

Psychometric Evaluation of a Persian Version of Beliefs about Emotions Scale in Community and Clinical Samples

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Abstract

Objective: This research is primarily conducted to determine the psychometric properties of the Beliefs about Emotions Scale (BES) in community and clinical samples. The BES is a scale measure used for evaluating individuals' beliefs in terms of how acceptable it is for them to experience and express their emotions.

Method: This study was conducted on two separate samples. In the first part, 300 individuals were selected from a general sample in Tehran using the quota sampling method. For the second part of the study, we used purposive sampling to gather data from 119 patients suffering from Major Depressive Disorder (MDD) and 121 patients from Somatic Symptoms Disorder (SSD), whose disorders were diagnosed based on the DSM-5 diagnostic criteria. The BES structural validity was examined through Confirmatory Factor Analysis (CFA). Additionally, test-retest composite and internal consistency indices were explored to investigate the reliability of the BES score. Finally, the associations of the BES score with the Hospital Anxiety and Depression Scale (HADS), Young Schema Questionnaire (YSQ), Multidimensional Perfectionism Scale (MPS), Difficulties in Emotion Regulation Scale (DERS), and Emotion Regulation Questionnaire (ERQ) scores were highlighted to investigate the discriminant and convergent validity of the BES score.

Results: According to CFAs, the one-factor model for the BES demonstrated a good fit with the data collected from both the clinical and community samples. The internal consistency (Cronbach's alpha) was satisfactory in the community sample ($\alpha = 0.84$) and the clinical samples of SSD ($\alpha = 0.86$) and MDD ($\alpha = 0.83$). The community sample demonstrated high overall test-retest reliability (ICC = 0.93, $P < 0.001$; 95% CI: 0.89 - 0.95). In terms of convergent validity, the findings confirmed that in the MDD sample, there was a significant relationship between the BES and almost all measures (including Depression ($r = 0.39$, $P < 0.01$), Anxiety ($r = 0.21$, $P < 0.05$), Self-Sacrifice ($r = 0.27$, $P < 0.01$), MPS-total score ($r = 0.22$, $P < 0.05$), DERS total score ($r = 0.50$, $P < 0.01$), and Suppression ($r = 0.38$, $P < 0.01$)). However, in the SSD group, this finding was not found.

Conclusion: The results demonstrated that the Persian BES is a reliable and valid scale of maladaptive beliefs about emotions which could be implemented for both clinical and research aims.

Key words: Cognition; Depressive Disorder; Emotions; Somatization Disorder; Validation Study

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Beliefs about emotions are one of the components of emotion regulation (1). Research results show that holding strong beliefs regarding the unacceptability of undergoing negative feelings or the negative outcomes of expressing them can significantly affect the individuals' somatic and mental health (2). For example, Bowers (3, 4) found a negative correlation between certain beliefs, which label some types of emotions as unacceptable, and health in individuals with fibromyalgia and IBS. These negative correlations may be the outcome of emotional suppression which, according to the theory of ironic processing, leads to increased affective distress (5). In another study, Sydenham (6) found that the association between beliefs about emotions and fatigue, depression, and anxiety can be mediated by self-compassion and emotional avoidance rather than social support. Some therapeutic approaches have established special methods for the management of unhelpful beliefs about emotions. Emotion-focused therapies help patients find more effective ways to overcome their problems, promoting full awareness and acceptance of their emotions instead of judging, avoiding, or controlling them. Such therapies include Dialectical Behaviour Therapy (7), the Unified Protocol (8) and Acceptance and Commitment Therapy (9). Given the effects of emotional beliefs on various clinical problems and the effectiveness of many different psychotherapies focusing on the unhelpful beliefs about emotions, it becomes essential to measure such beliefs and their clinical aspects.

Brief self-report measures are widely used in both clinical and research settings as they enhance diagnostic accuracy and help quickly assess the response to treatment (10). In this vein, the Beliefs about Emotions Scale (BES) is a self-report measure of beliefs concerning the unacceptability an individual may feel in his experience or expression of some types of emotions, which has an acceptable degree of validity and reliability (2). The BES includes only 12 items and assesses clinically essential aspects of emotion-related beliefs (4). Rimes and Chalder (2) evaluated the psychometric properties of the BES in individuals with chronic fatigue syndrome (CFS). According to their observations, those with CFS scored significantly higher in the BES compared to healthy individuals. They also found that scores of people with CFS were significantly related to fatigue, anxiety, depression, self-sacrifice schemas, dysfunctional attitudes, and perfectionistic self-beliefs. Furthermore, the CFS sample showed a significant reduction in BES scores after receiving CBT, supporting the BES as a sensitive measure of change in beliefs. In addition, in a cross-cultural study conducted on 645 Brazilian participants, the validity and reliability of the BES were confirmed (11).

