

Psychometric Evaluation and Validation of the Persian Version of the Screen for Adult Anxiety Related Disorders (SCAARED) in a Sample of Iranian Mothers

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ABSTRACT

Objective: This study aimed to evaluate the psychometric properties and validate the Persian version of the Screen for Adult Anxiety Related Disorders (SCAARED) in a sample of Iranian mothers.

Methods and Materials: This descriptive-correlational psychometric study was conducted among mothers of lower-secondary school students in Mashhad, Iran, during the 2024–2025 academic year. The target population comprised approximately 110,000 mothers, of whom 296 were selected using multistage cluster sampling. Following forward and backward translation of the SCAARED, its face and content validity were evaluated by 15 experts in anxiety disorders. Construct validity was assessed through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Internal consistency and construct reliability and validity were examined using Cronbach's alpha, composite reliability, average variance extracted (AVE), the Fornell–Larcker criterion, and the heterotrait–monotrait (HTMT) ratio.

Findings: The content validity ratio (CVR) values for all 44 items ranged from 0.60 to 1.00, while item-level content validity index (I-CVI) values ranged from 0.87 to 1.00. EFA supported a four-factor structure accounting for 58.3% of the total variance. CFA further confirmed the adequacy of the four-factor model. The Cronbach's alpha coefficient for the total scale was 0.807, indicating satisfactory internal consistency. The AVE was 0.586, supporting adequate convergent validity. Furthermore, the Fornell–Larcker criterion and HTMT matrix demonstrated satisfactory discriminant validity among the identified factors.

Conclusion: The Persian version of the SCAARED demonstrated satisfactory reliability, content validity, construct validity, convergent validity, and discriminant validity. Accordingly, it can be considered a valid and reliable instrument for screening anxiety disorders among Iranian mothers and may be used in both research and clinical settings.

Keywords: Anxiety Disorders; Psychometrics; Reliability; Validity; Mothers; SCAARED

1. Introduction

Anxiety is one of the most common forms of psychological distress and represents a broad spectrum of emotional, cognitive, physiological, and behavioral responses to perceived threat, uncertainty, or anticipated harm. Although anxiety can serve an adaptive function by facilitating vigilance and preparation in potentially threatening circumstances, excessive, persistent, or poorly regulated anxiety may become clinically significant and interfere with social, occupational, interpersonal, and family functioning. Contemporary diagnostic systems distinguish several anxiety disorders according to their predominant symptom profiles, including generalized anxiety disorder, panic disorder, agoraphobia, social anxiety disorder, and separation anxiety disorder, while emphasizing excessive fear and anxiety as central features that exceed developmentally and contextually appropriate responses ([American Psychiatric Association, 2013](#)). From a conceptual perspective, anxiety has also been understood as a complex psychological state rooted in the interaction between perceived danger, internal conflict, anticipatory cognition, and difficulties in regulating emotional arousal, with classical and contemporary theoretical approaches continuing to refine its psychological meaning and clinical implications ([Ally & Aloka, 2025](#)).

Anxiety disorders constitute a substantial global mental health concern because of their high prevalence, recurrent course, comorbidity, and impact on quality of life. Epidemiological evidence indicates that anxiety disorders are distributed across diverse populations and are associated with multiple sociodemographic factors, while their overall contribution to the global burden of mental disorders remains considerable ([Javaid et al., 2023](#)). Reviews of adult populations have similarly demonstrated that anxiety disorders are highly prevalent across countries and demographic groups, although prevalence estimates vary according to diagnostic criteria, assessment methods, age, sex, and sociocultural context ([Remes et al., 2016](#)). Anxiety may also emerge or recur across different developmental stages, suggesting that these disorders should not be viewed exclusively as time-limited conditions restricted to a particular age period. Longitudinal and developmental evidence has shown that anxiety disorders can demonstrate both incidence and recurrence across childhood, adolescence, young adulthood, and later developmental periods, frequently occurring alongside other internalizing conditions ([Essau et al., 2018](#)). These findings underscore

the importance of reliable screening and early identification not only in clinical settings but also in community populations in which significant anxiety symptoms may remain unrecognized.

The assessment of anxiety is particularly important among parents because parental emotional functioning may have consequences that extend beyond the individual and influence family relationships and children's psychological adjustment. Anxiety within families is increasingly conceptualized as a dynamic and reciprocal process in which parents' and children's emotional states may influence one another over time. Recent longitudinal evidence has highlighted reciprocal associations between anxiety processes among family members and suggests that anxiety can be maintained through repeated interpersonal transactions rather than operating solely as an individual-level phenomenon ([Liu et al., 2025](#)). In this context, maternal anxiety deserves particular attention because mothers often occupy a central role in children's daily emotional socialization, behavioral regulation, and responses to stressful experiences. Associations between maternal and paternal anxiety, parenting behaviors, and anxiety-related precursors in children have been documented across early developmental stages, indicating that parental anxiety may be reflected in specific patterns of overprotection, control, modeling, or reduced encouragement of autonomy ([Möller et al., 2016](#)).

The relevance of parental anxiety is further supported by evidence concerning the intergenerational transmission of psychological vulnerability. Children of parents with severe psychiatric disorders have been shown to be at increased risk of anxiety disorders, supporting the broader proposition that parental psychopathology may contribute to children's emotional vulnerability through genetic, environmental, and relational pathways ([Ayano et al., 2021](#)). Family-level studies have also shown that parenting stress, parental anxiety, and impaired family functioning are meaningfully associated with child anxiety, suggesting that parental emotional symptoms and family relational patterns may jointly shape children's psychological outcomes ([Barton et al., 2021](#)). Longitudinal work on childhood anxiety similarly indicates that parental anxiety and child emotion dysregulation may operate together as important family-level factors in the development or maintenance of anxiety symptoms ([Krizova, 2020](#)). Such findings support the need for psychometrically sound measures capable of assessing anxiety among parents in community samples, particularly

among mothers who may influence and be influenced by children's emotional and behavioral functioning.

