

## Examination of the Psychometric Properties of the Revised Child Anxiety and Depression Scale (RCADS) among 10-18 year old children in Golestan

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### Abstract

#### *Background and purpose:*

Depression and anxiety are of the common psychiatric disorders among the children and their diagnosis and evaluation in children is necessary. The purpose of the study was to evaluate the psychometric properties of RCADS among a sample of 10-18 years old children in Golestan.

#### *Materials and methods:*

This survey study had a descriptive purpose with the sample consisting of 399 children aged 10-18 in Golestan selected using multi-stage cluster sampling method who were evaluated using RCADS, Children's Depression Inventory (CDI) and Youth Self-Report (YSR). Finally, data was analyzed using descriptive statistic, Pearson correlation coefficient, Cronbach's alpha coefficient and exploratory factor analysis (EFA).

#### *Results:*

The RCADS demonstrated adequate reliability as well as convergent and discriminant validity. The results of EFA showed a six-factor structure that explained 55.30% of the scale variance and was confirmed by confirmatory factor analysis (CFA). The correlation between the RCADS total score and YSR-internalizing subscale and significantly, but at a lower level, with the YSR-externalizing subscale ( $p < 0.01$ ). also, results indicated a significant positive correlation between the total and subscale score RCADS with CDI and YSR- anxiety/depression subscales ( $p < 0.01$ ).

#### *Conclusion:*

The results showed that this questionnaire has appropriate psychometric characteristics among Iranian children and can be used as a suitable diagnostic tool for use in educational, clinical and research environments.

**Keywords:** Psychometrics, reliability, validity, RCADS.

### Introduction

Anxiety and depression disorders, also called internalizing disorders, are of the two most common mental health problems as well as a leading factor in reducing mental health among the children and adolescents throughout the world (1, 2). According to a recent meta-analysis, the overall

prevalence of these disorders among the children has been reported 6.5% for anxiety and 2.6% for depression (3). Moreover, anxiety and depression show high comorbidity: 15 to 70% of children and adolescents with depression experience anxiety disorders at the same time. In case of the children with anxiety disorders, the rate of comorbidity with depression disorders is usually low, reported between 10 and 15% (4). Moreover, anxiety disorders in the adolescence are related to substance abuse or substance abuse and academic failure (5). Moreover, depression in childhood and adolescence is associated with negative consequences like suicide behavior, substance abuse, increased risk of other mental disorders (like bipolar disorder and personality disorders), and psychological, social, educational, and occupational problems (6). Considering the economic burden of these disorders and the negative effect of anxiety and depression symptoms on the child growth, the effort to prevent these disorders is one of the most important priorities of public health (1). To this end, having screening tools for anxiety and depression symptoms seem essential (7). Self-report tools with multiple advantages over other evaluation methods like interview and observation, therapist-centric grading scales, and parent-teacher-centric scales are the predominant methods for assessing anxiety and depression in children (8). Structured and valid diagnostic interviews are of the diagnostic methods for children with anxiety disorders. Nevertheless, their implementation is difficult and time-consuming and needs very skilled interviewers (9). Moreover, therapist-centered grading scales are among the methods of measuring anxiety disorders; however, many studies have questioned the validity of the differentiation and efficacy of these methods in distinguishing specific anxiety disorders (10). On the other hand, unfortunately, it is very difficult for parents and teachers to identify children in need of treatment for depression and anxiety without informing the children themselves. Observing behaviors like crying, sadness, and withdrawal that show emotional problems does not reflect children's true thoughts and feelings. This fact shows a low correlation between YSR and teachers and parents' reports on children's internalization problems, and this result has been confirmed in a large-scale meta-analysis study (11). Comparative results were reported for a sample of 10- to 11-year-old Dutch children as well (12). In this study, when the parents and teachers' reports on emotional problems were carefully examined, it was concluded that parents and teachers could not detect different symptoms reported by the children themselves. These results have led mental health professionals to emphasize, in practice, the usefulness of YSR (13). Thus, a tool that can identify children in need of help based on YSR is of great significance. There are self-report tools with psychometric features proper for the separate evaluation of anxiety and depression in children. Concerning the evaluation of depressive symptoms, one can state Children's Depression Inventories (CDI and CDI-2) and its revised version (14), The Center for Epidemiologic Studies Depression Scale (CES-D) and Beck Depression Inventories (BDI and BDI-II) (Beck et al., 1961, 1996) (14).

