Mental Health Science

WILEY

RESEARCH ARTICLE OPEN ACCESS

Toward Cultural Validation of the Revised Children's Anxiety and Depression Scale in Karnataka, India: Psychometric Testing Among 13–17-Year Olds

Amy Palmer[1] | Daryl B. O'Connor[1] | N. Janardhana[2] | Prachi Khandeparkar[3] | Poornima Bhola[2] | Sphoorthi Prabhu[2] | Krupa A. L.[2] | Mutharaju Arelingaiah[2] | Jayalaxmi K. P.[2] | Ritwika Nag[2] | Siobhan Hugh-Jones[1]

[1]School of Psychology, University of Leeds, Leeds, UK | [2]NIMHANS, Bangalore, Karnataka, India | [3]Sangath India, Psychology, Goa, India

Correspondence: Amy Palmer (pscapa@leeds.ac.uk)

Received: 12 November 2024 | **Revised:** 4 April 2025 | **Accepted:** 30 April 2025

Funding: This study was associated with Project SAMA, funded by the UK Medical Research Council, Economic and Social Research Council, National Institute of Health Research, and UK Aid (Grant Number MR/T040238/1).

Keywords: adolescent | anxiety | cultural validation | depression | India | mental health | RCADS

ABSTRACT

Improving youth mental health is a national priority in India, especially given the very high rates of youth suicide. Yet, mental health prevalence data in India are often incomplete. More culturally validated mental health measures are needed to inform prevention and intervention work. The Revised Children's Anxiety and Depression Scale (RCADS-47) is a widely used measure of mental health globally, including in India, but it is yet to be culturally validated there. This study presents the second stage (of two) of the cultural validation of the RCADS-47 in a sample of Indian adolescents ($n = 332$; Mage = 14.81 years). Participants completed a revised version of the RCADS-47 (K-RCADS), alongside comparative measures. Psychometric testing for convergent and discriminant validity, alongside factor analysis, was conducted. The K-RCADS had good psychometric properties; high internal reliability ($\alpha = 0.89$) and good construct validity when compared to measures of similar constructs ($r = 0.51$–0.69). Support was found for five of the six original RCADS factors. Findings suggest confidence in the rephrased RCADS-47 ability to identify symptoms of anxiety and depression among Indian adolescents, alongside highlighting the importance of culturally validating measures of mental health. Further research in this validation is also discussed.

1 | Introduction

India has one of the highest youth suicide rates in the world, with suicide being a leading cause of adolescent death (Patel et al. 2012; Sahoo et al. 2023; Senapati et al. 2024), raising concerns for youth mental health (Gururaj et al. 2016). Despite this, there remains a widely recognized lack of data on the prevalence of adolescent mental health in India, including rates of anxiety and depression (Grover et al. 2019). Much of the existing prevalence data among Indian adolescents is unclear and often inconsistent, which has been attributed to the use of limited and culturally inappropriate data collection tools (Grover et al. 2019), with few accurately identifying symptoms cross-culturally (Stevanovic et al. 2017).

It is essential to culturally validate measures of mental health as they are often developed in western countries, potentially reducing their validity cross-culturally. Cultural views and norms have been shown to have a large influence over perceptions and concepts of mental health, including in India (Diener and Suh 1997; Eckersley 2007; Gaiha et al. 2020). Cultural validation of measures can increase their validity in the target culture, reducing errors due to cultural differences in concepts and understanding of mental health, increasing

accuracy in prevalence data. This can inform policy and practice, potentially increasing the availability of mental health interventions and investment in mental health services. Although there have been efforts to validate adolescent mental health measures in India (e.g., Long et al. 2013), this field remains limited.

Following the first stage of cultural validation (Palmer et al. 2025), this study presents the second stage (of two) toward the cultural validation of a widely used measure of child and youth mental health, namely the Revised Children's Anxiety and Depression Scale (RCADS-47; Chorpita et al. 2000).

1.1 | The RCADS

The RCADS-47 is a measure of symptoms of anxiety and depression for young people aged between 8 and 18 years, developed in America. It is a 47-item self-report questionnaire containing six subscales; Separation Anxiety Disorder (SAD), Social Phobia (SoP), Obsessive-Compulsive Disorder (OCD), Panic Disorder (PD), Generalized Anxiety Disorder (GAD), and Major Depressive Disorder (MDD).

The RCADS is used extensively worldwide (e.g., Chorpita et al. 2000; Stevanovic et al. 2017), has been validated for use in many countries (e.g., Esbjørn et al. 2012: Denmark; de Ross et al. 2002: Australia), and shows good psychometric properties globally (e.g., Chorpita et al. 2000; Esbjørn et al. 2012). It is widely used in India across diverse samples in both clinical and research settings (e.g., Dharmayat and Murthy 2019; Haldar 2016; Raval et al. 2019), indicating that it is considered an effective and potentially equivalent measure (Trevethan et al. 2022). Despite this, it has not been culturally validated in India. Cultural validation of the RCAD-47 will increase confidence in future use of an already well-established measure.

Due to the large number of languages spoken in India (121 legitimized languages; Jolad and Agarwal 2021), of which English is the second most widely spoken, underlying religious connotation associated with different languages (e.g., Hindi is associated with Hinduism), and as English is compulsory in schools, validating the English version of the RCADS-47 was considered neutral and inclusive, alongside providing a good anchor language for further research.

1.2 | The Process of Culturally Validating a Measure

Cross-cultural validation involves taking a measure which was designed originally for use in one culture, and showing it to be meaningful, applicable, and equivalent within another culture (Matsumoto and Davis 2003). The cultural validation of mental health measures is to ensure that the assessment tools are reliable and valid measures of the concepts of interest in different cultures (Ali et al. 2016; Weobong et al. 2009).