The importance of accurately identifying parental anxiety became especially apparent during periods of heightened social stress. Research conducted during the COVID-19 pandemic, for example, showed that parental anxiety and depression were associated with poorer mental health outcomes among children with special needs, demonstrating how parental distress can become especially consequential under conditions of elevated environmental pressure (Gruszka et al., 2023). At the same time, the potential benefits of addressing parental anxiety for children's mental health remain incompletely understood. A systematic review examining whether treatment of parental anxiety improves children's mental health outcomes identified a notable lack of eligible direct evidence, highlighting an important gap between the theoretical significance of parental anxiety and the empirical evaluation of its treatment-related downstream effects (Chapman et al., 2022). This evidence gap reinforces the importance of high-quality assessment instruments that can facilitate more precise identification of parental anxiety and support future studies examining family-level pathways and intervention outcomes.

Several transdiagnostic psychological processes are also relevant to understanding anxiety symptoms in adults and parents. Intolerance of uncertainty has emerged as a particularly important cognitive vulnerability. Individuals who have difficulty tolerating ambiguous or unpredictable circumstances are more likely to interpret uncertainty as threatening and to experience heightened anxiety in response to incomplete information. Experimental and theoretical evidence suggests that uncertainty contributes to anxiety through processes mediated by intolerance of uncertainty, thereby connecting ambiguous environmental conditions with sustained anxious responding (Gu & Gu, 2020). More recent research has further indicated that beliefs about emotions may contribute to the association between intolerance of uncertainty and anxiety, suggesting that anxiety is maintained not only by uncertain circumstances themselves but also by individuals' interpretations of emotional experiences arising in those circumstances (Becerra et al., 2023). In parents, such processes may have implications for how uncertain situations involving children's health, education, behavior, and future development are perceived and managed.

Cognitive avoidance is another mechanism frequently implicated in chronic anxiety and worry. According to the cognitive avoidance theory of worry, verbal-linguistic worry

may function as a strategy for avoiding more emotionally intense imagery, physiological activation, or deeper emotional processing, thereby producing short-term relief while maintaining anxiety over time (Sibrava & Borkovec, 2006). Related constructs such as experiential avoidance and psychological inflexibility have similarly been linked to maladaptive responses to internal emotional experiences. Psychometric work on psychological inflexibility and experiential avoidance has shown that these constructs can be reliably assessed and are meaningfully associated with psychological distress (Bond et al., 2011). Moreover, experiential avoidance has been associated with anxiety disorder diagnoses and subsequent physical health symptoms, suggesting that avoidance-based patterns may have consequences extending beyond immediate emotional discomfort (Berghoff et al., 2017). These transdiagnostic findings are relevant to parental populations because anxiety symptoms may be embedded within broader patterns of cognitive avoidance, intolerance of uncertainty, emotional dysregulation, and maladaptive coping.

The family consequences of anxiety also increase the importance of considering child symptoms alongside parental anxiety. Anxiety disorders are among the most common mental health problems in children and adolescents and may affect academic performance, peer relationships, family functioning, and developmental adaptation (Kowalchuk et al., 2022). The expansion of psychological interventions for young people, including digital cognitive-behavioral approaches, reflects the increasing recognition of the need for accessible methods of prevention and treatment. Evidence from systematic review and meta-analytic research suggests that cognitive-behavioral digital interventions can effectively reduce anxiety symptoms among children and adolescents (Csirmaz et al., 2022). However, child-focused treatment does not eliminate the need to assess parental anxiety, particularly because family processes may influence both symptom development and treatment response. Reliable adult anxiety screening within family research can therefore contribute to a more comprehensive understanding of parent-child psychological functioning.

Accurate assessment is essential for distinguishing clinically relevant anxiety symptoms from ordinary situational worry and for identifying patterns corresponding to specific anxiety dimensions. Although structured diagnostic interviews are often considered rigorous methods of clinical assessment, they require trained personnel, considerable administration time, and substantial resources. Consequently, standardized self-report screening

instruments are valuable in epidemiological, clinical, and community research because they permit efficient assessment of symptom severity and probable disorder profiles. The Screen for Adult Anxiety Related Disorders (SCAARED) was developed specifically to assess DSM-5-related anxiety disorder symptoms in adults and represents an extension of anxiety screening approaches previously used in younger populations. The original psychometric evaluation demonstrated that the SCAARED provides a multidimensional assessment of anxiety symptoms, including panic/somatic symptoms and agoraphobia, generalized anxiety, separation anxiety, and social anxiety, and showed satisfactory psychometric characteristics for the assessment of adult anxiety disorders (Angulo et al., 2017).

Cross-cultural validation of the SCAARED is particularly important because the interpretation and expression of anxiety symptoms may vary according to language, culture, social norms, and contextual expectations. Direct translation alone does not guarantee that an instrument measures the same latent constructs across populations; therefore, linguistic adaptation should be accompanied by systematic psychometric evaluation of factor structure, internal consistency, convergent validity, discriminant validity, and other measurement properties. Evidence from several linguistic contexts has supported the adaptability of the SCAARED. The Spanish version demonstrated satisfactory psychometric properties and supported the utility of the instrument for assessing anxiety-related symptoms in Spanish-speaking populations (Sánchez-Cueva et al., 2021). More recently, validation of the Korean version provided further evidence for the cross-cultural applicability and psychometric robustness of the SCAARED while also emphasizing the importance of examining its dimensional structure within each cultural setting (Hwang et al., 2024).

