



## Research Article

# Validity and Reliability of the Persian Version of the Brief Emotional Intelligence Scale (BEIS-10)

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## Abstract

This study investigated the psychometric properties of the Persian versions of the Brief Emotional Intelligence Scale (P-BEIS-10). Effectively, data from 1050 Iranians (542 men and 508 women) were employed to evaluate the underlying factor structure, concurrent validity and the internal consistency reliability of the P-BEIS-10. The participants completed the P-BEIS-10, and the Persian versions of the Trait Emotional Intelligence Questionnaire Form (TEIQue), the Satisfaction with Life Scale (SWLS), and the Subjective Happiness Scale (SHS). The data supported the five-factor structure of the scale in confirmatory factor analysis (CFA). The results also indicated low to acceptable reliability coefficients of Alpha for the scale and its five factors as well as significant correlations between the scale, its five factors and TEIQue, SWLS, and SHS. Overall, P-BEIS-10 proved itself to be a reliable and valid measure for assessing emotional intelligence in the Persian context.

*Keywords:* Brief Emotional Intelligence Scale; Emotional Intelligence; Reliability; Validity; Persian.

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Emotional intelligence (EI), adaptive intrapersonal and interpersonal emotional skills, has adopted various models and measures in psychological research (Kirk et al., 2008; Mayer et al., 2002; Siegling et al., 2015). The myriad of research which has employed EI has offered convincing evidence of the predictive power of EI regarding a number of performance-related (e.g., MacCann et al., 2020) as well as health-related variables (e.g., Morón & Biolik-Morón, 2021). However, the psychometric properties of measures employed to evaluate the construct can largely overshadow such findings. Moreover, there is a lack of consensus regarding an EI theoretical framework. EI has been conceptualized both as a combination of non-cognitive and cognitive constructs associated with emotional perceptions (Trait Emotional Intelligence (TEI): Bar-On, 2001; Petrides, 2010, 2011), and as a social intelligence pertaining to processing other individuals' and one's own emotional information (Ability Emotional Intelligence (AEI): Mayer et al., 2016; Salovey & Mayer, 1990).

It has been argued that the Salovey and Mayer's (1990) ability-based model is perhaps the most comprehensive and cohesive model of EI which can be evaluated (Schutte et al., 1998). This model is comprised of three adaptive cognitive abilities: regulating emotion, employing emotions for problem solving, and appraising and expressing emotion. Utilizing emotion consists of five components: creative thinking, motivation, flexible planning, and redirected attention. The second category includes two components: appraising and expressing one's own emotion and appraising others' emotion. The last category pertains to regulating one's own and others' emotions. While the process-oriented model of EI proposed by Mayer and Salovey (1997) accentuates potential for growth, intellectual growth through emotions, and stages of EI development, the original model better depicts an individual's current make-up of emotional state (Davies et al., 2010).

Factor location studies by Petrides et al. (2007) evidenced that TEI is distinct in the personality space, oblique to Giant Three and the Big Five (low-level), and has correlations with some higher-level traits (compound). Neuroscientific, behavioural-genetic as well as Neuroendocrinological research has



suggested that TEI is correlated with both functional neurobiological (Hansenne et al., 2014) and structural (Tan et al., 2014) factors, implying the biological basis of TEI. Effectively, environmental or genetic factors can account for the relationship between TEI and Big Five personality traits (Vernon et al., 2008).

TEI theory can be applied in social, educational, organizational, developmental, health and clinical settings. A comprehensive meta-analysis has demonstrated a meaningful correlation between TEI, well-being and mental health (Martins et al., 2010). Research has also indicated significant correlations between TEI and stress, depression, and anxiety in older adults undergoing disagreeable situations (Weaving et al., 2014) and younger adults coping with every day challenges (Martins et al., 2010).

