Bilişsel Davranışçı Psikoterapi ve Araştırmalar Dergisi
Journal of Cognitive-Behavioral Psychotherapy and Research
DOI: 10.14744/JCBPR.2025.14176
J Cogn Behav Psychother Res 2025;14(4):264–275

Validation and Psychometric Examination of the Turkish Version of the Emotion Beliefs Questionnaire

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ABSTRACT

Beliefs about emotions have important consequences on how emotions are regulated, influencing the effectiveness of emotion management and overall mental health outcomes. The Emotion Beliefs Questionnaire (EBQ) was recently developed to evaluate the extent to which individuals believe that positive and negative emotions are controllable and useful. This study aimed to develop the Turkish EBQ form and examine its psychometric characteristics. The original form of the EBQ was translated and back-translated before being completed by a sample of 385 Turkish adults (M_{age}=21.76, SD=2.18, 74.8% women), along with measures of positive and negative affect, non-acceptance of emotions, psychological distress, and loneliness. Similar to the scale development study, the findings of the CFAs suggested a three-factor structure, which includes a general controllability dimension for positive and negative emotions and two separate dimensions for the usefulness of positive and negative emotions. The internal consistency coefficients and test-retest reliability values were comparable to those of the original version. Correlations with other constructs were consistent with our predictions, demonstrating the Turkish version's validity. Taken together, the analyses indicated that the Turkish EBQ is a reliable and valid questionnaire for assessing emotional beliefs.

Keywords: Beliefs about emotions, confirmatory factor analysis, emotion beliefs, Emotion Beliefs Questionnaire, psychometric properties.

ÖZ

Duygu İnançları Ölçeğinin Türkçe Versiyonunun Doğrulama ve Psikometrik İncelemesi

Duygularla ilgili inançlar, bireylerin duygularını nasıl düzenlediğini ve duygu düzenleme sürecinin etkinliğini şekillendirerek genel ruh sağlığı üzerinde önemli sonuçlar doğurmaktadır. Duygu İnançları Ölçeği (Emotion Beliefs Questionnaire; EBQ), bireylerin olumlu ve olumsuz duyguların kontrol edilebilir ve faydalı olduğuna ne ölçüde inandıklarını değerlendirmek amacıyla yakın zamanda geliştirilen bir öz bildirim ölçeğidir. Bu çalışmanın amacı, EBQ'nun Türkçe formunu geliştirmek ve psikometrik özelliklerini incelemektir. Ölçeğin orijinal formu çevrilip geri çevrildikten sonra, 385 Türk yetişkinden ($Ort_{yaş}$=21,76, SS=2,18; %74,8 kadın) oluşan bir örneklem tarafından doldurduldu. Katılımcılardan ayrıca olumlu ve olumsuz duygulanım, duyguları kabul etme ile ilgili güçlükler, psikolojik sıkıntı ve yalnızlık düzeylerine ilişkin ölçümler alındı. Orijinal ölçeğin geliştirme çalışmasıyla paralel olarak, doğrulayıcı faktör analizleri sonuçları olumlu ve olumsuz duygulara ilişkin genel bir kontrol edilebilirlik boyutu ile olumlu ve olumsuz duyguların faydalılığına ilişkin iki ayrı boyut içeren toplam üç faktörlü bir yapıyı destekledi. İç tutarlılık katsayıları ve test-tekrar test güvenilirlik değerleri orijinal form ile karşılaştırılabilir düzeydedir. Ölçeğin diğer değişkenlerle olan korelasyonları da beklentilerle tutarlı bulundu ve Türkçe formun geçerliliğine ilişkin kanıt sağladı. Genel olarak bulgular Türkçe EBQ'nun duygu inançlarını değerlendirmede güvenilir ve geçerli bir ölçme aracı olduğunu göstermektedir.

Anahtar Kelimeler: Duygu inançları, doğrulayıcı faktör analizi, duygularla ilgili inançlar, Duygu İnançları Ölçeği, psikometrik özellikler.

Cite this article as:
Tuna E. Validation and Psychometric Examination of the Turkish Version of the Emotion Beliefs Questionnaire. J Cogn Behav Psychother Res 2025;14(4):264–275.

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Submitted: 21.08.2025
Revised: 31.10.2025
Accepted: 08.11.2025
Available Online: 28.11.2025

JCBPR, Available online at http://www.jcbpr.org/

INTRODUCTION

Emotion beliefs include diverse attitudes, judgments, and values attached to emotions, such as characterizing them as helpful or hindering, changeable or fixed, or desirable or undesirable (Kisley et al, 2024). These beliefs shape how emotions are perceived and how we react to our own and other people's emotions; thus, they may have important psychological and psychosocial well-being outcomes (Ford & Gross, 2018). Ford and Gross (2018, 2019) posited that even though there are diverse emotion beliefs, beliefs about emotions can be categorized into two superordinate sets: (1) controllability (i.e., beliefs about whether emotions are controllable versus uncontrollable) and (2) usefulness (i.e., beliefs about whether emotions are useful versus useless). Ford and Gross (2018, 2019) also identified various subordinate beliefs within this framework, such as beliefs regarding specific emotional experiences (e.g., *anger is uncontrollable*), emotional valence (e.g., *negative emotions are bad*), specific emotion intensities (e.g., *high-intensity emotions are bad*), or emotion beliefs related to specific contexts (e.g., *emotions are bad in professional settings*). The authors suggested that emotional valence, among various subordinate categories, is especially relevant and influential in organizing emotional beliefs.