As mentioned above, clinical and research findings have confirmed the association between the dysfunctional beliefs about emotions and psychosomatic and emotional

disorders and supported the instrument reliability and validity in identifying these beliefs. Despite these facts, there is no study on the validity and reliability of the BES in general populations and clinical outpatients in Iran.

Therefore, the current research investigated the BES psychometric properties in two separate samples: a community sample and a clinical sample which included patients diagnosed with Somatic Symptoms Disorder and Major Depressive Disorder.

Materials and Methods

Sample Size

When conducting CFA, it is important to note that the review by Dimitrov (16) showed several rules of thumb for determining the sample size such as 100 – 250 (12, 13), 300 (14), and 500 or more participants (15). Additionally, the adequacy of the sample size is critical to gain a reasonable power for significance tests, model fit indices, and likelihood ratio tests under particular model/research circumstances (17, 18). A sufficient power is also necessary for specific parameter tests such as factor loadings (19). A commonly used rule of thumb for CFA/SEM analysis is to consider 10 to 20 samples per item in a questionnaire (20-22). Therefore, in line with the literature and considering the limitations of sampling from the clinical samples (here, MDD and SSD communities), we gathered data from 121 patients with SDD, 119 patients with MDD, and 300 individuals from the community samples. Three MDD, SSD, and community samples were used to check the interrater reliability, which is defined as the extent to which different observers are consistent in their judgment.

Sample 1: Internal Consistency, Test-Retest Reliability, Factor Structure of the BES in the Community Sample

The community sample consisted of 300 adults (78.7% female) with ages ranging from 18 to 54 ($M = 36.49$, $SD = 10.45$) and residing in Tehran. Quota sampling was applied to ensure that individuals with different age and educational levels were selected to reflect the demographic diversity in Tehran. The participants were categorized according to their marital status as single (42.7%) and married (57.3%). The educational level percentages of the participants were also as follows: Under Diploma (4%), Diploma (43.4%), BA (27.7%), MA (18%), and PhD (7%).

Measures

Demographic questionnaire

This questionnaire includes items assessing participants' age, gender, marital status, and educational level.

Beliefs about Emotions Scale (BES, 2)

The BES is acknowledged as a twelve-item self-report questionnaire developed by Rimes and Chalder (2). It assesses the beliefs about how unacceptable the emotions one may experience and express could be. The content of this scale focuses on the type of beliefs that

are important in clinical reports and cognitive models (2).

It is rated on a 7-point Likert scale ranging from 6 (totally agree) to 0 (totally disagree). The maximum score of all items is 72, and higher scores indicate a stronger belief that experiencing and expressing of emotions are unacceptable. It has been shown to yield one factor and has high internal consistency, with $\alpha = 0.91$. The BES has demonstrated significant correlations with negative perfectionism, self-sacrifice, indices of dysfunctional attitudes, anxiety, depression, and fatigue (2).

Procedure

The original BES was first translated from English to Persian. Next, an independent translator, fluent in both Persian and English, performed the reverse translation. Afterward, the original items and the Persian translation were independently examined and compared by a person fluent in both English and Persian Languages. Subsequently, to examine the content validity of the measure, seven clinical psychology specialists were asked to check the translated items. The psychology specialists found the translated items to be fluent and comprehensible in terms of their assessment of the beliefs about emotion (CVR = 0.91). Following the preparation of the initial Persian version of the BES, it was administered to 49 participants in Tehran, Iran, to evaluate the reliability of the items. The findings confirmed the adequate reliability of the items in the BES.

To gather the datasets from a sample of 300 individuals, research assistants distributed the BES and collected an equal number of questionnaires from each age and educational-level sub-cohort. Before administration, the participants were informed about the study objectives through detailed explanations, and it was ensured that the data gathered for this research would remain confidential. It should be noted that they voluntarily participated in this project. This research was first evaluated and confirmed by the Ethics Review Board of Shahid Beheshti University of Medical Sciences, Tehran, Iran (IR.SBMU.MSP.REC.1399.291).

