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ABSTRACT

Objective: The shortage of cross-culturally validated instruments limits the study and treatment of psychopathology in countries other than English-speaking ones. The Revised Child Anxiety and Depression Scale – Child Version (RCADS-CV) is a self-report questionnaire that assesses dimensions of DSM anxiety and depressive disorders in youths. In this present study, we aimed to examine the psychometric properties of the Turkish version of the RCADS-CV in a clinical sample of children in Turkey.

Method: The participants were 483 children aged 8–17 years old. Subjects were recruited from the following centers: Bezmialem University Hospital (55.7%), Kütahya Regional Hospital (17.4%), Istanbul Medical Faculty Hospital of the Istanbul University (16.7%), and Sakarya University Hospital (12.2%). A semi-structured diagnostic interview was carried out and the following measures were used: Children's Depression Inventory, Screen for Child Anxiety-Related Emotional Disorders (SCARED), and Strengths and Difficulties Questionnaire (SDQ).

Results: Inter-scale reliability was strong/excellent with a Cronbach's *a* of .95 and coefficients for the RCADS-CV subscales ranging from .75 to .86, demonstrating good internal consistency. Convergent and discriminant validity tests against both a semi-structured clinical interview and self-report measures suggested favorable properties. Confirmatory factor analysis supported the original six-factor model. RCADS-CV showed greater correspondence to specific diagnoses in comparative tests with the existing measures of anxiety and depression.

Conclusion: Overall, the study provides satisfactory evidence that the Turkish RCADS-CV yields valid scores for clinical purposes among Turkish children.

Introduction

Anxiety disorders are some of the most common childhood psychopathologies with lifetime prevalence of 15–20% [1]. Childhood anxiety disorders show high levels of comorbidity with depression [2], onset of which tends to follow that of anxiety in this age group [3]. Although depression is less prevalent in childhood (0.4–2.5%), its prevalence rises quickly during adolescence [1]. In a cross-sectional study of the annual prevalence of anxiety-related disorders in a total of 25,013 Turkish children and adolescents, 51.7% of whom were girls, and 50.9% were adolescents aged 12 years and above; not otherwise specified-anxiety disorder (NOS-AD) was identified in 36.5% ($n = 697$), while generalized anxiety disorder (GAD; 29%, $n = 554$) and social anxiety disorder (SPD; 9.7%, $n = 185$) were also reported to be the most prevalent types of anxiety disorders. GAD ($p = .014$) and SAD ($p = .027$) were more prevalent in girls, while separation anxiety disorder (SAD; $p = .045$) and specific

phobia (SP; $p = .009$) were more common among boys. GAD ($p < .001$), SPD ($p < .001$), obsessive-compulsive disorder (OCD; $p < .001$), and panic disorder (PD; $p < .001$) were more prevalent in adolescents while children below age 12 were noted to have significantly more frequent NOS-AD ($p < .001$), SAD ($p < .001$), and SP ($p = .009$) [4]. Childhood-onset anxiety disorders and depression can be risk factors for developing another anxiety disorder and tend to continue into adulthood if left untreated [5,6]. They are associated with increased risk for other psychiatric disorders and psychosocial, academic, and work-related problems in later life [7].

Clinicians tend to rely on adult reports to identify symptoms in children with anxiety and depression [8]. This reliance on adults may be due to the lack of easily accessible self-report screening tools. However, assessment of internalizing symptoms can sometimes be limited without obtaining information directly from the children themselves. Adults may not be aware of the internal experiences of children, such as

their feelings and thoughts, and consequently only a small percentage of children with internalizing disorders obtain access to the mental health care they need [9–11].

Symptom-specific instruments that correspond to the constructs underlying DSM-IV diagnostic criteria for internalizing disorders have been developed. Based on a revision of the Spence Children's Anxiety Scale (SCAS) [12], the Revised Children's Anxiety and Depression Scale (RCADS) [13] was developed to assess clinical syndromes of anxiety as well as depression in youth. It has been shown to be a reliable and valid instrument in different cultures and languages assessing the general population, and clinical and school-based samples [14–19].

The RCADS provides two summary scales: (1) Total Anxiety and Depression and (2) Total Anxiety, and six subscales: SAD, social phobia (SP), OCD, PD, GAD, and major depressive disorder (MDD). The RCADS evidenced good reliability, including internal consistency with Cronbach's α ranging from .78 for SAD to .88 for GAD [18]. Its correlation with other instruments has been reported to be .49–.68 [13] for the Revised Children's Manifest Anxiety Scale subscales [20] and .50–.61 [13] for the SCAS.

