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Psychometric Validation of the Persian Short Form of the Experiences in Close Relationships–Revised (ECR-R-S) in Iranian Adults

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Abstract

Background

Adult attachment is commonly conceptualized along two relatively independent dimensions: attachment anxiety and attachment avoidance. The Experiences in Close Relationships–Revised (ECR-R) is one of the most widely used measures of adult attachment. However, its 36-item format may increase respondent burden, particularly when multiple questionnaires are administered or participants span a wide age range. While a Persian version of the full ECR-R has been validated, no brief Persian version has been psychometrically evaluated in an adult Iranian sample. This study aimed to develop and evaluate the psychometric properties of a 12-item Persian short form of the ECR-R.

Methods

In this cross-sectional study, 509 non-clinical Iranian adults aged 18–79 years participated in an online survey conducted between July 2023 and July 2024. Participants completed the Persian ECR-R, the Rosenberg Self-Esteem Scale, the extraversion subscale of the NEO Five-Factor Inventory, and the DASS-21. A 12-item short form was developed and evaluated using confirmatory factor analysis, reliability analyses, and construct validity testing.

Results

Confirmatory factor analysis supported the proposed two-factor structure of attachment anxiety and attachment avoidance after theoretically justified model modifications. The model showed an overall acceptable fit to the data (CFI = 0.94, IFI = 0.95, RMSEA = 0.077, 90% CI 0.069–0.085), although the SRMR was slightly above the conventional threshold (0.091). Standardized factor loadings ranged from 0.47 to 0.79. The 12-item scale showed adequate internal consistency (Cronbach's alpha = 0.81, McDonald's omega = 0.82, and Guttman's lambda-6 = 0.72). Cronbach's alpha coefficients were 0.78 for attachment anxiety and 0.79 for attachment avoidance. As expected, both attachment anxiety and attachment avoidance were positively associated with depression and anxiety and negatively associated with self-esteem and extraversion, supporting the expected pattern of convergent and divergent validity. Women scored significantly higher than men on both attachment anxiety and attachment avoidance. Likewise, single participants reported significantly higher scores on both dimensions than married participants.

Conclusions

The 12-item Persian version of the ECR-R demonstrated support for a two-factor structure, adequate internal consistency, and theoretically expected associations with psychological distress, self-esteem, and extraversion in a non-clinical sample of Iranian adults. As a brief alternative to the full ECR-R, it may help reduce respondent burden while providing an efficient measure of attachment anxiety and attachment avoidance for research purposes. Future studies should examine its test-retest reliability, criterion validity, and measurement invariance across demographic and clinical groups.

1. Introduction

Attachment theory, developed by John Bowlby [1], initially focused on the attachment behavioral system between children and their primary caregivers. Through interactions with caregivers, children form internal representations of relationships that later play a key role in shaping interpersonal behaviors and intimate relationships across the lifespan [2]. The internal working models (IWMs), formed through early interactions with caregivers, shape implicit cognitive structures and behavioral patterns commonly conceptualized as attachment styles [3]. These representations influence individuals' perceptions of the self, of others, and of their relationships, and especially under conditions of distress they determine the individual's emotion-regulation strategies in interactions with significant others [2]. Attachment styles reflect individuals' expectations regarding the responsiveness and availability of primary caregivers and, later, of intimate partners, which continue to shape relational expectations and behaviors throughout life [4].

Early Approaches to Measuring Adult Attachment. Regarding the continuity of IWMs into adulthood, research on adult attachment was initiated. The Adult Attachment Interview (AAI) [5] adopted a developmental approach and examined adults' narratives of their childhood experiences with caregivers. Although this approach permitted the analysis of psychological dynamics, the time-consuming interview process and the requirement for specialized training limited its utility in large-scale research.

Adopting a social-psychological perspective, Hazan and Shaver [6] introduced the first categorical self-report measure of attachment. Inspired by Mary Ainsworth et al. [7]'s classification of infant attachment styles as secure, avoidant, and anxious, this measure presented descriptions corresponding to each attachment style in every item and asked respondents to select the description most resembling their own. In the categorical approach, the premise was that individuals belonged to a single attachment style. The introduction of such categorical self-report measures, which were far easier to administer than the AAI, played a key role in facilitating large-scale attachment research. However, such measures faced statistical limitations and were unable to account for individual differences among people grouped under the same attachment category [6].