Data Analysis

Before analysis, the obtained data were screened. Box plots, histograms, and scatter plots were used for item deletion, and the normality of the data was assured based on skewness and kurtosis checks. Confirmatory factor analyses (CFAs) with maximum likelihood estimation and fixing factor loadings to 1 were employed to study the BES factor structure. To estimate the model fit, the following multiple indices were taken into account: Goodness-of-fit Index (GFI), Adjusted Goodness-of-fit Index (AGFI), Comparative Fit Index (CFI) with a cut-off of ≥ 0.90 being acceptable (23), Chi-2 (χ^2) with a ratio of < 5 being acceptable (23), and Root Mean Square Error of Approximation (RMSEA) with a value of < 0.08 being acceptable (23). Cronbach's alpha was applied to assess internal consistency. Finally, to

determine test-retest reliability, we randomly selected a subgroup of the participants who filled out the BES twice with a two-week interval, and Intraclass Correlation Coefficient (ICC) was employed for examining the test-retest reliability. For data analyses, we used SPSS 23 and AMOS 23.

Sample 2: Factor Structure, Internal Consistency, Convergent Validity, Construct Validity, and Specificity and Sensitivity of the BES in Clinical Samples

Participants

The clinical sample comprised of patients from several psychosomatic and psychiatric outpatient clinics meeting the DSM-5 criteria for SSD (N = 121; age: SD = 11.37, M = 36.73, range = 18-60; female = 76%) or MDD (N = 119; age: M = 35.20, SD = 8.66, range = 18-60; female = 73.1%). In the somatic symptoms sample, the individuals were categorized based on their marital status: single (44.6%) and married (55.4%). Their educational levels were also as follows: Under Diploma (5.8%), Diploma (32.2%), BA (38.8%), MA (19%), and PhD (4.2%). In the MDD sample, the patients were categorized based on their marital status: single (50.4%) and married (49.6%) with the educational levels of Under Diploma (1.7%), Diploma (25.2%), BA (45.3%), MA (26.1%), and PhD (1.7%). Table 1 describes the statistical data of the variables in the clinical samples.

Table 1. Standard Deviations and Means of the Considered Variables in Somatic Symptoms and Major Depressive Disorder Samples

| Variables | SSD Group (121 Patients) | | MDD Group (119 Patients) | |
|----------------|--------------------------|-------|--------------------------|-------|
| | Mean | SD | Mean | SD |
| BES | 42.77 | 9.62 | 44.61 | 11.77 |
| Depression | 7.83 | 4.57 | 10.30 | 5.37 |
| Anxiety | 8.81 | 5.21 | 9.09 | 4.50 |
| Self-Sacrifice | 63.32 | 14.56 | 58.56 | 12.05 |
| MPS | 148.43 | 23.45 | 146.85 | 20.95 |
| DERS | 98.99 | 20.37 | 110.59 | 20.28 |
| Reappraisal | 22.61 | 6.91 | 21.63 | 6.84 |
| Suppression | 12.62 | 4.73 | 15.19 | 5.02 |

Note: SSD = Somatic Symptom Disorder; MDD = Major Depressive Disorder; BES = Beliefs about Emotions Scale; MPS = Multidimensional Perfectionism Scale; DERS = Difficulties in Emotion Regulation Questionnaire.

Measure

Demographic Questionnaire

This questionnaire is composed of several items assessing the participants' age, gender, marital status, and educational level.

The Structured Clinical Interview for DSM -5 (SCID-5)(24): The SCID-5 represents a semi-structured interview used for studying clinical disorders, which is also acknowledged as a reliable and valid measure (24, 25). The Persian version of the SCID-5 yielded adequate test-retest reliability (0.60 - 0.79), Kappa reliability (0.57 - 0.72), and internal consistency (0.95 - 0.99) (26).

Beliefs about Emotions Scale (BES, (2)): It is previously described in study 1 above.

Hospital Anxiety and Depression Scale (HADS) (27). The HADS constitutes a fourteen-item self-report screening scale designed to identify the symptoms of depression and anxiety. It has two 7-item subscales, assessing anxiety and depression symptoms. The subscales of anxiety ($\alpha = 0.83$) and depression ($\alpha = 0.82$) were characterized by acceptable internal consistency. The HADS was moderately to strongly correlated with comparable questionnaires, 0.49 to 0.83 (28). Both depression and anxiety subscales of the Persian HADS have shown acceptable internal consistency ($\alpha = .85$ and 0.70) and test-retest reliability ($r = 0.75$ and $r = 0.71$) (29).

