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Normative data and factorial structure of the Turkish version of the Borderline Evaluation of Severity over Time (BEST)

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ABSTRACT

Objective: Borderline Personality Disorder is a psychiatric condition, which is characterized by unstable interpersonal relationships, fear of abandonment, difficulties in regulating emotions, feeling of emptiness, chronic dysphoria and depression, and impulsivity and increased risk-taking behaviors. In this study, we aimed to translate and establish psychometric properties and factorial validity of the Borderline Evaluation of Severity over Time (BEST) in a representative Turkish university students sample and obtain normative data for future epidemiological and clinical studies in Turkey.

Methods: Participants were 306 (201 females, 105 males) college students at the Hasan Kalyoncu University in Gaziantep, Turkey. The study protocol was approved by the Ethics Committee of Hasan Kalyoncu University. Sociodemographic information of the participants was collected and Turkish version of the BEST, the Turkish version of the Borderline Personality Questionnaire (BPQ), Beck Depression Inventory (BDI), Personality Belief Questionnaire (PBQ), and State–Trait Anxiety scales were administered. All statistical analysis were performed by using SPSS version 23 for Windows.

Results: The Cronbach's alpha coefficients for the Thoughts and Feelings, Negative Behaviors and Positive Behaviors subscales were 0.80, 0.65, and 0.67, respectively. For the whole scale, Cronbach's alpha coefficient was 0.75. The test–retest correlation coefficients for Thoughts and Feelings, Negative Behaviors and Positive Behaviors were 0.61, 0.50, and 0.51, respectively. A positive and statistically significant correlation was found between the Turkish BEST and BPQ (r = 0.337, p < .01), BDI (r = 0.460, p < .01), PBQ (r = 0.337, p < .01), State Anxiety (r = 0.351, p < .01), and Trait Anxiety (r = 0.387, p < .01) scales. A two-factor solution that accounted for 87.81% of the variance observed. The first two subscales of the BEST formed factor 1 and the last subscale formed factor 2.

Conclusions: Our results suggested that Turkish BEST was a valid and reliable tool with a robust factorial structure to use in clinical population in Turkey.

Introduction

Borderline Personality Disorder (BPD) is a psychiatric condition, which is characterized by unstable interpersonal relationships, fear of abandonment, difficulties in regulating emotions, feeling of emptiness, chronic dysphoria and depression, and impulsivity and increased risk-taking behaviors. Furthermore, recurring selfinjurious and suicidal behaviors are also features of BPD. It starts with early adulthood [1].

According to Videbeck [2], BPD is seen by 2% in the general population, 10% in the emergency service, and 20% in the inpatient. Within personality disorders, BPDs are seen at a rate of 30%–60%. Women are suffering from the BPD at a rate more than three times than men. It has been reported that the death rate due to suicide that occurred during disease varies between 6.7% and 8.5% [3]. We still do not know the particular causes of the development of BPD. However, like other most mental disorders, no single factor can

explain this personality disorder's development; instead, it can be declared that multiple factors like biological, psychological, and social all play a role [4–7]. Some studies show the comorbidity of BPD with Axis I psychiatric disorders. Specifically, patients with BPD frequently meet the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for mood disorders, anxiety disorders, substance abuse, and eating disorders [8]. Furthermore, according to the study conducted by Barrachina et al. [9], nearly 74% of patients with BPD meet the DSM-5 (ICD-10) criteria for at least one other personality disorder such as paranoid, passive aggressive, violent, and dependent personality features.

In the literature, there are seven specific measures of borderline personality which are adapted to a multidimensional approach to measure borderline personality. These measures are the Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD), The

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KEYWORDS

Borderline Evaluation of Severity over Time; reliability; validity; factor structure

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Diagnostic Interview for Borderlines (DBB-R), the McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD), the Borderline Personality Questionnaire (BPQ), and the Borderline Personality Questionnaire (BPQ), and the Borderline Evaluation of Severity over Time (BEST) and Five Factor Borderline Inventory (FFBE) [10]. However, none of the above mentioned scales have been used in Turkey except for Borderline Personality Inventory, which has been developed by Leichsenring [11], which has been translated into Turkish and the reliability and validity study has been conducted by Aydemir et al. [12].