In Iran, a Persian version of the SCAARED has previously been evaluated among patients with anxiety disorders, with findings supporting favorable psychometric characteristics in a clinical population (Farani et al., 2022). This work represents an important foundation for the use of the instrument in Persian-speaking settings; however, psychometric performance established in a clinical sample cannot automatically be assumed to generalize to community-based parental populations. Clinical samples are typically characterized by greater symptom severity, higher rates of psychiatric comorbidity, and different distributions of item responses than nonclinical or mixed community samples. These differences may influence factor loadings, reliability coefficients, score distributions, and associations

among latent dimensions. Consequently, further validation in specific populations remains necessary when an instrument is intended for use beyond the population in which its Persian psychometric properties were initially established.

Mothers constitute a particularly relevant population for such validation because their anxiety may be associated with parenting behavior, parent–child interaction quality, family functioning, children’s anxiety symptoms, and transdiagnostic psychological processes. A measure that is psychometrically reliable in this population could be valuable not only for individual screening but also for research examining intergenerational pathways of anxiety, family mechanisms, and preventive interventions. Such an instrument could also support studies exploring whether maternal anxiety is associated with theoretically relevant constructs such as cognitive avoidance, meta-worry, emotion regulation difficulties, and intolerance of uncertainty. Demonstrating expected relationships with these constructs would provide additional evidence for construct-related validity and would strengthen the interpretability of the Persian version in family and community research contexts.

The broader significance of reliable anxiety assessment also lies in its potential contribution to prevention and intervention planning. When anxiety is identified accurately, clinicians and researchers can better determine which individuals may require more comprehensive assessment, psychological intervention, or monitoring. This is especially relevant in family contexts, where anxiety symptoms in one member may interact with the psychological functioning of others. The growing evidence concerning family transmission, parent–child emotional reciprocity, parenting behavior, and transdiagnostic cognitive-emotional processes suggests that maternal anxiety should be assessed using instruments capable of capturing its multidimensional nature rather than relying exclusively on global distress indicators (Liu et al., 2025; Möller et al., 2016). A culturally adapted and psychometrically validated SCAARED may therefore provide a useful tool for both applied and research purposes in Iranian populations.

Accordingly, the aim of the present study was to evaluate the psychometric properties, factor structure, reliability, and validity of the Persian version of the Screen for Adult Anxiety Related Disorders (SCAARED) in a sample of Iranian mothers.

2. Methods and Materials

2.1. Study design and Participant

The present study employed a descriptive-correlational design with a psychometric approach and was conducted to evaluate the validity and reliability of the Persian version of the Screen for Adult Anxiety Related Disorders (SCAARED). The statistical population consisted of mothers of lower-secondary school students and their children in Mashhad, Iran, during the 2024–2025 academic year. The target population was estimated to comprise more than 110,000 individuals. To obtain a sufficiently heterogeneous and representative sample, multistage cluster sampling was applied. In the first stage, two educational districts were randomly selected from the seven districts administered by the Mashhad Department of Education. In the second stage, two schools were randomly selected from each selected district. Subsequently, 300 mothers of students attending the selected schools were randomly invited to participate in the study. After screening the returned questionnaires for completeness and response quality, four questionnaires containing substantial missing or invalid data were excluded, resulting in a final analytic sample of 296 participants. The inclusion criteria were being between 25 and 60 years of age, having at least one child aged 8 to 16 years, possessing at least a high school diploma, and having no severe cognitive impairment or disabling physical illness that could interfere with comprehension or completion of the questionnaires. Eligible participants were informed about the purpose and procedures of the study and participated voluntarily. Following approval of the research protocol and receipt of an ethics code from Iran University of Medical Sciences, the participants first completed a researcher-developed demographic questionnaire and subsequently completed the Persian version of the SCAARED. The study procedures were implemented in accordance with ethical principles concerning voluntary participation, confidentiality of personal information, anonymity of responses, and the participants' right to withdraw from the study without adverse consequences.

2.2. Measures

The present study employed a descriptive-correlational design with a psychometric approach and was conducted to evaluate the validity and reliability of the Persian version of the Screen for Adult Anxiety Related Disorders (SCAARED). The statistical population consisted of

mothers of lower-secondary school students and their children in Mashhad, Iran, during the 2024–2025 academic year. The target population was estimated to comprise more than 110,000 individuals. To obtain a sufficiently heterogeneous and representative sample, multistage cluster sampling was applied. In the first stage, two educational districts were randomly selected from the seven districts administered by the Mashhad Department of Education. In the second stage, two schools were randomly selected from each selected district. Subsequently, 300 mothers of students attending the selected schools were randomly invited to participate in the study. After screening the returned questionnaires for completeness and response quality, four questionnaires containing substantial missing or invalid data were excluded, resulting in a final analytic sample of 296 participants. The inclusion criteria were being between 25 and 60 years of age, having at least one child aged 8 to 16 years, possessing at least a high school diploma, and having no severe cognitive impairment or disabling physical illness that could interfere with comprehension or completion of the questionnaires. Eligible participants were informed about the purpose and procedures of the study and participated voluntarily. Following approval of the research protocol and receipt of an ethics code from Iran University of Medical Sciences, the participants first completed a researcher-developed demographic questionnaire and subsequently completed the Persian version of the SCAARED. The study procedures were implemented in accordance with ethical principles concerning voluntary participation, confidentiality of personal information, anonymity of responses, and the participants' right to withdraw from the study without adverse consequences.