Research has indicated that TEI can positively attenuate the effect of many factors (e.g., age, gender, educational level, social support and body mass index) on health (Mikolajczak et al., 2015). Research findings have also indicated that high TEI enhances prosocial behavior and precludes antisocial behavior (Gugliandolo et al., 2015; Gugliandolo et al., 2019). Research has also indicated significant correlations between TEI and number of educational variables. TEI has, for example, been evidenced to be negatively correlated with unauthorized absences (Mavroveli et al., 2008) and positively correlated with specific creativity measures (Sanchez-Ruiz et al., 2011).

TEI has been significantly correlated with sex, specially suggesting female outperforming males in managing their emotions (Petrides & Furnham, 2000), while some other studies have depicted no meaningful correlations (Petrides & Furnham, 2000; Saklofske et al., 2007). While EI might not change over time (Chapman & Hayslip, 2006), its components are amenable to development and enhancement through training (Palmer et al., 2003).

Another issue concerning measurement of EI is the method of assessment. A criterion-based maximal performance measurement has been criticized due to the subjectivity associated with emotional experience (Mayer et al., 1999; Robinson & Clore, 2002). In effect, it has been proven quite difficult to create tasks or items encompassing all the factors of EI and scored using totally objective criteria (Petrides et al., 2006). Moreover, a host of conceptual, psychometric, and empirical problems are raised as alternate scoring procedures are used to develop correct responses among some equally logical choices (Day & Carroll, 2004).

As an alternative method for measuring EI, self-report measures assess perception of emotional abilities and skills, representing an individual's typical performance (Brackett & Geher, 2006;

[Schutte et al., 1998](#)). While self-report measures have been criticized since they rely on self-perceptions, which might not be accurate, amenable to conscious interpretation, or affected by social desirability factors ([Matthews et al., 2004](#)), accurate self-concept may be expressive of existent abilities and skills ([Brackett & Geher, 2006](#)). Moreover, self-report may be indicative of an individual's performance in a specific context as individuals tend to behave based on their asserted beliefs ([Bandura, 1997](#)).

As a self-report measure of TEI, Trait Emotional Intelligence Questionnaire (TEIQue: [Petrides, 2009](#)) comprises four major dimensions (Self-control, Well-being, Sociability, and Emotionality) made up of fifteen sub-dimensions consisting of 153 items. [Petrides \(2009\)](#) developed a short form of the TEIQue (TEIQue-Short Form), comprising 30 items. The measure has been translated into a number of languages (e.g., [Rahimi, 2021c](#)) and is considered a measure of TEI with acceptable psychometric properties, mainly utilized for orientation and career counseling. However, considering the advantages of brevity, the need for other shorter tools has been addressed.

Among the various self-report measures of EI, the Brief Emotional Intelligence Scale (BEIS-10) enjoy a clear theoretical foundation. The measure completely covers the components of the construct and has a stable factor structure. [Davies et al. \(2010\)](#) modeled the measure based on the Emotional Intelligence Scale ([Salovey & Mayer, 1990](#)). Eliminating theoretically redundant items led to a concise, self-report measure of TEI (10 items), comprising five dimensions: appraisal of others' emotions (using others' visual and verbal cues to interpret their emotions), appraisal of own emotions (ability to identify one's own emotions and factors that change emotions), regulation of others' emotions (ability to evoke others' positive feelings), regulation of one's own emotions (ability to regulate one's own feelings), and utilization of emotions (ability to use feelings for problem-solving).

The key advantage of the BEIS-10 is that it does not compromise on acceptable psychometric properties to offer a quick way for measuring EI. Besides being time-saving (it takes a couple of minutes to complete the scale), brevity of measures is deemed critical in research where a high degree of ecological validity is warranted including athletic competitions and academic examinations ([Lane, 2007](#)).

The alpha value of the total score was similar to that of the Italian version of the scale (.727) ([Durosini et al., 2020](#)).