Assessment tools developed to identify internalizing disorders in pediatric age groups are predominantly in English and the shortage of valid and reliable instruments limits the ability to study and treat psychopathology in non-English speaking countries. There is a clear need for such questionnaires that can evaluate a wide range of psychiatric conditions in Turkey, and the existing ones cannot always provide a feasible solution due to the issues with practicality or their restricted scope. For example; in order to assess the psychopathology for anxiety spectrum disorders, depression, and OCD in a Turkish sample, a set of three assessment measures need to be used. Availability of a valid and easily administrable assessment tool is crucial for a precise identification of the primary problem, which is also required to guide treatment. Instruments of a broader scope such as the Child Behavior Checklist [21], the Strengths and Difficulties Questionnaire (SDQ) [22], and the Screen for Child Anxiety-Related Emotional Disorders (SCARED) [23] have proven valid and reliable in Turkish samples; however a practical, easy-to-use questionnaire that covers the range of specific anxiety disorders, including OCD and depression, is needed in Turkish language.

We, therefore, aimed to examine the psychometric properties of the Turkish version of the RCADS in a clinical sample of children and adolescents aged between 8 and 17 years. Based on previous research, we hypothesized that the findings of this study would support the reliability and validity of the six-factor Turkish RCADS-P in this population.

Methods

Research participants

The clinical sample included 483 children and adolescents (293 males – 60.7% and 190 females – 39.3%) aged 8–17 years (mean = 12.25; SD = 2.69), who had been referred to the following four different child psychiatry outpatient clinics for the first time. A total of 55.7% (269/483) of the subjects were recruited from Bezmialem University Hospital; 16.7% (81/483) from Istanbul Medical Faculty Hospital of the Istanbul University; 12.2% (59/483) from Sakarya University Hospital, and 17.4% (84/483) from Kütahya Regional Hospital. Participants were instructed to complete the Revised Child Anxiety and Depression Scale – Child Version (RCADS-CV) forms with missing items following the interview for diagnostic assessment. Those with mental retardation and pervasive developmental disorders were excluded from the study sample.

Procedure

The study was approved by the Research Ethics Committee at the Bezmialem Vakıf University, Istanbul (approval no: 71306642-050.01.04-) and parental consent was obtained from the participants. In order to confirm the diagnoses and assess comorbidity, all participants and their parents had psychiatric interviews with the researchers of the present study, who were senior child and adolescent psychiatrists and trained to conduct K-SADS assessments. Questionnaires listed below covered all subscales of the RCADS except for OCD, which was evaluated with interview based on K-SADS assessment.

Measures

Turkish version of the RCADS-CV

Items on the RCADS-CV were separately translated into Turkish by the study team members (VG and AK) who are competent in English and then the translated form was inspected for differences in a meeting. Discrepancies were then consulted with a native English speaker, who was blinded to the original items. The final version was agreed upon by the team members. The Turkish translation was back-translated into English by a medical student, who was bilingual in Turkish and English and the back-translation was shared with and approved by the author who developed the RCADS (BC).

Revised Child Anxiety and Depression Scales – Child Version (RCADS-CV)

The RCADS [13] consists of 47 items developed to measure DSM-IV based symptoms of anxiety disorders and depression in children and adolescents. The subscales correspond to SAD (7 items), SP (9 items),

GAD (6 items), PD (9 items), OCD (6 items), and MDD (10 items). It is scored on a 4-point scale (0 = never, 1 = sometimes, 2 = often, and 3 = always). Several studies have demonstrated support for the RCADS in non-referred samples of youth [13,14] and clinical population [18].

Schedule for affective disorders and Schizophrenia for school-age children, present and lifetime version (K-SADS-PL)

This semi-structured interview [24] was administered to all adolescents and their parents by a child and adolescent psychiatrist to determine depressive and anxiety disorders and comorbid psychiatric disorder in the control group. K-SADS-PL is a valid and reliable instrument for Turkish children and adolescents [25].

Children's Depression Inventory (CDI)

The CDI consists of 27 self-report items that covers the cognitive, behavioral, and affective symptoms of depression [26]. Each item of the scale contains three response options; which are scored as 0, 1, or 2, depending on the severity of the symptom. The total scores of the scale can range between 0 and 54. Reliability and validity of the CDI for the Turkish population has been verified for children between 6 and 17 years of age and cut-off score for the diagnosis of depression was recommended as 19 [27].