2.3. Data Analysis

The psychometric properties of the Persian SCAARED were evaluated through a combination of content validity, construct validity, reliability, convergent validity, and discriminant validity analyses. Content validity was examined quantitatively using the content validity ratio (CVR) and the content validity index (CVI). The CVR was calculated according to Lawshe's (1975) method, in which the panel of experts evaluated the essentiality of each item for measuring the intended construct, and the resulting values were interpreted according to the critical values appropriate for the number of participating experts. The CVI was assessed based on the approach proposed by Waltz and Bausell (1981), with experts evaluating the relevance and

appropriateness of each item. Construct validity was first investigated using exploratory factor analysis to identify the latent dimensional structure of the Persian instrument. Varimax rotation was employed to obtain a more interpretable factor solution and to clarify the pattern of item loadings across the extracted factors. The factorial structure identified in the exploratory analysis was then evaluated using confirmatory factor analysis. Confirmatory factor analysis was performed using the maximum likelihood estimation method, and the adequacy of the hypothesized measurement model was evaluated on the basis of standard model-fit criteria. Internal consistency reliability was assessed using Cronbach's alpha coefficients for the overall questionnaire and its underlying dimensions, while composite reliability was calculated to provide an additional estimate of latent construct reliability. Convergent validity was evaluated using the average variance extracted (AVE), with higher AVE values reflecting the extent to which the items associated with each latent factor shared a substantial proportion of common variance. Discriminant validity was examined using both the Fornell–Larcker criterion and the heterotrait–monotrait ratio of correlations (HTMT), thereby determining whether the identified dimensions were empirically distinguishable from one another. Descriptive statistics were also used to summarize the participants'

characteristics and item-level responses where appropriate. All statistical analyses were conducted using SPSS and AMOS software packages, with the factor-analytic and reliability procedures selected in accordance with established standards for the psychometric validation of self-report measurement instruments.

3. Findings and Results

Examination of the demographic characteristics of the 296-participant sample showed that the mean age of the mothers was 43.71 years (SD = 5.66; range = 26–62 years), while the mean age of their children was 13.28 years (SD = 1.52; range = 9–17 years). The majority of the sample (90.2%) lived in two-parent families. The predominant educational levels among the mothers were high school diploma and bachelor's degree, which together accounted for 59.8% of the sample. More than half of the mothers (54.1%) were employed, and the children were predominantly boys (54.1%). This demographic composition was consistent with the general characteristics of the urban maternal population in Mashhad and provided an appropriate basis for generalizing the findings to this population.

Table 1

Demographic Characteristics of the Study Sample (N = 296)

Variable	Category	Frequency	Percentage
Mothers' age (years)	M = 43.71 / SD = 5.66 / Range = 26–62	—	—
Children's age (years)	M = 13.28 / SD = 1.52 / Range = 9–17	—	—
Family structure	Two-parent	267	90.2
	Single-parent	10	3.6
	No response	19	6.4
Maternal education	Below high school diploma	27	9.1
	High school diploma	106	35.8
	Bachelor's degree	71	24.0
	Master's degree	45	15.2
	Doctoral degree	24	8.1
Maternal employment	No response	23	7.8
	Employed	160	54.1
	Homemaker	113	38.2
	No response	23	7.8
Child sex	Boy	160	54.1
	Girl	127	42.9
	No response	9	3.0

Before proceeding with inferential analyses, the assumption of normality for the distributions of the main study variables was assessed using the Jarque–Bera test and examination of skewness and kurtosis coefficients. As

shown in Table 3, the p values for all variables were greater than .05, ranging from .13 to .85, indicating that the null hypothesis of normal distribution was not rejected. The skewness coefficients ranged from –0.03 to 1.72, and the

kurtosis coefficients ranged from -1.15 to 1.97 ; all values fell within the acceptable range of ± 2 . These findings supported the assumption required for the application of

parametric statistical procedures, including confirmatory factor analysis based on maximum likelihood estimation.

Table 2

Descriptive Indices and Results of the Normality Test for the Study Variables

Variable	Mean	SD	Skewness	Kurtosis	<i>p</i> (Jarque–Bera)
Maternal anxiety	0.35	0.25	0.86	0.68	.68
Child anxiety	2.09	0.64	0.56	−0.37	.34
Parent–child interactions	5.36	1.09	−1.03	1.02	.81
Cognitive avoidance (child)	2.55	1.19	0.61	−0.48	.52
Meta-worry (child)	1.56	0.51	1.45	1.78	.61
Emotion regulation (child)	2.28	0.59	0.55	0.29	.37
Intolerance of uncertainty (child)	1.65	0.61	−0.03	−0.36	.54
Cognitive avoidance (mother)	2.18	0.99	1.18	1.62	.57
Meta-worry (mother)	1.39	0.61	1.72	1.97	.13
Emotion regulation (mother)	2.05	0.54	0.69	0.36	.62
Intolerance of uncertainty (mother)	1.71	0.65	−0.18	−0.61	.36

The content validity of the questionnaire was examined using two indices, the Content Validity Ratio (CVR) and the Content Validity Index (CVI), based on the judgments of 15 experts in the field of anxiety disorders. The CVR values for all 44 items ranged from 0.60 to 1.00 ($M = 0.85$). According to Lawshe’s critical values for a panel of 15 experts, for which the minimum acceptable value is 0.49, all items were

confirmed as essential (Lawshe, 1975). The item-level Content Validity Index (I-CVI) ranged from 0.87 to 1.00 for all items ($M = 0.98$). Based on the criterion proposed by Waltz and Bausell, these values exceeded the threshold of 0.79 and indicated excellent content validity; therefore, none of the items required deletion or substantial revision.

Table 3

Summary of Content Validity Results

Index	Range	Mean	Criterion Threshold	Result
Content Validity Ratio (CVR)	0.60–1.00	0.85	0.49 (Lawshe)	All 44 items confirmed
Item-level Content Validity Index (I-CVI)	0.87–1.00	0.98	0.79 (Waltz & Bausell)	All 44 items confirmed

The results of exploratory factor analysis with Varimax rotation showed that four principal factors collectively explained 58.3% of the total variance. The first factor, with an eigenvalue of 12.84, independently explained 29.2% of the variance and represented the strongest extracted factor, whereas the fourth factor, with an eigenvalue of 2.15, accounted for 4.9% of the variance. The relatively balanced distribution of explained variance across the factors, without absolute dominance by a single factor, together with the

proportion of explained variance exceeding the conventional 50% threshold, supported the multidimensional structure and satisfactory construct validity of the instrument. Examination of the factor loadings indicated that all 44 items had factor loadings greater than 0.63 on their respective factors, and no item exhibited substantial cross-loading or a weak loading. The mean communality of the items was 0.498, further confirming the explanatory strength of the four-factor model.