Subsequently, various researchers sought to measure attachment constructs using continuous scores, leading to measures assessing attachment along three dimensions: security, avoidance, and anxiety [8, 9]. These scales, rather than classifying individuals into distinct attachment types, allowed the measurement of separate scores for each dimension.

Dimensional Models of Attachment. In a foundational study, Brennan et al. [10] compiled all available adult attachment self-report measures (60 subscales, 323 items) and, using principal component analysis (PCA), identified anxiety and avoidance as two primary factors. Eighteen items with the highest factor loadings on each dimension were selected, forming the Experiences in Close Relationships (ECR) questionnaire, which measures two relatively orthogonal dimensions of attachment anxiety and avoidance. Within this framework, a high score on either or both dimensions indicate an insecure adult attachment, while low scores on both indicate a secure adult attachment [10]. Adults with higher attachment security internalize positive relational experiences, view themselves as worthy of love, perceive others as available in times of need, and feel comfortable with dependence on others [11].

The avoidance dimension involves fear of dependence and avoidance of interpersonal intimacy, difficulty in trusting others, and reluctance toward self-disclosure [12]. In attachment avoidance, since the individual

perceives others as unavailable in times of need, they preemptively adopt avoidant strategies and employ deactivating emotion-regulation strategies to maintain emotional distance from others and emphasize self-reliance and independence as a way to avoid rejection by attachment figures [13].

The anxiety dimension involves a heightened need for attention from others and fear of interpersonal rejection [14]. In attachment anxiety, as the individual suffers from severe self-doubt and uncertainty about their worthiness of love and care, they struggle with fear of abandonment or rejection by their partner. Consequently, they remain hypervigilant to signs of unavailability or unresponsiveness in their partner and adopt hyperactivating emotion-regulation strategies in search of reassurance [2].

Brennan et al. [10] reported high internal consistency for the anxiety (α = .91) and avoidance (α = .94) subscales. The test-retest reliability of the ECR over a three-week interval was .70 for both subscales [10] and over a six-month interval it was reported as .71 and .68 for avoidance and anxiety, respectively [15]. Since then, the two-dimensional framework has become a dominant framework in adult attachment research, as it overcomes the limitations of categorical models, demonstrates greater temporal stability, and accounts for individual differences within each dimension [2].

Applying Item Response Theory to the same item pool, Fraley et al. [16] selected 18 items with the highest discrimination values for each dimension, developing the Experiences in Close Relationships—Revised (ECR-R). The ECR-R retains the 36-item format, with 13 of the original anxiety items and 7 of the original avoidance items retained. Compared to the ECR, the ECR-R demonstrated improved discriminative power at the lower ends of both dimensions and became more evenly distributed across the full range of scores. However, the ECR-R tends to show a higher inter-correlation between the two dimensions compared with the ECR, in which the two dimensions were reported to correlate almost zero [13].

The Need for Short Forms and Cross-Cultural Validation. Although the ECR and ECR-R are relatively brief compared with interview-based measures, they are often part of extensive test batteries in psychological research. The large number of items can reduce participants' engagement, increase fatigue, and lead to attrition. This issue is especially challenging for individuals in clinical settings, who may find it difficult to maintain focus when responding to multiple questionnaires. Consequently, numerous efforts have been made to create shorter versions of these measures that preserve reliability while retaining the most discriminative items [17].

Wei et al. [18] developed a short version of the ECR, which included 12 items with the highest factor loadings. Subsequent efforts introduced ECR short forms in Norway (ECR-12N) [19], France (ECR-12) [20], Germany (ECR-G-10) [21], and Spain (ECR-SP11) [22]. A parallel line of research has also introduced short forms of the ECR-R in Thailand (ECR-R-18) [23, 24], Lebanon [25], the Czech Republic [26], Germany (ECR-RD12) [27, 28], China (The ECR-R-GSF) [29], and South Korea (the K-ECRR-SF) [30].

The Present Study. Despite the availability of a previously validated 36-item Persian version of the ECR-R [31], no brief Persian version has been developed and psychometrically evaluated in an Iranian adult sample. Given the advantages of brief instruments -including their greater usability in clinical settings, their suitability for older adults, and their ability to reduce respondent fatigue in studies involving multiple questionnaires- the present study aimed to develop and validate a brief Persian version the ECR-R.