Previous research has revealed that different ways of thinking about emotions have significant effects on psychological well-being and psychopathological symptoms (De Castella et al, 2018; Ford et al, 2018a; Johnston et al, 2024a; Zhang et al, 2023; Zimmermann et al, 2021). For example, believing that emotions are fixed entities and cannot be intentionally changed has been related to increased levels of depressive symptoms, more negative and fewer positive emotional experiences, and lower social adjustment during the transition to college (Kneeland & Dovidio, 2020; Tamir et al, 2007). Furthermore, a belief that emotions are unhelpful is linked to reduced levels of happiness and social support (Karnaze & Levine, 2017), lower well-being, reduced emotional acceptance, and more frequent substance use (Karnaze & Levine, 2020). These types of dysfunctional emotion beliefs, such as believing that emotions are fixed or useless, might be especially prominent in clinical populations, such as individuals with social anxiety disorder, and may play a role in the perpetuation of psychopathology symptoms (De Castella et al, 2014). On the other hand, stronger beliefs about the usefulness of emotions have been linked to greater psychological well-being (Johnston et al, 2024a; Karnaze & Levine, 2020).

Empirical research has also shown that emotion beliefs are closely linked to emotion regulation and may indirectly influence well-being through their effects on the emotion regulation process (De Castella et al, 2018; Ford et al, 2018b; Zimmermann et al, 2021). Evidence from correlational and experimental studies indicates that believing more strongly that emotions can be intentionally changed or controlled is related to the use of more adaptive and antecedent-focused emotion regulation strategies, such as cognitive reappraisal, and less frequent use of less adaptive strategies, such as rumination and avoidance, and more effective emotion regulation (De Castella et al, 2013, 2018; Ford et al, 2018b; Kneeland & Dovidio, 2020; Kneeland & Simpson, 2022; Zimmermann et al, 2021). Furthermore, individuals who maintain the belief that emotions can be changed may be more inclined toward initiating the emotion regulation process regardless of the implemented strategy (Kneeland et al, 2016). On the contrary, holding the belief that emotions cannot be changed is associated with stronger emotional reactions to stressors, relying on less adaptive strategies of regulating emotions, such as avoidance, and general difficulties in emotion regulation (De Castella et al, 2013, 2018; Kappes & Schikowski, 2013). Additionally, those who believe that people cannot change their emotions may be less accepting of their emotional experiences (Kneeland et al, 2016), perceive emotions as unpleasant and beyond their control (Kappes & Schikowski, 2013), and may have negative secondary emotional reactions, such as guilt and self-criticism, which may impede adaptive regulation of emotions. To illustrate, after not being invited to a party by friends and feeling rejected and angry, someone who believes that emotions can be intentionally changed/controlled may feel control over emotions and attempt to regulate them by trying to see the situation from a different perspective. In contrast, someone who believes that people cannot change their emotions may find these emotions threatening and beyond control and either does not regulate emotions at all or implements less adaptive strategies, such as cognitive or behavioral avoidance.

In contrast to controllability beliefs, studies focusing on usefulness beliefs are less common; however, existing evidence links beliefs that emotions are good/useful to a more accepting stance toward emotions and a more adaptive emotion regulation process. For example, in one study, individuals holding the belief that emotions are functional reported using cognitive reappraisal more frequently and using expressive suppression, a less adaptive emotion regulation strategy, less frequently (Karnaze & Levine, 2020). Perceiving emotions as helpful was associated with a more accepting attitude toward emotional reactions to a distressing movie clip. Another study revealed that believing that emotions are helpful is related to an increased use of cognitive reappraisal, which is among the more adaptive emotion regulation strategies (Karnaze & Levine, 2017). Perceiving emotions as unacceptable and bad predicts a higher level of negative emotions during stressful

daily situations (Ford et al, 2018a) and increased use of expressive suppression (Karnaze & Levine, 2017). Similar to controllability beliefs, believing that emotions are bad/useless may influence whether the emotion regulation process is initiated (Ford & Gross, 2018). For example, finding an emotion desirable or useful may increase the desire to seek or up-regulate that emotion (Ford & Gross, 2019). Overall, previous findings suggest that emotion beliefs have a significant impact on the emotion regulation process and psychological and social well-being, which underscores the importance of accurately assessing these beliefs for further research and interventions.

Emotion Beliefs Questionnaire (EBQ)

In recent years, there have been several attempts to develop valid and reliable tools for measuring emotion beliefs, with increasing research attention on how people perceive emotions and related outcomes (e.g., Karnaze & Levine, 2020; Thomassin et al, 2020; Veilleux et al, 2015). Building on the framework proposed by Ford and Gross (2018, 2019), Becerra and colleagues (2020) suggested three criteria that measures of emotion beliefs should meet: (1) measuring the controllability and usefulness domains separately, (2) assessing emotion beliefs as a general construct at a superordinate level (i.e., not one's beliefs about their own emotions), and (3) providing valence-specific information (i.e., beliefs about positive and negative emotions). After careful investigation of the previously developed measures, they indicated that none of the existing measurement tools met all three criteria and highlighted the need for a new self-report questionnaire assessing emotion beliefs. Based on this need, the EBQ, which is a 16-item self-report questionnaire measuring beliefs about how controllable and useful positive and negative emotions are, was developed (Becerra et al, 2020). The EBQ encompassed two superordinate subscales of controllability and usefulness and four subordinate subscales based on emotional valence: (1) negative-controllability, (2) positive-controllability, (3) negative-usefulness, and (4) positive-usefulness. In their scale development study, Becerra et al. (2020) showed that the EBQ is most accurately depicted by a three-factor model with a general controllability factor that consists of controllability beliefs about both positive and negative emotions and two distinct factors for positive-usefulness and negative-usefulness beliefs. However, some later studies supported the intended four-factor structure, which includes four distinct subscales on controllability and usefulness beliefs about positive and negative emotions (Becerra et al, 2023; Johnston et al, 2024b).

