

The Validity and Reliability of Borderline Personality Features Scale for Children-Short Form in Turkish Adolescents



Fatma COŞKUN¹, Ömer Faruk AKÇA², Ayhan BİLGİÇ³, Carla SHARP⁴

SUMMARY

Objective: This study has aimed to investigate the validity and reliability of the Borderline Personality Features Scale for Children-Short Form (BPFSC-SF-TR) in Turkish adolescents.

Method: The study was carried out with adolescents between the ages of 12-18 from clinical (N=168) and community (N=181) backgrounds. All participants were asked to complete the BPFSC-SF-TR, the Personality Belief Questionnaire - Short Form (PBQ-SF), the Brief Symptom Inventory (BSI) and the Personality Inventory for DSM-5- Short Form (PID-5-SF) scales. Also, the Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version-Turkish Version (K-SADS-PL-TR) was administered to the participants in the clinical group and their parents were asked to complete the Pediatric Quality of Life Inventory (PEDsQL). Test-retest correlations and the Cronbach's α coefficients were calculated.

Results: BPFSC-SF-TR scores of both groups of participants positively correlated with the PBQ-BF borderline subscale, the PID-5-SF borderline related facets and the BSI scores, and negatively correlated with the PedsQL in the clinical group. Furthermore, the clinical group had higher total BPFSC-SF-TR scores than the community group, and their scores positively correlated with the number of diagnoses and psychiatric symptoms determined by using the KSADS-PL-TR. Exploratory and multi-group confirmatory factor analyses of the data of both groups supported a single factor structure. The Cronbach's α of the scale was 0.84 in the clinical group, and 0.79 in the community group. The test-retest reliability correlation coefficient of the scale was 0.71.

Conclusion: The BPFSC-SF-TR is a valid and reliable tool for Turkish adolescents.

Keywords: Borderline personality disorder, validity, reliability, adolescence, scale

INTRODUCTION

Borderline Personality Disorder (BPD) is a personality pattern with distinctive difference in self-image and interpersonal relationships, involving widespread impairments in cognitive, emotional and behavioral areas (American Psychiatric Association-APA 2013). BPD was included in the official classification system of the 3rd edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) in 1980 (APA 1980). Despite the recommendations for significant changes in the diagnostic criteria of personality disorders in the preparation of the DSM-5, the contents and the number of the diagnostic criteria were kept the same as they were in the DSM-IV-TR. The DSM-5 Personality and Personality

Disorder Working Group proposed an alternative model for the diagnosis and classification of personality disorders (APA 2011). However, the expressed need to preserve the continuity of the current clinical practice and the considerations of inadequacy in the research data on the proposed model, the diagnostic criteria for personality disorders remained unchanged in the DSM-5 and the proposed alternative was classified in Section 3 of the DSM-5 (APA 2013). The alternative model, which addresses personality in a dimensional structure consisting of personality traits and facets (Anderson et al. 2014), comprises five personality trait domains for personality disorders and 25 different facets under these personality trait domains (APA 2013). In this model, BPD is evaluated by personality facets such as emotional lability,

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¹Asst., ²Assoc. Prof., ³Prof., Necmettin Erbakan University Meram Faculty of Medicine, Department of Child and Adolescent Mental Health and Diseases, Konya, Turkey, ⁴Prof., University of Houston, Department of Psychology, Houston, TX, USA.

e-mail: dromerakca@gmail.com

depressivity, impulsivity, hostility, anxiousness, separation insecurity and risk taking (APA 2013).

There are ongoing debates on the identification of symptoms of personality disorders in childhood and adolescence. Some authors argue that personality disorder should not be diagnosed in adolescence when personality development continues and personality traits are highly variable; and therefore diagnoses made in adolescence will not only be difficult but are to last lifelong and would cause labelling of the individual (Sharp 2017, Sharp et al. 2018). However, recent research suggests that adolescence is an important period in the development of personality disorder and the susceptible individuals should be closely monitored with interventions at appropriate times for personality development to follow a healthier trajectory. Investigation of the process of personality disorder development in 800 adolescents through follow up for 20 years demonstrated that in the majority of cases personality disorders started appearing in early adolescence, got intensified in late adolescence and decreased in early adulthood. However, in 21% of these participants the symptoms did not subside in late adolescence and on the contrary increased during adulthood (Cohen et al. 2005). The suggestion by these results that some characteristics of adolescence might trigger a process leading to the development of personality disorder directed the subsequent research to concentrate on identifying these factors (Sharp et al. 2018). It has been suggested that BPD may in general include the features predisposing to the development of personality disorders (Sharp et al. 2015). Research on BPD for early diagnosis and intervention in adolescence (Sharp and Bleiberg 2007, Zanarini 2004, Skodol et al. 2002) produced evidence for the diagnosis of BPD in adolescence (Bondurant et al. 2004, Sharp and Bleiberg 2007, Miller et al. 2008, Chanen 2012, Chanen et al. 2017). Furthermore, the American National Treatment Guidelines (National Health and Medical Research Council 2012, National Collaborating Center for Mental Health 2009), DSM-5 Section 2 (APA 2013) and personality disorder classification of ICD-11 confirmed the validity of the diagnosis of BPD in adolescents (Tyrer et al. 2011).