Young Schema Questionnaire, self-sacrifice subscale (YSQ, SS, (30)): Self-sacrifice is a subscale of the Young Schema Questionnaire containing five items that was developed to examine an individual's tendency to view and meet others' needs before one's own. Each item is scored on a 6-point Likert scale, ranging from 1 (completely false) to 6 (completely true). Research supports both the reliability and validity of this questionnaire (31). The Persian self-sacrifice subscale has shown agreeable internal consistency (0.71) and factor structure (32).

Multidimensional Perfectionism Scale (MPS, (33)): The MPS is a self-report measure containing 45 items which evaluates self-oriented perfectionism. It is rated on a seven-point Likert scale from 1 ("disagree") to 7 ("agree"). All subscales (self-orientated, other-orientated, and socially prescribed perfectionism) yielded sufficient reliability and validity (33). A Persian version of the MPS has yielded great internal consistency ($\alpha = 0.80$) and test-retest reliability ($r = 0.85$) (34).

Difficulties in Emotion Regulation Scale (DERS) Questionnaire (35). The DERS is a self-report scale with 36 items scored on a five-point Likert scale ranging from 1 ("almost never") to 5 ("almost always"). The DERS assesses six dimensions of emotional inclination: emotion non-acceptability, difficulties involved in goal-oriented behaviors, emotional unawareness, impulsivity, poor access to emotion regulation strategies, and no emotional clarity. The DERS was found to be

characterized by great internal consistency, convergent and predictive validity, and test-retest reliability (35). The Persian version of the DERS was found to have sufficient internal consistency of 0.90 (36).

Emotion Regulation Questionnaire (ERQ, (37)): The ERQ is a self-report measure with 10 items that examines the habitual use of emotion regulation via two strategies of reappraisal and suppression. Items are rated on a 7-point Likert type scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). The ERQ exhibits acceptable internal consistency, test-retest reliability, and validity (37). The Persian version of the ERQ subscales, i.e., reappraisal and suppression, also showed acceptable internal consistency and test-retest reliability values of 0.87 and 0.85, and 0.71 and 0.68, respectively (38).

Procedure

Using the purposive sampling method, we recruited participants from some outpatient clinics in Tehran from February 2020 to March 2021. To this end, purposive sampling as a non-probability sampling method was employed that incorporated a systematic strategy to select and recruit participants based on specific criteria (39). The population under study was diagnosed with SSD and MDD after a psychiatric interview conducted by MSc and PhD research assistants specializing in clinical psychology using the SCID-5, which was also used to determine both the inclusion and exclusion criteria. The inclusion criterion was considered to be the diagnosis of SSD or MDD in patients of 18 years old or higher. Individuals with learning disability, psychotic symptoms, or substance abuse were excluding from this study. Data from the patients meeting the inclusion criteria who completed the measures were used in the analyses. Prior to gathering the data, the patients became familiar with the overall objectives of the project pursued, and then, they were assured of the confidentiality of the collected data. This research project was first evaluated and confirmed by the Ethics Review Board of Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Data Analysis

Before analysis, the data was screened. Box plots, histograms and scatter plots were utilized for outlier deletion and the data normality was assured through skewness and kurtosis checks. The factor structure of the BES among MDD and psychosomatic disorders was assessed based on Confirmatory Factor Analyses (CFAs) with the maximum likelihood estimation and fixing factor loadings to 1 with AMOS 23. To estimate the model fit, multiple indices were taken into account including Chi-2 (χ^2) with the ratio of < 5 as acceptable (23), Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Comparative Fit Index (CFI) with the cut-off of ≥ 0.90 as acceptable (23), and Root Mean Square Error of Approximation (RMSEA) of < 0.08 as appropriate (23). The internal consistency and convergent validity were assessed based on Cronbach's

alpha and the Pearson correlation coefficient, respectively. Then, ANOVA was applied to evaluate the discriminant validity. Finally, in order to analyze the data, SPSS 23 and AMOS 23 were utilized.

Results

Sample 1

Factor Structure of the BES

The CFA outcomes showed excellent model fit for the one-factor structure ($\chi^2/df = 1.75$, GFI = 0.96, AGFI = 0.93, CFI = 0.97, RMSEA = 0.05) (see Table 2). Model fit indices are illustrated in Table 2.

Internal Consistency

Table 3 shows the SPSS Cronbach's alpha with deleted item index and corrected item-total correlation for the BES. The Cronbach's alpha for the BES in the community sample was 0.84.

Test-Retest Reliability

The correlation between test and retest for the total BES in the general population sample was ICC = 0.93, $P < 0.001$; 95% CI: 0.89 - 0.95, indicating good stability over time.

The composite reliability values were 0.823, 0.736, and 0.818 for the community, SSD, and MDD samples, respectively.

