for subscales of SMI

Subscales	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
BAM	1													
HCM	−.207**	1												
PPM	.342**	−.533**	1											
VCM	.289**	−.714**	.702**	1										
DPM	.322**	−.268**	.484**	.453**	1									
CS	.122**	−.257**	.458**	.480**	.383**	1								
SAM	.602**	−.046	.241**	.208**	.440**	.111**	1							
ICM	.409**	−.334**	.483**	.481**	.219**	.247**	.452**	1						
UCM	.283**	−.305**	.288**	.411**	.041	.271**	.235**	.442**	1					
ECM	.499**	−.259**	.376**	.309**	.191**	.030	.423**	.622**	.253**	1				
HAM	−.077**	.644**	−.437**	−.439**	.014	−.250**	.087**	−.346**	−.275**	−.218**	1			
ACM	.547**	−.418**	.530**	.632**	.457**	.299**	.469**	.549**	.348**	.559**	−.174**	1		
DP	.358**	−.649**	.575**	.783**	.367**	.381**	.240**	.426**	.466**	.328**	−.348**	.549**	1	
DSSM	.229**	.051	.190**	.140**	.325**	.156**	.247**	.149**	.075**	.159**	.172**	.290**	.187**	1

Abbreviations: ACM, angry child mode; BAM, bully and attack mode; CS, compliant surrenderer; DP, detached protector mode; DPM, demanding parent mode; DSSM, detached self-soother mode; ECM, enraged child mode; HAM, healthy adult mode; HCM, happy child mode; ICM, impulsive child mode; PPM, punitive parent mode; SAM, self-aggrandizer mode; UCM, undisciplined child mode; VCM, vulnerable child mode.

*$p < .01$.

TABLE 9 Analysis results for nonclinical and clinical samples

Scales	Groups	*N*	Average	SS	*T*	*SD*	*p*
BAM	Nonclinical	532	22.437	6.786	−1.100	1,295	.272
	Clinical	755	22.873	7.200			
HCM	Nonclinical	532	40.132	8.205	10.869	1,295	.001**
	Clinical	755	34.747	9.177			
PPM	Nonclinical	532	18927	6.944	−6.169	1,295	.001**
	Clinical	755	21.523	7.813			
VCM	Nonclinical	532	22.823	9.165	−11.441	1,295	.001**
	Clinical	755	29.498	11.112			
DPM	Nonclinical	532	20.659	5.832	−9.811	1,295	.001**
	Clinical	755	24.111	6.516			
CM	Nonclinical	532	16.851	5.107	−11.116	1,295	.001**
	Clinical	755	20.251	5.640			
SAM	Nonclinical	532	29.744	7.346	−5.040	1,295	.001**
	Clinical	755	31.917	7.849			
ICM	Nonclinical	532	18.895	6.036	−6.430	1,295	.001**
	Clinical	755	21.326	7.140			
UCM	Nonclinical	532	15.642	4.412	−3.028	1,295	.003*
	Clinical	755	16.436	4.817			
ECM	Nonclinical	532	17.826	8.017	−.609	1,295	.542
	Clinical	755	18.097	7.776			
HAM	Nonclinical	532	44.201	7.668	5.398	1,295	.001**
	Clinical	755	41.988	6.979			
ACM	Nonclinical	532	28.597	7.937	−7.200	1,295	.001**
	Clinical	755	32.132	9.215			
DP	Nonclinical	532	21.441	8.120	−6.989	1,295	.001**
	Clinical	755	24.960	9.463			
DSSM	Nonclinical	532	13.754	3.909	2.455	1,295	.014*
	Clinical	755	13.200	4.070			

Abbreviations: ACM, angry child mode; BAM, bully and attack mode; CS, compliant surrenderer; DP, detached protector mode; DPM, demanding parent mode; DSSM, detached self-soother mode; ECM, enraged child mode; HAM, healthy adult mode; HCM, happy child mode; ICM, impulsive child mode; PPM, punitive parent mode; SAM, self-aggrandizer mode; UCM, undisciplined child mode; VCM, vulnerable child mode.