BEST is a 15-item self-report Likert-style scale that is developed by Pfhol and Blum [13]. This scale is composed of three subscales. The purpose of the development of this scale is to measure the severity and variation of the borderline personality. The scale consists of items that measure feelings, thoughts, and behaviors and it is used to measure the severity of borderline personality rather than to diagnose it [13].

The first eight items of the scale form subscale A (Thoughts and Emotions). This subscale includes assessment of mood reactivity, identity disorder, unstable relationships, paranoia, space, and suicidal thinking. The next four items form subscale B (Behaviors-Negative) and assess negative behaviors-like self-injury. In both these two subscales, items are rated from 1 (None/Slight) to 5 (Extreme). The last three items form subscale C (Behaviors-Positive) and assess positive behaviors like continuing to therapy. These three items are rated from 5 (Almost Always) to 1 (Almost Never) [13].

To our knowledge, there is no study in the literature that has conducted on BEST in different languages. For this reason, in the current study, we aimed to translate and establish psychometric properties and factorial validity of the BEST in a representative Turkish university students sample and obtain normative data for future epidemiological and clinical studies in Turkey.

Methods

Study participants

Participants were 306 (201 females, 105 males) college students at the Hasan Kalyoncu University in Gaziantep, Turkey. The study protocol was approved by the Ethics Committee of Hasan Kalyoncu University. Written informed consents were obtained from the participants following the study protocol was thoroughly explained. Exclusion criteria included being diagnosed with psychiatric disorders, using psychotropic drugs, at that moment being under the influence of alcohol or a similar substance in that would affect mental processes. Moreover, 19 participants who gave "socially desirable" responses to Marlowe– Crowne Social Desirability Scale [14] were not included in the study.

Psychometric measurements

Sociodemographic Data Form. This form includes demographic variables including gender, age, marital status, number of children, education, location, household members, occupation, employment status, number of siblings, family history of chronic disease, other known physical illnesses, and previous psychiatric treatments.

Turkish BEST. BEST is a 15-item self-report schedule that is developed by Pfhol and Blum in 2009 [13]. This Likert-style scale is composed of three subscales. The purpose of the development of this scale was that to measure the severity and variation of the borderline personality. The scale consists of items that measure feelings, thoughts, and behaviors and it is used to measure the severity of borderline personality rather than to diagnose it [13]. The Turkish BEST has been translated into Turkish by Samet Kose, and back-translated into English by Ercan Akin who was blinded to the original items. After establishing the semantic equivalence of the BEST items, the content equivalence of all items was examined, and no items were excluded as being irrelevant to Turkish culture. Final version was approved by Pfhol and Blum.

Turkish BPQ. The BPQ was developed by Poreh et al. [15] and is a self-report scale composed of 80 items. BPQ Borderline Personality traits tested for reliability and validity are evaluated according to DSM-IV criteria. BPQ has a separate subscale for each criterion in DSM-IV. Validity and Reliability of this scale are examined on 763 college students [15]. BPQ scale has nine subscales which are Impulsivity, Instability in affect, Abandonment, Relationships, Self-Image, Suicide/ Self-Mutilation Behavior, Emptiness, Intense Anger, and Psychosis-like Cases [15].

Marlowe–Crowne Social Desirability Scale. Marlowe–Crowne Social Desirability scale is a self-report scale composed of 33 items and developed by Crowne and Marlowe in 1960 [14]. The objective for developing this scale is to eliminate socially desirable responses. Falling prey to social desirability may cause us to distort our beliefs and experiences in interviews or on psychological tests. The bias towards responding in socially desirable directions is a source of error in the case study, survey, and testing methods [14].