Specifically, we evaluated the factor structure of the Persian ECR-R using Confirmatory Factor Analysis (CFA) in a sample of Iranian adults. In addition, differences in attachment anxiety and avoidance across age, gender, and

marital status were investigated. Convergent validity was evaluated using the Depression, Anxiety, and Stress Scale (DASS) [32]. A meta-analysis of 64 studies by Zheng et al. [33] reported significant associations between attachment anxiety and avoidance and depressive symptoms, with particularly strong associations for attachment anxiety. Likewise, the relationship between insecure attachment -especially attachment anxiety- and anxiety symptoms has been consistently documented [34].

Divergent validity was examined using theoretically relevant constructs for each attachment dimension. Based on previous findings linking attachment avoidance to lower sociability, intimacy, and interpersonal engagement [24, 35], as well as the theoretical characteristics of extraversion [36], the Extraversion factor of the NEO Personality Inventory [37] was selected to assess divergent validity for attachment avoidance. Similarly, given the well-established association between attachment anxiety, negative self-image, and concerns about self-worth [10], together with the findings of the meta-analysis by Zhang et al. [38], the Rosenberg Self-Esteem Scale [39] was used to examine divergent validity for attachment anxiety.

2. Method

2.1. Participants and Procedure

Participants comprised 520 non-clinical Iranian adults. Eleven participants who did not complete all survey items were excluded, resulting in a final sample of 509 participants. The mean age of the participants was 47.59 years (SD = 14.08; range = 18–79 years).

Data were collected through an online survey between July 2023 and July 2024. The survey link was distributed via social media platforms using convenience and snowball sampling, and participants were encouraged to share the link within their social networks.

Before accessing the questionnaire, all participants provided electronic informed consent after receiving information about the study's purpose, the voluntary nature of participation, the confidentiality and anonymity of their responses, and their right to withdraw at any time without consequence.

2.2 Measures

Experiences in Close Relationships–Revised (ECR-R)

The Experiences in Close Relationships–Revised (ECR-R) [16] is a 36-item self-report measure assessing adult attachment in romantic relationships across two dimensions: attachment anxiety and attachment avoidance, each consisting of 18 items. Responses are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). In an Iranian validation study involving 391 participants, Panaghi et al. [31] confirmed the two-factor structure of the scale and reported Cronbach's alpha coefficients of .79 for the total scale, .89 for attachment anxiety, and .80 for attachment avoidance. Test–retest reliability coefficients were .87 for the total scale, .89 for attachment anxiety, and .71 for attachment avoidance.

Rosenberg Self-Esteem Scale (RSES)

The Rosenberg Self-Esteem Scale (RSES) [39] was used to examine the divergent validity of attachment anxiety. The scale comprises 10 items measuring global self-esteem on a 4-point response scale ranging from 0 (strongly

disagree) to 3 (strongly agree), with five items reverse scored (Items 3, 5, 8, 9, and 10). The original version demonstrated high internal consistency (Cronbach's α = .88). In an Iranian sample, Ghasempour et al. [40] reported Cronbach's alpha and McDonald's omega coefficients of .871 and .875, respectively.

NEO Five-Factor Inventory (NEO-FFI)

The NEO Five-Factor Inventory (NEO-FFI) [37] was used to assess the divergent validity of attachment avoidance through its 12-item Extraversion subscale. Items are rated on a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree). The subscale assesses characteristics such as sociability, assertiveness, activity, and positive affect. In the Persian validation study conducted with 2,000 participants, Garousifarshi et al. [41] reported Cronbach's alpha coefficients of .86, .73, .56, .68, and .87 for neuroticism, extraversion, openness, agreeableness, and conscientiousness, respectively.

Depression, Anxiety, and Stress Scale–21 (DASS-21)

The Depression, Anxiety, and Stress Scale–21 (DASS-21) [42] was used to examine convergent validity. This 21-item version, derived from the original DASS-42 [32], measures three dimensions: depression, anxiety, and stress. Items are rated on a 4-point scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much). In the original validation, Cronbach's alpha coefficients were .81 for depression, .73 for anxiety, and .81 for stress. In an Iranian validation study, Samani and Joukar [43] reported Cronbach's alpha coefficients of .85 for depression, .75 for anxiety, and .87 for stress, with corresponding test–retest reliability coefficients of .81, .78, and .80.