The EBQ is a reliable and valid tool for assessing beliefs about whether emotions can be controlled and are considered useful. The reliability coefficients of the scale and its subscales in terms of internal consistency were good in multiple studies (Becerra et al, 2020; Johnston et al, 2024b; Larionow et al, 2024; Ranjbar et al, 2023). In a recent study, Johnston and colleagues (2024b) found Cronbach's alphas of 0.85 for the negative-controllability subscale, 0.84 for the other three subscales, and 0.92 for the total scale. Additionally, these studies also found that the EBQ and its subscale scores correlated with each other, with other assessment tools of emotion beliefs, as well as measures of emotion regulation difficulties and indicators of psychological distress, in expected ways, providing evidence for construct validity.

Previous research has tested the psychometric characteristics of the EBQ in Australian (Becerra et al, 2020), American (Johnston et al, 2024b), Iranian (Ranjbar et al, 2023), Polish (Larionow et al, 2024), Norwegian (Raanes et al, 2024), and Italian (Rogier et al, 2023) samples and confirmed that the EBQ is a reliable and valid measure of emotion beliefs. However, whether the EBQ is a reliable and valid assessment tool for these beliefs across a broader range of non-Western cultural contexts remains unclear. Studying emotion beliefs in different cultures using validated measures can provide a deeper understanding of cultural similarities and differences in emotion and emotion regulation processes and inform culturally sensitive interventions. Therefore, further investigation is required to determine the effectiveness of the EBQ in measuring emotion beliefs across different cultures.

The Current Study

The findings suggest that emotion beliefs shape how emotions are perceived and regulated, with significant links to sychological well-being and mental health. To the best of our knowledge, no measurement tools exist in Turkish to assess emotion beliefs within the scope of controllability and usefulness dimensions as proposed by Ford and Gross (2018, 2019). Furthermore, cross-cultural studies exploring similarities and differences in emotion beliefs between Turkish samples and other cultures are lacking. Based on these gaps, our goal in this investigation was to develop a Turkish version of the EBQ and report its psychometric characteristics. Translation and validation of the Turkish form of the EBQ will facilitate future research on emotion beliefs in Turkish-speaking populations and allow cross-cultural comparisons. The Turkish cultural context has a mixture of Eastern and Western influences, where values of both autonomy and connectedness are prominent (Aytuğlu et al, 2023). In this context, measuring and understanding emotion beliefs may provide important insights into cultural variation in these beliefs and associated outcomes.

The study hypotheses were as follows: (1) The Turkish EBQ will have a multi-factor structure, potentially similar to the

three-factor structure found in the original study by Becerra and colleagues (2020); however, a four-factor model found in later studies will also be considered; (2) The Turkish EBQ will exhibit good internal consistency and stability over time; (3) The Turkish form will demonstrate evidence for convergent and predictive validity; specifically, scores on the Turkish form 3a) will be positively associated with negative affect, difficulties in accepting emotional experiences, and negative markers of well-being (i.e., psychological distress, as indicated by depression, anxiety, and stress scores, and loneliness); 3b) will be negatively associated with positive affect, and 3c) will explain significant variance in time-1 psychological distress scores and predict time-2 scores.

METHODS

Participants

The study participants consisted of 385 Turkish adults (females, 74.8%; males, 24.4%; other, 0.8%) aged between 18 and 46 years, with a mean age of 21.76 (SD=2.18). The mean self-rated socioeconomic status (SES) was 5.96 (SD=1.44) on a 10-point scale, with higher scores representing higher SES. Regarding relationship status, 50.65% of the participants reported being single, and 49.35% reported being in a romantic relationship or married. Regarding psychiatric history, 74.5% of the participants reported no psychiatric history across their lifetime, 22.6% reported having a psychiatric history, and the remaining 2.9% declined to provide information. Among the time-1 participants, 29 (80.8% females, 19.2% males) participated in the time-2 assessment. The mean age of the time-2 sample was 21.58 years (SD=1.24).

Measures

The Emotion Beliefs Questionnaire (EBQ; Becerra et al., 2020)

The EBQ is a self-report measure of emotional beliefs in two superordinate dimensions of controllability and usefulness and two subordinate categories based on emotional valence. The questionnaire consists of 16 items and has four subscales with four items in each subscale: positive-controllability (e.g., "*People cannot control their positive emotions*"), negative-controllability (e.g., "*People cannot control their negative emotions*"), positive-usefulness (e.g., "*There is very little use for positive emotions*"), and negative-usefulness (e.g., "*There is very little use for negative emotions*"). The participants used a 7-point Likert-type rating scale (1=strongly disagree; 7=strongly agree) to rate how strongly they agree with each item. Higher scores on each subscale represent stronger beliefs that emotions are not controllable by intention and are not useful. All subscale scores can be added to provide a total score, which indicates the general level of unhelpful beliefs about emotions.