Early diagnosis and treatment of BPD depends on careful and accurate evaluation of personality pathology in adolescents. Valid and reliable scales, both time-saving and cost-effective, help complete clinical evaluation. However, there are not yet

enough number of studies to develop psychometric scales for evaluating personality disorders in adolescents (Sharp et al. 2012). In our country, a number of scales, such as the Borderline Personality Questionnaire, Borderline Personality Inventory and Borderline Evaluation of Severity over Time have been validated in the Turkish language for assessing BPD in adults (Ceylan et al. 2017, Aydemir et al. 2006, Akin et al. 2017). To the best of our knowledge, there is not a validated assessment tool in our country to assess BPD in adolescents.

The Borderline Personality Features Scale for Children (BPFSC), consisting of 24 items, was developed specifically to evaluate borderline personality traits in children and adolescents (Crick et al. 2005). The 11-item short form of the BPFSC (the BPFSC-SF) was developed to create a shorter and more practical form with equal discriminatory power (Sharp et al. 2014). In this study, we aimed to test the validity and reliability of the, the Turkish language version of the the BPFSC-SF (BPFSC-SF-TR) in adolescents recruited from clinical and community backgrounds.

METHOD

Study Participants

The participants of this study were recruited on a voluntary basis from the clinical background and the local community. The clinical group comprised 168 patients between the ages of 12 and 18 who were admitted to the Child and Adolescent Psychiatry Outpatient Clinic of Necmettin Erbakan University Meram School of Medicine for any reason other than psychiatric disorders specified in the exclusion criteria. The community group, consisting of 181 participants between the ages of 12-18, were recruited from two schools at the middle and high school levels. The study was approved by the Provincial Directorate of National Education. Exclusion criteria of the study for the clinical group were having mental retardation, autism spectrum disorder, schizophrenia, bipolar disorder, major physical and neurological diseases. For the community group, the exclusion criteria were having any psychiatric disorder, major physical or neurological diseases at the time of assessment and having any psychiatric treatment within the last six months. The diagnostic profiles of the participants according to the DSM 5 are given in Table 1.

Table 1. Types and Numbers of the DSM-5 Based Psychiatric Disorders in the Clinical Group Assessed on the K-SADS-PL-TR

	MDD	PD	SAD	SoP	SP	GAD	OCD	ADHD	ODD	CD	TD	PTSD
n	17	5	6	28	52	54	8	37	22	1	1	7

K-SADS-PL-T: The Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children -Present and Lifetime Version-Turkish Version, MDD: Major Depressive Disorder, PD: Panic Disorder, SAD: Separation Anxiety Disorder, SoP: Social Phobia, SP: Specific Phobia, GAD: Generalized Anxiety Disorder, OCD: Obsessive Compulsive Disorder, ADHD: Attention Deficit Hyperactivity Disorder, ODD: Oppositional Defiant Disorder, CD: Conduct Disorder, TD: Tic Disorder, PTSD: Post Traumatic Stress Disorder

Data Acquisition Tools

Sociodemographic Data Form: The sociodemographic characteristics of all participants were queried on this data form developed by the researchers.

The Borderline Personality Features Scale for Children-Short Form (BPFSC-SF): The 24-item BPFSC, comprising the four subscales affective instability, self-harm, negative relationships and identity problems, was developed to evaluate specifically the borderline personality traits in children and adolescents (Crick et al. 2005). An 11-item short form (the BPFSC-SF) with a single factor structure and a 5-point Likert type scoring was developed from the original format to facilitate clinical applications (Sharp et al. 2014). The sensitivity and the specificity of the scale were found to be 0.74 and 0.71, respectively, and the ideal cut-off score was 34.