Regarding anxiety, some reliable and valid self-report questionnaires for measuring anxiety disorders such as the following can be cited: Spielberg State-Trait Anxiety Inventory for Children (STAI-C) (15), Multidimensional Anxiety Scale for Children (MASC) (16), RCMAS (17), the Screen for Child Anxiety Related Emotional Disorders (SCARED) (18), and Spence Children's Anxiety Scale (SCAS) (19) (20). Moreover, (21) has developed Youth Anxiety Measure for DSM-5 (YAM-5) that evaluates anxiety disorders in children based on the fifth version of the Statistical Manual of Mental Disorders. However, this scale does not include the evaluation of depression symptoms. Given the high comorbidity between anxiety and depression and the need for simultaneous diagnosis of both disorders as well as the need to adapt to the diagnostic criteria for depression and anxiety disorders in the fourth version of the Diagnostic and Statistical Manual of Mental Disorders in RCADS (22) were made. This scale includes many items of SCAS (19) as well as the items to identify major depression, negative emotion, and pervasive anxiety in children. RCADS has 47 items with six sub-scales: separation anxiety disorder (7 items), social phobia (9 items), generalized anxiety disorder (6 items), panic disorder (9 items), obsessive-compulsive disorder (6 item), and major depressive disorder (10 items), and from the total of the subscales of anxiety, a general anxiety score is obtained. This scale is a self-report scale for screening and diagnosing clinical signs of anxiety and depression among children and adolescents (23). RCADS is a valid and reliable tool for evaluating anxiety and depression in the general and clinical population of children and adolescents (24, 25). So far, it has been translated into various languages like Spanish (25), Danish (26), German (Mathyssek, C.M. et al., 2013) and French (27). Moreover, a recent study has proven that RCADS seems to be one of the most sensitive tools to changes in treatment

outcomes (28). Concerning the factor structure of RCADS, many studies have supported the 6-factor model of the original version, both in clinical samples (23) and in normal samples (29). However, some studies have supported the 25-item version with a 5-factor structure and the removal of obsessive-compulsive personality disorder (30). In addition, this short version of the Child Depression and Anxiety Scale had psychometric properties equal to the 47-item version (31). Another version of the Child Depression and Anxiety Scale is the short 30-item version, which has the main advantage of respecting the 6-factor structure and has the same reliability and validity as the original version of the scale (32).

As the available evidence shows, previous studies have shown the psychometric characteristics of RCADS in Western countries with closely related cultures (22, 25). Although these results are acceptable and valuable in their own right, the results and the factor structure obtained from the western population cannot be generalized to other cultural and racial groups (33). For instance, Maurice et al. (30) conducted RCADS on a sample of South African children and found that the questionnaire revealed five factors instead of the six factors derived from the Western norm. Thus, as the functional and normative structure of the questionnaire is not valid in all ethnic and racial group and each culture requires its own norm, the researcher tries to answer the question of whether RCADS has appropriate psychometric characteristics in a population sample of Iranian children aged 10-18 years or not.

## **Method**

### **Participants**

Participants for this study were children aged 8 to 18 years old. children were selected using multi-stage cluster sampling method from 20 schools in the urban area of Golestan province, Iran. In total, 389 children completed the questionnaire (mean age = 39.44, *SD* = 4.44). Their children consisted of 196 boys (mean age = 13.81, *SD* = 1.99) and 203 girls (mean age = 14.71, *SD* = 2.21). most respondents were middle-class, and there were very few families with a low SES. In addition, all participants were Iranian and could read/write farsi. Since all of the children had resided exclusively in iran, no significant differences in cultural background emerged.

### **Procedure**

The main aims and methods of the present study were explained to the school principals and teachers. After the school gave their approval, the questionnaires were distributed to the children. Children completed the questionnaires as a homeroom activity. The children then brought the questionnaires and a consent form home for their parents. children only completed the questionnaires when Their parents consented to participate. 389 children handed in the completed questionnaires.

The RCADS was translated according to widely accepted guidelines for the successful translation of instruments in cross-cultural research (34). One bilingual translator, who was a native farsi speaker or understood Iranian culture, blindly translated the questionnaire from the original English version into Farsi. Another bilingual translator back-translated the questionnaire into English. Differences in the original and the back-translated versions were discussed and resolved by joint agreement of both translators.