*$p < .05$.

**$p < .001$.

4 | CONCLUSION, DISCUSSION, AND SUGGESTIONS

The aim of this study was to analyse the validity and reliability of the SMI, developed by Lobbestael et al. (2010), within a Turkish adult sample. During the analyses, the scope of reliability demonstrated that the scale has strong internal consistency and a test–retest reliability coefficient. Moreover, the factorial structure of the scale was analysed within the context of validity studies. Due to lower factor loadings, five items were excluded from the measure. The analysis was repeated after removing these items. The results thereafter demonstrated that both the 118-item scale and the scale structure after the items were removed had good adaptive value. In addition, significant correlations between the dimensions and between the Splitting Scale and SMI were found. There was a significant difference between the clinical and nonclinical groups. Based on these analyses, it can be concluded that the 113-item Turkish version of the SMI is reliable and valid.

With the results of the conducted reliability analysis, the scale's Cronbach's α value was calculated as.960. The internal consistency of the dimensions fluctuated between .669 and .924. However, the internal consistency values of the original study (Lobbestael et al., 2010) ranged between.79 and.96. As it was in the original study of SMI, this study found that the internal consistency value was lowest in the undisciplined child mode. In the social sciences, it has been noted that acceptable internal consistency values are.60 and above (Büyüköztürk, 2010). When compared with the results of the scale's validity and reliability studies in other cultures, the results of this study were parallel to those of other studies (Lyrakos, 2014; Panzeri et al., 2016; Van Wijk-Herbrink et al., 2018). In addition, as part of

reliability studies, the scale's test–retest values were analysed. The results were consistent with the test–retest results of the original study (Lobbestael et al., 2010) and demonstrated that the scale had good test–retest value.

As part of the research, the differences between the clinical and nonclinical groups were examined. There was a significant difference between the nonclinical and clinical groups in the subscales of all modes, excluding the bully and attack mode and the enraged child mode. Accordingly, the average score of the nonclinical group samples for happy child mode and healthy adult mode was significantly higher than that of the clinical group. For the unhealthy schema modes, the clinical group had higher scores compared with the nonclinical group. In a study conducted by Lobbestael et al. (2010), significant differences between nonclinical and clinical groups were found. Consistent with the results of this study, it was indicated that the clinical group had lower scores in the happy child and healthy adult modes. Likewise, Panzeri et al. (2016) reported that the clinical group had significantly higher scores in all the negative modes and lower average scores in the positive modes when compared with the nonclinical group. Moreover, to an extent, this result supports the correlation between unhealthy schema modes and psychopathology. Having tendencies for unhealthy schema modes increases tendencies to develop anxiety disorders, drug addiction, depression, eating disorders, personality disorders, and chronic psychological disorders, as stated in many previous studies (Arntz et al., 2005; Giesen-Bloo et al., 2007; Güneltay et al., 2018; Köse, 2009; Köse Karaca, 2014; Köse Karaca, 2015; Nordahl & Nysæter, 2005; Young, 1990). Furthermore, finding no significant difference between clinical and nonclinical groups in terms of bully and attack mode and enraged child mode may be because these two modes are mostly related to narcissistic and antisocial personality disorder (Dadashzadeh, Hekmati, Gholizadeh, & Abdi, 2016; Vos et al., 2017). Because the sample of the study was not composed of narcissistic and antisocial participants, the result was found parallel to the literature. In conclusion, this study has demonstrated that the scale can be used in Turkey as a valid and reliable measuring tool for adult schema modes.