The Personality Belief Questionnaire- Short Form (PBQ-SF): The short form, developed by Butler et al (2007) by using the original form in order to provide more practical and easy application, consists of statements for determining the basic beliefs of the individual about one's own self, others and the world. Each question in the 65 items of the scale corresponds to the 9 personality disorders specified in the DSM-4 and 5 as the avoidant, dependent, passive-aggressive, obsessive-compulsive, antisocial, narcissistic, histrionic, schizoid and paranoid attitudes and beliefs. The validity and reliability of the Turkish language version of the PBQ-SF was tested by Taymur et al (2011). In our study, the Cronbach α value of the scale was found to be 0.94 in the clinical group and 0.96 in the community group.

The Personality Inventory for DSM-5- Short Form (PID-5-SF): The PID-5 for DSM-5 was developed by the American Psychiatric Association (APA), to evaluate the B type personality traits defined in section 3 of the DSM-5. The original scale containing 220 questions to assess the 5 main domains that may be pathological and 25 personality trait facets related to these domains (Maples et al. 2015) was shortened to a 100-item scale to facilitate its use (Thimm et al. 2016). The total score on the trait facets of impulsivity, risk taking, emotional lability, anxiousness, separation insecurity, hostility and depressivity evaluates BPD. The validity and reliability study of the scale was tested by De Clercq et al. (2013) in Belgian adolescents. In our study, the relationship between the BPFSC-SF-TR and total scores of the PID-5-SF borderline-related personality facets was evaluated. The validity and reliability of Turkish language version of the 220-item original scale had been tested in adults by Çökmüş et al. (2018). We extracted the 100-items of the shortened format from the Turkish language version of the 220-item scale for the purposes of our study. The Cronbach's α coefficient of the

short form obtained was found to be 0.95 in both the clinical and the community groups.

The Brief Symptom Inventory (BSI): Developed by Derogatis et al. (1992), the 53-item, 5-point Likert type BSI consist of 5 sub-dimensions including anxiety, depression, negative self concept, somatization and hostility. The validity and reliability of the Turkish language version was performed by Şahin and Durak (1994). In our study, the Cronbach α values of the scale were calculated as 0.96 in the clinical group and 0.97 in the community group.

The Pediatric Quality of Life Inventory (PedsQL): The PedsQL, a quality of life scale, was developed by Varni et al. (1999) to measure the health-related quality of life of children and adolescents aged 2-18 years. The validity and reliability of the Turkish language version for children (8-12 years) and adolescents (13-18) was conducted by Çakın Memik et al. (2007, 2008). In our study, the Cronbach α value of the scale was found to be 0.85 in the clinical group.

The Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version-Turkish Language Version (K-SADS-PL-TR): The K-SADS-PL-TR is a semi-structured interview form that was developed by Kaufman et al. (1997) to determine the past and present psychopathologies of children and adolescents by interviewing the parents and the child. The concluding evaluation is made in line with the information received from all sources (parents, children, school). The validity and reliability study of the Turkish language version of the interview schedule was tested by Gökler et al. (2004), and its adaptation to the DSM- 5 was carried out on 150 children and adolescents aged 6-17 years. (Ünal et al. 2019).

Procedures

Approval for the research was given by the document numbered 2018-1621 of the Ethics Committee a local university. As the first stage of the study, permission of Professor Dr. Carla Sharp (CS), the developer of the scale, was obtained. Subsequently, the scale was translated to the Turkish language by a child and adolescent psychiatrist (AB) competent in using the English language. This version was translated back to English by another child and adolescent psychiatrist (ÖFA) also competent in the use of English. Lastly, the developer of the scale (CS) reviewed and confirmed the scale's format as being very similar to the original scale. The informed written consents of the parents of the participants were obtained at the outset of the research.

All participants were asked to complete the socio-demographic data form, the BPFSC-SF-TR, PBQ-SF, BSI and the PID-5-SF scales; and the clinical group. Participants were conducted through the, K-SADS-PL-TR by a child and adolescent

psychiatrist (FC) to record their psychiatric diagnoses and the numbers of symptoms for each diagnosis made according to the DSM-5. Also the parents of the clinical group participants were asked to complete the PedsQL in order to provide data on the quality of life of their children. Five months after the initial psychometric evaluations, the BPFSC-SF-TR was retested with 41 participants randomly selected from the clinical group. Data acquisition for the first stage of the study took six months between January and June 2019, which was extended by 5 months for the retest procedure with each of the selected 41 participants.