Beck Depression Inventory (BDI). BDI is a self-report scale composed of 21 items and measures somatic, emotional, cognitive, and impulsive symptoms of depression [16]. Each item takes a point between 0 and 3. The point that can be taken from inventory varies between 0 and 63 and high points indicate a rise in depressive mood. The scale aims not to diagnosis but to convert the symptom's level to objective number [16]. Overall scores for all questions is evaluated like this: a score between 10 and 16 shows low depression symptom, a score between 17 and 29 is middle depressive symptom, and a score between 30 and 63 is severe depressive symptom. BDI has been adapted into Turkish and the reliability and validity has been examined by Hisli [17].

Personality Belief Questionnaire. The content of PBQ is composed of the items directed to determine one's basic beliefs about oneself, other people, and the world [18]. Original form is about to avoidant, dependent, passive aggressive, obsessive compulsive, antisocial, narcissistic, histrionic, schizoid, and paranoid attitudes and beliefs and consists of 9 categories, each has 14 question, and 126 items in total [18]. After reading each item, subjects mark the items between zero (I do not believe at all) and four (I believe completely) according to how much it is related to them. The scale is appropriate for evaluation and treatment of person with personality disorder. Turkish BPQ was adapted to the Turkish by Turkcapar and Kose, its validity and reliability were done by Turkcapar et al. [19].

State-Trait Anxiety Inventory. State-Trait Anxiety Inventory was developed by Spielberger et al. in 1970 [20] and it is a Likert-type scale that measures the level of state anxiety and trait anxiety with 20 questions for each. While State Anxiety Inventory evaluates the sensational reaction that shows sudden changes Trait Anxiety Inventory at the second part of the inventory measures the continuity of the anxiety that people generally show tendency throughout life. Higher scores show higher anxiety level and lower scores show lower anxiety level. The items are ranked between 1 (never) and 2 (completely). The total score obtained from both inventory changes between 20 and 80. Inventory has been introduced to Turkish with a reliability and validity study done by Oner and Le Compte [21].

Statistical analysis

All variables were screened for accuracy of data entry, missing values, and homoscedasticity using SPSS 23. The data had less than 5% of missing items and no pattern was detected. Descriptive statistic was reported using means and standard deviations for continuous variables and frequencies and percentages for categorical variables. A comparison of BEST scores between the Turkish sample and Nancee Blum and Bruce Pfohl's original sample was performed with a one-sample *t*test. Correlation analysis between the BEST scale and subscales were performed using Pearson's correlation coefficients. The internal consistency of the Turkish BEST scale and subscales was estimated using Cronbach's alpha coefficients. Based on the theoretical structure, three sets of exploratory factorial analyzes were performed. Principal factor analyzes with Oblimin and Promax rotations were used. The alpha level of 0.05 was set up to indicate statistical significance.

Results

Sociodemographic characteristics of sample

As it was shown in Table 1 in detail, the average age of 306 participants in the study was 21.19 with a standard deviation of 2.85 and it ranged from 18 to 49. The sample consisted of 201 females (65.7%) and 105 males (34.3%) students. The majority of the students participated in the study were single (96.4%) and 10 (3.3%) were married and 1 student was divorced. The 95.4% of the sample had no grade repetition ever and 4.6% had. The parents of 6 students had divorced, mothers of 4 students and fathers of 14 students were deceased. The detailed demographic characteristics of participants were presented in Table 1.

Correlations of age with the BEST scales

Even though this study had an age range of 18–49, the sample consisted of only college students and 92.5% of participants were under 23 years old. Therefore, correlations of age with the BEST scale and subscales may

Table 1. Demographic characteristics of the sample.