Rizzo (2013), Howell and Miller-Graff (2014), de Benito and Luja' (2013; Spanish version of BEIS-10), and Durosini et al. (2020; Italian version of BEIS-10) reported acceptable to high total score reliability coefficients for the BEIS-10 (.84, .83, .73, and .727, respectively). Two-week test-retest reliability obtained by Davies et al. (2010) ranged from .35 to .48. The two-week test-retest reliability of the Spanish version of the scale obtained by de Benito and Luja' (2013) was .79. Balakrishnan and Saklofske (2015) obtained a low coefficient (<.5) for one-month test-retest. The reliability and validity of the Italian version of BEIS-10 was evaluated by Durosini et al. (2020). Results of the study indicated that the Italian version of the scale had the five-factor model of EI (Davies et al., 2010). The study also indicated evidence of construct validity, and good internal and test-retest reliability of the BEIS-10 scale.

Considering the above regarding the TEI theory, availability of a brief measure of TEI with acceptable psychometric properties can significantly contribute to research in educational, social, organizational, developmental, health, and clinical contexts. This study evaluates the reliability and validity of the Persian version of the BEIS-10 in a population which encompassed both genders and various age groups (13 to 62 years old). Effectively, factorial structure, reliability, convergent validity and gender differences were evaluated.

## Method

### Participants

A total of 1500 questionnaires were distributed, but only 1050 completed questionnaires were returned. Most of the participants were B.Sc. students (542 were male: Mage: 19.83 and SDage: 4.49; and 508 were female: Mage: 21.54 and SDage:6.15) from Isfahan University of Technology (Esfahan, Iran). Convenience sampling was used to recruit the participants.

### Procedure and Measures

Informed consents were obtained prior to enrollment of the participants. The data were collected in one session, in which the participants completed the Persian translations of the BEIS-10, SHS, SWLS, and TEIQue either in groups or individually.

The Brief Emotional Intelligence Scale (BEIS-10; Davies et al., 2010) was assessed using a five-point Likert scale varied from *strongly agree* (1) to *strongly disagree* (5). The formulation of EI proposed by Salovey and Mayer's (1990) has been employed to develop this measure.

TEIQue (153 items: Petrides, 2009) was assessed on a 7-point Likert scale varied from *strongly*

*disagree* (1) to *strongly agree* (7). The Persian version of the questionnaire was assessed by [Rahimi \(2021a\)](#), demonstrating good reliability and validity ( $\alpha = .87$ ,  $p < 0.001$ ).

The Satisfaction with Life Scale (SWLS; [Diener et al., 1985](#)) with 5 items is a 7-point Likert scale varied from *strongly disagree* (1) to *strongly agree* (7). With each item scored from 1 to 7, the total score ranging from 5 to 7 reflects the global life satisfaction with higher values implying higher levels of life satisfaction. As the most favored measure of life satisfaction, SWLS has been validated in many populations including a Persian population ([Rahimi, 2021b](#)), demonstrating good validity and internal consistency reliability ( $\alpha = .83$ ,  $p < 0.001$ ).

To measure an individual's overall subjective happiness, the Subjective Happiness Scale (SHS; [Lyubomirsky & Lepper, 1999](#)) utilizes 4 items with a 7-point Likert scale. Higher overall scores represent greater happiness. The Persian version ([Rahimi, 2021c](#)) of the scale has demonstrated good psychometric properties ( $\alpha = .82$ ,  $p < 0.001$ ).

## Results

### Descriptive Statistics, Gender Differences, and Internal Reliability

The reliability coefficients of the P-BEIS-10 and its five factors calculated using Cronbach's alpha demonstrated low to acceptable internal consistencies: P-BEIS-10 total score ( $\alpha = .68$ ), appraising others' emotions ( $\alpha = .68$ ), appraising one's own emotions ( $\alpha = .61$ ), regulating others' emotions ( $\alpha = .45$ ), regulating one's own emotions ( $\alpha = .16$ ), and utilizing emotions ( $\alpha = .48$ ) ([Taber, 2018](#); see Table 1).