Screen for Child Anxiety-Related Emotional Disorders (SCARED)

The SCARED is a 41-item self-report measure designed to screen for DSM-IV anxiety disorders in childhood [23]. The participants rate the items of each factor on a 3-point scale (0 = not true or hardly ever true, 1 = sometimes true, and 2 = true or often true). The SCARED total score, derived by adding the responses of the 41 items, ranges from 0 to 82. The Turkish translation and adaptation of the SCARED was conducted by Karaceylan [28]. Findings suggested that the validity and reliability of SCARED total scores were satisfactory for the Turkish sample and the Cronbach's α score for the total scale was 0.88. The original version of SCARED includes the following five distinct factors: somatic/panic, generalized anxiety, separation anxiety, social anxiety, and school refusal.

Strengths and Difficulties Questionnaire (SDQ) [22]

The SDQ was used to conduct the convergent validity analyses. The SDQ is a brief behavioral screening questionnaire designed to assess for prosocial behaviors and emotional and behavioral problems of children across five subscales. In the Turkish adaptation study [29], the following four subscales were supported: inattention/hyperactivity (Cronbach's α= .70), emotional problems (α= .70), prosocial behavior (α = .54), and conduct problems (α = .50). All subscales except for the prosocial behavior subscale are summed to generate a total difficulty score. Cronbach's α for the total scale was .73.

Statistical analysis

The SPSS Version 19.0 for Windows statistical software (SPSS Inc., Chicago, IL) was used to perform the statistical analyses. A missing data pattern analysis revealed no systematically missing patterns across all RCADS subscales. The missing RCADS items were replaced based on a linear trend analysis of that particular data-point. The chi-square test was used for analyzing the difference between categorical variables. The student's t test and the Mann–Whitney U test (depending on nature of distribution of the data) were used to analyze the difference between continuous variables of the two groups. The Pearson's and the Spearman's rank correlation coefficient tests were used to examine the relationship between parameters. A two-tailed p-value of .05 was set up to indicate statistical significance. To test whether the six subscales as defined by Chorpita and colleagues [13] could be replicated in our sample, a confirmatory factor analysis (CFA) was performed using Amos version 19 [30]. The following indices and cut-offs were used to evaluate Fit Indices Model: Root Mean Square Error of Approximation (RMSEA) [31], Comparative Fit Index (CFI) [32], and Tucker–Lewis Index (TLI) [33]. RMSEA values lower than .08 were set as the cut-off mark for adequate fit and lower than .05 for good fit [34]. CFI and TLI values greater than .90 [32] and .95 [35] were cut-offs for adequate and good model fit, respectively.

To assess convergent validity, we examined correspondence between the Turkish RCADS-CV scale and the Turkish SDQ Emotional Symptoms subscale and Internalizing subscale. These are the subscales that are most related to symptoms of anxiety and depression. We predicted that all correlations between the Turkish RCADS-CV scales and the Turkish SDQ Internalizing and SDQ Emotional Symptoms scales would be positive and significant, which would provide support for the convergent validity of the Turkish RCADS-CV. We then examined correspondence between the Turkish RCADS-CV scales and their respective scales on the SCARED, as these two questionnaires have similar symptom subscales. Since SCARED Turkish version does not measure depression, we used the CDI Turkish version to assess correlation with the RCADS-CV depression scale. We also assessed the ability of the Turkish RCADS-CV scale scores to discriminate participants with and without a specific K-SADS diagnosis (e.g. GAD and MDD). Significant univariate tests would provide support for the discriminant validity of the Turkish RCADS-CV. Correspondence between the

Turkish RCADS-CV scales and the SDQ Externalizing scale was examined for evaluation of divergent validity of the Turkish RCADS-CV. The reliability of the Turkish RCADS-CV scores was assessed with Cronbach's α coefficients, item-total correlations, and "alpha if item deleted" procedure. For acceptable reliability, .70 was set as the cut-off value [36]. Lastly, we examined gender differences that have been reported, with girls having twice as big a risk as boys for experiencing anxiety disorders [37].

Results

Reliability

Reliability of the RCADS-P scores was assessed with examination of Cronbach's α coefficients, item-total correlations, and "alpha if item deleted" values. Cronbach's α for the total RCADS scale was .95. "Alpha if item deleted" procedure did not significantly alter alpha ($p < .001$). Cronbach's α coefficients for the RCADS subscales were uniformly above the .70 criterion, demonstrating good internal consistency for all subscales (α_{SAD}: .77; α_{SP}: .85; α_{OCD}: .75; α_{PD}: .83; α_{GAD}: .80; and α_{MDD}: .86). Reliability of the Turkish RCADS-CV was estimated using a three-week test–retest paradigm using a total of 30 participants selected from the sample. These ranged from .66 ($p = .003$) for OCD to .85 ($p < .001$) for GAD. The reliability coefficients were as follows: OCD ($r = .66$, $p = .003$), GAD ($r = .85$, $p < .001$), MDD ($r = .83$, $p < .001$), SAD ($r = .85$, $p < .001$), PD ($r = .82$, $p < .001$), and SP ($r = .67$, $p = .002$), Total Anxiety ($r = .90$, $p < .001$), and Total Internalizing ($r = .90$, $p < .001$).