	п	%
Gender		
Female	201	65.7
Male	105	34.3
Marital status		
Married	10	3.3
Single	295	96.4
Divorced	1	.3
Income (Monthly)		
0–500 TL	101	33
500–1000 TL	145	47.4
1000-3000 TL	35	11.4
Above 3000 TL	25	8.2
Grade repetition		
No	292	95.4
Yes	14	4.6
Parent divorce		
No	300	98
Yes	6	2
Mother died or alive		
Alive	302	98.7
Died	4	1.3
Father died or alive		
Alive	292	95.4
Died	14	4.6
Mother's education level		
None	34	11.1
Primary school	136	44.4
Secondary school	44	14.4
High school	54	17.6
Undergraduate	33	10.8
Graduate	5	1.6
Father's education level		
None	11	3.6
Primary school	84	27.5
Secondary school	28	9.2
High school	93	30.4
Undergraduate	79	25.8
Graduate	11	3.6

Table 2. Conclations between scales used in the study and aq	Та	ble	2.	Correlations	between	scales	used	in	the	study	and	aq
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	Age	BEST	Thoughts and Feelings	Negative Behaviors	Positive Behaviors	BPQ	BDI	State Anxiety	Trait Anxiety	PBQ
Age										
BEST	-0.076									
Thoughts and Feelings	-0.116*	0.912**								
Negative Behaviors	-0.014	0.768**	0.634**							
Positive Behaviors	-0.016	-0.490**	-0.171**	-0.141*						
BPQ	0.019	0.337**	0.342**	0.261**	-0.096					
BDI	-0.043	0.460**	0.449**	0.253**	-0.257**	0.375**				
State Anxiety	-0.022	0.351**	0.315**	0.195**	-0.248**	0.299**	0.551**			
Trait Anxiety	-0.066	0.387**	0.404**	0.180**	-0.193**	0.306**	0.662**	0.599**		
PBQ	-0.182**	0.337**	0.346**	0.257**	-0.092	0.322**	0.357**	0.278**	0.297**	
*Correlation is sign	ificant at th	e 0.05 level (1	wo-tailed).							

**Correlation is significant at the 0.01 level (two-tailed).

not show the variance expected. Intercorrelations between the three BEST scales and age are shown in Table 2. Only intercorrelation between age and Thoughts and Feelings subscale found to be significant (r = -0.116, p < .05). All other scales were negatively correlated with age. These intercorrelation coefficients were weak and not statistically significant. As age increases, Thoughts and Feelings, Negative Behaviors

Comparison of the BEST scales in terms of gender

and Positive Behaviors scores were decreasing.

In our sample, the number of female participants was nearly two times greater than male participants (201 females, 65.7%, 105 males, 34.3%). To compare mean scores of females and males, we used independent sample *t*-test and compared the means of both groups. A statistically significant difference was found between male and female participants regarding Negative Behaviors scale. The mean score of Negative Behaviors ($\mu = 6.552$, t = -2.556, df = 304, p < .05) were significantly higher in males than females. Although the mean score of Positive Behaviors were higher in females than males and the mean score of Thoughts and Feelings was higher in males than females, these differences were not found to be statistically significant.

Internal consistency

The Cronbach's alpha coefficients for the Thoughts and Feelings, the Negative Behaviors, and the Positive Behaviors were 0.80, 0.65, and 0.67, respectively. For the whole scale, Cronbach's alpha coefficient was found to be 0.75. The Cronbach's alpha coefficients for the Turkish BEST subscales were relatively consistent within each of the scales. That is to say, all subscales had alpha values above 0.60. Furthermore, since the validity and reliability studies of the scales we used in our study have been performed long time ago, we wanted to see the internal consistency measures in our data, hence, the internal consistency values of the measures, other than the BEST have been examined and reported. The Cronbach's alpha coefficients for BPQ (0.89), STAI-State Anxiety (0.91), STAI-Trait Anxiety (0.84), BDI (0.89), and BPQ (0.94) were sufficient. Mean and SD and Cronbach's alpha values of Scales Used in Turkish Sample in Table 3.