### **Measure**

**Children's Depression Inventory 2™ (CDI2; 35).** CDI was used as an index of the convergent validity of the Screen for Child Anxiety Related Disorders (SCARED). This questionnaire was developed by Kovac (35) for children ages 7-17 and has 27 items that measure symptoms of depression like low mood, inability to enjoy, interpersonal behaviors, self-assessment, and academic problems. Each item is scored on a three-point scale (zero = no sign, 1 = average sign, 2 = obvious sign), and the score range is from zero to 54, with higher scores showing the severity of depression. The cut-off point for diagnosing depressed people is a score above 18. Its reliability and validity have been confirmed in different foreign studies. The questionnaire has good validity and reliability in Iran too. Test-retest reliability with a time interval of two weeks and the internal consistency of this questionnaire were reported to be 0.82 and 0.83, respectively. Moreover, the relationship between this questionnaire with

CDI and Beck depression questionnaire was reported to be 0.79 and 0.87, respectively, showing the convergent validity of this questionnaire. Explanatory Factor Analysis (EFA) has proven a 6-factor model with a good fit for the data (36).

**revised measure of children's manifest anxiety( RCMAS; 37).** RCMAS was used as an index of the convergent validity of children's automatic thinking scale in this study. The questionnaire has 28 questions that evaluate the level of general anxiety in children and adolescents and has items including I am afraid of many things, I am nervous, and it is difficult for me to focus while doing homework. Adolescents respond to the questions on a two-option scale (yes = 1, no = 0), and the overall score is obtained from the sum of positive scores. The questionnaire has three factors: physiological anxieties, worries, and focus (37). RCMAS provides high scores for anxious children compared to normal children (38). Although RCMAS does not provide information about specific anxiety symptoms, it gives information about general anxiety. The questionnaire has been validated by Taghavi (39) for Iranian children and has good reliability and validity.

**Youth Self Report, YSR; (40).** This inventory has 112 questions that evaluate the emotional and behavioral problems of 11-18 year old children. The questions of sub-scales of this questionnaire are as three option of completely, usually and not at all options that receive scores of two, one and zero, respectively. The questionnaire has two extensive and large factors (externalized and internalized problems) and eight subscales including emotional, anxiety, physical problems, attention deficit / hyperactivity disorder, daring antagonism, and behavioral problems. In Iran, Minaei (41) reported the validity and reliability of this list in terms of linguistic, cultural and social validity after the necessary adaptations.

## Results

### A. Descriptive statistics

In general, this sample was 399 children aged 8 to 18 years old . children consisted of 196 boys(mean age = 13.81, *SD* = 1.99) and 203 girls (mean age = 14.41, *SD* = 2.23).

### B: Validity

Exploratory factor analysis, and convergent validity were used to examine the construct validity of the questionnaire.

#### B.1: Exploratory factor analysis

The following steps were performed for EFA:

In the first step, the mean of each question was examined and in the second step, the modified correlation of each question or phrase was examined with the total score (42). Table 1 shows the standard deviation values and modified correlations of each question with the total score.

**Table 1.** Standard deviation values and modified correlation of the question with the total score for the scale questions

Question	SD	Modified correlation of the question with the total score
1	0.66	0.435
2	1.46	0.273
3	0.002	0.212
4	1.29	0.350
5	0.39	0.246
6	0.85	0.471
7	0.91	0.304
8	0.75	0.278
9	1.46	0.336

10	0.33	0.325
11	0.99	0.313
12	2.36	0.404
13	0.95/0	0.404
14	0.5	0.453
15	1.84	0.407
16	1.54	0.456
17	1.46	0.431
18	-0.58	0.409
19	1.68	0.417
20	1.09	0.444
21	0.26	0.391
22	0.73	0.404
23	0.71	0.501
24	1.96	0.431
25	2.07	0.435
26	1.13	0.377
27	0.89	0.212
28	1.09	0.521
29	1.23	0.461
30	0.71	0.554
31	1.44	0.430
32	1.17	0.507
33	1.33	0.403
34	1.52	0.507
35	0.89	0.409
36	0.79	0.364
37	0.90	0.397
38	1.13	0.317
39	1.71	0.381
40	0.88	0.361
41	0.97	0.417
42	1.02	0.344
43	0.86	0.307
44	1.38	0.339
45	1.51	0.371
46	1.19	0.361
47	1.0	0.314

The results in Table 1 show that the standard deviation values for questions 12 and 25 are not between -1.98 and 1.98, so it is not analyzed. In addition, the modified correlation value of each question with a total score for all questionnaire questions is higher than 0.20. In the third step, the correlation matrix of the questions is examined. In the correlation matrix obtained (matrix 47 \* 47), of the 2209 correlation coefficients, more than one was higher than 0.30 (43).