Convergent validity

All of the Turkish RCADS-CV scales correlated significantly and positively with the SDQ Emotion and Internalizing Scales. These results provided initial evidence of the convergent validity for the Turkish RCADS-CV scale. Positive and strong correlations were also found with the related SCARED subscales and between the RCADS-CV MDD and the CDI; see Table 1. Although we had no measure against

which we could assess the RCADS OCD subscale's convergent validity, it significantly and positively correlated with SDQ internalizing and SCARED total scores. The RCADS OCD subscale scores also differed significantly between subjects with and without OCD diagnoses (based on the K-SADS), $p < .001$.

Confirmatory factor analysis

CFA of the present data revealed that the six RCADS scales were replicable to an extent. An RMSEA of .053, which is slightly above the cut-off for a good fit, as suggested by Browne and Cudeck [34], indicated acceptable fit. The other fit indices, such as goodness-of-fit index, CFI, and TLI were somewhat lower (.82, .85 and .84, respectively). Overall, the resulting fit statistics represent acceptable fit for the six-factor model in the present study.

Factor loadings were all significant, with a range for SAD from .32 to .80, for SP from .31 to .66, for OCD from .30 to .68, for PD from .31 to .71, for GAD from .32 to .66, and for MDD from .37 to .70 (see Table 2).

The six-factor model fit of the Turkish sample was compared with the six-factor models previously proposed in non-Turkish speaking samples. Findings were similar to the previous studies and the model fit indices for CFA of the RCADS-CV is presented in Table 3.

Discriminant analysis

Table 3 demonstrates that the Turkish RCADS-CV subscales were able to discriminate participants with a diagnosis targeted by the Turkish RCADS-CV scales from subjects without that diagnosis (as reported by the K-SADS). For example, those with a K-SADS diagnosis of depression had significantly higher RCADS-CV MDD scale scores ($M = 16.25$; SD = 6.43) than those without depression diagnosis ($M = 7.78$; SD = 6.24), ($F = 101.39$, $p < .001$). Similar results were found for the other Turkish RCADS-CV subscales, including the SAD, GAD, SP, OCD, and Anxiety Total scales (see Table 3).

Table 1. Correlations of the Turkish RCADS-CV with other instruments.

47-Item RCADS-CV subscales	CDI	SCARED GAD	SCARED SAD	SCARED PD	SCARED SP	SCARED Total	SDQ Emotion	SDQ Int	SDQ Total
MDD	.74*								
GAD		.68*							
SAD			.67*						
PD				.71*					
SP					.50*				
OCD						.60*		.47*	
Total Anxiety						.80*	.70*	.63*	.56*
Total Internalizing							.72*	.66*	.60*

*$p < .001$. SCARED: Screen for child anxiety-related emotional disorders; SDQ: Strengths and Difficulties Questionnaire; Int: internalizing; SAD: separation anxiety disorder; GAD: generalized anxiety disorder; PD: panic disorder; SP: social phobia; OCD: obsessive-compulsive disorder.

Table 2. Scale and item-level statistics for the Turkish RCADS-CV.