The International Test Commission (2017) presents guidelines for adapting and translating measures. This consists of 18 guidelines across six stages: (1) pre-condition; obtaining the necessary permission for the holders of intellectual rights of the selected measure, (2) test development; ensuing that the adaptation process considers linguistic, psychological and cultural differences and includes experts with relevant experience, (3) confirmation; empirical analysis of the adaptation in an appropriate sample (e.g., establishing reliability and validity), (4) administration; the preparation of administration material (e.g., testing guidelines) to minimize any cultural-related difficulties, (5) score scales; interpretation of any group score differences based on all available information, and (6) documentation; provide technical documentation of any changes, including evidence obtained to support equivalence. The first stage of the cultural validation of the RCADS-47 for use with Indian adolescents in Karnataka (Palmer et al. 2025) focused on Stages 1 and 2 of these guidelines. To further this, the current study focuses on Stage 3 of the ITC guidelines.

This study also draws upon the cultural validation guidelines presented by Caron (1999); cultural validation is achieved through establishing the validity and reliability of the measure in the new population and consists of two stages. First, the verification of the cultural equivalence of the measure (often a Think Aloud study), to determine "inferential equivalence," referring to items maintaining the same meaning and being understood similarly by different populations (Caron 1999). Second, psychometric testing to establish the measures validity and reliability in the target culture.

The findings from Stage 1 of this validation, a Think Aloud study, revealed a wide range of problems encountered by English speaking, Indian adolescents when completing the English version of the RCADS-47 (Palmer et al. 2025). Rephrasing was deemed necessary for 14 of the 47 items (Appendix A), resulting in the development of a rephrased version of the RCADS; the Karnataka-RACDS (K-RCADS). The next step in this cultural validation consisted of psychometric testing of the K-RCADS among a larger sample of Indian adolescents.

1.3 | The Present Study

The present study aimed to establish the cultural validity of the rephrased English version of the RCADS-47 (K-RCADS) in a sample of Indian adolescents aged 13–17 years in the state of Karnataka, through psychometric testing. Psychometric testing (including internal reliability, concurrent validity, discriminate validity, and factor analysis) was conducted in a suitably powered sample. It was considered that if statistical testing revealed that the measure has met the acceptable criteria for the appropriate tests and that the psychometrics are similar to that in the original culture, cultural validity will have been established (Caron 1999), increasing confidence in the use of the RCADS among Indian adolescents.

2 | Methods

2.1 | Recruitment and Participants

Schools associated with an ongoing project ($n = 5$; Project SAMA; Hugh-Jones et al. 2022), which is a collaboration

between several UK and Indian universities and the National Institute of Mental Health and Neuroscience (NIMHANS), were approached to take part. The inclusion criteria were: young people attending these schools aged between 13 and 17 years, who were Indian nationals, living in India at the time of the study, from the general (nonclinical) population and self-reported as fluent in English. Eight-to-twelve-year olds were not included as this age group attend primary schools and therefore were not included in Project SAMA target schools.

A minimum sample size of 300 was selected based on guidance for cultural validation studies (Comfrey and Lee 1992; Gorsuch 1983), and reflecting previous sample sizes in studies culturally validating the RCADS (e.g., Diehle et al. 2015: the Netherlands, $n = 318$; Donnelly et al. 2018: Ireland, $n = 346$; Mehmood and Sultan 2014: Pakistan; $n = 217$). Given that the minimum sample size of 300, this study aimed to recruit ~360 participants (an additional 20%) to account for incomplete data and potential exclusions.

Data were collected from 360 participants. In total, 28 participants' data were removed from analysis (13 did not meet inclusion criteria; 15 had more than 20% missing data). The included participants ($n = 332$; *M*age = 14.81 years, SD = 0.96, range = 13–17 years) consisted of 177 Males (53.3%) and 145 Females (43.7%), one participant identified as nonbinary (0.3%) and one identified as transgender (0.3%; 7 participants did not give an answer and 1 chose "prefer not to say"). All participants reported living in the Indian state of Karnataka. Participants were from both urban and rural areas. Most participants (90.1%) reported that they attended private schools (unaided), with government schools (4.8%) and government-aided private schools (1.8%) also being reported. Due to the costs involved, the type of school attended by a young person in India generally indicates their socioeconomic background (Choudhury et al. 2023), which refers to access to economic resources, education, and social positioning in relation to others (Oakes and Rossi 2003). As the majority of the present sample attended private schools, it can be concluded that the sample generally consisted of those from high socioeconomic backgrounds. Participants self-reported an overall English ability of 7.55 (cumulative of reading and speaking ability on a scale of 1 (*not well*) to 10 (*extremely well*)).

2.2 | Ethics

Ethical safeguards were decided in consultation with NIMHANS and are in line with guidelines for research in India (ICMR 2017). The study was approved by the University of Leeds Faculty of Medicine & Health Research Ethics Committee (PSYC-276) and NIMHANS Ethics Committee. Participants were encouraged to take part only if they were currently experiencing stable mental wellbeing. Participants and parents were informed to only give consent if the participant was perceived by both to be currently experiencing stable wellbeing. Teachers were also consulted to determine if they felt any students should be excluded due to experiencing poor wellbeing. Participants were reminded of their right to withdraw and provided with information on support for depression and anxiety, should they require them in the future. Participant responses were anonymous.

2.3 | Measures

2.3.1 | Demographic Information

Before completing the questionnaires, demographic information was collected through a self-report questionnaire developed by the researchers. This included age, gender, school type (government, government aided, private), living location (rural, semi-rural, urban, semi-urban) parental education (ranging from lower than secondary school to PhD level) and English language ability (ranging from 0 (*not well*) to 10 (*extremely well*)).

2.3.2 | RCADS-47

The rephrased 47-item English version of the RCADS was used (Appendix A). The 47 items are answered on a 3-point Likert scale ranging from 0 (*never*) to 3 (*always*). A total RCADS score is calculated by summing the responses from each item, with subscale scores established by summing the appropriate items. Totals are then converted into a *T*-score. Raw scores were used in this analysis.