In the fourth step, first, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was used to perform the factor analysis to ensure the adequacy of the sample size. Then as the correlation between test questions underlies factor analysis, Bartlett's Test of Sphericity was used in the fifth step to specify that the correlation between the variables was not zero, the results of which are given in Table 2.

**Table 2.** KMO measure of sampling adequacy and Bartlett's Test of Sphericity

KMO measure of sampling adequacy	0.81	
Bartlett's Test of Sphericity	Chi square	5717.31
	Degree of freedom	1028
	Sig.	0.001

As is seen from Table 2, the adequacy value of the sampling test is 0.81 in the study, and the sample size is adequate to perform factor analysis since this value is greater than 0.60. Moreover, Bartlett's Test of Sphericity was significant ( $P < 0.001$ ), showing that the data correlation matrix in the community is not zero (43).

In step six, the proper rotation is examined. To this end, we first use the oblique rotation and examine the correlation of the factors. Table 3 indicates the correlation between the factors resulting from oblique rotation.

**Table 3.** Correlation between factors resulting from oblique rotation

Factors	1	2	3	4	5	6
1	1.00					
2	0.447	1.00				
3	0.340	0.336	1.00			
4	0.351	0.261	0.355	1.00		
5	0.399	0.333	0.298	0.330	1.00	0.47

Table 3 results indicate that all correlations are higher than 0.33, so oblique rotation can be used (43). Analysis of the main components with oblique rotation (Promax) was used to perform factor analysis. Six factors with an eigenvalue greater than one, whose materials a factor loadings of more than 0.30, were obtained. Table 4 shows the factor loadings, variance, eigenvalues, and variance percentage for 6 factors.

**Table 4.** Factor loadings, variance, eigenvalues, and variance percentage

Questions	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Variance
1	0.821						0.51
13	0.630						0.45
37	0.618						0.48
22	0.570						0.45
27	0.491						0.40
35	0.441						0.41
4		0.798					0.39
7		0.731					0.55
8		0.711					0.50
30		0.652					0.47
20		0.613					0.37
38		0.591					0.61
32		0.571					0.53
43		0.527					0.55

5			0.699				0.45
9			0.670				0.58
18			0.643				0.61
17			0.582				0.51
23			0.531				0.44
45			0.513				0.67
46			0.485				0.59
3				0.701			0.31
14				0.681			0.62
28				0.667			0.54
24				0.631			0.61
26				0.599			0.46
34				0.583			0.55
36				0.547			0.37
39				0.529			0.61
41				0.485			0.45
10					0.723		0.65
16					0.689		0.67
31					0.582		0.47
23					0.531		0.57
42					0.487		0.61
44					0.432		0.66
2						0.688	0.43
6						0.666	0.64
11						0.615	0.39
19						0.601	0.31
15						0.590	0.44
21						0.556	0.54
40						0.421	0.41
29						0.412	0.56
47						0.3	0.39
Eigenvalue	4.03	3.81	3.41	3.26	3.21	3.02	-
Variance percentage	19.81	10.88	8.46	6.88	5.14	4.13	-
Cumulative variance percentage	19.81	30.69	39.15	46.03	51.17	55.30	-

The results in Table 4 show that 6-factor model above explains 55.30% of variance percentage in RCADS scores.

**B.2: Convergent and divergent validity**

To determine convergent and divergent validity of the RCADS, the total score was correlated with other reports. The correlation between the RCADS total score and YSR-internalizing subscale (0.68,  $p < .001$ ) and significantly, but at a lower level, with the YSR-externalizing subscale (0.46,  $p < .001$ ). As predicted, the correlation with the YSR-internalizing subscale was significantly higher than the correlation with the YSR-externalizing subscale ( $Z = 42.13$ ,  $P < 0.001$ ; 44), thus providing evidence for convergent and divergent validity respectively.

Also In order to examine convergent validity of the SCAS-P, scores were compared with those obtained from the CBCL- anxiety/depression subscale. The correlation between the **RCADS** total score and the YSR- anxiety/depression score was 0.65 ( $p < .001$ ). Each subscale also correlated significantly with the YSR- anxiety/depression score:  $r = .63$  for generalized anxiety disorder,  $r = .61$  for social phobia,  $r = .57$  for separation anxiety disorder,  $r = .54$  for panic attack and agoraphobia,  $r = .35$  for obsessive-compulsive disorder, and  $r = .46$  for Major depressive (all  $ps < .001$ ). Also The correlation between the **RCADS** total score and the CDI score was 0.49 ( $p < .001$ ). Each subscale also correlated significantly with the CDI score:  $r = .43$  for generalized anxiety disorder,  $r = .58$  for social phobia,  $r = .49$  for separation anxiety disorder,  $r = .42$  for panic attack and agoraphobia,  $r = .34$  for obsessive-compulsive disorder, and  $r = .56$  for Major depressive (all  $ps < .001$ ).