Test-retest reliability of the Turkish BEST

Test-retest correlations for the Turkish BEST scales and subscales after 1 month are presented in Table 4. The test-retest correlation coefficient for Thoughts and Feelings, Negative Behaviors, and Positive Behaviors found to be 0.61, 0.50, and 0.51, respectively. There were no significant differences between the mean scores of the Turkish BEST across the 1-month test-retest period.

Convergent and discriminant validity

Convergent and discriminant validity were examined by correlation between the BEST scale scores and BPQ, BDI, PBQ, State–Trait Anxiety scales scores. A

 Table 3. Mean and SD and Cronbach's alpha values of scales used in Turkish sample.

	М	SD	а
BEST	25.7	8.9	0.75
Thoughts and Feelings	15.7	5.9	0.80
Negative Behaviors	6.0	2.6	0.65
Positive Behaviors	11.1	3.0	0.67
BPQ	22.9	10.8	0.89
STAI-State Anxiety	36.6	10.4	0.91
STAI-Trait Anxiety	42.5	8.6	0.84
BDI	10.0	8.6	0.89
PBQ	87.7	34.7	0.94

Table 4. Test–retest correlations for the Turkish BEST after 4-weeks (n = 50).

r _{tt}
0.606
0.509
0.503
0.666**

Note: *r*_{tt}: test–retest correlation coefficient.

***p* < .01.

positive and statistically significant correlation was found between the Turkish BEST and BPQ (r = 0.337, p < .01), BDI (r = 0.460, p < .01), PBQ (r = 0.337, r < .01), State Anxiety (r = 0.351, p < .01), and Trait Anxiety (r = 0.357, p < .01) scales.

The correlation coefficients between the BEST subscales and BPQ and PBQ subscales were also examined. There were statistically significant and positive correlation coefficients between Thoughts and Feelings and Negative Behaviors subscales of the BEST and all subscales of the PBQ. The highest correlation was found between Thoughts and Feeling subscale of the BEST and Avoidant subscale of PBQ (r = 0.349, p < .01). A negative and statistically significant correlation coefficient was found between Positive Behaviors subscale of the BEST and Passive Aggressive and Narcissistic subscales of PBQ (r = -0.152, p < .01; r = -0.158, p < .05, respectively). The lowest correlation coefficient was found between Thoughts and Feeling subscale of the BEST and Histrionic subscale of the PBQ (r = 0.141, p < .05).

There were also statistically significant and positive correlation coefficients between Thoughts and Feelings and Negative Behaviors subscales of the BEST and all nine subscales of the BPQ. The Highest correlation was found between Thoughts and Feeling subscale of the BEST and Quasi-Psychotic States subscale of BPQ (r = 0.342, p < .01). A negative and statistically significant correlation coefficient was found between Positive Behaviors subscale of the BEST and Emptiness subscale of the BPQ (r = -0.150), p < .01). The lowest correlation coefficient was found between Thoughts and Feeling subscale of the BEST and Impulsivity subscale of the BPQ. Correlations between the Turkish BEST, age, and other scales were presented in Table 5.

Factor structure of the Turkish BEST

To examine the factor structural validity of the BEST scale, exploratory factor analysis has been performed by various methods. Kaiser–Meyer–Olkin Measure of Sampling Adequacy (KMO) and Barlett's test of Sphericity were performed. In this study, KMO Sampling Adequacy was found to be 0.53 and Barlett's test of Sphericity χ^2 was found as 165.074.

Factor structure of the BEST scales was explored with an exploratory factor analysis using a condition of Eigenvalues greater than 1 rule for retaining factors. The results indicated a one-factor solution did not provide a strong fit. On the other hand, a two-factor solution showed a better factor distribution. The first two subscales of the BEST loaded on factor 1 and the last subscale Positive Behaviors loaded on factor 2, as expected. These two factors accounted for 56.76% and 31.35% of the variance (87.81% cumulatively).