2.3.3 | SDQ

The Strengths and Difficulties Questionnaire (SDQ; Goodman 1997) is a 25-item self-report emotional and behavior screening questionnaire for ages 11–17 years. The SDQ has been widely used in India (e.g., Harikrishnan et al. 2017; Nair et al. 2017; Michelson et al. 2020; Puwar et al. 2018), has been shown to be psychometrically sound globally (e.g., Goodman 2001; Koskelainen et al. 2000) and has been culturally validated in a population of Indian adolescent (within the broader Indian Adolescent Health Questionnaire; Long et al. 2013; age range: 13–18 years).

2.3.4 | PHQ-9

The Patient Health Questionnaire-9 (PHQ-9; Kroenke et al. 2001) is a 9-item self-report questionnaire designed to screen for MDD and is widely used within adolescent populations (e.g., Richardson et al. 2010; Tsai et al. 2014). The PHQ-9 is used globally (e.g., Kroenke and Spitzer 2002; Kroenke et al. 2001), has been extensively used in developing countries (e.g., Wulsin et al. 2002; Malhotra et al. 2004) and has been shown to be psychometrically sound in many countries in adolescent populations (e.g., Allgaier et al. 2012: Age range: 13–16 years; Leung et al. 2020: *M*age: 14.8 years). Although not formally validated with Indian adolescents, this measure was selected as it is widely used and shows good psychometric properties in this population (e.g., Ganguly et al. 2013; Poongothai et al. 2009), showing it to be an appropriate comparative measure.

2.3.5 | GAD-7

The Generalized Anxiety Disorder-7 (GAD; Spitzer et al. 2006) is a 7-item self-report questionnaire designed to screen for GAD and other related anxiety disorders. The GAD-7 is a widely used

(e.g., Löwe et al. 2008; Tiirikainen et al. 2019; Wong et al. 2014; Zhou et al. 2020) and has been shown to be psychometrically sound across many countries in adolescent populations (e.g., Mossman et al. 2017: *M*age: 14.8; Tiirikainen et al. 2019: age range: 14–18 years). Although not formally validated with Indian adolescents, the GAD-7 has been widely used with young people in India (e.g., Wasil et al. 2020) and therefore was deemed an appropriate comparative measure.

2.3.6 | WEMWBS

The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS; Tennant et al. 2007) is a 14-item positively worded self-report questionnaire of emotional wellbeing. As the WEMWBS assesses a different construct to the RCADS, it was selected to establish the discriminant validity of the rephrased RCADS. The WEMWBS has been validated for use in adolescents (e.g., Clarke et al. 2011) and Indian adolescents (Singh and Raina 2020: *M*age: 15.27). It has shown high internal reliability (Clarke et al. 2010; McKay and Andretta 2017) within adolescent samples.

2.4 | Procedure

The battery of measures was administrated in paper form in class, during school time, by Indian researchers known to the participants. They instructed participants to first generate a unique ID. Participant consent was reconfirmed at the start of the study with the collection of demographic information (including age, gender, ethnicity, and SES). Indian researchers from NIMHANS supported the completion of the measures, which took ~20 min. Upon completion, participants received a paper debrief sheet.

2.5 | Statistical Analysis

Responses were entered into SPSS 24, which was used for all statistical analyses. Internal reliability was calculated using Cronbach's α. Convergent and discriminant validity between the RCADS and the comparative measures (SDQ; PHQ-9; GAD-7; WEMWBS) was conducted using Pearson's Product Moment correlation. The factor structure of the RCADS in an Indian adolescent population was investigated using Exploratory Factor Analysis (EFA). EFA, as opposed to Confirmatory Factor Analysis (CFA), was selected as, although the RCADS factor structure has been previously established in western cultures, findings cannot be generalized to other cultural groups (e.g., Muris et al. 2002). As the RCADS factor structure has not previously been explored in-depth with Indian adolescents and cultural applicability of some items are uncertain, an exploratory approach should be adopted. This is reflective of previous RCADS psychometric research (e.g., Fard et al. 2021). Additionally, CFA can limit or mislead results in new cultures (Schmitt 2011; Orçan 2018). EFA will enable structures not recognizable in CFA to be observed (Bandalos and Finney 2010).

3 | Results

3.1 | Descriptive Statistics and Internal Reliability

Table 1 shows the means and standard deviations for the total RCADS score and subscales, alongside internal reliability. Overall, the total RCADS scale and the RCADS total anxiety scale both showed good internal reliability. The results indicated satisfactory internal reliability for the SoP, GAD, PD, and MDD subscales. However, poor internal reliability was found for the SAD (which contained no rephrased items) and OCD subscales (which contained four rephrased items).

Table 2 shows the Cronbach's α (and Cronbach's α if the item was deleted) for the SAD and OCD subscales. Results indicate that in the SAD subscale, the removal of item 9 (*I worry about being away from my parent*) increased the subscale's internal reliability. The removal of further items did not increase the internal reliability of either subscale. Nevertheless, following the removal of item 9, Cronbach's α remained low.

3.2 | Construct Validity

Construct validity was assessed through establishing convergent and discriminant validity between the RCADS and comparative measures. Separate Pearson's Product Moment correlations calculated convergent validity between the RCADS (and appropriate subscales) and the comparative measures. Table 3

TABLE 1 | The mean score, SD, and Cronbach's α scores for the RCADS and individual subscales ($n = 332$).

Subscale	Number of items	Subscale mean score	SD	Cronbach's α
All RCADS Items	47	42.25	17.21	0.89
RCADS anxiety subscale	37	33.71	13.79	0.86
Separation Anxiety Disorder (SAD)	7	4.31	2.92	0.46
Social Phobia (SoP)	9	10.30	4.95	0.75
Generalized Anxiety Disorder (GAD)	6	6.08	3.40	0.67
Panic Disorder (PD)	9	6.48	4.42	0.74
Obsessive Compulsive Disorder (OCD)	6	6.54	3.29	0.59
Major Depressive Disorder (MDD)	10	8.53	4.59	0.73

TABLE 2 | Item-total correlations and Cronbach's α if item deleted for Separation Anxiety Disorder and Obsessive Compulsive Disorder subscale items ($n = 332$).