3. Results

3.1. Participant Characteristics

A total of 509 Iranian adults participated in this cross-sectional study. As shown in Table 1, most participants were male (331, 65.0%) and married (384, 75.4%).

Table 1
Participant sociodemographic features

Gender		**Frequency**	**Percentage%**
	Female	178	35.0
	Male	331	65.0
Marital status			
	Single	125	24.6
	Married	384	75.4
Age Groups			
	18–29	72	14.1
	30–39	70	13.8
	40–49	115	22.6
	50–59	126	24.8
	Up to 60	126	24.8
Educational Status			
	Bachelor	282	55.4
	Master	163	32.0
	PhD or higher	64	12.6
Educational major			
	Humanities	261	51.3
	Empirical science	109	21.4
	Mathematics	139	27.3

3.2. Factor structure

Confirmatory factor analysis (CFA) was conducted to examine the two-factor structure of the Persian version of the Experiences in Close Relationships–Revised Short Form (ECR-R-S). All standardized factor loadings were statistically significant ($p < .001$). Standardized loadings ranged from 0.47 to 0.79, with all items exceeding 0.50 except Item 13, which showed a loading of 0.47 (Table 2). Overall, the model demonstrated an acceptable fit to the data, supporting the proposed two-factor structure of attachment anxiety and attachment avoidance (Table 3; Fig. 1).

Table 2

Descriptive statistics and item characteristics of the Persian ECR-R-S

Items	Components	Item's statistics			Item-Total statistics				
		Mean	SD	F. L	V	I.T.	C.D.	Skewness	Kurtosis
Item2	Anxiety	2.66	2.095	0.51	151.175	.367	.808	.935	− .542
Item4	Anxiety	2.90	2.045	0.66	143.396	.549	.791	.700	− .798
Item6	Anxiety	3.00	2.053	0.79	143.704	.539	.792	.634	− .895
Item11	Avoidant	2.60	1.920	0.53	144.426	.571	.789	.953	− .338
Item13	Avoidant	1.87	1.498	0.47	157.423	.394	.805	1.899	2.829
Item16	Anxiety	2.33	1.726	0.53	151.994	.458	.799	1.222	.510
Item17	Avoidant	2.73	1.890	0.57	144.374	.584	.788	.772	− .622
Item18	Anxiety	3.59	2.285	0.58	144.862	.444	.802	.251	-1.422
Item26	Anxiety	2.85	2.001	0.52	147.580	.471	.798	.766	− .705
Item27	Avoidant	2.98	1.853	0.76	150.187	.459	.799	.665	− .605
Item33	Avoidant	2.73	1.721	0.66	153.507	.422	.802	.821	− .202
Item35	Avoidant	3.15	1.903	0.58	156.670	.298	.813	.562	− .738
	Anxiety	17.32	8.504	8.504	-	-	-	.540	− .444
	Avoidant	16.06	7.592	7.592	-	-	-	.547	− .531
	ECR-S total	33.39	13.209	13.209	-	-	-	.238	− .808

Note: **V** = scale variance if item deleted, **F.L.** = factor loading, **I.T.** = corrected item-total correlations, **C.D.** = Cronbach's alpha if item deleted, **ECR-S** = Experiences in Close Relationship Scale-Short Form

Table 2 presents the descriptive statistics and item characteristics of the Persian ECR-R-S. The mean item score across the scale was 2.78 (SD = 1.10), with individual item means ranging from 1.87 to 3.59. Skewness and kurtosis values fell within ± 3 for all items, indicating that the data showed acceptable univariate normality.

The proposed two-factor structure of the Persian ECR-R-S was evaluated using confirmatory factor analysis (CFA). The initial model showed suboptimal fit to the data; therefore, theoretically justified model modifications were applied. The final model demonstrated an overall acceptable fit, with Satorra–Bentler χ^2 = 192.77, CFI = 0.94, IFI = 0.95, NFI = 0.93, GFI = 0.93, AGFI = 0.89, SRMR = 0.091, and RMSEA = 0.077 (90% CI: 0.069–0.085) (Table 3).