Table 2. Model Fit Indices of Confirmatory Factor Analysis for the Beliefs about Emotions Scale in the Community, Somatic Symptoms Disorder, and Major Depressive Disorder Samples

| | χ^2/df | GFI | CFI | TLI | RMSEA | RMSEA LO 90 | RMSEA HI 90 | RMR | NFI |
|------------------|-------------|-------|-------|-------|-------|-------------|-------------|-------|-------|
| Community Sample | 1.754 | 0.961 | 0.968 | 0.950 | 0.050 | 0.039 | 0.069 | 0.118 | 0.929 |
| SSD Sample | 1.028 | 0.944 | 0.995 | 0.992 | 0.015 | 0.001 | 0.065 | 0.151 | 0.859 |
| MDD Sample | 1.105 | 0.939 | 0.989 | 0.983 | 0.030 | 0.001 | 0.071 | 0.136 | 0.902 |

Table 3. Factor Loading, Alpha if Item Deleted, and Item-Total Correlations of the Beliefs about Emotions Scale in the Community Sample, Somatic Symptoms Disorder, and Major Depressive Disorder Groups

| Items | Community Sample (300 Participants) | | | | SSD Sample (121 Patients) | | | | MDD Sample (119 Patients) | | | |
|-------|-------------------------------------|----------------|-----------------------|-------------------------|---------------------------|----------------|-----------------------|-------------------------|---------------------------|----------------|-----------------------|-------------------------|
| | Factor Loading | Error Variance | Alpha if Item Deleted | Item-total Correlations | Factor Loading | Error Variance | Alpha if Item Deleted | Item-Total Correlations | Factor Loading | Error Variance | Alpha if Item Deleted | Item-Total Correlations |
| BES1 | 0.39 | 0.84 | 0.83 | 0.41 | 0.30 | 0.91 | 0.84 | 0.60 | 0.60 | 0.64 | 0.81 | 0.58 |
| BES2 | 0.51 | 0.74 | 0.83 | 0.47 | 0.50 | 0.75 | 0.84 | 0.53 | 0.62 | 0.61 | 0.81 | 0.49 |
| BES3 | 0.65 | 0.57 | 0.82 | 0.56 | 0.46 | 0.78 | 0.84 | 0.60 | 0.67 | 0.55 | 0.81 | 0.54 |
| BES4 | 0.47 | 0.77 | 0.83 | 0.48 | 0.36 | 0.87 | 0.84 | 0.60 | 0.47 | 0.77 | 0.82 | 0.50 |
| BES5 | 0.50 | 0.75 | 0.82 | 0.54 | 0.41 | 0.83 | 0.85 | 0.39 | 0.31 | 0.90 | 0.83 | 0.31 |
| BES6 | 0.77 | 0.40 | 0.82 | 0.61 | 0.67 | 0.55 | 0.84 | 0.64 | 0.75 | 0.43 | 0.80 | 0.62 |
| BES7 | 0.26 | 0.93 | 0.84 | 0.28 | 0.34 | 0.88 | 0.86 | 0.32 | 0.13 | 0.98 | 0.83 | 0.19 |
| BES8 | 0.47 | 0.77 | 0.82 | 0.52 | 0.23 | 0.94 | 0.84 | 0.56 | 0.53 | 0.71 | 0.81 | 0.54 |
| BES9 | 0.72 | 0.48 | 0.81 | 0.65 | 0.68 | 0.53 | 0.84 | 0.62 | 0.64 | 0.59 | 0.81 | 0.59 |
| BES10 | 0.59 | 0.65 | 0.82 | 0.60 | 0.35 | 0.87 | 0.84 | 0.56 | 0.52 | 0.73 | 0.81 | 0.55 |

| | | | | | | | | | | | | |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| BES11 | 0.60 | 0.64 | 0.82 | 0.56 | 0.42 | 0.82 | 0.84 | 0.62 | 0.55 | 0.69 | 0.81 | 0.60 |
| BES12 | 0.35 | 0.87 | 0.84 | 0.33 | 0.45 | 0.79 | 0.85 | 0.40 | 0.39 | 0.84 | 0.83 | 0.34 |
| Composite Reliability | 0.82 | | | | 0.73 | | | | 0.81 | | | |