Subscale ($N = 2$)	Subscale Cronbach's α	Item	Item-total correlation	Cronbach's α if item deleted
SAD ($N = 7$)	0.46	5. I would feel afraid of being on my own at home	0.32	0.37
		9. I worry about being away from my parent	−0.02	0.57
		17. I feel scared if I have to sleep on my own	0.36	0.36
		18. I have trouble going to school in the mornings because I feel nervous or afraid	0.27	0.40
		33. I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds)	0.24	0.41
		45. I worry when I go to bed at night	0.16	0.45
		46. I would feel scared if I had to stay away from home overnight	0.32	0.37
OCD ($N = 6$)	0.59	10. I am bothered by bad or silly thoughts or pictures in my mind	0.30	0.56
		16. I spend a lot of time checking things repeatedly even when there is no need (e.g., if the door is locked)	0.34	0.54
		23. I can't seem to get bad or silly thoughts out of my head	0.36	0.53
		31. I need to use special thoughts (like numbers or words) to stop bad things from happening	0.34	0.54
		42. I have to do some things repeatedly to feel okay (e.g., putting things in a certain order)	0.30	0.56
		44. I sometimes think that bad things will happen, to stop the bad things from happening I have to do some things in just the right way	0.33	0.54

TABLE 3 | Pearson's Product Moment correlations showing convergent and divergent validity between the RCADS total scores and comparative measure ($N = 332$).

	SDQ		PHQ-9		GAD-7		WEMWBS	
Scale	***r*(df)**	***p***	***r*(df)**	***p***	***r*(df)**	***p***	***r*(df)**	***p***
Total RCADS	0.51**	< 0.001	0.60**	< 0.001	0.69**	< 0.001	−0.12*	0.012
Total RCADS Anxiety	0.46**	< 0.001	0.55**	< 0.001	0.66**	< 0.001	−0.08	0.117
MDD	0.48**	< 0.001	0.59**	< 0.001	0.60**	< 0.001	−0.26**	< 0.001

Note: Although correlations for the MDD subscale and all comparative measures are shown, as this subscale is a measure of depression, it was only expected to strongly correlate with the PHQ-9 and therefore (although some correlation was expected) it was not likely to be as correlated with other subscales as they measure different constructs (i.e. anxiety). Correlations between the MDD subscale and other measures do not inform the convergent validity of the MDD subscale.
*Significant at the 0.05 level.
**Significant at the 0.01 level.

shows the correlations between comparative measures and the total RCADS score, total anxiety score and the depression score (MDD). Correlations between the RCADS anxiety subscales and the GAD-7 were all moderate to strong ($r(332) = 0.35–0.57$, $p < 0.001$). Although none of the correlations reached Carlson and Herdman's (2012) 0.7 cut-off for acceptable convergent validity, the total RCADS score was found to have "strong" correlations with the SDQ, PHQ-9, and the GAD-7.

Discriminant validity between the total score of the RCADS and the total WEMWBS score was calculated using Pearson's Product Moment correlation (Table 3). Weak negative correlations were found between the total RCADS score and the WEMWBS, indicating that these measures are largely unrelated, providing evidence of discriminant validity.

3.3 | Factor Analysis

Principal Components Analysis (PCA) investigated the factor structure of the K-RCADS in a sample of Indian adolescents. As the original RCADS has a six-factor structure in western cultures, a six-component solution was selected. To determine an appropriate rotation method, an oblique rotation was run. As loadings between all factors were 0.54 and below, an orthogonal rotation (varimax) was selected (Tabachnick and Fidell 2014),

with items presenting factor loadings of below 0.40 being excluded from interpretation. The data were appropriate for factor analysis; an adequate Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy (0.84) and a significant result to Bartlett's test of sphericity ($X^2 = 3552.04$, $p \leq 0.001$).

Loadings onto variable factors above 0.40, eigenvalues and the percentage of variance explained by each factor are shown in Table 4. With a cut-off of 0.40, 12 of the 47 items (namely, factors 1, 2, 9, 10, 16, 19, 23, 26, 31, 34, 42, 44) did not load onto any factors, including all 6 of the original OCD items.

The six factors accounted for 40.51% of the variance. Factor 1 represented the SoP subscale, including 7 of the 9 SoP items, with the addition of item 35 (GAD subscale). Factor 2 predominantly consisted of MDD items, including 6 of the 10 MDD items, with the addition of one PD (Item 14) and one GAD item (Item 37) loading onto this factor. Factors 3 and 4 consisted of a mixture of factors from the GAD and PD subscales. Factor 5 included solely SAD items. Factor 6 consisted of two items and had no defining feature.

3.4 | RCADS-47 and Demographic Variables

A series of ANOVAs were conducted to determine the influence of demographic variables (including age, gender, school type, parental education, and area that the participant lived in) on the total K-RCADS score and each subscale (Table 5). Results indicate that gender was associated with the total K-RCADS score and all subscales excluding the SAD subscale, with females reporting a higher total K-RCADS and anxiety score. Parental education was associated with the GAD, SoP, and SAD subscales, with higher levels of parental education being associated with higher levels of GAD and SoP. Lower levels of parental education were associated with increased SAD. Age (note: given the restricted age range (13–17 years) and to allow it to be entered into an ANOVA as a factor, age was dichotomized into "younger" and "older" adolescents based on being above or below the sample mean age), school type and living area (e.g., urban/rural) was not associated with any scales.

One-way ANOVAs were conducted between participants' self-reported English speaking and reading abilities and the K-RCADS scores, to investigate the impact of language ability on RCADS scores. Analysis revealed that there was no association between speaking ($F(9, 256) = 0.21$, $p = 0.993$) or reading ($F(8, 256) = 1.01$, $p = 0.432$) ability and total K-RCADS score.

4 | Discussion

This study aimed to progress work on the cultural validation of a rephrased RCADS-47 (K-RCADS; Palmer et al. 2025) in a sample of Indian adolescents aged 13–17 years in Karnataka, through psychometrically testing responses to the measure and comparative measures.