Table 3

Goodness-of-Fit Indices for the Confirmatory Factor Analysis of the Persian ECR-R-S

BM	RMSEA (CI 90%)	$_{sb}\chi^2$	SRMR	CFI	RFI	NFI	IFI	AGFI	GFI
	0.14 (0.13–0.15)	**614.91**	**0.099**	**0.86**	**0.80**	**0.84**	**0.86**	**0.75**	**0.83**
AM	0.077 (0.0690–0.085)	192.77	0.091	0.94	0.90	0.93	0.95	0.89	0.93

Note. N = 509. BM = Baseline (Initial) Measurement Model; AM = Adjusted (Modified) Measurement Model; $_{sb}X^2$ = Satorra–Bentler scaled chi-square; CFI = Comparative Fit Index; IFI = Incremental Fit Index; NFI = Normed Fit Index; RFI = Relative Fit Index; GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CI = Confidence Interval. All factor loadings in the adjusted model were significant at p<.001.

All standardized factor loadings were statistically significant (p < .001). Factor loadings ranged from 0.47 to 0.79, with all items exceeding 0.50 except Item 13, which showed a loading of 0.47 (Table 2). These findings support the proposed two-factor structure of attachment anxiety and attachment avoidance.

3.3. Internal consistency

Internal consistency was assessed using Cronbach's alpha, McDonald's omega, and Guttman's lambda-6 coefficients. As shown in Table 4, the Persian version of the Experiences in Close Relationships–Revised short form (ECR-R-S) demonstrated adequate internal consistency, with Cronbach's alpha of 0.81, McDonald's omega of 0.82, and Guttman's lambda-6 of 0.72.

At the subscale level, attachment anxiety showed Cronbach's alpha of 0.78, McDonald's omega of 0.79, and Guttman's lambda-6 of 0.71. The attachment avoidance subscale also demonstrated acceptable internal consistency, with Cronbach's alpha and McDonald's omega of 0.79 and Guttman's lambda-6 of 0.62.

Table 4
Internal consistency coefficients for the Persian ECR-R-S

Variable	A	Ω	λ6
Attachment Anxiety	0.78	0.79	0.71
Attachment Avoidance	0.79	0.79	0.62
ECR-S	0.81	0.82	0.72
Note: α = Cronbach's alpha; ω = McDonald's omega; λ6 = Guttman's lambda-6			

3.4. **Convergent and divergent validity**

Pearson correlation analyses between the Persian version of the Experiences in Close Relationships–Revised Short Form (ECR-R-S) and measures of extraversion, self-esteem, depression, and anxiety provided evidence for convergent and divergent validity (Table 5).

Table 5
Pearson Correlations Between ECR-R-S Scores and Measures of Extraversion, Self-Esteem, Depression, and Anxiety

Variable	NEO	Self esteem	DASS-Depression	DASS-Anxiety
Attachment Anxiety	-0.213**	-0.374**	0.409**	0.370**
Attachment Avoidance	-0.268**	-0.272**	0.379**	0.248**
ECR-S	-0.291**	-0.397**	0.481**	0.381**

The total ECR-R-S score was negatively correlated with extraversion (r = − 0.291, p < .001) and self-esteem (r = − 0.397, p < .001), indicating that higher attachment insecurity was associated with lower levels of these constructs. In contrast, the total score was positively correlated with depression (r = .481, p < .001) and anxiety (r = .381, p < .001). A similar pattern of associations was observed for both attachment anxiety and attachment avoidance, supporting the expected evidence for convergent and divergent validity (Table 5).

3.5 Demographic Differences

A 2 (gender) × 2 (marital status) multivariate analysis of variance (MANOVA) was conducted to examine differences in attachment anxiety and attachment avoidance as a function of gender and marital status, with both subscales of the ECR entered as dependent variables. Descriptive statistics for each subscale by gender and marital status are presented in Table 6.