Table 5. Correlations between the Turkish BEST, age, and other scales.

		Thoughts and	Negative	Positive
Scales	BEST	Feelings	Behaviors	Behaviors
BPQ	0.261**	0.342**	0.261**	NS
Impulsivity	0.330**	0.120*	0.156**	NS
Affective instability	0.256**	0.241**	0.156**	NS
Abandonment	0.350**	0.286**	0.202**	NS
Relationships	0.157**	0.186**	NS	NS
Self-image	0.255**	0.165**	0.124*	NS
Suicide-Self- Mutilation	0.317**	0.232**	0.208**	NS
Emptiness	0.155**	0.234**	0.201**	-0.150**
Intense anger	0.244**	0.231**	0.182**	NS
Quasi-Psychotic States	0.299**	0.218**	0.151**	NS
STAI-State Anxiety	0.351**	0.315**	0.195**	-0.248**
STAI-Trait Anxiety	0.357**	0.404**	0.180**	-0.193**
BDI	0.460**	0.449**	0.253**	0.257**
PBO	0.337**	0.346**	0.257**	NS
Avoidant	0.330**	0.349**	0.214**	NS
Dependent	0.256**	0.240**	0.218**	NS
Passive aggressive	0.350**	0.332**	0.263**	-0.152**
Obsessive compulsive	0.157**	0.202**	0.156**	NS
Antisocial	0.255**	0.262**	0.194**	NS
Narcissistic	0.317**	0.282**	0.257**	-0.158**
Histrionic	0.155**	0.141**	0.142*	NS
Schizoid	0.244**	0.297**	0.173**	NS
Paranoid	0.299**	0.317**	0.176**	NS
Borderline	0.261**	0.265**	0.204**	NS

Note: NS: not significant.

*Correlation is significant at the 0.05 level (two-tailed).

**Correlation is significant at the 0.01 level (two-tailed).

able 6. Factor structure of the Turkish	i Best.
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Scale	Factor 1	Factor 2		
Eigenvalue	1.703	0.932		
Variation (%)	56.75	31.05		
Thoughts and Feelings	0.898	-0.025		
Negative Behaviors	0.909	0.024		
Positive Behaviors	0.000	1.000		
	11 C			

Note: Promax with Kaiser normalization was performed Loadings with absolute value \geq 0.40 are shown in bold.

The results of the two-factor structure of the BEST scales were shown in Table 6.

Discussion

In this study, we aimed to examine the validity, reliability, and factor structure of the BEST scale in a Turkish sample. The main results of the study confirmed that the Turkish BEST was observed to have stable and reliable psychometric properties.

One of the most important results of this study is that in terms of total BEST and Negative Behaviors scale scores, there is a statistically significant difference between male and female scale scores. Male's scores in both total BEST and Thoughts and feelings subscale are higher than women's. However, studies in the literature shows that BPD is more common among women [2]. Despite this finding, we expect that women with borderline personality would have higher scores compared to men. Therefore, further longitudinal studies are needed to clarify the epidemiology of BPD in Turkish society.

Cronbach's alpha coefficients of the Turkish BEST for both the scale and subscales were high enough as in Pfhol et al.'s original study [13]. Due to the fact that Cronbach's alpha coefficients were high enough (>0.60) in both main scale and subscales, the internal consistency of the Turkish BEST was considered to be sufficient. The present study also confirmed that the Turkish BEST has good test–retest reliability due to the fact that similar correlations were observed across a one-month interval, indicating stability of the measure over time.

BPD mostly has comorbidity with Axis I disorders, especially accompanied mostly by depression, anxiety, substance abuse, and eating disorders [22-24]. In our sample, Turkish BEST was found to be positively correlated with Turkish BPQ, PBQ, BDI, and STAI scores. The participants who received higher scores in Turkish BEST also received higher scores in these personality, depression, and anxiety scales. In the original study, Pfhol et al. [13] reported that at the screening visit, the BEST is strongly correlated with the Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD) score, the Symptom Checklist-90-R (SCL-90-R) total score, the Social Adjustment Scale (SAS) total score, the Clinical Global Impression (CGI) severity score, and both the Global Assessment Scale (GAS) and BDI scores.