Scale[a]	α	Item number and abbreviation[b]	Item-total correlation	α If item deleted	Factor loading
SAD	.77	5 Fears being alone at home	.53	.73	.71
		9 Fears being away from parents	.47	.74	.60
		17 Scared to sleep alone	**.63**	**.71**	**.80**
		18 Trouble going to school	.32	.77	.34
		33 Afraid of being in crowded places	*.32*	*.77*	*.32*
		45 Worries when got to bed at night	.61	.71	.66
		46 Scared to stay away from home overnight	.55	.73	.64
SP	.85	4 Worries having done poorly at something	.60	.83	.55
		7 Scared to take a test	.50	.84	.63
		8 Feels worried when someone angry	**.57**	**.83**	**.66**
		12 Worries will do badly at school work	**.61**	**.83**	**.66**
		20 Worries might look foolish	*.55*	*.83*	*.31*
		30 Worries about mistakes	.63	.83	.48
		32 Worries what others think of them	.59	.83	.39
		38 Afraid to talk in front of class	.43	.85	.50
		43 Afraid of looking foolish in front of people	.62	.83	.46
OCD	.75	10 Bothered by bad or silly thoughts or images	.52	.70	.32
		16 Keeps checking if things done right	**.48**	**.71**	**.68**
		23 Can't get bad or silly thoughts out of head	*.51*	*.70*	*.30*
		31 Has to think special thoughts to stop bad events	.40	.73	.56
		42 Has to do things over and over again	.46	.72	.58
		44 Has to do things just right to stop bad events	.53	.70	.61
PD	.83	3 When has a problem, stomach feels funny	.48	.82	.38
		14 Suddenly has trouble breathing for no reason	.65	.80	.67
		24 Heart suddenly beats too quickly for no reason	.56	.81	.46
		26 Suddenly starts to tremble or shake for no reason	.64	.80	.70
		28 When has a problem, feels shaky	.64	.80	.67
		34 Feels scared for no reason	.61	.81	.51
		36 Suddenly becomes dizzy or faint for no reason	.63	.80	.68
		39 Heart suddenly beats too quickly for no reason	**.71**	**.80**	**.71**
		41 Worries will suddenly get scared for no reason	*.34*	*.87*	*.31*
GAD	.81	*1 Worries about things*	*.53*	*.79*	*.32*
		13 Worries something awful will happen to family	.48	.80	.54
		22 Worries bad things will happen to self	**.69**	**.75**	**.66**
		27 Worries something bad will happen to self	.70	.75	.63
		35 Worries about what will happen	.56	.78	.38
		37 Thinks about death	.48	.80	.33
MDD	.86	**2 Feels sad or empty**	**.72**	**.84**	**.70**
		6 Feels nothing is much fun anymore	.61	.85	.63
		11 Has trouble sleeping	.39	.87	.41
		15 Has problems with appetite	*.32*	*.87*	*.37*
		19 Has no energy for things	.60	.85	.60
		21 Feels tired a lot	.64	.85	.58
		25 Cannot think clearly	.61	.85	.55
		29 Feels worthless	.64	.85	.46
		40 Feels like doesn't want to move	.57	.85	.38
		47 Feels restless	**.73**	**.84**	**.70**

[a]RCADS-CV: Revised Child Anxiety and Depression Scale – Child Version (Turkish); SAD: separation anxiety disorder; GAD: generalized anxiety disorder; PD: panic disorder; SP: social phobia; OCD: obsessive-compulsive disorder, MDD: major depressive disorder.
[b]Bold: highest item-total correlation; italics: lowest item-total correlation.

Gender and age differences

To measure gender differences, independent samples *t*-tests and Mann–Whitney *U* test were performed on RCADS total score and on all subscales. Girls had significantly higher scores on the RCADS total, RCADS anxiety total and all subscales, except for the SAD ($p = .093$) and OCD ($p = .128$) subscales (see Table 4).

Table 3. Model fit indices from CFA for RCADS-CV.

6 Factor model	X^2	df	p	GFI	RMSEA	TLI	CFI
Present study	2408.23	1019	<.001	.82	.053	.84	.85
de Ross et al. [14]	2634.27	1019	<.001	.77	.063		.83
Trent et al. [17]	23,342.35	1019	<.001		.041	.90	.89
Chorpita et al. [18]	2844.74	1019	<.001	.80	.060		.97

Notes: df: degrees of freedom; RMSEA: root mean square of approximation; TLI: Tucker–Lewis index; CFI: comparative fit index; GFI: goodness-of-fit index.

Spearman's correlations revealed significant associations between the RCADS PD ($r = .125$; $p = .008$), RCADS MDD ($r = .168$; $p < .001$), and RCADS SAD ($r = -.326$; $p < .001$) subscales and age. As expected, depression scores increased and SAD scores decreased with age. The other subscales (SP, GAD, and OCD) showed no correlations with age (Table 5).

Receiver operator characteristic (ROC) analyses

ROC analyses were conducted to identify the cut-off scores for each subscales and the total number of true positive (sensitivity) and true negative cases (specificity). For the GAD scale, a score of 7.5 appeared to optimize sensitivity and specificity, yielding a sensitivity of .70 and a specificity of .71 for the prediction of GAD. For the SAD scale, a score of 5.5 yielded a sensitivity of .71 and a specificity of .58 for

Table 4. RCADS-CV means and standard deviations for subjects with and without K-SADS diagnoses.