### B.3: Correlation of subscales with total score

Besides the two methods of factor analysis and convergence as construct validity methods, correlation between subscales of RCADS with its overall score was used as another method to confirm construct validity, the results of which are given in Table 5.

**Table 5.** Correlation matrix between total score and subscales of RCADS

Variable	Total score
Social phobia	0.71**
Panic disorder	0.61**
Separation anxiety disorder	0.74**
Generalized anxiety disorder	0.69**
Obsessive compulsive disorder	0.58**
Major depressive disorder	0.66**

\*\*  $p < .01$

As the results of Table 7 show, RCADS subscales have positive and significant correlations with a total internalization score ( $p < 0.01$ ). This is another reason for the construct validity of the scale.

### B: Reliability

Two methods of reliability estimation, including internal consistency method (Cronbach's alpha coefficient) and test re-test method (with a two-week interval) were used to evaluate the reliability of the questionnaire, the results of which are shown in Tables 6 and 7.

#### B-1: Internal consistency coefficient (Cronbach's alpha)

To evaluate the internal consistency of RCADS, Cronbach's alpha coefficient was calculated from data of 399 samples studied in RCADS subscales. The coefficients obtained for the whole sample as well as the male and female subjects are given separately in Table 8.

**Table 8.** Cronbach's alpha calculated for the sample in the total score and 6 subscales after deleting the inappropriate question

Scales	Number of questions	Cronbach's alpha calculated for the whole sample	Cronbach's alpha calculated for the boys	Cronbach's alpha calculated for the girls
Social phobia	9	0.711	0.691	0.741

Panic disorder	9	0.659	0.651	0.694
Separation anxiety disorder	7	0.731	0.701	0.741
Generalized anxiety disorder	6	0.731	0.718	0.706
Obsessive compulsive disorder	6	0.602	0.619	0.650
Major depressive disorder	10	0.755	0.717	0.721
Total internalization score	45	0.839	0.789	0.819

As Table 8 shows, Cronbach's alpha coefficients after removing inappropriate questions were 0.711 for social phobia, 0.959 for panic disorder, 0.691 for separation anxiety disorder, 0.731 for generalized anxiety disorder, 0.602 for obsessive compulsive disorder, 0.755 for major depressive disorder, and 0.839 for the overall score. Overall, according to the results of Tables 4-10, and the subscales generalized anxiety disorder, separation anxiety disorder, social phobia, and major depressive disorder, they show a good internal consistency (i.e., greater than 0.70), with the alpha of panic and obsessive-compulsive disorder exceeding the recommended level for group comparisons (greater than 0.50). Thus, as Table 8 shows, the range of the coefficient of internal consistency of RCADS is acceptable.

### **B-2: Test-retest reliability**

To ensure reliability, RCADS was performed on 72 subjects again with a two-week interval, the results of which are shown again in Table 9.

**Table 9:** Test-re-test calculated for the overall score and 6 subscales of RCADS after deleting inappropriate questions

Scales	Test-re-test coefficient	
	r	P
Social phobia	r=0.81	P=0.0001
Panic disorder	r=0.63	P=0.0001
Separation anxiety disorder	r=0.72	P=0.0001
Generalized anxiety disorder	r=0.71	P=0.0001
Obsessive compulsive disorder	r=0.69	P=0.0001
Major depressive disorder	r=0.77	P=0.0001
Total internalization score	r=0.80	P=0.0001

Table 9 results indicate that test-retest reliability of the internalization of RCADS is 0.76 and for subscales between 0.63 and 0.81.

### **Discussion**

As a test or tool developed to measure a construct must be able to measure the important and underlying factors in the theoretical construction of that construct well and have high correlation with other scales built to measure that construct, it is necessary to collect its characteristics and psychometric dimensions like validity and reliability of documented and supportive information before using any tests. This is gains double importance in case of the tools and questionnaires whose culture and language of production or construction is different from the culture and language of the user. With this description, the present study was conducted for measuring the validity and reliability of RCADS in a sample of 10-18 year old children in Golestan.