The factor structure of BEST has not been determined in the original study of the BEST scale. In the present study, in order to measure the factor structure of the Turkish BEST scale, the exploratory factor analysis method was used to find out the number of dimensions and which items construct each factor. Exploratory factor analysis can be quite useful for assessing the extent to which a set of items assesses a particular content domain and it is commonly used to reduce the set of observed variables to a smaller, more parsimonious set of variables [25]. The scale's first 12 items aimed to predict some symptoms of BPDs which are fear of abandonment, thoughts about others, the concept of self, mood changes, paranoid thoughts and disconnection of the links with reality, feeling angry, feeling suicidal, and having selfinjurious behavior, impulsivity and anger problems. Last three items of the scale help to predict the effectiveness of the treatment; instead of self-injurious behaviors choosing positive actions, taking reasonable steps to avoid emotional difficulties, and following the therapy. Upon examining the internal structure and the content of the borderline personality traits via the BEST at the subscale level, we found a one-dimensional solution. However, this factor solution did not provide a strong fit. For this scale, a two-factor solution showed

a better factor distribution. Using an oblique rotation and a principal axis method for extraction, the results yielded a two-factor solution that accounted for 87.81% of the observed variance. The first two subscales of the BEST that are about Thoughts and Feelings and Negative Behaviors formed factor 1 and accounted for 56.76% of variance and the last subscale that is about following the therapy and predicting the effectiveness of the treatment formed factor 2 and accounted for 31.35% of variance (87.81% cumulatively).

As we stated above, the first factor consisted of 12 items predicting symptoms of borderline personality. These symptoms predict existing abnormalities in person's thoughts, feelings, and actions as defined by DSM-IV/DSM-5 criteria for the BPD. The second factor is just about following the Systems Training for Emotional Predictability and Problem Solving (STEPPS) program, change in negative behaviors, and mood regulation [13]. For this reason, it was an expected result that the first two subscales factored into symptoms of borderline personality and the last three items of scale which comprise the third subscale named Positive Behaviors would have not factored into a separate factor. In other words, our data indicated a two-factor structure which would have fitted borderline personality symptoms outlined by the items in the BEST. First, predicting the symptoms of borderline personality, and the second is examining the effectiveness of the therapy program. Therefore, the results of this study are consistent with the one-dimensional structure found in both non-clinical [26,27] and clinical samples [28,29].

The results reported in this study should be considered in light of certain limitations. First, the sample in this study was recruited from volunteer college students with a limited age range and mostly of women, which to some extent limits the generalization of the results to other samples. We plan to design and conduct further studies with BPD patient populations in different clinical settings. Secondly, the present study is the first that examines the psychometric properties of BEST in different cultures so we were unable to compare and discuss our results on the basis of cultural differences. As a last limitation, Pfhol et al. [13] have not analyzed the dimensional structure of the BEST. Therefore, we were unable to compare the factorial structure of the BEST.

In conclusion, the Turkish version of the BEST had sound psychometric properties in our sample of Turkish healthy volunteers, including its internal consistency, test-retest reliability, concurrent validity, and factorial structure. Although the BEST subscales may not possess high reliability in other languages, the BEST might be more practical when used as screening measure for BPD as it has fewer items and possesses overall reasonable reliability and in clinical settings they would provide diagnostic suggestions that could be followed by a more in-depth clinical interview. The Turkish BEST will be useful for future studies in different countries to help better understanding normalcy, psychopathology, and personality disorder and to examine the biological, social, and psychological differences in people from different cultures.

Disclosure statement

No potential conflict of interest was reported by the authors.

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