Scale	K-SADS diagnosis	M	SD	T	n	F	p	Partial η^2
RCADS MDD	MDD present	16.25	6.43	60.55	65	101.39	<.001	.192
	MDD absent	7.78	6.24	48.29	359			
CDI	MDD present	22.21	7.89	60.26	63	96.14	<.001	.185
	MDD absent	12.72	6.88	48.21	357			
RCADS GAD	GAD present	10.10	4.60	57.20	81	60.12	<.001	.123
	GAD absent	6.01	4.18	48.31	349			
SCARED	GAD present	9.39	4.17	56.47	80	42.73	<.001	.090
	GAD absent	5.87	4.40	48.80	349			
RCADS SAD	SAD present	9.14	5.07	56.43	58	30.12	<.001	.066
	SAD absent	5.57	4.60	48.97	366			
SCARED	SAD present	8.40	3.56	55.68	58	21.52	<.001	.048
	SAD absent	5.95	3.81	49.25	371			
RCADS PD	PD present	12.30	7.54	58.45	23	17.58	<.001	.039
	PD absent	6.38	6.56	49.66	407			
SCARED	PD present	11.09	7.65	57.05	23	11.89	.001	.027
	PD absent	6.71	5.81	49.72	407			
RCADS SP	SP present	14.07	6.17	59.99	67	23.27	<.001	.052
	SP absent	10.03	6.32	48.85	358			
SCARED	SP present	8.99	3.43	54.67	69	18.78	<.001	.042
	SP absent	6.92	3.66	49.18	362			
RCADS OCD	OCD present	9.96	4.07	57.48	49	31.85	<.001	.070
	OCD absent	6.38	4.18	49.15	377			

Notes: RCADS-CV: Revised Child Anxiety and Depression Scale – Child Version (Turkish); SAD: separation anxiety disorder; GAD: generalized anxiety disorder; OCD: obsessive-compulsive disorder; SP: social phobia; PD: panic disorder.

the prediction of SAD. For the PD scale, a score of 6.5 yielded a sensitivity of .74 and a specificity of .66 for the prediction of PD. For the MDD scale, a score of 11.5 yielded a sensitivity of .80 and a specificity of .78 for the prediction of MDD. For the SP scale, a score of 9.5 yielded a sensitivity of .73 and a specificity of .49 to predict SP. For the OCD scale, a score of 7.5 yielded a sensitivity of .74 and a specificity of .65. For a cut-off score of 8.5, the sensitivity was .67 and specificity .72.

Discussion

In the present study, we aimed to examine the psychometric properties of the Turkish version of the RCADS in a clinical sample. The overall internal consistency was found to be strong/excellent, which is consistent with previous studies in different languages [15,18,19]. Cronbach's α for the subscales were comparable with those reported in other studies [13,14,17,19]. The convergent validity of the Turkish version the RCADS-CV showed moderate to good association with measures of anxiety and depression. We were not able to directly assess the convergent validity of the

OCD subscale due to a lack of a separate measure for OCD. We, therefore, used the relevant subscales in the SCARED and SDQ, taking into account the anxiety and internalizing nature of OCD. Results regarding the OCD scale revealed that it significantly and positively correlated with SDQ internalizing and SCARED total scores. The RCADS-CV OCD subscale scores also differed significantly ($p < .001$) between subjects with and without OCD diagnoses, based on the K-SADS. Based on these findings it can be concluded that RCADS-CV is a valid instrument to assess OCD in a pediatric age Turkish population. Based on CFA, factor loadings were in general, comparable to those reported in the original study by Chorpita and colleagues [13]. Although one of the fit indices (i.e. the RMSEA) indicated acceptable fit, the others were below the cut-off for good model fit. Fit indices below the cut-off values of "good fit" have also been reported in previous studies [14,16,17], including a more recent study by Kösters and colleagues [19].

Analysis of diagnostic groups revealed that the RCADS significantly discriminated between subjects with and without the target K-SADS diagnosis. Similar to the analysis conducted by Chorpita and colleagues

Table 5. Medians (interquartile ranges) and means (standard deviations) of the RCADS-CV scales by gender.

Scale (range of scores)	Total sample, $n = 483$		Boys, $n = 293$		Girls, $n = 190$	
	Med (IQR)	M (SD)	Med (IQR)	M (SD)	Med (IQR)	M (SD)
RCADS (0–141)	42 (36)	46 (27)	37 (33)	41 (25)	47 (38)[a]	52 (29)
Anxiety (0–111)	34 (29)	37 (22)	30 (28)	34 (21)	39 (32)[a]	42 (23)
GAD (0–18)	6 (7)	7 (5)	5 (6)	6 (4)	7 (7)[b]	8 (5)
SP (0–27)	10 (10)	11 (7)	9 (9)	10 (6)	12 (10)[a]	12 (7)
SAD (0–21)	5 (7)	6 (5)	4 (7)	6 (5)	6 (6)	6 (5)
PD (0–27)	5 (7)	7 (7)	4 (6)	5 (6)	6 (10)[a]	8 (7)
OCD (0–18)	7 (7)	7 (4)	6 (6)	7 (4)	7 (6)	7 (4)
MDD (0–30)	8 (10)	9 (7)	6 (8)	8 (6)	10 (12)[a]	11 (7)