Table 1.

*Descriptive statistics and Alpha coefficients for the whole sample, men, and women.*

Factors	Whole Sample		Male		Female		Whole Sample	Male	Female
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	Alpha	Alpha	Alpha
appraising others' emotions	7.58	1.41	7.62	1.40	7.55	1.43	.68	.67	.69
appraising own emotions	7.19	1.46	7.15	1.48	7.21	1.24	.61	.61	.61
regulating others' emotions	7.53	1.24	7.51	1.29	7.55	1.19	.45	.43	.47
regulating one's own emotions	7.70	1.80	7.62	1.35	7.77	2.17	.16	.25	.13
utilizing emotions	7.95	1.30	7.93	1.34	7.97	1.26	.48	.47	.50
<b>P-BEIS-10</b>	37.96	4.63	38.75	4.54	38.09	4.83	.68	.73	.64

P-BEIS-10 scores showed a small difference across genders ( $d = .14$ ). Females obtained higher scores in appraising own emotions ( $d = .04$ ), regulating others' emotions ( $d = -.03$ ), regulating one's own emotions ( $d = -.08$ ), and utilizing emotions ( $d = -.03$ ).

## Correlations

To verify convergent validity, Pearson's  $r$  coefficient was employed. The intercorrelation matrix of the main variables are presented in Table 2. P-BEIS-10 total score was significantly ( $p < .001$ ) and positively correlated with its five factors as well as the total scores of the SWLS, and SHS (correlations ranging from .08 to .67), hence the concurrent validity of the P-BEIS-10 (see Table 2). Utilizing Emotions was the strongest correlate of both Happiness and Life Satisfaction, and Appraising Others' Emotions and Regulating Others' Emotions were the weakest correlates of Happiness and Life Satisfaction, respectively. Considering the P-BEIS-10 total scores, Life Satisfaction and the P-BEIS-10 have the weakest correlation, and the strongest correlations exists between P-BEIS-10 and Happiness.

Table 2.  
Means, standard deviations, and intercorrelation matrix for the main variables.

Variable	1	2	3	Means	SDs
1 Happiness	-			4.43	1.24
2 Life Satisfaction	.387	-		21.47	6.41
3 Brief Emotional Intelligence Scale	.365	.187	-	37.96	4.63
appraising others' emotions	.159	.095*	.631	7.58	1.41
appraising own emotions	.237	.146	.674	7.19	1.46
regulating others' emotions	.205	.088**	.596	7.53	1.24
regulating one's own emotions	.271	.120	.651	7.70	1.80
utilizing emotions	.290	.148	.643	7.95	1.30

\* The p-value was .002 \*\* The p-value was .004; the rest of p-values were <0.001,

In case a low alpha value is attributable to low correlations between items, some items are to be discarded or revised. The easiest method to pinpoint these items is to calculate the correlations between the total score and each item score, and subsequently delete items with low correlations. The following intercorrelation matrix presents the correlation between each item score and the total P-BEIS-10 score.

Table 3.  
Correlations between each item score and the total score.

	e1	e2	e3	e4	e5	e6	e7	e8	e9	e10	BEIS-10
e1	1										
e2	.438**	1									
e3	.260**	.320**	1								
e4	.202**	.281**	.517**	1							
e5	.085**	.109**	.091**	.067*	1						
e6	.259**	.279**	.157**	.140**	.098**	1					
e7	.087**	.161**	.200**	.170**	.171**	.154**	1				
e8	.156**	.218**	.179**	.232**	.111**	.104**	.289**	1			
e9	.185**	.232**	.239**	.191**	.131**	.135**	.129**	.246**	1		
e10	.213**	.247**	.150**	.182**	.145**	.238**	.161**	.239**	.322**	1	
BEIS-10	.539**	.606**	.561**	.539**	.493**	.491**	.467**	.492**	.506**	.538**	1

\*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed).