Furthermore, the results of the factor analysis were studied to analyse the scale's factorial structure. The results demonstrated that five items of the scale had low factor loadings. Therefore, the analysis was repeated after removing these items. The results then demonstrated that there was an improvement in the scale's adaptive values. In some of the adaptation studies, researchers have noted that some items have low factor loadings (Panzeri et al., 2016). When cultural factors in the development of an individual's social and emotional growth are taken into consideration (Kağıtçıbaşı, 2013; Aygün & İmamoğlu, 2002; Köse, 2009), it can be said that some items become nonfunctional due to cultural factors. Based on cultural differences, when the excluded items are analysed, certain themes stand out. These themes are related to whether individuals feel a connection to others, their ability to resolve issues by themselves, their ability to take on boring tasks, and their attempts to show that they are not someone to be made fun of. Differentiation and interaction with others have different meanings for individuals who are raised in a structure where collective culture is internalized (İmamoğlu, 1998; Köse, 2009). Receiving support from one another is prominent in such a society. In nonwestern culture, this structure can create difficulties in taking responsibility, dealing with one's own problems by one's self, regulating feelings of boredom, and tolerating being made fun of by others. Therefore, the items related to individuality did not work in Turkish culture can be explained by cultural issues (İmamoğlu, 1998; Köse, 2009). Moreover, these themes are thought to be related to insufficient self-control. According to the Turkish adaptation study of the Young Schema Questionnaire (2009), it was found that items of this schema did not differentiate from entitlement schema. Therefore, entitlement and insufficient self-control were accepted as one schema. This means that in Turkish culture, behaving irresponsibly is related to being favoured. Due to this situation, items related to responsibility did not work in the Turkish version of SMI. Another result that was obtained as part of validity studies was that there was a significant correlation between subscales. The healthy adult and happy child modes were observed to have a negative correlation with the unhealthy modes while having a positive and significant correlation with the other modes. These results are consistent with earlier studies (Lyrakos, 2014; Panzeri et al., 2016; Reiss et al., 2016; Van Wijk-Herbrink et al., 2018).

It would be useful to evaluate these results with some restrictions. First, the study sample was formed by young adults and an unequal gender distribution. Moreover, the nonclinical group consisted of students from different universities in different cities in Turkey, whereas participants in the clinical group were living in İstanbul and had different types of occupations. Additionally, with regard to confidentiality issues, limited demographic information was obtained from the clinical group. Moreover, although determining the psychological characteristics of the nonclinical and clinical groups, SCL-90 was applied to just clinical group. An open-ended question was directed to the nonclinical group in order to get information related to the psychiatric history of the participants. Furthermore, in clinical group, any structured assessment tool was not applied to the participants, just SCL-90 measuring psychological symptom level and clinical evaluation of the psychiatrist were regarded to diagnose the patients. Therefore, it would be beneficial for the generalizability of the scale if future studies analyse the scale's psychometric qualities using larger and homogeneous sample groups via using structured assessment tool for diagnoses. In addition, within the scope of criterion validity, although the correlation between subscales was analysed for all participants, the relationship between the Splitting Scale and the SMI was examined only for nonclinical participants (university students) because the participants in clinical group were the part of an ongoing research project and application of the Splitting Scale to this group was not planned ahead at the beginning of the study. Therefore, retesting criterion validity for clinical data in future studies would provide crucial contributions to the validity and reliability of the scale. Finally, the data in this study were gathered using accessible sampling methods. This can be thought of as a restriction. Thus, it will be beneficial to reanalyze these results using different sampling methods in future studies (such as the random sampling method).

Despite the restrictions of this research study, it provides crucial contributions to future research and applications. In recent years, schema-focused therapy has been used extensively in the field of mental health (Young, 1990). One of the most important concepts of this approach is "schema modes," and in recent years, it has been commonly used for the treatment of disorders in the field of psychology (Lobbestael et al., 2010). Therefore, the results of this study have demonstrated that this scale can be used as a valid and reliable measurement tool in research and clinical applications. When considering there are limited measuring tools for schema therapy research and applications in Turkey, this study will have important contributions to the relevant literature in nonwestern cultures. Using this scale during treatment plans will have an important place in monitoring and improving the efficiency of treatment. In addition, the scale will play a crucial role in identifying dominant modes in patients during psychological support services provided by experts and help to formulate treatments based on these findings. One of the most important strengths of this study is that this research was conducted with both clinical and nonclinical participants, as well as testing group differences regarding the schema modes. The obtained results demonstrate that individuals with psychological disorders use more negative schema modes. Thus, it is of great importance that psychological support services aimed towards these individuals primarily focus on applications directed at negative schema modes.

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