Statistical Analysis

The Amos 18 was used for the multi-group confirmatory factor analysis, and the SPSS 20.0 -Statistical Package for the Social Sciences- was used for the other statistical analyses. Distribution normality was tested by the Kolmogorov-Smirnov test. The relationships between psychometric scale scores were analysed by the Pearson correlation test. The internal consistency of the scale was evaluated by calculating the Cronbach's α coefficient and the test-retest approach. Both exploratory and multi-group confirmatory factor analyses were used to examine the factor structure of the scale. In the exploratory factor analysis the factor structure of the scale was examined with the Principal Component Analysis according to Kaiser normalized varimax conversion. The RMSEA was expected to be below 0.05, and the CFI, GFI and TLI were expected to be above 0.95 in order to consider the acceptability of the model fit by confirmatory factor analysis. The significance value was accepted as $p < 0.05$ within the 95% confidence interval.

RESULTS

The study included a total of 349 adolescents comprising 168 clinical and 181 community participants. Age, gender and parental age distributions of the participants are given in Table 2. The groups matched in terms of gender ($\chi^2=1.72$; $p=0.19$) and age ($t=1.948$, $p=0.052$) distributions.

Table 2. Sociodemographic Characteristics of the Participants in the Clinical and Community Groups

	Clinical Group (n:168)	Community Group (n:181)
Girl n(%)	99(59)	94(52)
Boy n(%)	69(41)	87(48)
Age (Mean \pm SD)	15.3 \pm 1.5	14.9 \pm 1.6
Mother age (Mean \pm SD)	41.2 \pm 5.8	40.9 \pm 6.0
Father age (Mean \pm SD)	45.1 \pm 6.7	44.8 \pm 5.9

The mean BPFSC-SF-TR total scores of the clinical group and the control group were, respectively, 36.83 ± 8.03 and 31.86 , $SD=6.74$, the difference being statistically significant ($t=6.302$, $p < 0.001$). Also, the mean total BPFSC-SF-TR score was found higher in girls than in boys of the clinical group ($t=-3.572$, $p < 0.001$). A similar gender based difference in the mean total BPFSC-SF-TR score was not found in the control group ($t=-1.168$, $p=0.24$).

Reliability Analyses

Cronbach's α coefficient and the inter-item and item-total correlations were used to evaluate the internal consistency of the BPFSC-SF-TR; and the test-retest method was used to evaluate the consistency of the scale over time. The results of the reliability analyses for the Cronbach's α coefficients using all items of the scale were 0.82 for the clinical group and 0.77 for the control group. The Cronbach's α value decreased when any item in the scale, except item 3, was removed and increased with the removal of item 3. Considering this result, the Cronbach's α coefficient was recalculated using 10 items by excluding item 3, when the coefficients increased to 0.84 and 0.79, respectively, for the clinical and community group participants. The inter-item correlation analyses indicated that each item correlated positively with the total score, and each item, except item 3, positively correlated with all the other items. Excluding item 3, the inter-item correlation coefficients of all items ranged between 0.48 and 0.74 (all $p < 0.001$) in the clinical group and between 0.43 and 0.65 (all $p < 0.001$) in the community group for each analysis. With the exception of item 3, the item-total correlations were in the $r=0.51-0.74$ range for the clinical group and in the $r=0.43-0.66$ range for the community group. The correlation of item 3 with the total score was found to be quite low compared to the other items in the clinical group ($r=0.23$) and in the community group ($r=0.31$). It was, therefore, decided to exclude item 3 from the scale.

The BPFSC-SF-TR was retested on 41 participants of the clinical group 5 months after the first test in order to evaluate the time dependent reliability of the scale. Positive correlations were observed between the first and second test results and the coefficients were not altered with ($r=0.72$, $p < 0.001$) and without ($r=0.71$, $p < 0.001$) the inclusion of item 3. The mean total score of the first test was significantly higher than the that obtained in the second test (23.9 ± 7.4 and 20.0 ± 9.2 ; $t=3.8$, respectively, $p=0.001$).

Validity Analyses

The relationships between the results on the BPFSC-SF-TR and the PBQ-SF, BSI, PID-5-SF were analysed by criterion-based validity analysis of the respective scores of the clinical and control groups, these analyses were made using the

BSFSC-SF-TR with and without item 3. Both approaches resulted in statistically significant correlations with the scores on the other scales, and the correlation coefficients were increased when item 3 was excluded. On the 10-item BPFSC-SF-TR with item 3 removed, the clinical group had higher scores (22.9±7.9) than the community group (18.2±6.5; $t=6.2$, $p<0.001$).