Accumulating evidence indicates that the EBQ is a reliable and valid measurement tool of emotion beliefs. Cronbach's alpha coefficients from multiple studies show that the EBQ and its subscales have good internal reliability (Becerra et al, 2020; Johnston et al, 2024b; Larionow et al, 2024; Ranjbar et al, 2023). In terms of concurrent and criterion validity, studies suggest that EBQ scores correlate positively with scores from other emotional beliefs scales (Becerra et al, 2020; Ranjbar et al, 2023). Furthermore, higher scores on the EBQ composite and subscale scores were positively related to deficits in emotion regulation, anxiety intolerance, and psychological distress symptoms (Becerra et al, 2020, 2023; Johnston et al, 2024a).

The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)

PANAS is a self-report questionnaire that evaluates positive and negative emotional experiences using 10 positive adjectives (e.g., strong) and 10 negative adjectives (e.g., irritable). Participants rated their extent of experiencing each emotional state using a 5-point Likert-type scale (1=very slightly or not at all; 5=extremely), with higher scores reflecting higher levels of experiencing positive or negative affect. The Turkish form of PANAS was developed by Gençöz (2000) and exhibited good internal consistency and test-retest consistency over time, as well as evidence for validity. PANAS was used to evaluate positive and negative affective states (PA and NA) in the past week. Cronbach's alpha coefficient was 0.85 for the PA and 0.87 for NA subscale.

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004)

DERS is a self-report questionnaire of difficulties experienced by individuals in managing emotions, encompassing 36 items across 6 dimensions. Participants rate each item using a 5-point Likert-type scale (1=almost never, 5=almost always), with higher scores representing greater problems in regulating emotions. DERS is a commonly used self-report tool with strong psychometric properties (Ritschel et al, 2015). The Turkish version of the DERS was developed by Rugancı and Gençöz (2010). The Turkish form demonstrated good internal and temporal consistency and significant correlations with related constructs and mental health outcomes, indicating validity. In our study, only the non-acceptance subscale, which measures difficulties with accepting affective experiences, was used, given its conceptual relevance to emotion beliefs and previous findings linking beliefs that emotions are controllable and useful to greater acceptance of emotions (Hong & Kangas, 2022). The non-acceptance subscale comprises 6 items (e.g., "*When I'm upset, I feel guilty for feeling that way*"). The Cronbach's alpha coefficient was calculated as 0.91.

Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995)

DASS-21 is a self-report questionnaire that evaluates the severity of psychological distress by measuring depression, anxiety, and stress symptoms over the past week. The scale uses 21 items (e.g., "*I found it hard to wind down*") rated on a 4-point Likert-type scale (0=did not apply to me at all, 3=applied to me very much or most of the time), with higher scores representing greater severity of symptoms. DASS-21 provides three subscale scores for each symptom category and a composite scale score representing the overall level of psychological distress. DASS-21 is a commonly used measurement tool and has shown good psychometric properties (Henry & Crawford, 2005). We used the Turkish version of the DASS-21 that was developed by Sarıçam (2018). The Turkish form of the scale has shown good internal consistency and consistency over time, as well as evidence for discriminant validity (Sarıçam, 2018). Cronbach's alpha coefficients were calculated as 0.86, 0.83, and 0.85 for the depression, anxiety, and stress subscales, respectively.

The UCLA Loneliness Scale Short Form (ULS-8; Hays & DiMatteo, 1987)

ULS-8 is a shorter version of the revised UCLA Loneliness Scale (Russell et al, 1980), which evaluates subjective feelings of loneliness using 8 items (e.g., "*There is no one I can turn to*"). Participants evaluated each ULS-8 item on a 4-point Likert-type scale (1=never, 4=always) to report their frequency of experiencing social isolation and loneliness. ULS-8 is a commonly used self-report tool with psychometric properties established by numerous studies across many samples and cultures (e.g., Swami, 2009; Wu & Yao, 2008). The Turkish form of the ULS-8 was developed by Doğan and colleagues (2011), and its Cronbach's alpha coefficient was reported as 0.72. The Turkish form had meaningful correlations with other measures of loneliness, depression, and social support scores, demonstrating validity. In our study, ULS-8 was used to assess feelings of loneliness in the past week, and Cronbach's alpha coefficient was 0.85.

Procedure

Permission to adapt the EBQ into Turkish was secured from the scale developers. Initially, three clinical psychologists with a doctoral degree, fluent in both Turkish and English, translated the original English form of the EBQ into Turkish. Subsequently, the translated items were back-translated into English and compared with the original version by another clinical psychologist. Necessary modifications were made to ensure compatibility between the two forms before the final Turkish version was produced.

The ethical approval was received from the institutional review board of Middle East Technical University on the 22nd of May 2022 (Approval number: 0273-ODTUİAEK-2022). The researchers adhered to ethical principles in research design, data collection, and reporting, in accordance with the 2024 Declaration of Helsinki. The sample was recruited through psychology courses in Middle East Technical University and Çankaya University in Ankara, Türkiye. All study participants completed online informed consent forms before proceeding with the online survey. Respondents received course credits in return for participating in the study. To examine test-retest reliability, participants were asked to provide their consent to be contacted again for a future assessment and were invited via e-mail to a follow-up study. The Turkish form of the EBQ and the DASS-21 were re-administered to those who volunteered to be participants in this follow-up, which took place approximately two months after the time-1 assessment. Data was collected online via Qualtrics in 2023.