Table 4

Variance Explained by the Factors After Varimax Rotation

Factor	Eigenvalue	Variance (%)	Cumulative Variance (%)
1	12.84	29.2	29.2
2	6.71	15.3	44.5
3	3.92	8.9	53.4
4	2.15	4.9	58.3

To validate the four-factor structure obtained from the exploratory factor analysis, confirmatory factor analysis using maximum likelihood estimation was conducted on the 44 items in the sample of 296 participants. The path diagram of the measurement model is presented in Figure 1. As shown in Table 6, the model demonstrated satisfactory fit. Although the chi-square test was statistically significant, this

result is expected given the relatively large sample size. The relative fit indices, including the chi-square-to-degrees-of-freedom ratio (2.38), root mean square error of approximation (RMSEA = 0.074), comparative fit index (CFI = 0.94), and Tucker–Lewis index (TLI = 0.97), were all within acceptable ranges.

Figure 1

Path diagram of the confirmatory factor analysis for the items of the maternal anxiety questionnaire.

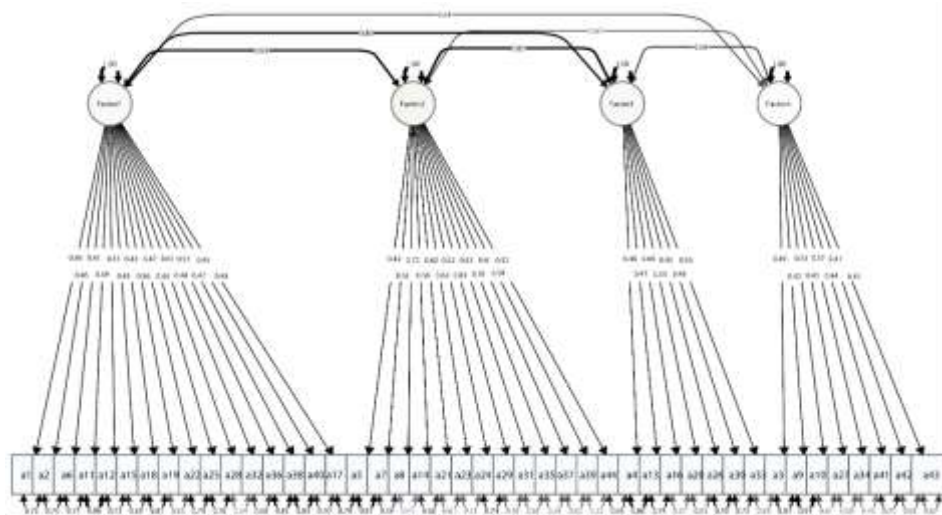


Table 5

Goodness-of-Fit Indices for the Maternal Anxiety Measurement Model

Fit Index	χ^2	df	p	χ^2/df	RMSEA	TLI	CFI	SRMR	NFI	GFI	AGFI
Study model	2144.68	902	.001	2.38	0.074	0.97	0.94	0.074	0.94	0.93	0.95
Acceptable values	—	—	—	< 4	< 0.08	> 0.90	> 0.90	< 0.08	> 0.90	> 0.90	> 0.90

Examination of the standardized factor loadings presented in Table 7 showed that all 44 items contributed significantly to their respective factors ($p < .001$), with a mean factor loading of 0.51. Eight items had factor loadings greater than 0.60 and constituted the strongest core

indicators of the construct. This pattern, together with the satisfactory overall model fit, supported the strong construct validity and satisfactory structural reliability of the Persian version of the instrument.

Table 6

Standardized Factor Loadings of the Items in Confirmatory Factor Analysis

Item	Factor Loading	z	Item	Factor Loading	z
1	0.480	6.62	23	0.634	9.23
2	0.456	6.26	24	0.517	7.21
3	0.492	7.12	25	0.444	6.07
4	0.457	6.31	26	0.430	5.86
5	0.419	5.68	27	0.414	5.61
6	0.410	5.55	28	0.605	8.72
7	0.523	7.32	29	0.630	9.17
8	0.704	10.59	30	0.475	6.54

9	0.419	5.68	31	0.630	9.16
10	0.551	7.78	32	0.475	6.54
11	0.487	6.81	33	0.630	9.16
12	0.505	7.03	34	0.570	8.11
13	0.469	6.45	35	0.579	8.26
14	0.556	7.87	36	0.513	7.15
15	0.492	6.81	37	0.612	8.84
16	0.595	8.53	38	0.472	6.53
17	0.460	6.32	39	0.583	8.32
18	0.426	5.79	40	0.449	6.84
19	0.559	7.92	41	0.447	6.09
20	0.534	7.50	42	0.414	5.62
21	0.624	9.06	43	0.413	5.61
22	0.474	6.53	44	0.523	7.31

Note. The *p* value for all factor loadings was less than .001.

The results presented in Table 8 indicated satisfactory internal consistency reliability and convergent validity for the four extracted factors. Cronbach's alpha coefficients for the four factors were 0.846, 0.878, 0.719, and 0.760, respectively, all exceeding the conventional threshold of 0.70. Composite reliability (CR) coefficients were 0.751, 0.772, 0.792, and 0.732, respectively, supporting the

structural reliability of the factors. Average variance extracted (AVE) values were 0.551, 0.572, 0.597, and 0.632 for the four factors, respectively, and 0.586 for the total questionnaire. All AVE values exceeded the recommended threshold of 0.50, supporting satisfactory convergent validity. The Cronbach's alpha coefficient for the total questionnaire was 0.807.