4.1 | Construct Validity and Internal Reliability

The K-RCADS was found to be positively related to the SDQ, PHQ-9, and GAD-7, suggesting confidence in the measure's ability to identify symptoms of depression and anxiety within this population. Both the total K-RCADS score and the total K-RCADS anxiety subscale score showed good internal reliability, in line with previous research (e.g., Chorpita et al. 2005; Donnelly et al. 2018). Subscales, excluding the SAD and OCD subscales, showed acceptable internal reliability. This finding was expected as previous research has shown the SAD and OCD subscales to have the lowest internal reliability of the RCADS subscales (e.g., Donnelly et al. 2018; Piqueras et al. 2017), often not meeting the threshold for acceptability (e.g., Fard et al. 2021; Grothus et al. 2023; Lu et al. 2021).

Within our sample, the SAD internal reliability was particularly low. The removal of Item 9 (*I worry about being away from my parent*) from this subscale was found to increase internal reliability. Although removal was considered, the internal reliability after removal remained low and removal would reduce the comparability of the K-RCADS to other cultures. One explanation for low internal reliability is the sample age (*M*age = 14.81 years). Although the RCADS has been designed for use in 8–18 year olds, arguably several items within the SAD subscale are not developmentally appropriate for older adolescents (e.g., Item 9), as older adolescents are often away from parents for long periods of time (e.g., during school hours). The age restrictiveness of items has been previously identified (e.g., Skoczeń et al. 2019). As the present sample was older than many key studies reporting the psychometrics of the RCADS (e.g., Chorpita et al. 2000: *M*age = 12.5; Chorpita et al. 2005: *M*age = 12.9), this may explain the particularly low internal reliability for this subscale.

Furthermore, the low internal reliability within the SAD and OCD subscales suggests that they do not capture singular constructs within this population. This argument is further supported for the OCD subscale as it did not hold up when subjected to Factor Analysis. However, as the internal reliability of these subscales has been found to be consistently low, this may indicate a wider problem with the subscale. For example, several items in the SAD subscale may be more representative of GAD (e.g., Item 45: *I worry when I go to bed at night*). This was observed in the Think Aloud interviews (Palmer et al. 2025) where participant responses to several SAD items focused on generalized anxiety and worries, rather than anxiety surrounding separation. The overlap between these subscales has been observed in previous cultural validation studies (e.g., Skoczeń et al. 2019). Based on these two potential explanations, further work is needed to refine the conceptualization and developmental appropriateness of the SAD and OCD subscales to ensure they adequately identify these disorders within the full age range of this measure.

4.2 | Factor Analysis

EFA indicated some support for five of the six original RCADS factors within an Indian adolescent population. The SoP, MDD, and SAD subscales were generally well represented as separate factors within our data. Overlap was found between the GAD and PD subscales. However, as these subscales are measuring

TABLE 4 | Loadings onto variable items above 0.40, eigenvalues and the percentage of variance explained by each factor.

Item	Original subscale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
43. I feel afraid that I will make a fool of myself in front of people	SoP	0.69	—	—	—	—	—
20. I worry I might look foolish	SoP	0.67	—	—	—	—	—
32. I worry what other people think of me	SoP	0.63	—	—	—	—	—
12. I worry that I will do badly at my school work	SoP	0.59	—	—	—	—	—
38. I feel afraid if I have to talk in front of my class	SoP	0.54	—	—	—	—	—
35. I worry about what is going to happen	GAD	0.52	—	—	—	—	—
30. I worry about making mistakes	SoP	0.51	—	—	—	—	—
8. I feel worried when I think someone is angry with me	SoP	0.45	—	—	—	—	—
4. I worry when I think I have done badly at something	SoP	—	—	—	0.44	—	—
47. I feel restless and it is hard for me to sit still or relax	MDD	—	0.64	—	—	—	—
15. I have problems with my eating patterns	MDD	—	0.53	—	—	—	—
14. I suddenly feel it is difficult to breathe even though there is no clear reason for this	PD	—	0.50	—	—	—	—
2. I feel sad or empty	MDD	—	0.49	—	—	—	—
37. I think about death	GAD	—	0.47	—	—	—	—
6. I do not have a lot of fun anymore	MDD	—	0.43	—	—	—	—
21. I feel tired a lot of the time	MDD	—	0.42	—	—	—	—
25. I cannot think clearly	MDD	—	0.41	—	—	—	—
40. I feel like I don't have the energy to move	MDD	—	—	—	—	—	—
26. I suddenly start to tremble or shake when there is no reason for this	PD	—	—	—	—	—	—
13. I worry that something bad will happen to someone in my family (e.g., my parents, brother, or sister)	GAD	—	—	0.58	—	—	—
41. I worry that I will suddenly feel scared, even though there is nothing to be afraid of	PD	—	—	0.54	—	—	—
39. My heart suddenly starts to beat too quickly for no reason	PD	—	—	0.46	0.46	—	—
3. When I have a problem, my stomach doesn't feel good	PD	—	—	0.46	—	—	—
18. I have trouble going to school in the mornings because I feel nervous or afraid	SAD	—	—	0.45	—	—	—
11. I have trouble sleeping	MDD	—	—	0.45	—	—	—
36. I suddenly become dizzy or faint when there is no reason for this	PD	—	—	0.44	—	—	—

(Continues)

TABLE 4 | (Continued)