In the clinical and the control groups, positive correlations were determined between the total score on the 10-item BPFSC-SF-TR and the score on the PBQ-SF borderline subscale. Positive correlations were also found in both participant groups between the BPFSC-SF-TR score and the scores on the PBQ-SF avoidant, dependent, passive-aggressive, obsessive-compulsive, antisocial, narcissistic, histrionic, schizoid, paranoid subscales. In the clinical group, these correlations, were weaker than the correlation observed with the PBQ-SF borderline subscale ($r=0.30-0.57$). In the community group, however, the correlation coefficients with the passive-aggressive and paranoid subscale were comparable to that with the borderline subscale ($r=0.30-0.57$), but weaker for the other PBQ-SF subscales ($r=0.14-0.39$). Positive correlations were also determined in both the clinical and the control groups between the PID-5-SF BPD-related personality traits total score, the BSI total score and the scores on the somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid thoughts and psychotism subscales. The results of the correlation analysis of the BPFSC-SF-TR and the PBQ subscales are given in Table 3.

Table 3. Correlations Between the Total Score on the 10-item BPFSC-SF-TR and the Scores on the PBQ-SF Subscale Scores

	BPFSC-SF-TR (Clinical Group)	BPFSC-SF-TR (Community Group)
PBQ – Borderline	0.63*	0.44*
PBQ – Antisocial	0.43*	0.38*
PBQ – Histrionic	0.53*	0.31*
PBQ – Narcissistic	0.34*	0.28*
PBQ – Avoidant	0.52*	0.38*
PBQ – Paranoid	0.56*	0.44*
PBQ – Dependent	0.57*	0.36*
PBQ - Passive-aggressive	0.47*	0.43*
PBQ - Obsessive-compulsive	0.30*	0.14*
PBQ – Schizoid	0.37*	0.29*

BPFSC-SF: Borderline Personality Features Scale for Children- Short Form, PBQ-SF: Personality Belief Questionnaire –Short Form
* $p<0.001$

Table 4. Correlations Between the Total Score on the 10 item BPFSC-SF-TR and the Scoring on the Other Scales

	BPFSC-SF-TR10 (Clinical Group)	BPFSC-SF-TR10 (Community Group)
PID-5-SF Borderline Related Facets	0.76**	0.69**
BSI-GSI	0.76**	0.67**
K-SADS-PL-T Number of Diagnoses	0.24*	
K-SADS-PL-T Number of Symptoms	0.29**	
PedsQL Total Score	- 0.33**	

BPFSC-SF 10: Borderline Personality Features Scale Short Form- 10 Item form, PBQ: Personality Belief Questionnaire, PID-5-SF: Personality Inventory for DSM-5 Short Form, BSI-GSI: Brief Symptom Inventory – Global Severity Index, K-SADS-PL-T: The Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children -Present and Lifetime Version-Turkish Version, PedsQL: Pediatric Quality of Life Inventory.
* $p<0.01$; ** $p<0.001$

The relationship between BPFSC-SF-TR and the total number of diagnoses, the number of symptoms in the clinical group and PedsQL were determined using the scores on the PedsQL, and the K-SADS-PL-TR. In the clinical group, the total score on the 10-item BPFSC-SF-TR positively correlated with both the total diagnosis and the number of symptoms obtained on the K-SADS-PL-TR; and negatively correlated with the total score on the PedsQL (Table 4).

The construct validity of the BPFSC-SF-TR was also determined by exploratory and confirmatory factor analyses. Exploratory factor analysis indicated that item 3 of the entire (11-item) BPFSC-SF-TR did not load any of the factors in accordance with the previously obtained data. Therefore, exploratory and confirmatory factor analyses were repeated on the 10-item form of the BPFSC-SF-TR. Firstly, it was determined that the data for both the clinical group ($KMO=0.858$, $X^2=512.090$, $p<0.001$) and the community group ($KMO=0.811$, $X^2=394.580$, $p<0.001$) were appropriate for exploratory factor analysis. Subsequently analyses made on the data of both participant groups yielded a single factor structure (Table 5). The factor loadings and the presence of any differences in the loadings between the clinical and the community groups were determined by multi-group confirmatory factor analysis. A single factor structure was obtained with good fit values in both groups ($TLI=0.970$, $CFI=0.982$, $GFI=0.961$, $RMSEA=0.028$). The results of the groups differed in terms of factor load distribution ($p=0.003$, $\Delta TLI:0.023$). The community group and the clinical group factor diagrams are given in Figure 1 and 2, respectively.