Table 7

Reliability and Convergent Validity of the Questionnaire Factors

Factor	Cronbach's Alpha	Composite Reliability (CR)	AVE
1. Panic/Somatic-Agoraphobia	0.846	0.751	0.551
2. Generalized Anxiety	0.878	0.772	0.572
3. Separation Anxiety	0.719	0.792	0.597
4. Social Anxiety	0.760	0.732	0.632
Total questionnaire	0.807	0.813	0.586

Examination of the Fornell-Larcker matrix presented in Table 9 supported satisfactory discriminant validity among the factors. The square root of the AVE for each factor, ranging from 0.742 to 0.794, was greater than the corresponding inter-factor correlations in every case. For

example, the correlations of Factor 1 with Factors 2, 3, and 4 were 0.615, 0.559, and 0.518, respectively, all of which were lower than 0.742. This pattern indicates that each factor captures a distinct proportion of variance and supports the independent interpretation of the questionnaire subscales.

Table 8

Fornell-Larcker Matrix

Factor	1	2	3	4
1	0.742			
2	0.615	0.756		
3	0.559	0.544	0.772	
4	0.518	0.498	0.533	0.794

The heterotrait-monotrait ratio (HTMT) matrix presented in Table 10 also supported discriminant validity from a complementary perspective. All HTMT ratios were below the critical threshold of 0.85. The highest value, 0.839, was observed between Factors 2 and 3, whereas lower values were observed among the other pairs of factors. Taken

together, the evidence derived from the AVE, Fornell-Larcker criterion, and HTMT analysis supported the four-factor structure of the Persian version of the questionnaire as a valid, reliable, and multidimensional instrument for assessing parental anxiety in the Iranian population.

Table 9

Heterotrait–Monotrait Ratio (HTMT) Matrix

Factor	1	2	3	4
1	1.00			
2	0.756	1.00		
3	0.754	0.839	1.00	
4	0.666	0.638	0.692	1.00

To provide complementary evidence for construct validity, correlations between questionnaire scores and theoretically related variables, including the quality of parent–child interactions, child anxiety, and transdiagnostic processes at both the maternal and child levels, were examined, as shown in Table 11. The results indicated that maternal anxiety had a moderate, statistically significant negative correlation with the quality of parent–child interactions ($r = -0.505$, $p < .01$) and strong, statistically significant positive correlations with all maladaptive

transdiagnostic factors at the maternal level, ranging from $r = 0.493$ to $r = 0.714$ ($p < .01$). In addition, maternal transdiagnostic factors showed moderate positive correlations with their corresponding child-level factors, ranging from $r = 0.230$ to $r = 0.265$ ($p < .01$). This pattern of correlations, which was consistent with the theoretically predicted directions, provided additional evidence for the convergent and concurrent validity of the Persian version of the questionnaire.

Table 10

Correlations Between Maternal Anxiety and the Study Criterion Variables

Criterion Variable	Correlation With Maternal Anxiety	Significance Level
Quality of parent–child interactions	−0.505	$p < .01$
Cognitive avoidance (mother)	0.689	$p < .01$
Meta-worry (mother)	0.714	$p < .01$
Maladaptive emotion regulation (mother)	0.675	$p < .01$
Intolerance of uncertainty (mother)	0.493	$p < .01$
Child anxiety	0.154	$p < .05$

4. Discussion

The present study aimed to evaluate the psychometric properties of the Persian version of the Screen for Adult Anxiety Related Disorders (SCAARED) in a sample of Iranian mothers. Overall, the findings provided strong evidence for the content validity, construct validity, internal consistency, convergent validity, and discriminant validity of the instrument. The content validity indices were highly satisfactory, the exploratory factor analysis supported a four-factor structure accounting for 58.3% of the total variance, and confirmatory factor analysis indicated an acceptable fit of the four-factor measurement model. Moreover, all 44 items loaded significantly on their intended factors, Cronbach’s alpha and composite reliability coefficients were within acceptable ranges, and the average variance extracted values supported convergent validity. The Fornell–Larcker criterion and HTMT ratios further demonstrated satisfactory discriminant validity. In addition, theoretically meaningful

correlations were observed between maternal anxiety and parent–child interaction quality, maternal transdiagnostic processes, and child anxiety. Taken together, these findings indicate that the Persian SCAARED can provide a psychometrically sound multidimensional assessment of anxiety symptoms among Iranian mothers.

The strong content validity observed in the present study suggests that the translated items retained their conceptual relevance, clarity, and essentiality after cultural and linguistic adaptation. The CVR values for all 44 items exceeded the minimum acceptable value, while the I-CVI values were uniformly high. This finding is important because psychometric equivalence requires more than literal translation; items must also preserve their conceptual meaning and clinical relevance within the target cultural context. The results are consistent with the original development of the SCAARED, in which the instrument was constructed to capture clinically meaningful DSM-related anxiety dimensions in adults (Angulo et al., 2017). They are

also in line with cross-cultural psychometric studies of the Spanish and Korean versions, both of which demonstrated that the SCAARED can retain its conceptual integrity when appropriately adapted for other linguistic and cultural settings (Hwang et al., 2024; Sánchez-Cueva et al., 2021). The present findings therefore extend evidence for the cross-cultural applicability of the instrument to a community sample of Iranian mothers.

Exploratory factor analysis identified four distinct factors corresponding to panic/somatic–agoraphobia, generalized anxiety, separation anxiety, and social anxiety. This structure was theoretically coherent and broadly consistent with the multidimensional model reported in the original validation of the SCAARED (Angulo et al., 2017). The four extracted factors explained 58.3% of the total variance, exceeding the commonly accepted minimum for multidimensional psychological measures. The first factor accounted for the largest proportion of variance, but the remaining factors also made meaningful independent contributions, indicating that maternal anxiety in this sample was not reducible to a single general distress dimension. This multidimensional pattern is also conceptually consistent with the classification of anxiety disorders in contemporary diagnostic frameworks, which distinguish different manifestations of anxiety while recognizing a common underlying domain of excessive fear and apprehension (American Psychiatric Association, 2013). Anxiety can therefore be understood as a broad syndrome composed of related but distinguishable cognitive, emotional, behavioral, and physiological patterns.