Note: SSD = Somatic Symptom Disorder; MDD = Major Depressive Disorder

Sample 2

Confirmatory Factor Analysis

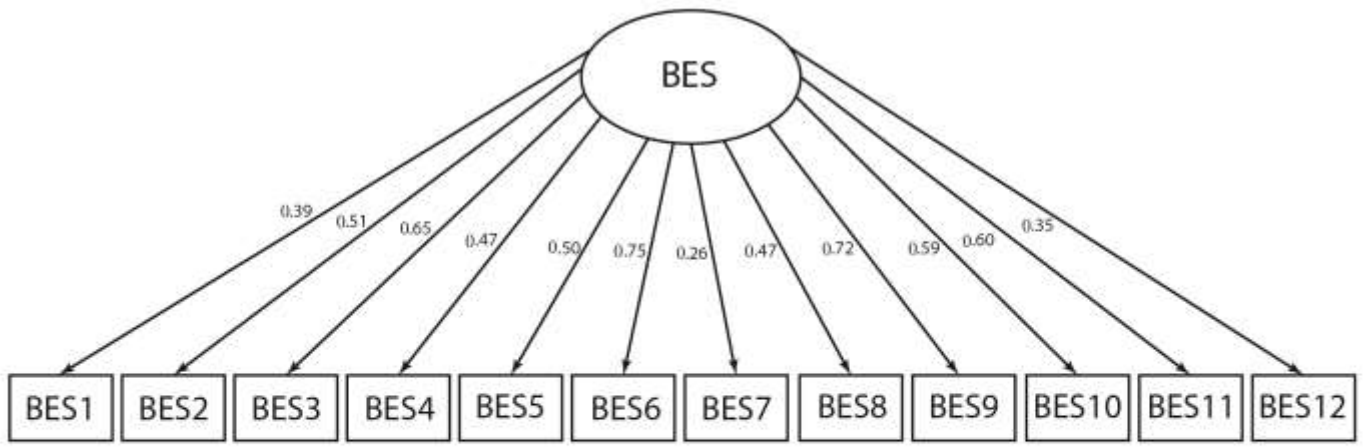
The CFA outcomes in the community, SSD, and MDD samples indicated great model fit for the one-factor structure of the BES (Fig.1). Fitness indices are listed in Table 2.

Internal Consistency of the BES

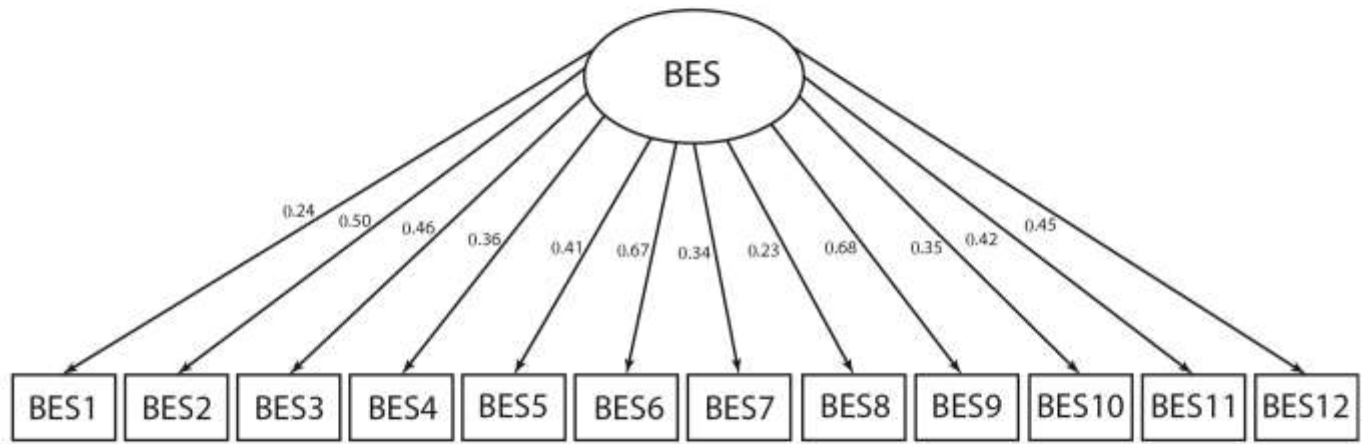
The SPSS data for Cronbach's alpha with deleted item index and corrected item-total correlation for the BES in the clinical samples are illustrated in Table 3. The Cronbach's alpha for the BES was within the good range in the SSD ($\alpha = 0.86$), MDD ($\alpha = 0.83$), and community ($\alpha = 0.84$) samples. The similar α range for the BES across the three samples confirmed the same reliability of the samples.