According to the above table, item-total correlations ranged from .467 to .606, and inter-item coefficients ranged from .085 to .517. Durosini et al. (2020) also used item-total correlation analysis for assessment of internal consistency, reporting item-total coefficients ranging from .23 to .46 and inter-item coefficients ranging from .07 to .53.



## Confirmatory Factorial Analysis

Maximum likelihood confirmatory factor analysis (CFA) was employed to examine the dimensionality of the P-BEIS-10. The factor analysis of the BEIS-10 was based in five latent variables (See Fig. 1). Model fit was investigated based on the following criteria using AMOS version 24 (Brown, 2014): the standardized root mean square residual (SRMR), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA). Due to issues raised against chi-square ( $\chi^2$ ), especially the fact that it is sensitive to sample size, this fit index was not taken into consideration as a criterion (Hu & Bentler, 1995; Kaplan, 2000). The following are the model fit cut-offs utilized in the present study: GFI and AGFI  $\geq$  .9, TLI  $\geq$  .95, SRMR  $<$  .08, RMSEA  $<$  .06, and CFI  $>$  .95 (Hooper et al., 2008; Hu & Bentler, 1999). The results of the factor analysis confirmed the five-factor structure of the BEIS-10. The fit indices obtained are: GFI = .99 and AGFI = .97, TLI = .95, SRMR = .03, CFI = 0.97, and RMSEA = .04.

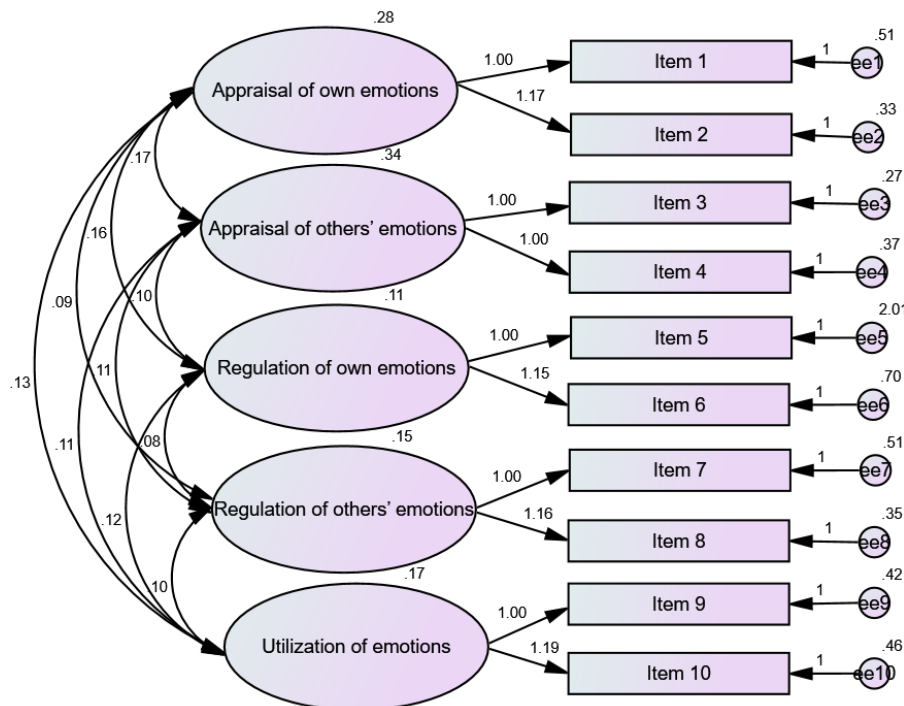


Figure 1. CFA of the factor structure of the P-BEIS-10

## Discussion

The psychometric properties of the Persian version of the BEIS-10 were investigated in this study. Effect size values demonstrated that gender did not insignificantly affect the P-BEIS-10. Unfortunately, no other study has investigated gender differences in BEIS-10.