Data Analysis and Design

A series of confirmatory factor analyses (CFA) with a maximum-likelihood estimation was used to assess the extent to which the data fit the hypothesized factor structure. Following Becerra et al. (2020), 6 first-order and one higher-order models were tested (Fig. 1). Model 1 (M1) was a single-factor model that tested a general factor representing dysfunctional beliefs about emotions. Model 2 (M2) tested a two-factor model differentiating between beliefs about positive and negative emotions, whereas Model 3 (M3) differentiated between the controllability and usefulness dimensions, regardless of valence. Model 4 (M4) and Model 5 (M5) were three-factor models in which items were divided based on the controllability and usefulness dimensions and differentiated based on emotional valence (positive and negative) for either the controllability (M4) or usefulness (M5) dimension. Model 6 (M6) was a four-factor model in which items were separated based on controllability, usefulness, and emotional valence. Finally, Model 7 (M7) tested the best-fitting first-order model, with first-order factors loading onto a higher-order factor. Latent factors were correlated with each other, except for M7.

The goodness-of-fit of the tested models was evaluated using the following indices: chi-square (χ^2) significance test, comparative fit index (CFI), root mean square error of approximation (RMSEA), the Tucker-Lewis-Index (TLI), and standardized root mean squared residual (SRMR). A non-significant χ^2, CFI and TLI values ≥0.90, and RMSEA and SRMR values ≤0.08 were considered evidence for an acceptable fit (Browne & Cudeck, 1992; Marsh et al, 2004). Factor loadings greater than or equal to 0.40 were accepted as meaningful (Stevens, 1992). To decide whether one model was a significantly better fit than another, we used the Akaike information criterion (AIC).

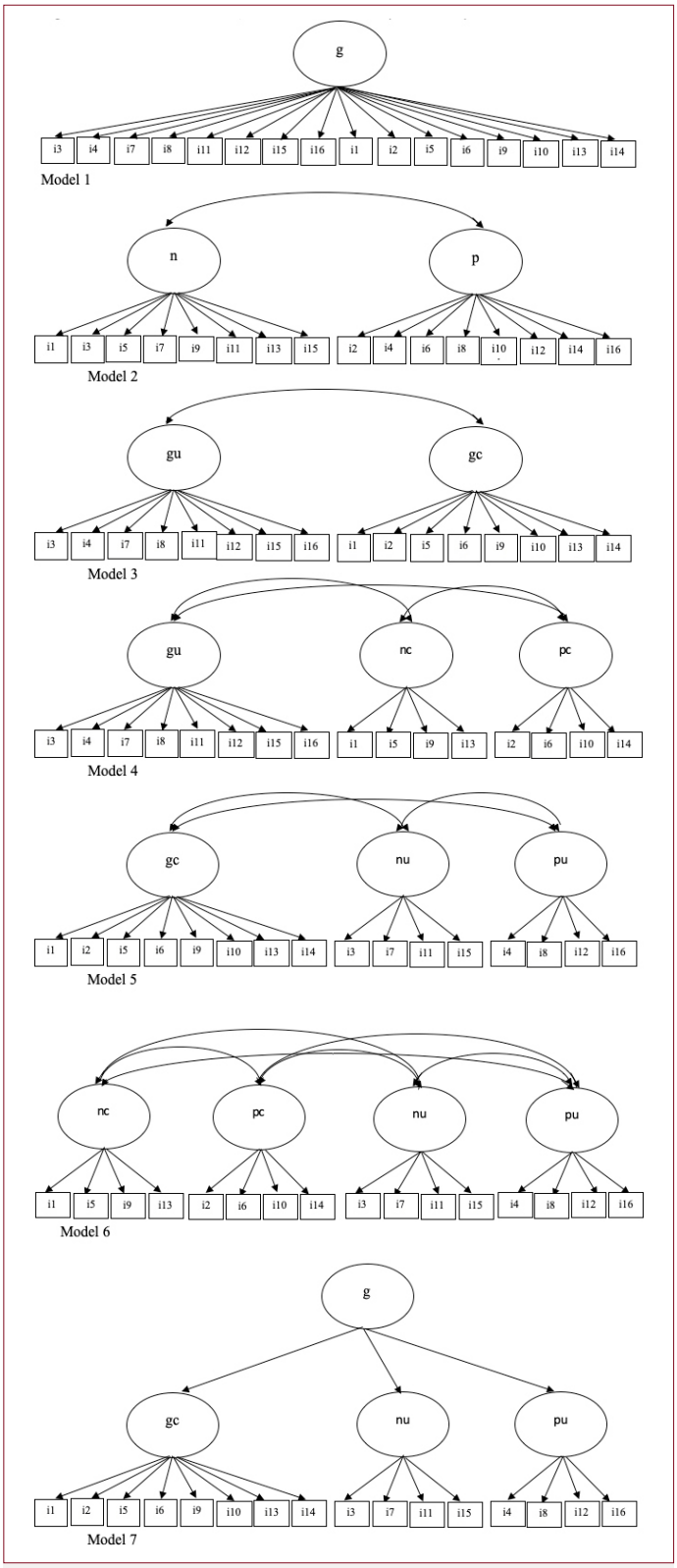

Figure 1. The Emotion Beliefs Questionnaire confirmatory factor analysis models.