Convergent Validity

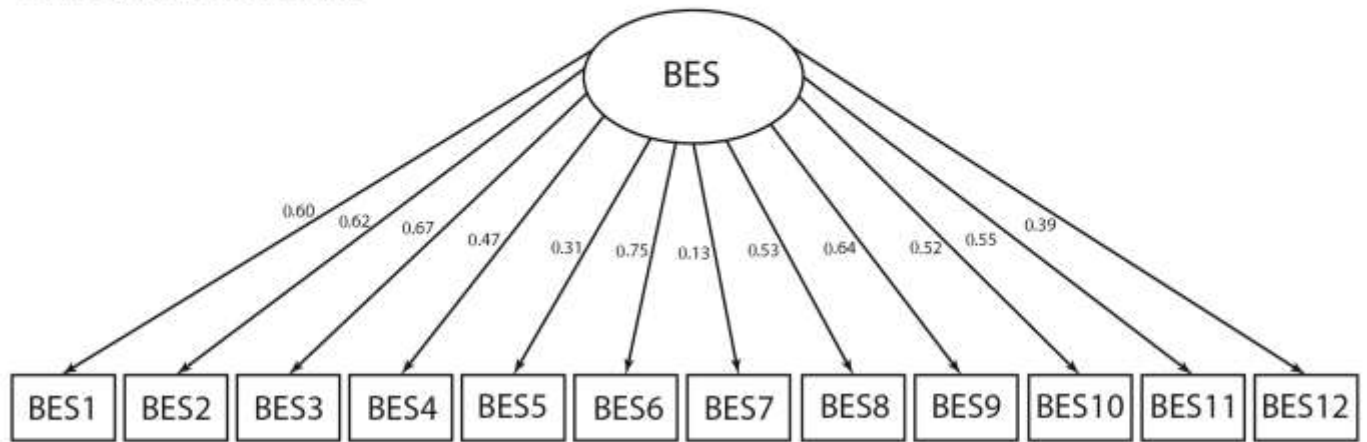
Outcomes of the bivariate correlations between the BES and theoretically related self-report measures indicated that there were no significant relationships between the BES and other self-report measures in the SSD sample. According to the findings in the MDD sample, the BES was considerably related to Depression ($r = 0.39, P < 0.01$), Anxiety ($r = 0.21, P < 0.05$), Self-Sacrifice ($r = 0.27, P < 0.01$), MPS-total score ($r = 0.22, P < 0.05$), DERS-total score ($r = 0.50, P < 0.01$), and Suppression ($r = 0.38, P < 0.01$). No significant relationship was found between the BES and Reappraisal (refer to Table 4).



Community sample



Somatic Symptom Disorder Sample



Major Depression Disorder Sample

Figure 1. Results of Confirmatory Factor Analysis of Beliefs about Emotions Scale in Three Community, Somatic Symptoms Disorder, and Major Depressive Disorder Samples

Table 4. Convergent and Discriminant Validity of the Beliefs about Emptions Scale

| | Construct Validity Results of BES | | Results of ANCOVA of BES | | | | | | |
|-------------|-----------------------------------|-----------|-------------------------------|----------------------------|----------------------------|---------|-------|----------|------------------------|
| | SSD group | MDD Group | Non-Clinical (n = 291) M (SD) | SSD Group (n = 121) M (SD) | MDD Group (n = 119) M (SD) | F | df | η^2 | Significant Bonferroni |
| Depression | -0.08 | 0.39** | | | | | | | |
| Anxiety | -0.07 | 0.21* | | | | | | | |
| SS | 0.09 | 0.27** | | | | | | | |
| MPS | 0.02 | 0.22* | | | | | | | 1 > 3 |
| DERS | -0.04 | 0.50** | 31.30 (12.18) | 42.77 (9.62) | 44.61 (11.77) | 40.46** | 4,526 | 0.23 | 2 > 3 1 = 2 |
| Suppression | 0.16 | 0.38** | | | | | | | |
| Reappraisal | 0.06 | -0.12 | | | | | | | |

Note: SSD = Somatic Symptoms disorder, SS = self-sacrifice subscale of YSQ, 1 = SSD, 2 = MDD, 3 = Non-clinical
 **P < 0.001, *P < 0.05

Construct Validity

In order to determine the BES discriminant validity, first, the differences in the demographic variables in both non-clinical and clinical groups were studied. The groups differed significantly only on educational ($\chi^2 = 28.51$, $P < 0.001$) and marital status ($\chi^2 = 18.67$, $P < 0.001$) variables. Thus, to control these variables, an analysis of covariance was used for data analysis. According to the findings, combined dependent variables [$F(4, 526) = 40.46$, $P < 0.001$, partial $\eta^2 = 0.23$] were the main reasons for the significant difference between the groups. The post-hoc findings with Bonferroni correction confirmed considerable differences between the SSD and non-clinical groups ($P < 0.001$) as well as between the MDD and non-clinical groups ($P < 0.001$) regarding the BES. The clinical groups did not significantly differ in terms of the BES (Table 4).