The confirmatory factor analysis further supported the adequacy of the four-factor solution. The χ^2/df ratio, RMSEA, CFI, TLI, SRMR, NFI, GFI, and AGFI all fell within acceptable ranges, indicating that the proposed measurement model adequately represented the observed covariance structure. Although the chi-square statistic was significant, this is common in models tested with moderate or large samples because the statistic is highly sensitive to sample size. The pattern of relative and absolute fit indices therefore provides more informative evidence concerning model adequacy. These findings are consistent with previous evaluations of the SCAARED that have supported its underlying multidimensional structure across populations (Angulo et al., 2017; Hwang et al., 2024; Sánchez-Cueva et al., 2021). They also correspond with the Persian validation conducted among patients with anxiety disorders, which demonstrated favorable psychometric performance of the translated instrument in an Iranian clinical context (Farani et

al., 2022). The current study adds to this evidence by showing that the Persian version also performs adequately in a nonclinical, community-based sample of mothers.

All standardized factor loadings were statistically significant, indicating that each item contributed meaningfully to the measurement of its corresponding latent factor. Although the magnitude of the loadings varied, the overall pattern supported the structural coherence of the questionnaire. The significant item–factor relationships are important because they indicate that the Persian items preserved sufficient correspondence with the anxiety domains they were designed to assess. This finding is particularly relevant in cross-cultural assessment, where differences in symptom expression may alter the relative salience of specific items. The preservation of a coherent factor structure in the current sample supports the use of the SCAARED not only as a total anxiety measure but also as a tool for examining specific anxiety dimensions. This is clinically meaningful because panic-related somatic symptoms, generalized worry, separation concerns, and social anxiety may be associated with different functional impairments and may require different clinical interpretations (American Psychiatric Association, 2013).

The reliability analyses also supported the psychometric quality of the Persian SCAARED. Cronbach's alpha coefficients for the four factors ranged from 0.719 to 0.878, and the total-scale alpha was 0.807. These values indicate satisfactory internal consistency and suggest that items within each factor assess related aspects of the same latent construct. Composite reliability coefficients were similarly acceptable, providing additional support for the stability and internal coherence of the measurement model. These findings align with prior psychometric studies of the SCAARED, including the original version and translated adaptations, which have generally reported favorable reliability indices (Angulo et al., 2017; Farani et al., 2022; Hwang et al., 2024; Sánchez-Cueva et al., 2021). The convergence of these findings across clinical, community, and cross-cultural contexts suggests that the SCAARED possesses a relatively stable internal structure.

The convergent validity findings were also favorable. The AVE values for all four factors exceeded 0.50, and the AVE for the total questionnaire was 0.586. These results indicate that the latent factors captured a sufficiently large proportion of variance in their corresponding items relative to measurement error. Such findings are particularly important for psychometric studies because internal consistency alone does not establish whether items adequately represent their

intended construct. The present findings therefore provide evidence that the items within each dimension converge meaningfully on the same underlying anxiety construct. This is consistent with theoretical models that view anxiety as a cluster of interconnected cognitive, affective, physiological, and behavioral processes rather than as an undifferentiated emotional state (Ally & Aloka, 2025). The multidimensional configuration observed here is also compatible with epidemiological and developmental evidence showing that anxiety disorders are heterogeneous in symptom presentation while sharing broader internalizing features (Essau et al., 2018; Javaid et al., 2023; Remes et al., 2016).

Discriminant validity was supported by both the Fornell–Larcker criterion and the HTMT ratios. The square roots of the AVE values exceeded the corresponding inter-factor correlations, and all HTMT values were below 0.85. These findings indicate that the four anxiety dimensions are empirically distinguishable despite being moderately related. This pattern is theoretically plausible because different anxiety disorders share a general liability toward threat sensitivity and negative affectivity but differ in the objects, situations, bodily sensations, or relational contexts that elicit anxiety. The results therefore support the interpretation of the SCAARED subscales as distinct yet related dimensions. This distinction is particularly useful for research on mothers because generalized worry, social anxiety, separation-related concerns, and panic/somatic symptoms may have different associations with parenting behavior, family functioning, and child adjustment.

Additional construct validity evidence was obtained through correlations with theoretically related variables. Maternal anxiety showed a moderate negative association with the quality of parent–child interactions. This finding suggests that higher maternal anxiety is associated with less favorable relational functioning between mothers and children. Previous research has repeatedly shown that parental anxiety can be associated with maladaptive parenting patterns, family stress, and child emotional difficulties (Barton et al., 2021). Meta-analytic evidence has also demonstrated meaningful associations between parental anxiety, specific parenting behaviors, and anxiety-related precursors in children (Möller et al., 2016). Maternal anxiety may interfere with sensitive responding, encourage overprotective or controlling behavior, increase threat-focused communication, or reduce tolerance for children’s autonomy and distress. These processes can weaken the quality of parent–child interactions and may contribute to the maintenance of anxiety within the family system.

The significant positive correlations between maternal anxiety and maladaptive transdiagnostic processes, particularly meta-worry, cognitive avoidance, maladaptive emotion regulation, and intolerance of uncertainty, provide further support for the convergent validity of the questionnaire. The strongest correlation was observed between maternal anxiety and meta-worry, which is theoretically consistent with cognitive models emphasizing repetitive worry as a central mechanism in anxiety. The cognitive avoidance theory proposes that worry may function as a verbal strategy that reduces immediate emotional imagery while preventing full emotional processing, thereby maintaining anxiety over time (Sibrava & Borkovec, 2006). Similarly, psychological inflexibility and experiential avoidance have been associated with emotional distress and anxiety-related dysfunction (Bond et al., 2011). Evidence also indicates that experiential avoidance may contribute to negative psychological and physical outcomes among individuals with anxiety disorders (Berghoff et al., 2017). Accordingly, the strong associations observed in the present study between SCAARED scores and avoidance-related processes are theoretically coherent.