The results of the study on the validity and reliability of RCADS showed that the total number of subjects was 399, of whom 203 were females and 196 males ( $p = 0.61$  and  $X^2 = 0.41$ ). The mean age of boys and girls was 13.81 and 1.99 years, respectively ( $p = 0.72$  and  $t = 0.84$ ), showing that the members

of the sample group did not have significant differences in terms of these variables and were homogeneous.

Construct validity was used by three methods of exploratory factor analysis, convergent validity (correlation with other tests) and the relationship of the subscales of the questionnaire with its total score to examine the validity of the questionnaire.

First, the method of analyzing the main components with Promax rotation was used to determine the construct validity and the components of the questionnaire. The results in the first step showed that the standard deviation values related to questions 12 and 25 were not between -1.98 and 1.98 and were excluded from the questions. In addition, the modified correlation value of each question with a total score for all the questions in the questionnaire was higher than 0.30 (42). Prior to EFA, sampling adequacy test (KMO) and Bartlett's Test of Sphericity were conducted to examine the adequacy and appropriateness of the data. The results show that in the present study, the value of the sampling adequacy test is 0.81. As the value is because is greater than 0.60, the data were suitable for factor analysis. In addition, Bartlett's Test of Sphericity was significant ( $P < 0.001$ ), showing that the data correlation matrix in the population is not zero (43). In the next step, the proper rotation was examined. To this end, first, the oblique rotation was used and the correlation of factors was examined. The results showed that all correlations were higher than 0.33, so oblique rotation was used (43) and the six factors that had an eigenvalue higher than one and their materials had a factor loading more than 0.30 were obtained and the 6-factor model explained 55.5% of the variance in the scores of RCADS. The results related to the statistical characteristics of the test items after the rotation phase by Promax method showed that questions 1, 13, 22, 35, and 37 were correlated with the first factor (generalized anxiety disorder). Questions 4, 7, 8, 20, 30, 32, 38, and 43 were correlated with the second factor (social phobia), and questions 5, 9, 17, 33, 45, and 46 with the third factor (separation anxiety disorder). Moreover, questions 3, 14, 24, 26, 28, 34, 36, 39, and 41 were correlated with the fourth factor (panic), questions 10, 16, 23, 42, and 44 with the fifth factor (obsessive-compulsive disorder) and questions 2, 6, 11, 15, 19, 21, 29, 40, and 47 with the sixth factor (major depressive disorder). The 6-factor construct discovered in the present study were consistent with previous studies (2,27,45,46),

Convergent validity was evaluated by calculating the correlation between the overall score and subscales of RCADS with the total score of RCMAS, CDI and the emotional and anxiety subscales of YSR to ensure the validity of the questionnaire. The results showed a significant positive relationship between the total score and subscales of RCADS with the total score of RCMAS, DCI and emotional and anxiety subscales and the externalization of YSR. Overall, the results were consistent with previous studies in Western countries (27, 45, 47).

Besides the two methods of factor analysis and convergence as construct validity methods, correlation between subscales of RCADS with its total score was used as another method to confirm the construct validity. The results showed that the subscales of RCADS have positive and significant correlations with its total score, which is another reason for the construct validity of the scale.

Internal reliabilities of the subscales were satisfactory. Reliability coefficients that were corrected for scale length ranged from 0.60 to 0.75, thus providing evidence for internal consistency of the subscales, supporting their use for research purposes, but not for clinical practice (42). Although the internal consistency of the full scale was satisfactory, the reliability of each subscale was moderate. However, these results were similar to the previous studies using a non-clinical sample (2,22,45). Also Test-retest reliability revealed a modest level of stability in children's total and sub-scale scores on the SCAS-P over a 2 weeks period. It is difficult to compare the present result for test-retest reliability with that found for other study. However, for shorter periods test-retest reliabilities for original study have tended to be moderate, in keeping with the results of the present study (22).

The similarities between the present and other findings in different contexts can be attributed to the transcultural phenomenon of internalized disorders in children, although the role of items may be different assigned to the cultural burden of identifying internalizing disorders to cultural conditions.

The results of the study supported the reliability and validity of RCADS, and by studying the appropriate characteristics of the tool, it seems that it can be used to identify children prone to psychiatric disorders in the normal population so that early and appropriate interventions can be made prior to the problems of these children become acute. There were several methodological limitations to the study. Firstly, the study has been conducted only on children in Golestan, and the generalizations to the population should be done with caution. Secondly, we did not evaluate the clinical sample of children. Moreover, it is important for future studies to evaluate discriminant validity by comparing children with psychiatric disorders and the normal ones. It will also be important for future studies to use larger, more adequately-powered samples.

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