Discussion

The current research investigated the psychometric properties of the Persian version of the BES, which assesses how an individual may experience and express negative thoughts, in two non-clinical and clinical study samples. According to the CFA outcome, the BES one-factor structure was characterized by excellent fit in all samples. This finding was in agreement with the results from both the original and Japanese versions of the BES (2, 40). Except for item 7 ("I should not let myself give in to negative feelings"), all items had acceptable loadings on the BES factor. Item 7 showed the lowest loading in the SSD sample, corroborating results from the original study and Brazilian versions (2, 11). Furthermore, in the MDD sample, item 7 had no significant factor loading. The low loading on this item could be due to the negative verb used, requiring individuals to concentrate more when responding. As there are items in the questionnaire with similar content to item 7, this item could be removed for MDD populations. However, this issue should be investigated

further with respect to larger samples before item removal.

Investigation of the reliability of the BES, using alpha coefficients and test-retest correlation, demonstrated the scale's good reliability across all three samples. These results are in line with prior studies (2, 11).

As predicted, in the MDD sample, higher self-reports of beliefs about how unacceptable negative emotions one may experience and express could be indicative of depression, anxiety, DERS total score, MPS total score, self-sacrifice, and emotional suppression. These findings dovetail with previous studies suggesting that the BES has good construct validity and that there are significant correlations between negative beliefs about emotions and emotional disorders, emotion dysregulation, and unhealthy perfectionism in MDD patients (1, 6, 41). The finding that higher BES scores were associated with more emotional suppression but not with the adaptive strategy of reappraisal suggests that reappraisal is an adaptive emotion regulation strategy. In this regard, several research projects have shown that adaptive emotion regulation strategies generally have weak correlation with psychopathology (42). It can also be said that interventions could potentially focus mainly on improving the acceptance of emotions. However, cognitive behavioral strategies of reappraisal may also help them to feel more able in coping with negative emotions.

Contrary to expectations, in the SSD sample, no significant relationships were found between the BES and other self-report measures. One explanation for this finding could be that somatic symptom disorders are characterized by health anxiety about physical symptoms. This type of negative emotion may be viewed as an accurate representation of the threat indicated by their physical symptoms rather than an unacceptable experience (43). Therefore, assessing specific beliefs related to anxiety and other emotions in patients with SSD could be an important area for future studies. Another explanation could be that patients with

SSD often have reduced mental awareness of emotions (43). Such patients may remain in the first step of the emotion regulation process; thus, they may be prevented from entering later stages, resulting in not using a variety of emotion regulation strategies.

Finally, it was shown that the scores of the clinical samples on the BES were significantly higher than those in the non-clinical sample, demonstrating that the BES can distinguish between clinical and non-clinical groups. Furthermore, no significant difference was detected between the clinical groups on the BES scores. The obtained results were consistent with the assumption that negative beliefs about emotions were not specific to a particular disorder or symptom; rather, they have a transdiagnostic vulnerability factor that contributes to various clinical problems (2).

Limitation

Several limitations must be recognized in explicating the obtained results. First, we used the purposive sampling method to collect data. This approach could increase the likelihood of bias and limit the generalizability of the research findings. Second, our study samples were recruited from Tehran province; therefore, the results should not be generalized to samples from other cities in Iran.

Conclusion

The obtained findings further confirm the BES reliability and validity. The BES can be implemented as a measure of beliefs about emotion in both community and clinical samples, including individuals diagnosed with MDD and SDD. Consistent with previous studies, individuals with MDD and SSD reported more undesirable beliefs about experiencing and expressing emotions compared to non-clinical individuals. Meanwhile, the correlations between the BES and other self-report measures of depression, anxiety, and emotion regulation in MDD and SDD samples indicated that the definition and facets of beliefs about emotion might differ in MDD and SDD samples; thus, future studies should examine this finding further. The findings indicate that the new Persian BES has acceptable psychometric properties. However, this requires further research with various clinical samples. Additionally, studies should investigate the effect of such beliefs on the diagnosis and treatment achievements.

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Conflict of Interest

None.

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