The positive relationship between maternal anxiety and intolerance of uncertainty is similarly consistent with previous research. Uncertainty has been described as a powerful trigger for anxiety, particularly when individuals perceive ambiguous events as threatening and feel unable to tolerate the absence of predictability (Gu & Gu, 2020). More recent evidence indicates that beliefs about emotions can further shape the relationship between intolerance of uncertainty and anxiety, suggesting that individuals who perceive emotional experiences as difficult, dangerous, or uncontrollable may be especially vulnerable to anxiety under uncertain conditions (Becerra et al., 2023). For mothers, uncertainty may arise in relation to children’s development, schooling, health, social adjustment, and future outcomes. Therefore, a heightened tendency to respond negatively to uncertainty may contribute substantially to maternal anxiety symptoms.

Maternal anxiety was also positively associated with child anxiety, although the magnitude of this association was smaller than the correlations with maternal transdiagnostic processes. This finding is nevertheless theoretically meaningful and consistent with research on familial and intergenerational pathways of anxiety. Children of parents with serious psychiatric conditions, including anxiety-related disorders, show elevated risk for anxiety and other internalizing problems (Ayano et al., 2021). Longitudinal

family research has also suggested reciprocal relationships between parental and child anxiety over time, supporting the view that anxiety can function as a dynamic family-level process (Liu et al., 2025). Parental anxiety may affect children through genetic vulnerability, modeling of threat-related behavior, reinforcement of avoidance, overprotection, family stress, and reduced opportunities for independent coping. Conversely, children's anxiety may increase parental worry and caregiving stress, creating a reciprocal cycle.

The present findings also have implications for the broader literature on child and adolescent anxiety. Anxiety problems in younger populations are associated with meaningful impairment in academic, social, and family domains and require timely identification and intervention (Kowalchuk et al., 2022). Evidence suggests that psychological interventions, including cognitive-behavioral digital interventions, can reduce anxiety symptoms in children and adolescents (Csirmaz et al., 2022). However, the family context should not be overlooked, particularly because parental anxiety may influence children's symptoms and treatment environments. Research during periods of elevated stress has shown that parental anxiety and depression are associated with poorer mental health among children, including children with special needs (Gruszka et al., 2023). At the same time, evidence regarding whether treating parental anxiety directly improves child mental health remains insufficient, highlighting an important gap in the literature (Chapman et al., 2022). A valid instrument for assessing parental anxiety can therefore facilitate future family-based research and help determine whether changes in parental anxiety are associated with changes in child outcomes.

5. Conclusion

This study extends previous Persian psychometric work on the SCAARED from a clinical sample to a community sample of mothers. The earlier Persian validation provided evidence of reliability and validity among individuals diagnosed with anxiety disorders (Farani et al., 2022). The present study demonstrates that the questionnaire also retains adequate psychometric properties in a less clinically selected population. This distinction is important because community screening requires instruments that can identify a broad range of anxiety severity, including subclinical symptoms. Given the high prevalence and substantial burden of anxiety disorders across adult populations (Javaid et al.,

2023; Remes et al., 2016), the availability of a valid and efficient Persian screening tool may be valuable for population-based research, primary care, maternal mental health studies, and family psychology.

6. Limitations and Suggestions

Several limitations should be considered when interpreting the findings. First, the study was conducted exclusively among mothers of lower-secondary school students in Mashhad, which may limit the generalizability of the findings to fathers, adults without children, populations from rural areas, or individuals from other regions and cultural backgrounds in Iran. Second, the study relied primarily on self-report measures, which may be influenced by social desirability, recall bias, response style, and participants' willingness to disclose psychological symptoms. Third, the cross-sectional design did not permit examination of temporal stability, sensitivity to change, or predictive validity. Fourth, although the sample size was adequate for the analyses performed, replication in larger and more diverse samples would strengthen confidence in the stability of the factor structure. Finally, the present study did not include a structured clinical diagnostic interview as an external criterion, and therefore diagnostic sensitivity, specificity, optimal cutoff scores, and classification accuracy in this population could not be determined.

Future studies should replicate the psychometric evaluation of the Persian SCAARED in larger and more heterogeneous samples drawn from different provinces, socioeconomic groups, age ranges, and family structures. Comparative studies involving mothers, fathers, and nonparent adults would be useful for evaluating measurement invariance across sex, parental role, and demographic subgroups. Longitudinal research should assess test-retest reliability, temporal stability, predictive validity, and sensitivity to therapeutic change. Studies incorporating structured diagnostic interviews are also recommended to determine sensitivity, specificity, receiver operating characteristic curves, and optimal cutoff points for Iranian populations. Further research could examine measurement invariance across clinical and nonclinical groups and investigate whether the four-factor structure remains stable across different levels of symptom severity. It would also be valuable to explore how maternal anxiety measured by the SCAARED predicts parenting behavior, parent-child interaction quality, child anxiety, family functioning, and treatment outcomes over time.

The Persian SCAARED may be used as a brief and multidimensional screening instrument in psychological clinics, counseling centers, primary health-care settings, schools, maternal health programs, and family-focused services. Practitioners may use the total score to identify mothers who may require more comprehensive psychological assessment while also examining subscale scores to identify dominant anxiety patterns. Because screening instruments do not replace clinical diagnosis, elevated scores should be followed by appropriate clinical interviewing and professional assessment. The questionnaire may also be useful in treatment planning, outcome monitoring, and family-based interventions in which maternal anxiety is relevant to child or family functioning. Incorporating routine anxiety screening for mothers in settings serving children and families may facilitate earlier identification of distress and support timely referral to evidence-based psychological services.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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