Table 6
Descriptive Statistics for Attachment Anxiety and Avoidance Scores by Gender and Marital Status

Subscales	Gender	n	Mean	SD
Attachment Anxiety	Male	331	56.08	18.60
	Female	178	62.72	22.11
Attachment Avoidance	Male	331	48.95	20.98
	Female	178	53.21	24.02
Attachment Anxiety	Single	125	65.36	19.94
	Married	384	56.14	19.69
Attachment Avoidance	Single	125	55.50	20.05
	Married	384	48.79	22.59

Hotelling's Trace indicated a significant multivariate effect of gender, $F(2, 506) = 7.53$, $p < .001$, $\eta^2 = .029$. A significant multivariate effect was also found for marital status, $F(2, 506) = 12.81$, $p < .001$, $\eta^2 = .048$.

Table 7
Univariate ANOVA Results for Gender and Marital Status Differences in Attachment Anxiety and Avoidance

Source	Dependent variable	Mean Square	df	F	*P*	Partial η^2
gender	Attachment Anxiety	5104.32	1, 507	12.88	0.001	0.025
	Attachment Avoidance	2102.84	1, 507	4.31	0.038	0.008
Marital status	Attachment Anxiety	8024.48	1, 507	20.56	0.001	0.039
	Attachment Avoidance	4242.01	1, 507	8.76	0.003	0.017

Based on the univariate ANOVA results presented in Table 7, women scored significantly higher than men on both attachment anxiety, $F(1, 507) = 12.88$, $p = .001$, $\eta^2 = .025$, and attachment avoidance, $F(1, 507) = 4.31$, $p = .038$, η^2

= .008. Similarly, single participants scored significantly higher than married participants on attachment anxiety, $F(1, 507) = 20.56$, $p = .001$, $\eta^2 = .039$, and attachment avoidance, $F(1, 507) = 8.76$, $p = .003$, $\eta^2 = .017$.

4. Discussion

The present study aimed to develop a short version of the ECR-R in an Iranian sample and to examine its validity, reliability, and factor structure. Although attachment is a pervasive construct across cultures, its expression may vary across cultural contexts. Previous attempts to shorten the ECR-R in different cultural settings have resulted in distinct versions within each culture (for a comparison of differences in shortened items across five cultural samples, see Lee et al., [30]). A Persian short form may facilitate culturally informed attachment research in a non-WEIRD context. Moreover, offering a short form can reduce participants' response burden in quantitative studies while preserving the core features of the construct. Accordingly, we developed and evaluated a 12-item Persian short form.

The resulting version, despite the reduced number of items, effectively captures the core features of the two attachment dimensions. The selected items for attachment anxiety reflect fear of abandonment and relationship loss (Items 2 and 4), the need for attention and reassurance from the partner (Items 6 and 18), and a strong desire for closeness (Items 16 and 26). In contrast, the items representing attachment avoidance reflect avoidance of approaching the partner (Items 11, 13, and 17) and reluctance to use the partner as a safe haven, including disclosing concerns (Item 27), relying on the partner (Item 33), and seeking comfort from them (Item 35).

Based on prior research and adult attachment theory, we expected the Iranian short version to retain the original two-factor structure of attachment anxiety and attachment avoidance. The findings indicate that the short version retained the expected two-factor structure and acceptable internal consistency. Regarding construct validity, confirmatory factor analysis showed that the two-factor model provided a good fit to the data after modification (CFI = 0.94), and factor loadings for all items exceeded 0.40. Cronbach's alpha coefficients were 0.78 for the anxiety subscale, 0.79 for the avoidance subscale, and 0.81 for the total scale. As expected for a shorter scale, these reliability coefficients were lower than those reported for the full ECR-R; however, they were comparable to those reported for previous short versions of the ECR-R [21, 30].

The mean scores of the Iranian sample on the current version were 2.88 for anxiety and 2.67 for avoidance, with no significant difference observed between the two dimensions. Further analyses examining convergent validity showed that the ECR-RS total score, as well as the attachment anxiety and avoidance scores, were significantly and positively correlated with depression and anxiety, as expected. This association was slightly stronger for attachment anxiety than for attachment avoidance. This pattern is consistent with Brennan et al.'s [10] conceptualization of attachment anxiety as reflecting a more negative self-model and greater reliance on relational feedback for self-evaluation. To assess divergent validity, both anxiety and avoidance were significantly negatively correlated with self-esteem, with the negative association being somewhat stronger for attachment anxiety. This finding is consistent with the theoretical assumption that attachment anxiety is linked to a negative self-image and concerns about self-worth [10]. Zhang et al.'s [38] meta-analysis had previously shown that attachment anxiety and avoidance were negatively related to self-esteem, but there was no significant difference between the relationship between the two dimensions of attachment and self-esteem, although the relationship between attachment anxiety and self-esteem was slightly stronger. In addition, the extraversion factor from the NEO-FFI was negatively correlated with both attachment anxiety and avoidance, with a stronger coefficient