Table 1. Descriptive statistics, reliability, and Intercorrelations of the EBQ and its subscales (N=385)

Subscales	1	2	3	4
1. General-controllability	1			
2. Positive-usefulness	**0.47****	1		
3. Negative-usefulness	**0.43****	**0.39****	1	
4. EBQ Total	**0.90****	**0.73****	**0.69****	1
M	17.92	6.42	10.42	34.75
SD	7.84	3.18	4.52	12.54
Number of items	8	4	4	16
Cronbach's a	0.86	0.72	0.69	0.87
McDonald's w	0.86	0.72	0.74	0.86
Test-retest r[a]	**0.54****	**0.75****	**0.41***	**0.61****

a: n=29; *: P<0.05; **: P<0.01.

Cronbach's alpha and McDonald's omega (ω) coefficients were computed for each subscale and composite of the EBQ. Test-retest reliability was assessed by computing the Pearson correlation coefficients between the scores on the EBQ and its subscales at time-1 and time-2. Convergent and predictive validity was determined by exploring the Pearson correlation coefficients between the EBQ scores and associated constructs and by employing the EBQ subscales as predictors and psychopathology symptoms as outcomes through multiple regression analyses. Convergent validity was further examined by calculating the average variance extracted (AVE). AVE values of 0.50 were interpreted as acceptable (Fornell & Larcker, 1981).

This study employed both cross-sectional and longitudinal designs. SPSS version 21 and AMOS version 29 were used for data analysis.

RESULTS

Descriptive Statistics

Table 1 shows the means and standard deviations for the EBQ subscales and total scores.

Factor Analyses of Turkish EBQ

A series of CFAs was run to test the factorial validity of the Turkish EBQ form. The results are summarized in Table 2. M1 and M2, as well as M3 and M4, were poor fits to the data. Both M5 and M6 showed a relatively better fit to the data than the other models, even though the model fit was still inadequate. However, in M6, the negative-controllability and positive-controllability dimensions were highly correlated (estimated r=1.05, p<0.001), indicating model misspecification and multicollinearity issues. Given that the positive and negative valence items could not be differentiated for the controllability

Table 2. Goodness-of-fit values for the confirmatory factor analyses

Model	Factors	χ^2 (df)	CFI	TLI	AIC	RMSEA (90% CI)	SRMR
1	g	398.311 (104) *	0.71	0.66	806.86	0.13 (0.111, 0.137)	0.10
2	n, p	741.562 (103) *	0.71	0.66	807.56	0.13 (0.119, 0.136)	0.09
3	gen-con, gen-use	538.872 (103) *	0.80	0.77	604.87	0.11 (0.096, 0.114)	0.07
4	neg-con, pos-con, gen-use	530.841 (101) *	0.80	0.77	600.84	0.11 (0.097, 0.114)	0.07
5	gen-con, pos-use, neg-use	366.184 (101) *	0.88	0.86	436.18	0.08 (0.074, 0.0.92)	0.07
6	neg-con, pos-con, pos-use, neg-use	355.517 (98) *	0.88	0.86	431.52	0.08 (0.074, 0.092)	0.07
Modified 5	gen-con, pos-use, neg-use	328.383 (99)*	0.90	0.87	402.38	0.08 (0.068, 0.087)	0.07
7	gen-con, pos-use, neg-use + g	328.383 (99)*	0.90	0.87	402.38	0.08 (0.074, 0.092)	0.07

*: P<0.001; df: degrees of freedom; CFI: comparative Fit Index; TLI: Tucker-Lewis-Index; AIC: Akaike information criterion; RMSEA: Root-mean-square error of approximation; SRMR: Standardized root mean square residual; gen-con: General-controllability; gen-use: General-usefulness; neg-con: Negative-controllability; pos-con: Positive-controllability; neg-use: Negative-usefulness; pos-use: Positive-usefulness.

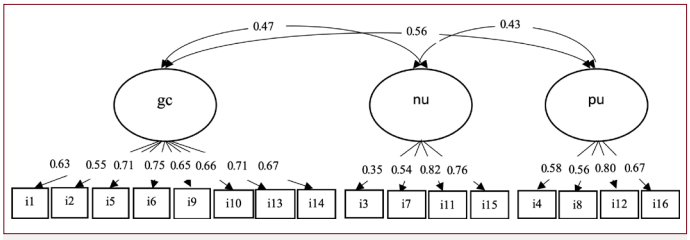

Figure 2. Standardized loadings and factor correlations for the modified Model 5 of the Emotion Beliefs Questionnaire Turkish form.

gc: General-controllability; nu: Negative-usefulness; pu: Positive-usefulness. Error terms of items 2 and 9, and items 6 and 13 were allowed to covary.

dimension, we proceeded with the three-factor M5 (with a general controllability factor and two factors for positive and negative-usefulness).

We examined the modification indices of M5 and added covariances between the error terms of items 2 ("*People cannot control their positive emotions*") and 9 ("*People cannot control their negative emotions*"), and 6 ("*People cannot learn techniques to effectively control their positive emotions*") and 13 ("*People cannot learn techniques to effectively control their negative emotions*"), given that these items belonged to the general controllability factor and had similar wording. The modified M5 model showed an adequate fit to the data. Each item demonstrated a significant loading to its expected factor (p<0.001). Standardized factor loadings were above 0.40, except for item 3 (i.e., "*There is very little use for negative emotions*"), which had a negative-usefulness factor loading of 0.35. Figure 2 shows the standardized factor loadings for the final model. Estimated factor intercorrelations based on the CFA showed significant positive correlations between positive and negative-usefulness (estimated r=0.43), general controllability and positive-usefulness (estimated r=0.56), and general controllability and negative-usefulness factors (estimated r=0.47), p<0.001.