Notes: RCADS: Revised Child Anxiety and Depression Scale; GAD: generalized anxiety disorder; SP: social phobia; SAD: separation anxiety disorder; PD: panic disorder; OCD: obsessive compulsive disorder; MDD: major depressive disorder; Med: median; IQR: interquartile range; M: mean; SD: standard deviation.
[a]Difference from boys is significant at $p < .001$.
[b]Difference from boys is significant at $p = .01$.

[18], we used the SCARED and the CDI for the same purpose of discriminating subjects with the K-SADS target diagnosis and those without the target diagnosis. The SCARED also discriminated subjects with anxiety disorders, however with a smaller effect size for the Anxiety Total scale and all other subscales except for OCD (which is not available in the version of the SCARED used in the present study). The RCADS-CV also had a bigger effect size than the CDI in discriminating those with and without a K-SADS diagnosis of depression. The sensitivity and specificity analyses revealed that the results were comparable to the values reported by Chorpita and colleagues [18] and pointed to relatively favorable psychometrics for identifying target diagnoses.

Gender differences between RCADS subscales were consistent with the literature. That is, all anxiety disorders (with the exception of OCD) are more prevalent in girls than boys [38]. In the present study, girls had higher scores on the RCADS Total Anxiety and RCADS subscales for PD, MDD, GAD, and SP. Age-related associations were also generally consistent with existing reports [38]. As expected, SAD showed a negative and significant correlation with age, while depression and PD, which is more common among adolescents, significantly increased with age.

The present study has certain strengths and limitations. The RCADS was compared with validated questionnaires that can assess all subscales of the RCADS except for OCD. While the use of the SCARED, CDI, and SDQ in addition to a semi-structured interview tool (K-SADS-PL) appears to be a methodological strength, lack of a separate measure to assess OCD is one of the present study's limitations. Another important limitation is that the inter-rater reliability of the semi-structured interviews between the researchers at the four different centers have not been conducted. As the study was conducted in a clinical setting, its generalizability in different settings needs to be further tested.

Conclusion

Overall, the present study provides valuable information about the RCADS as a screening instrument for anxiety spectrum disorders, depression, and OCD in children and adolescent in a clinical sample in Turkey. Additional research is needed for validation of its use in non-clinical settings as well as for its parent-report form. Such future work will further broaden the utility of this measure to be able to collect information from different informants and settings to best understand child and adolescent anxiety and depression.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix

ÇADÖ-Y (Çocuk Formu)

Çocuklarda Anksiyete ve Depresyon Ölçeği-Yenilenmiş (ÇADÖ-Y)

Adı ve Soyadı: Yaş: Cinsiyet: Eğitimi (sınıfı):

Aşağıda insanların kendini nasıl hissettiklerini tanımlayan ifadeler bulunmaktadır. Her ifadeyi dikkatlice okuyun ve sizin için doğru olana seçeneğe karar verin (" Asla doğru değil ise 0'ı, Bazen doğru ise 1'i, Sık Sık doğru ise 2'yi, Her Zaman doğru ise 3'ü işaretleyin).