observed for attachment avoidance. This pattern aligns with previous findings by Wongpakaran et al. [24] and with theoretical assumptions regarding sociability, sensation seeking, and intimacy in extraverted individuals [36].

Next, data were analyzed based on the demographic characteristics of the participants. The findings indicated that both attachment anxiety and attachment avoidance decreased with age. Chopik et al. [44] previously reported that attachment anxiety decreases with age, whereas attachment avoidance increases slightly. Kazarian and Taher [25], in a study of a Lebanese sample, found that attachment anxiety decreases with age but did not observe a significant association between attachment avoidance and age. However, it should be noted that both the present and prior findings were derived from cross-sectional designs, which do not allow for the examination of generational effects. For example, Konrath et al. [45] found that avoidant-rejective attachment is more prevalent in more recent generations than in earlier ones, and Mikulincer et al. [46] previously demonstrated the role of war-related trauma experiences in intergenerational differences in attachment. Longitudinal studies are needed to distinguish developmental changes from cohort effects.

In the present study, women reported higher scores on both attachment anxiety and attachment avoidance compared to men. Del Giudice's [47] meta-analysis showed that, in cross-gender comparisons, men reported higher avoidance and women higher anxiety, with this pattern being stronger in Europe and the Middle East and weaker in North America. In contrast, Li et al.'s [48] meta-analysis indicated that Chinese women reported higher scores on both anxiety and avoidance compared to Chinese men. In light of these findings, examining gender differences in attachment anxiety and avoidance within the Iranian cultural context requires further investigation (for example, for a comparison of attachment anxiety and avoidance across relationships with mother, father, partner, and friend, see Moreira et al., [49]). These inconsistent findings across cultural contexts suggest that gender differences in attachment may be shaped not only by biological factors but also by cultural norms governing emotional expression and interpersonal roles.

Single individuals reported higher anxiety and avoidance scores than married individuals, consistent with previous findings in a Lebanese sample [25]. Ehrenthal et al. [28] similarly reported that participants who were not living with a partner or were not in a relationship at the time of assessment had significantly higher scores on both anxiety and avoidance dimensions. Educational level was not associated with either attachment dimension.

Limitations and Future Directions

The present sample was age-diverse and included participants from different age groups; however, men and married individuals were overrepresented, comprising two-thirds and three-quarters of the sample, respectively. Further evidence is needed to establish the validity of the present instrument in samples that include larger proportions of women and unmarried individuals. In addition, the sample consisted of a non-clinical population, which warrants caution in generalizing the findings to clinical groups. Future research could examine potential differences between clinical and non-clinical populations by focusing specifically on clinical samples [23].

Future studies could also evaluate the criterion validity of the instrument by examining variables such as satisfaction with romantic relationships, time spent with a romantic partner, and life satisfaction [28], as well as assess its test–retest reliability through longitudinal designs. Another limitation of the present study was its exclusive reliance on self-report measures. Given the limitations inherent in traditional self-report instruments, future research could incorporate attachment interviews or biological indicators to further assess the validity of the present version.

5. Conclusion

Overall, the findings of the present study indicate that the 12-item Iranian version of the ECR-R retains a factor structure similar to that of the original version and demonstrates acceptable psychometric properties in terms of validity and reliability. This short form provides a brief and psychometrically sound alternative to the full ECR-R for research involving Iranian adults.

Declarations

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Authors' contributions

G.M. and A.Z. conceived and designed the study. N.G. and M.V. performed the statistical analyses, prepared the figures and tables, and drafted the initial manuscript. A.B. coordinated and conducted the data collection. All authors critically reviewed the intellectual content, provided revisions, and read and approved the final manuscript.