The higher-order version of the modified M5 was tested in M7, and the fit values and factor loadings were identical to those of the modified M5, with the first-order factors loading on the higher-factor with estimated loadings of 0.78 (general controllability), 0.72 (positive-usefulness), and 0.60 (Negative-usefulness, p<0.001. The model comparison showed that the M5 and M7 (AIC=402.38) models provided a better fit than the other models.

Reliability Statistics

Cronbach's alpha and McDonald's omega coefficients, and the test-retest reliability statistics for the EBQ subscale and total scores are provided in Table 1.

Convergent and Predictive Validity

The Pearson correlation coefficients among the EBQ subscales and the total scale were computed and are presented in Table 2. As anticipated, all EBQ subscales showed significant positive correlations with one another and the total scale score. AVE was 0.66 for general controllability, 0.65 for positive-usefulness, and 0.42 for the negative-usefulness subscales.

The Pearson's correlation coefficients between the EBQ subscale scores and scores on the related constructs are shown in Table 3. As anticipated, all three EBQ subscales and the total scale scores correlated positively with the negative markers of well-being, which are psychological distress symptoms (depression, anxiety, and stress scores, and loneliness) (p<0.01). Furthermore, as expected, the scores on the three EBQ subscales and the total scale correlated positively with non-acceptance of emotional reactions (p<0.01).

Table 3. Correlations of the EBQ subscales with negative indicators of well-being, affect measures, and non-acceptance of emotional responses (N=385)

Subscales	Dep	Anxiety	Stress	Lone	PA	NA	Nona
1. General-controllability	**0.18****	**0.16****	**0.19****	**0.21****	-0.05	**0.32****	**0.25****
2. Positive-usefulness	**0.13****	**0.19****	**0.15****	**0.17****	0.00	**0.20****	**0.18****
3. Negative-usefulness	**0.20****	**0.19****	**0.17****	**0.19****	**-0.12***	**0.21****	**0.28****
4. EBQ total	**0.22****	**0.21****	**0.22****	**0.24****	-0.08	**0.33****	**0.30****

*: P<0.05; **: P<0.01; Dep: Depression; Lone: Loneliness; PA: Positive affect; NA: Negative affect; Nona: Non-acceptance.

All three EBQ subscales and the total scale score positively correlated with NA (p<0.01). Only the negative-usefulness subscale was significantly negatively correlated with PA (p<0.05).

Two multiple regression analyses were used on time-1 data (N=385) to establish predictive validity and assess the extent to which the EBQ subscales explain the variance in psychological distress and loneliness scores. For psychological distress, the overall model was significant (F[3, 381]=8.75, p<0.001) and explained 6% of the variance in psychological distress. Among the EBQ subscales, Negative-Usefulness (β=0.18, p=0.016) was a significant predictor of psychological distress scores. For loneliness, the overall model was significant (F[3, 381]=7.97, p<0.001) and explained 6% of the variance in the loneliness scores. General controllability was a significant predictor of loneliness, β=0.09, p=0.021).

Lastly, a multiple regression analysis was conducted on time-2 psychological distress scores using time-1 emotion beliefs as predictors (n=29). The overall model was marginally significant (F (3, 25)=2.97, p=0.051) and explained 26% of the variance in psychological distress. Among the EBQ subscales, negative-usefulness scores at time-1 were a significant predictor of time-2 psychological distress scores (β=0.58, p=0.010).

DISCUSSION

This study aimed to validate and explore the psychometric characteristics of the Turkish form of the EBQ in a sample of Turkish adults. Accordingly, the Turkish EBQ's factorial structure was tested using CFA. The internal reliability and test-retest consistency were then examined. Lastly, evidence for validity was evaluated by reporting on the associations between the EBQ dimensions and psychological distress, non-acceptance of emotional experiences, and PA and NA.

Our results indicated an acceptable fit for the modified three-factor model of the EBQ in this Turkish adult sample. Although the four-factor solution showed a similar fit to the data as the initial three-factor model, the high correlation between the negative-controllability and positive-controllability subscale scores in the four-factor model indicated that two separate dimensions for valence-based controllability beliefs may not be necessary. Although Becerra and colleagues (2020) proposed a three-factor structure for the EBQ rather than the intended four-factor structure, some of the later studies supported a four-factor model with separate subscales for negative and positive valence, organized under two superordinate dimensions of controllability and usefulness (e.g., Ranjbar et al, 2023; Johnston et al, 2024b). Our findings concerning the factor structure in the Turkish sample align with the structure in Becerra et al. (2020) and indicate that the total score for general controllability should be utilized alongside two distinct dimensions for usefulness beliefs in calculating the subscale scores for the Turkish form. This structure is also similar to that of the Norwegian version of the EBQ, as reported in a recent study by Raanes and colleagues (2024). In the Turkish cultural context, the distinction between positive and negative-controllability beliefs may be less relevant. However, despite the support for the three-factor structure, our findings indicated that the Turkish EBQ model fit indices were lower in the present sample than in previous validation and adaptation studies. This discrepancy could be associated with various factors, such as sample characteristics, cultural differences related to emotional beliefs, and measurement-related issues.