Table 5. Item Scores and Factor Analysis Results on the 10-item BPFSC-SF-TR

	Clinical Group				Community Group			
	Mean (SD)	EFA	Skewness(SE)	Kurtosis (SE)	Mean (SD)	EFA	Skewness (SE)	Kurtosis (SE)
BPFSC-1	3.08 (1.24)	0.72	-0.15(0.19)	-0.77(0.37)	2.49 (1.08)	0.61	0.12(0.18)	-0.67(0.36)
BPFSC -2	3.54 (1.07)	0.46	-0.44(0.19)	-0.15(0.37)	3.27 (1.05)	0.53	-0.31(0.18)	-0.02(0.36)
BPFSC -4	3.48 (1.23)	0.65	-0.48(0.19)	-0.55(0.37)	2.85 (1.13)	0.64	0.04(0.18)	-0.58(0.36)
BPFSC -5	2.84 (1.18)	0.65	-0.04(0.19)	-0.75(0.37)	2.39 (0.97)	0.55	0.11(0.18)	-0.51(0.36)
BPFSC -6	3.30 (1.24)	0.75	-0.20(0.19)	-0.88(0.37)	2.71 (1.02)	0.57	0.28(0.18)	-0.09(0.36)
BPFSC -7	3.77 (1.11)	0.76	-0.70(0.19)	-0.14(0.37)	3.33 (1.11)	0.66	-0.39(0.18)	-0.28(0.36)
BPFSC -8	2.93 (1.26)	0.54	0.04(0.19)	-0.94(0.37)	2.57 (1.12)	0.62	0.35(0.18)	-0.31(0.36)
BPFSC -9	3.18 (1.46)	0.65	-0.15(0.19)	-1.32(0.37)	2.60 (1.27)	0.64	0.37(0.18)	-0.88(0.36)
BPFSC -10	3.69 (1.19)	0.66	-0.66(0.19)	-0.34(0.37)	3.21 (1.07)	0.68	-0.14(0.18)	-0.39(0.36)
BPFSC -11	3.01 (1.19)	0.54	-0.04(0.19)	-0.71(0.37)	2.70 (1.11)	0.38	0.27(0.18)	-0.53(0.36)

EFA: Exploratory Factor Analysis, SD: Standard Deviation, SE: Standard Error

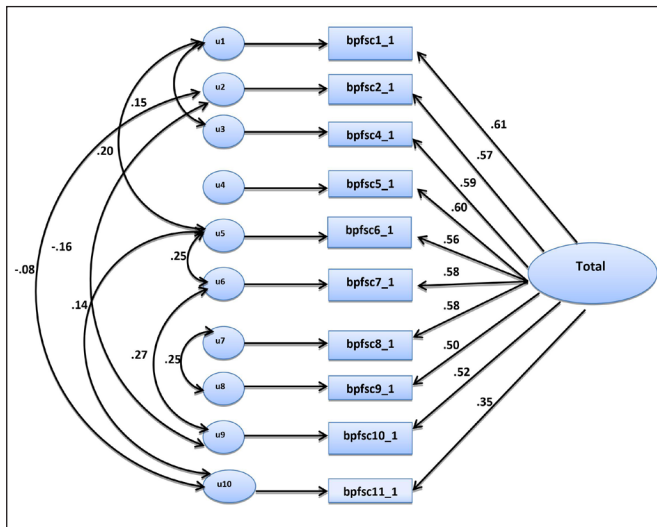


Figure 1. Factor Diagram of the 10-item the BPFSC-SF-TR Obtained by Multi-group Confirmatory Factor Analysis on the Scoring of the Community Group Participants

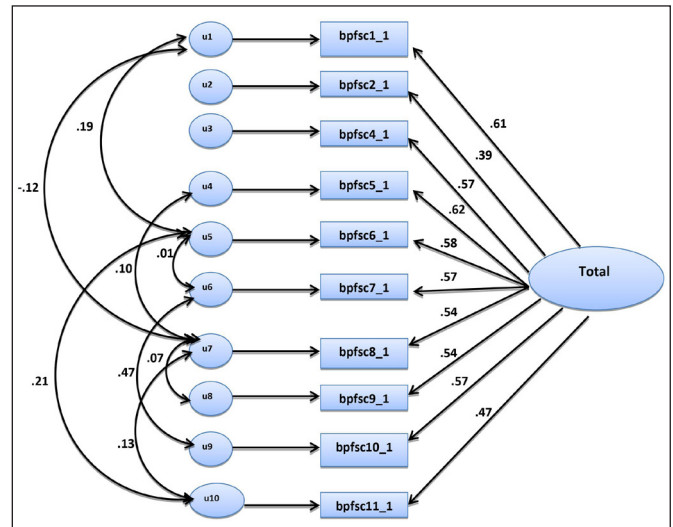


Figure 2. Factor Diagram of the 10-item the BPFSC-SF-TR Obtained by Multi-group Confirmatory Factor Analysis on the Scoring of the Clinical Group Participants