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Data availability

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics approval and consent to participate

The study protocol was approved by the Ethics Committee of Shahid Beheshti University. All procedures involving human participants were conducted in accordance with the ethical standards of the institutional research committee and the Declaration of Helsinki. Written informed consent was obtained from all participants prior to participation.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Figures

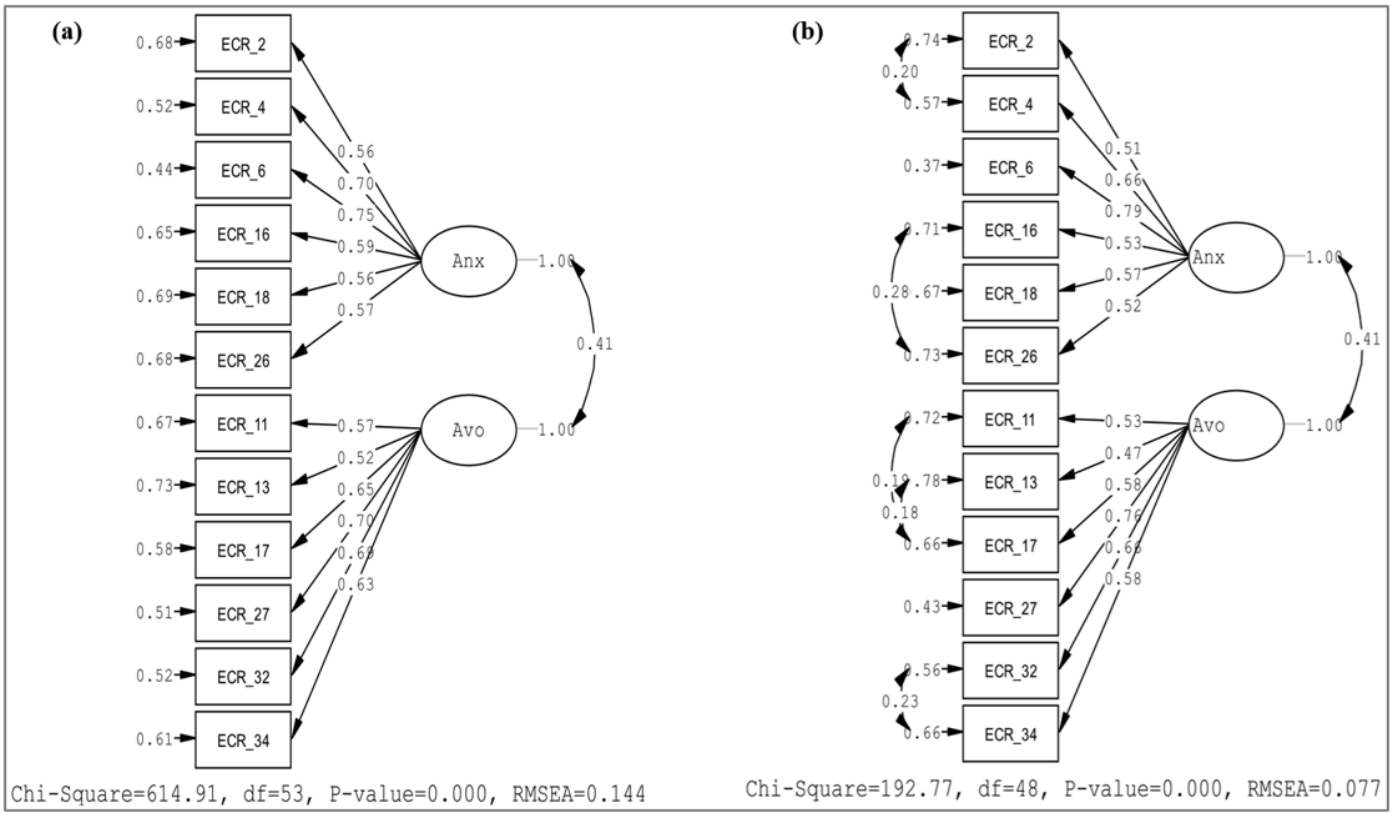


Figure 1

Confirmatory factor analysis models of the Persian version of the Experiences in Close Relationships–Revised Short Form (ECR-R-S): (a) initial model before modification and (b) final model after theoretically justified modifications.