In the CFA, item 3 (i.e., "*There is very little use for negative emotions*") had a relatively low loading to its expected factor, negative-usefulness. Furthermore, this subscale exhibited a relatively low internal consistency. Compared to other items in this subscale (e.g., "*Negative emotions are harmful*"), item 3 is softer in its meaning, which may partly explain why it does not align well with the rest of the items in this subscale. Additionally, the phrase "very little use" could be interpreted in different ways, with some participants possibly understanding it as negative emotions having limited but present usefulness. Although we believe that item translations of the Turkish form adequately capture the intended constructs, future studies might consider modifying the phrasing of item 3 to enhance the psychometric properties of the Turkish EBQ.

The Turkish form of the EBQ and its subscales had acceptable to good internal consistency in terms of reliability. The relatively lower internal reliability of the negative-usefulness subscale was associated with issues related to item 3 and should be further tested in future studies. Given the trait-like nature of the emotion beliefs, we expected that the EBQ total and subscale scores would show some stability over time. As anticipated, the test-retest reliability at an approximately 2-month interval suggested that the total and subscale scores of the EBQ demonstrated moderate to high consistency.

As expected, the Turkish EBQ and its subscales showed good convergent and predictive validity in terms of our examination of validity. Significant and positive associations were found among the EBQ subscales and between EBQ scores and levels of psychological distress, supporting the validity of the Turkish form. We also found that holding problematic beliefs about emotions, as measured by the Turkish EBQ, was correlated with an increased tendency toward negative affective experiences and a non-acceptance attitude toward them. This result is in line with existing research linking beliefs that emotions cannot be intentionally changed to increased NA (Kneeland et al, 2020; Tamir et al, 2007) and lower levels of emotional acceptance (Kneeland et al, 2016). An interesting finding in our study was that only the negative-usefulness subscale was significantly associated with PA, with stronger beliefs regarding the uselessness of negative emotions being associated with lower levels of PA, suggesting that the questionnaire is sensitive to positive and negative emotional experiences. Consistent with the role of appraisals on emotions, appraising negative emotions as useful for achieving goals and one's well-being might promote positive emotions (Karnaze & Levine, 2017). Conversely, those who have a greater tendency toward positive affective experiences might find negative emotions more useful.

Furthermore, the EBQ scores significantly predicted psychological distress scores both at time-1 and at an approximately 2-month interval, indicating that a belief that negative emotions are useless may contribute to elevated levels of psychological distress. Our findings are compatible with previous research revealing that dysfunctional beliefs about emotions are linked to lower psychological well-being (Becerra et al, 2020; DeCestella et al, 2013, 2018; Ford et al, 2018b; Johnston et al, 2024a) and highlight the importance of addressing beliefs about the usefulness of negative emotions in interventions targeting psychological distress.

Our findings also revealed that stronger beliefs about the uncontrollability of emotions predict higher levels of loneliness. In a previous study, participants' adaptive or maladaptive beliefs about emotions were linked to increased or decreased social support, respectively, with cognitive reappraisal or expressive suppression mediating this relationship (Karnaze & Levine, 2017). Therefore, the relationship between beliefs about emotions and loneliness in our study might be explained by the implementation of less adaptive strategies for regulating emotions, such as expressive suppression or avoidance, which may, in turn, contribute to decreased social well-being.

Concerning the limitations of the present study, our reliance on convenience sampling in participant recruitment and the resulting sample characteristics limit the applicability of our findings to the broader Turkish population. Our sample largely consisted of young, female, and nonclinical Turkish university students of middle socioeconomic status. This limitation necessitates the validation of the Turkish EBQ in a more representative sample as well as in clinical samples. An additional limitation of our study was the use of online self-report questionnaires in data collection. Although online surveys provide an easy and time-efficient method of data collection, they may also result in sampling issues, such as self-selection bias, and potential data credibility problems (Wright, 2005). Future studies should employ multiple assessment methods in data collection. Lastly, our test-retest sample was small, which suggests that further testing of the stability of the EBQ scores using larger samples is required to confirm the test-retest reliability.

Apart from these limitations, the current investigation was the first study to develop a Turkish version of the EBQ and explore its psychometric properties. Additionally, to the best of our knowledge, our study was the first to investigate how scores on the EBQ relate to PA and NA and subjective feelings of loneliness. We believe that the development of the Turkish EBQ will facilitate future research on emotion beliefs in Turkish-speaking populations and allow cross-cultural comparisons between cultural contexts, contributing to the field of emotion and cultural psychology.

CONCLUSION

In conclusion, our findings support the Turkish EBQ as a reliable and valid self-report assessment tool of emotion beliefs, specifically under the controllability and usefulness dimensions, among Turkish adults. The study revealed that stronger beliefs that emotions cannot be intentionally controlled and are not useful, as assessed by the Turkish EBQ, were associated with increased levels of psychological distress, NA, and loneliness and decreased levels of PA. Furthermore, holding stronger maladaptive emotion beliefs was associated with a non-accepting stance toward emotional experiences. Overall, the findings highlight the significance of measuring emotion beliefs across diverse populations and their critical role in psychological well-being.

Ethics Committee Approval: This study was approved by the Middle East Technical University Ethics Committee (No: 0273-ODTUİAEK-2022; Date: 20.05.2022).

Informed Consent: Written informed consent was obtained from all participants included in the study.

Conflict of Interest: The author declare that there is no conflict of interest.

Financial Disclosure: The author received no financial support for the research, authorship, and/or publication of this article.

Use of AI for Writing Assistance: We declare that OpenAI (GPT-4) was used only to correct grammar and improve the clarity of writing.

Peer-review: Externally peer-reviewed.

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