DISCUSSION

This research aimed to test the validity and reliability of the BPFSC-SF-TR in adolescents from clinical and community backgrounds. Reliability analyses determined that item 3 was not appropriate for the structure of the BPFSC-SF-TR and was therefore removed from the Turkish language version of the scale. We propose that the 10-item version of the BPFSC-SF-TR is a valid and reliable measure in adolescents to be used for community based and clinical investigations.

Reliability

Assessing internal consistency is one method for measuring the reliability of a scale which tests the homogeneity of the scale items. (Karakoç and Dönmez 2014). Calculation of the Cronbach's α coefficient was proposed to be the suitable

approach to demonstrate the internal consistency of scales with Likert type design (Ercan 2004). In our study, the Cronbach's α coefficients were 0.84 for the clinical group and 0.79 for the community group using the 10 -item BPFSC-SF-TR. The Cronbach's α coefficient was reported as 0.85 for the original BPFSC-SF (Sharp et al. 2014) and as 0.78 for the version in the Italian language (Fossati et al. 2016).

Given that Cronbach's α values >0.70 are accepted to indicate good internal consistency for a scale (Karakoç and Dönmez 2014), our results can be accepted to indicate good reliability for the 10-item BPFSC-SF-TR when tested in the clinical and community groups. This was also supported by the strong positive item-total and inter-item correlations found in both groups and the strong positive correlation between test-retest scores of the clinical group, demonstrating high reliability over time. A lower correlation coefficient ($r=0.50, p<0.001$)

was reported for the test-retest reliability of the Italian language version of the BPFSC-SF (Fossati et al. 2016). It is noteworthy that the mean total score of the 41 participants from the clinical group selected for retesting on the 10-item BPFSC-SF-TR was significantly higher in the first test than in the retest, which may be attributed to having retested the scale only in the clinical group and not evaluating a possible effect of the therapy given in the interim of 5 months.

Validity

The content validity, construct validity and criterion-related validation methods can be used to evaluate the validity of a scale (Ercan and Kan 2004). Significant correlations between the scores on the BPFSC-SF and the scores on the Childhood Interview for Borderline Personality Disorder, the Difficulties in Emotion Regulation Scale, and the Deliberate Self-Harm Inventory were reported by Sharp et al. (2014). Also, a significant correlation ($r=0.64$; $p<0.001$) between the scores on the Italian language versions of the BPFSC-SF and the BPD subscale of Personality Diagnostic Questionnaire were reported by Fossati et al. (2016).

We determined in both the clinical and community group participants that the BPFSC-SF-TR total scores correlated positively and significantly with the PBQ-SF borderline subscale scores and the PID-5-SF borderline-related facets total scores. Given the frequently observed comorbidity of BPD with other psychiatric disorders (Zanarini 2004, Chanen et al. 2007, Ha et al. 2013, Kaess et al. 2013), the relationship between the BPFSC-SF-TR and psychiatric symptom severities of the participants in both groups was also investigated and positive correlations were determined between the BPFSC-SF-TR and BSI scores of both the clinical and the community groups.

Furthermore, the BPFSC-SF-TR and the K-SADS-PL-TR scores of the clinical group were found to be significantly correlated with the number of symptoms, and the number of diagnoses determined by the K-SADS-PL-TR interview. In comparison to the community group, the clinical group participants scored higher than the community group participants on the BPFSC-SF-TR. These results are in agreement with previous reports on the frequent comorbidity of BPD with other psychiatric disorders. Considering that BPD may adversely affect the quality of life (Rusch et al. 2007, IsHak et al. 2013, Feenstra et al. 2012, Korsgaard et al. 2015), we determined, as expected, a negative correlation between the scores on the BPFSC-SF-TR and the PedsQL.