Item	Original subscale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
34. All of a sudden, I feel really scared for no reason at all	PD	—	—	—	—	—	—
24. When I have a problem, my heart beats really fast	PD	—	—	—	0.62	—	—
28. When I have a problem, I feel shaky	PD	—	—	—	0.50	—	—
27. I worry that something bad will happen to me	GAD	—	—	—	0.45	—	—
22. I worry that bad things will happen to me	GAD	—	—	—	0.42	—	—
1. I worry about things	MDD	—	—	—	—	—	—
9. I worry about being away from my parent	SAD	—	—	—	—	—	—
17. I feel scared if I have to sleep on my own	SAD	—	—	—	—	0.65	—
5. I would feel afraid of being on my own at home	SAD	—	—	—	—	0.65	—
46. I would feel scared if I had to stay away from home overnight	SAD	—	—	—	—	0.61	—
33. I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds)	SAD	—	—	—	—	0.42	—
45. I worry when I go to bed at night	SAD	—	—	—	—	—	0.60
29. I feel worthless	MDD	0.43	—	—	—	—	0.47
7. I feel scared when I have to take a test	SoP	—	—	—	—	—	—
19. I have no energy for things	MDD	—	—	—	—	—	—
10. I am bothered by bad or silly thoughts or pictures in my mind	OCD	—	—	—	—	—	—
16. I spend a lot of time checking things repeatedly even when there is no need (e.g., if the door is locked)	OCD	—	—	—	—	—	—
23. I can't seem to get bad or silly thoughts out of my head	OCD	—	—	—	—	—	—
31. I need to use special thoughts (like numbers or words) to stop bad things from happening	OCD	—	—	—	—		
42. I have to do some things repeatedly to feel okay (e.g., putting things in a certain order)	OCD	—	—	—	—	—	—
44. I sometimes think that bad things will happen, to stop the bad things from happening I have to do some things in just the right way	OCD	—	—	—	—	—	—
Eigenvalue		7.88	2.39	1.90	1.68	1.43	1.34
% Variance Explained		19.21	5.83	4.62	4.09	3.48	3.27
Cumulative % Variance		19.21	25.04	29.67	33.76	37.24	40.51

TABLE 5 | Associations between demographic factors and the RCADS subscales.

Demographic	Scale	*F*(df)	*p*
Age	Total K-RCADS	0.58 (1, 331)	0.449
	GAD	0.42 (1, 331)	0.518
	MDD	1.72 (1, 331)	0.191
	PD	1.43 (1, 331)	0.233
	SOP	1.27 (1, 331)	0.261
	SAD	0.04 (1, 331)	0.843
	OCD	3.11 (1, 331)	0.078
Gender	Total K-RCADS	5.56 (4, 320)	< 0.001*
	GAD	2.88 (4, 320)	0.023*
	MDD	4.02 (4, 320)	0.003*
	PD	5.51 (4, 320)	< 0.001*
	SOP	3.85 (4, 320)	0.005*
	SAD	0.51 (4, 320)	0.732
	OCD	3.37 (4, 320)	0.010*
School Type	Total K-RCADS	0.95 (3, 319)	0.417
	GAD	0.36 (3, 319)	0.784
	MDD	1.64 (3, 319)	0.180
	PD	0.89 (3, 319)	0.447
	SOP	0.58 (3, 319)	0.630
	SAD	0.82 (3, 319)	0.484
	OCD	1.17 (3, 319)	0.321
Parental Education	Total K-RCADS	0.89 (1, 296)	0.346
	GAD	10.01 (1, 331)	0.002*
	MDD	2.34 (1, 331)	0.155
	PD	2.41 (1, 331)	0.122
	SOP	5.76 (1, 331)	0.017*
	SAD	4.07 (1, 331)	0.045*
	OCD	0.041 (1, 331)	0.840
Area	Total K-RCADS	0.02 (1, 331)	0.892
	GAD	0.49 (1, 331)	0.228
	MDD	1.46 (1, 331)	0.228
	PD	2.16 (1, 331)	0.143
	SOP	2.81 (1, 331)	0.095
	SAD	1.96 (1, 331)	0.051
	OCD	3.42 (1, 331)	0.892

Note: Age (grouped into above or below the mean age (14.81 years); 13–14, 15–17); Gender (Male, Female, Nonbinary, Transgender); School Type (Government school, Government-aided Private school, Private school (Unaided)); Parental education (bachelor's degree and higher, below bachelor's degree); Area (urban, rural).
Abbreviations: SoP = Social Phobia; GAD = Generalized Anxiety Disorder; MDD = Major Depressive Disorder; PD = Panic Disorder; SAD = Separation Anxiety Disorder; OCD = Obsessive Compulsive Disorder.
*Significant at the 0.05 level.

similar constructs (Goodwin 2022), a certain amount of overlap is to be expected. Finally, the OCD subscale was not well represented, with none of the items loading onto any factor. This result is not surprising due to the widely contested nature of this subscale, in both western and Indian cultures (e.g., Nicolini et al. 2017; Sharma et al. 2019). Further, these findings are also in line with previous research psychometrically validating the RCADS in different cultures, for example, the Belizean English adaption of the RCADS which sought to validate this adaption in a sample of Belizean adolescents also found overlap between factors (Carvajal-Velez et al. 2023). Future research ought to explore the underlying structure of the K-RCADS further in the present population, alongside further exploration of the original RCADS-47 in other non-western populations.

4.3 | Comparisons of Findings to Western Cultures

Construct validity and internal reliability are generally reflective of western RCADS research (e.g., Donnelly et al. 2018: Ireland; Esbjørn et al. 2012: Denmark). However, several minor differences were observed. First, although mostly reaching an acceptable level, the anxiety subscale's Cronbach's α were lower than western populations (e.g., Chorpita et al. 2005: America; Donnelly et al. 2018: Ireland). Second, the raw RCADS scores were generally higher when compared to previous key studies. However, as the onset of anxiety and depression is often during later adolescence (Beesdo et al. 2009), this is attributed to the present sample being older than in key RCADS studies, alongside high levels of poor mental health among Indian adolescents (e.g., Patel et al. 2012). Present findings broadly reflect the original RCADS subscales, with five of the six constructs being supported. However, as the RCADS-47 constructs are based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), which was developed predominantly with western data (Ecks 2016), there may be potential cultural differences in the categorization of disorders.