The Cronbach's alpha coefficient of the total score was acceptable ( $N = 10$ ,  $\alpha = .68$ ) and those of the factors ranged from low to acceptable (.16-.68). The alpha value of the total score was very close to that of the Italian version of BEIS (.727; [Durosini et al., 2020](#)). Moreover, the present alpha values were lower than those obtained for the total score and factor scores (ranging from .6 to .91) in the study conducted by [Balakrishnan and Saklofske \(2015\)](#). [Rizzo \(2013\)](#), [Howell and Miller-Graff \(2014\)](#) and [de Benito and Luja' \(2013\)](#) also reported acceptable to high total score reliability coefficients for the BEIS-10 (.84, .83, and .73, respectively).

The Cronbach's alpha can be considered the average of correlations among a number of items. The alpha value depends both on the values of the correlations among the items and the number of items in that a higher number of items yields a higher alpha value, and a very low number of items, violating the assumption of tau-equivalence, reduces alpha value ([Graham, 2006](#); [Nunnally & Bernstein, 1994](#); [Streiner, 2003](#); [Urdan, 2017](#)). Hence, a high alpha value does not always represent high internal consistency, and a low value does not necessarily mean low internal consistency. Thus, the relatively low alpha values in the present study are not necessarily indicative of low internal consistency and can be attributed to the low number of items (2 items) in each factor. This is corroborated by significant correlations between total scores and factor scores in the present study (see Table 3).

The results of the CFA confirmed the five-factor solution reported by [Davies et al. \(2010\)](#). The five-factor model of emotional intelligence has also been confirmed in the Italian population ([Durosini et al., 2020](#)). The five-factor structure was also replicated in the study by [Balakrishnan and Saklofske \(2015\)](#).

The obtained results strongly supported the convergent validity of the P-BEIS-10. The total score of P-BEIS-10 and the scores of its factors had significant correlations with happiness and life satisfaction. Furthermore, similar to the obtained positive correlations between various measures of EI (e.g., [Di Fabio et al., 2016](#); [Rahimi, 2021a](#)), P-BEIS-10 positively correlated with P-TEIQue. These findings confirm the results of the study on the Italian population ([Durosini](#)

et al., 2020). Durosini et al. (2020) found that the Italian version of BEIS-10 correlated positively with mindful states, self-curiosity, and social desirability, yet negatively correlated with alexithymia. However, BEIS-10 did not significantly correlate with the Honesty–Humility subscale of the HEXACO and the Big Five in the study by Balakrishnan and Saklofske (2015).

### Limitations and future research suggestions

While the present study employed a relatively large sample size, it is subject to a number of limitations, which are to be taken into consideration while interpreting the results. First, discriminant validity and test-retest reliability were not evaluated. Second, the fact that our sample was mainly restricted to undergraduates undermines the generalizability of the present findings to other samples. Hence, further research is required to see whether P-BEIS-10 can be applied in other populations (e.g., elderly or clinical samples).

### Conclusion

The results of the present study contribute to the literature by demonstrating that BEIS-10 can be employed as a suitable inter-cultural EI measure in practical and theoretical research on the relationship between EI and various inter-personal and intra-personal constructs.

### Abbreviations

*BEIS-10*: Brief Emotional Intelligence Scale

*P-BEIS-10*: Persian versions of the Brief Emotional Intelligence Scale

*TEIQue*: trait Emotional Intelligence Questionnaire Form

*SWLS*: satisfaction with Life Scale

*SHS*: subjective Happiness Scale

*CFA*: confirmatory factor analysis

*EI*: emotional intelligence

*TEI*: trait Emotional Intelligence

*AEI*: ability Emotional Intelligence

*SRMR*: standardized root mean square residual

*GFI*: goodness-of-fit index

*AGFI*: adjusted goodness-of-fit index

*CFI*: comparative fit index

*TLI*: Tucker-Lewis index

*RMSEA*: root mean square error of approximation

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### **Competing Interests**

The author has declared that no competing interests exist.

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