		ASLA	BAZEN	SIK SIK	HER ZAMAN
1.	Bazı konularda endişe/kaygı duyarım	(0)	(1)	(2)	(3)
2.	Kendimi üzgün veya boşlukta hissederim	(0)	(1)	(2)	(3)
3.	Bir sorunum olduğunda midemde tuhaf bir his olur	(0)	(1)	(2)	(3)
4.	Bir işte başarısız olduğumu veya işi iyi yapmadığımı düşündüğüm zaman endişelenirim/kaygılanırım	(0)	(1)	(2)	(3)
5.	Evde yalnız kalmaktan korkarım	(0)	(1)	(2)	(3)
6.	Hiçbir şeyden eskisi kadar zevk almıyorum	(0)	(1)	(2)	(3)
7.	Sınava gireceğim zaman korkarım/ endişelenirim	(0)	(1)	(2)	(3)
8.	Birinin bana kızgın olduğunu düşündüğümde endişelenirim	(0)	(1)	(2)	(3)
9.	Ailemden uzakta olmak beni endişelendirir	(0)	(1)	(2)	(3)
10.	Aklımdaki kötü ya da aptalca düşünceler veya görüntüler beni rahatsız eder	(0)	(1)	(2)	(3)
11.	Uyku sorunum var	(0)	(1)	(2)	(3)
12.	Okulda başarısız olacağımdan korkarım/ endişelenirim	(0)	(1)	(2)	(3)
13.	Ailemden birinin başına çok kötü bir şey geleceğinden endişelenirim	(0)	(1)	(2)	(3)
14.	Hiçbir neden yokken aniden sanki nefes alamıyorum gibi hissederim	(0)	(1)	(2)	(3)
15.	İştahım ile ilgili sorunlarım var	(0)	(1)	(2)	(3)
16.	Yaptığım şeyleri tam veya doğru yapıp yapmadığımı tekrar tekrar kontrol ederim (lambaların kapatıldığından, kapının kilitlendiğinden emin olmak gibi)	(0)	(1)	(2)	(3)
17.	Kendi başıma uyumam gerekirse bundan korkarım	(0)	(1)	(2)	(3)
18	Sabahları gergin veya endişeli hissettiğimden okula gitmek istemem	(0)	(1)	(2)	(3)
19.	Hiçbir şey için enerjim yok	(0)	(1)	(2)	(3)
20.	Aptalca göründüğümden endişelenirim	(0)	(1)	(2)	(3)
21.	Kendimi çok yorgun hissederim	(0)	(1)	(2)	(3)
22.	Başıma kötü şeyler geleceğinden endişe ederim	(0)	(1)	(2)	(3)
23.	Kötü ve saçma düşünceleri kafamdan atamıyorum	(0)	(1)	(2)	(3)
24.	Bir sorunum olduğunda kalbim çok hızlı atar	(0)	(1)	(2)	(3)
25.	Rahat bir şekilde düşünemem	(0)	(1)	(2)	(3)
26.		(0)	(1)	(2)	(3)

		(0)	(1)	(2)	(3)
	Hiçbir nedeni yokken aniden titreme ve ürperme hissederim				
27.	Başıma kötü bir şey geleceğinden endişe ediyorum	(0)	(1)	(2)	(3)
28.	Bir sorunum olduğunda titrediğimi hissederim	(0)	(1)	(2)	(3)
29.	Kendimi değersiz hissediyorum	(0)	(1)	(2)	(3)
30.	Yanlış yapmaktan kaygılanırım/endişe ederim	(0)	(1)	(2)	(3)
31.	Kötü şeylerin olmasını engellemek için özel bazı düşünceleri (sayılar, kelimeler gibi) aklımdan geçirmem gerekir	(0)	(1)	(2)	(3)
32.	Diğer insanların benim hakkımda ne düşündükleri beni endişelendirir	(0)	(1)	(2)	(3)
33.	Kalabalık yerlerde (alışveriş merkezi, sinema, otobüsler, yoğun oyun alanları gibi) bulunmaktan korkarım	(0)	(1)	(2)	(3)
34.	Hiçbir nedeni yokken birden yoğun korku duyarım	(0)	(1)	(2)	(3)
35.	Gelecek hakkında endişelenirim	(0)	(1)	(2)	(3)
36.	Hiçbir nedeni yokken aniden başım döner ve bayılacak gibi olurum	(0)	(1)	(2)	(3)
37.	Ölüm hakkında düşünürüm	(0)	(1)	(2)	(3)
38.	Sınıfımın önünde konuşma yapmak beni korkutur	(0)	(1)	(2)	(3)
39.	Kalbim sebepsiz yere aniden çok hızlı çarpmaya başlar	(0)	(1)	(2)	(3)
40.	Hareket etmek istemiyor gibi hissederim	(0)	(1)	(2)	(3)
41.	Ortada korkulacak bir şey yokken aniden korkutucu bir his yaşamaktan endişelenirim	(0)	(1)	(2)	(3)
42.	Aynı şeyi tekrar tekrar yapmak zorunda hissederim (ellerimi yıkamak, temizlik yapmak veya bir şeyleri belli bir sıraya koymak gibi)	(0)	(1)	(2)	(3)
43.	İnsanların önünde aptal durumuna düşmekten korkarım	(0)	(1)	(2)	(3)
44.	Kötü şeylerin olmasını engellemek için bazı şeyleri "tam olması gereken biçimde" yapmak zorunda hissederim	(0)	(1)	(2)	(3)
45.	Geceleri yatağa gittiğimde endişelenirim	(0)	(1)	(2)	(3)
46.	Gece evden uzakta kalmaktan (başkasının evinde uyumak gibi) korkarım	(0)	(1)	(2)	(3)
47.	Kendimi huzursuz hissederim	(0)	(1)	(2)	(3)