4.4 | Limitations and Future Research

This was a preliminary investigation into the cultural validity of a rephrased RCADS-47 for Indian youth. The present participants were mostly from higher economic backgrounds and attended private schools. As English proficiency and dialects vary between locations and populations in India, any future studies should build evidence for the validity of the measure in populations not represented in this study. Further, samples should include 8–12-year olds, as young people of this age group were not included in this study. Completion of the measures at school may have influenced responses to more personal items, with participants potentially not responding truthfully due to concern of peers or teachers seeing or being informed (e.g., McCambridge et al. 2012). This problem was addressed through recruiting a large number of participants, however, future research should allow completion at home, rather than in school settings. Finally, future research should focus on the SAD and OCD subscales to ensure that they are conceptually and developmentally valid for use in the spectrum of ages and cultures of young people completing the RCADS.

4.5 | Conclusion

The K-RCADS showed generally good psychometric properties when tested among a sample of adolescents from Karnataka aged 13–17 years. Evidence of construct validity and acceptable internal reliability was found. EFA revealed that the structure broadly reflects the original six RCADS constructs. Some support was found for five of the six original RCADS factors, however, the OCD subscale was not well represented and some subscale overlap was identified. The findings from this study also broadly reflect findings in western populations, where the measure was developed and has been widely validated.

Considering the generally good psychometric properties, this study suggests that the K-RCADS can be used confidently among adolescents from the Indian state of Karnataka aged 13–17 years as statistical analysis suggests that it can identify symptoms of anxiety and depression among this population. However, further statistical analysis should be conducted using a larger and more diverse sample, consisting of those from differing states and backgrounds. Finally, this study adds value to research highlighting the impact of culture on the categorization of mental health disorders, such as anxiety, strengthening the argument for the need to decolonize mental health research.

Acknowledgments

This study was conducted as part of a PhD project funded by the University of Leeds. This study was associated with Project SAMA, funded by the UK Medical Research Council, Economic and Social Research Council, National Institute of Health Research, and UK Aid (Grant Number MR/T040238/1).

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that supports the findings of this study is available from the corresponding author (A.P.) upon reasonable request.

Peer Review

The peer review history for this article is available at https://www.webofscience.com/api/gateway/wos/peer-review/10.1002/mhs2.70019.

References

Ali, G. C., G. Ryan, and M. J. De Silva. 2016. "Validated Screening Tools for Common Mental Disorders in Low and Middle Income Countries: A Systematic Review." *PLoS One* 11, no. 6: e0156939.

Allgaier, A. K., K. Pietsch, B. Frühe, J. Sigl-Glöckner, and G. Schulte-Körne. 2012. "Screening for Depression in Adolescents: Validity of the Patient Health Questionnaire in Pediatric Care." *Depression and Anxiety* 29, no. 10: 906–913.

Bandalos, D. L., and S. J. Finney. 2010. "Exploratory and Confirmatory Factor Analysis." In *Quantitative Methods in the Social and Behavioral Sciences: A Guide for Researchers and Reviewers*, edited by G. R. Hancock and R. O. Mueller. Routledge.

Beesdo, K., S. Knappe, and D. S. Pine. 2009. "Anxiety and Anxiety Disorders in Children and Adolescents: Developmental Issues and Implications for DSM-V." *Psychiatric Clinics of North America* 32, no. 3: 483–524.

Carlson, K. D., and A. O. Herdman. 2012. "Understanding the Impact of Convergent Validity on Research Results." *Organizational Research Methods* 15, no. 1: 17–32.

Caron, J. 1999. "A Guide for Cross-Cultural Validation of Measurement Instruments in Mental Health." Technical Report. https://doi.org/10.13140/RG.2.1.3730.5685.

Carvajal-Velez, L., J. W. Ahs, A. Lundin, et al. 2023. "Validation of the Kriol and Belizean English Adaptation of the Revised Children's Anxiety and Depression Scale for Use With Adolescents in Belize." *Journal of Adolescent Health* 72, no. 1: S40–S51.

Chorpita, B. F., C. E. Moffitt, and J. Gray. 2005. "Psychometric Properties of the Revised Child Anxiety and Depression Scale in a Clinical Sample." *Behaviour Research and Therapy* 43, no. 3: 309–322.

Chorpita, B. F., L. Yim, C. Moffitt, L. A. Umemoto, and S. E. Francis. 2000. "Assessment of Symptoms of DSM- IV Anxiety and Depression in

Children: A Revised Child Anxiety and Depression Scale." *Behaviour Research and Therapy* 38: 835–855.

Choudhury, P. K., R. Joshi, and A. Kumar. 2023. "Regional and Socioeconomic Inequalities in Access to Pre-Primary Education in India: Evidence From a Recent Household Survey." *International Journal of Child Care and Education Policy* 17, no. 1: 13.

Clarke, A., T. Friede, and R. Putz, et al. 2011. "Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): Validated for Teenage School Students in England and Scotland. A Mixed Methods Assessment." *BMC Public Health* 11: 1–9.

Clarke, A., R. Putz, T. Friede, et al. 2010. *Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) Acceptability and Validation in English and Scottish Secondary School Students (The WAVES Project)*. NHS Health Scotland.

Comfrey, A. L., and H. B. Lee. 1992. *A First Course in Factor Analysis*. Lawrence Erlbaum Associate.

de Ross, R. L., E. Gullone, and B. F. Chorpita. 2002. "The Revised Child Anxiety and Depression Scale: A Psychometric Investigation With Australian Youth." *Behaviour Change* 19: 90–101.

Dharmayat, S., and S. R. Murthy. 2019. "Short Term Effect of Physical Activity on Anxiety and Depression in Adolescents." *Indian Journal of Public Health Research & Development* 10, no. 8: 10.

Diehle, J., C. de Roos, R. Meiser-Stedman, F. Boer, and R. J. L. Lindauer. 2015. "The Dutch Version of the Child Posttraumatic Cognitions Inventory: Validation in a Clinical Sample and a School Sample." *European Journal of Psychotraumatology* 6, no. 1: 26362.

Diener, E. D., and M. E. Suh. 1997. "Subjective Well-Being and Age: An International Analysis." *Annual Review of Gerontology and Geriatrics* 17, no. 1: 304–324.