In comparison to the strong correlation of the BPFSC-SF-TR total score with the PBQ-SF borderline subscale score, relatively weaker positive correlations were also determined with the other subscales of the PBQ-SF. The BPFSC-SF-TR is expected to measure borderline personality traits and,

therefore, may show a lower level of relationship with other personality disorders. On the other hand, the cited results may have to be evaluated according to the strong conviction expressed in the literature that personality disorders are correlated with each other (Watson and Sinha 1998), supported by our observation of quite strong correlations in both groups of participants between the PBQ-SF subscales ($r=0.20-0.65$ for the clinical group, $r=0.22-0.81$ for the community group).

Factor analysis, which evaluates the order in the responses given by the participants and facilitates the placement of the variables under headings, is the most frequently used method, amongst others, for assessing construct validity (Tavsancil 2002). Using separately the exploratory factor analysis and the multi-group confirmatory factor analysis methods on the performances of both the clinical and the community group participants on the 10-item BPFSC-SF-TR, after removing item 3, a single factor structure was obtained in our study, which was similar to that of the original 11-item BPFSC-SF, developed by testing on a population of 964 adolescents and subsequently validated on 371 psychiatry inpatients by Sharp et al. (2014).

A 4-factor structure with four subscales on affective instability, identity problems, negative relationships, and self-harm was demonstrated for the original 24-item BPFSC (Crick et al. 2005). Contrary to the expectations, factor analysis on the BPFSC-SF revealed a factor structure that fit better a single-factor structure (Sharp et al. 2014). Factor analysis on the Italian language version of the BPFSC-SF tested on Italian adolescents showed a 2-factor structure instead (Fossati et al. 2016). The difference in the factor structures of the original and Italian versions of the scale was attributed to methodological factors such as population characteristics and the differences in the statistical methods used for factor analysis (Fossati et al. 2016).

A single factor structure was also not determined in our study on the 11-item BPFSC-SF-TR in either group of participants. Removal of item 3 on grounds of not correlating with the other items of the scale, having a negative effect on the Cronbach α value and, therefore, being regarded as unsuitable for measuring the borderline personality features in adolescents, resulted in a single factor structure. The mean item 3 scoring of 3.95 and 3.71 by the clinical and the community groups, respectively, were quite higher than the scores on the other items which could explain the observed incompatibility with a single factor structure when included in the BPFSC-SF-TR. Fossati et al. (2016) also reported markedly high scoring by the Italian adolescents on item 3 which states “My emotions are very strong. For example, if I get angry, I feel really angry, and if I am happy, I feel really happy”. It is known that the increase in the intensity of emotions and instability is a normal feature of the emotional development and change

process during adolescence (Koç 2004), which may explain the higher scores given to this item.

In our study, exploratory and multi-group confirmatory factor analyses of the data of both groups of participants yielded a single factor structure for the 10-item BFSFC-SF-TR similar to that obtained for the original form of the scale. The factor load distribution differed in the clinical and community groups. This is the first study in the literature comparing the performances of participants from a clinical and general population backgrounds on the BFSFC-SF with results indicating that the factor loads may differ in clinically and communally based research.

As regards the limitations of this study, despite including both clinical and normal groups, having a limited number of participants in both classifications is a significant limitation. Psychometric scales such as the BSI, PID-5-SF and the PBQ-SF used in this study have not been validated on the adolescent members of the population. Validated psychometric scales for evaluating personality disorders in adolescence are not available in our country, which necessitated using psychometric scales tested only on adults. Another limitation was not conducting psychiatric interviews to diagnose BPD and, consequently, not determining the relevant cut-off point of the scale and having to differentiate the clinical and community groups not according to the capacity of the scale but by comparing, instead, the BPFSC-SF-TR scores of the groups.

When compared, the clinical group was observed to have higher BPFSC-SF-TR scores than the community group, although the difference was not significant. Not determining significant differences between the groups was considered as an expected situation, considering that the clinic where our study was conducted is not a specialised clinic and that the applicants were followed up for a wide variety of psychiatric disorders. The results can not be compared to previously reported ones in the literature since there is not another study comparing the prevalence of BPD in adolescence in clinical and community samples.

The strengths of this research are inclusion of participants from both clinical and community backgrounds, evaluating the external validity of the BPFSC-SF-TR by using more than one BPD scale and using the likely comorbid psychiatric disorders in the evaluation of external validity. This study is also the first in Turkey to use the alternative personality models defined in DSM-5.

In conclusion, the BPFSC-SF-TR is a valid and reliable scale for assessing BPD features in Turkish adolescents. To the best of our knowledge, there is not another measurement tool for evaluating BPD in Turkish adolescents. We believe that this study would pave the way for new research on BPD in adolescents.

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