Donnelly, A., A. Fitzgerald, M. Shevlin, and B. Dooley. 2018. "Investigating the Psychometric Properties of the Revised Child Anxiety and Depression Scale (RCADS) in a Non-Clinical Sample of Irish Adolescents." *Journal of Mental Health* 28: 354–356.

Eckersley, R. M. 2007. "Culture, Spirituality, Religion and Health: Looking at the Big Picture." *Medical Journal of Australia* 186: S54–S56.

Ecks, S. 2016. "The Strange Absence of Things in the 'Culture' of the DSM-V." *Canadian Medical Association Journal* 188, no. 2: 142–143.

Esbjørn, B. H., M. J. Sømhovd, C. Turnstedt, and M. L. Reinholdt-Dunne. 2012. "Assessing the Revised Child Anxiety and Depression Scale (RCADS) in a National Sample of Danish Youth Aged 8–16 Years." *PLoS One* 7, no. 5: e37339.

Fard, F. B., M. Jalali, and E. Pourahmadi. 2021. "Examination of the Psychometric Properties of the Revised Child Anxiety and Depression Scale (RCADS) Among 10-18 Year Old Children in Golestan." *European Journal of Molecular and Clinical Medicine* 8, no. 1: 2231–2245.

Gaiha, S. M., T. Taylor Salisbury, M. Koschorke, U. Raman, and M. Petticrew. 2020. "Stigma Associated With Mental Health Problems Among Young People in India: A Systematic Review of Magnitude, Manifestations and Recommendations." *BMC Psychiatry* 20: 1–24.

Ganguly, S., M. Samanta, P. Roy, S. Chatterjee, D. W. Kaplan, and B. Basu. 2013. "Patient Health Questionnaire-9 as an Effective Tool for Screening of Depression Among Indian Adolescents." *Journal of Adolescent Health* 52, no. 5: 546–551.

Goodman, R. 1997. "The Strengths and Difficulties Questionnaire: A Research Note." *Journal of Child Psychology and Psychiatry* 38: 581–586.

Goodman, R. 2001. "Psychometric Properties of the Strengths and Difficulties Questionnaire." *Journal of the American Academy of Child and Adolescent Psychiatry* 40, no. 11: 1337–1345.

Goodwin, G. M. 2022. "The Overlap Between Anxiety, Depression, and Obsessive-Compulsive Disorder." *Dialogues in Clinical Neuroscience*.

Gorsuch, R. L. 1983. *Factor Analysis* 2nd ed. Lawrence Erlbaum Associates.

Grothus, S., A. Sommer, B. B. Claus, L. Stahlschmidt, B. F. Chorpita, and J. Wager. 2023. "The German Version of the Revised Children's Anxiety and Depression Scale—Psychometric Properties and Normative Data for German 8-to 17-Year-Olds." *International Journal of Methods in Psychiatric Research* 32: e1965.

Grover, S., V. Raju, A. Sharma, and R. Shah. 2019. "Depression in Children and Adolescents: A Review of Indian Studies." *Indian Journal of Psychological Medicine* 41, no. 3: 216–227.

Gururaj, G., M. Varghese, V. Benegal, G. N. Rao, K. Pathak, and L. K. Singh. 2016. *National Mental Health Survey of India, 2015–16*, edited by NIMHANS. NIMHANS Publication.

Haldar, K. 2016. "Adapting a Revised Child Anxiety and Depression Scale for Rural India: A Pilot, Amenable to Scale Up." http://doi.org/10.31234/osf.io/25pnr.

Harikrishnan, U., A. Arif, and S. H. 2017. "Assessment of Mental Health Status Among School Going Adolescents in North East India: A Cross Sectional School Based Survey." *Asian Journal of Psychiatry* 30: 114–117.

Hugh-Jones, S., N. Janardhana, H. Al-Janabi, et al. 2022. "Safeguarding Adolescent Mental Health in India (SAMA): Study Protocol for Codesign and Feasibility Study of a School Systems Intervention Targeting Adolescent Anxiety and Depression in India." *BMJ Open* 12, no. 4: e054897.

ICMR, 2017. "National Ethical Guidelines for Biomedical and Health Research Involving Human Participants." https://www.icmr.nic.in/guidelines/ICMR_Ethical_Guidelines_2017.pdf.

International Test Commission. 2017. "The ITC Guidelines for Translating and Adapting Tests (Second Edition)." www.InTestCom.org.

Jolad, S., and A. Agarwal. 2021. "Mapping India's Language and Mother Tongue Diversity and Its Exclusion in the Indian Census." https://doi.org/10.31235/osf.io/sjxc6.

Koskelainen, M., A. Sourander, and A. Kaljonen. 2000. "The Strengths and Difficulties Questionnaire Among Finnish School-Aged Children and Adolescents." *European Child & Adolescent Psychiatry* 9, no. 4: 277–284.

Kroenke, K., and R. L. Spitzer. 2002. "The PHQ-9: A New Depression Diagnostic and Severity Measure." *Psychiatric Annals* 32, no. 9: 509–515.

Kroenke, K., R. L. Spitzer, and J. B. W. Williams. 2001. "The PHQ-9: Validity of a Brief Depression Severity Measure." *Journal of General Internal Medicine* 16, no. 9: 606–613.

Leung, D. Y. P., Y. W. Mak, S. F. Leung, V. C. L. Chiang, and A. Y. Loke. 2020. "Measurement Invariances of the PHQ-9 Across Gender and Age Groups in Chinese Adolescents." *Asia-Pacific Psychiatry* 12, no. 3: e12381.

Long, K. N. G., P. M. Long, S. Pinto, et al. 2013. "Development and Validation of the Indian Adolescent Health Questionnaire." *Journal of Tropical Pediatrics* 59, no. 3: 231–242.

Löwe, B., O. Decker, S. Müller, et al. 2008. "Validation and Standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the General Population." *Medical Care* 46: 266–274.

Lu, W., E. Daleiden, C. Higa-McMillan, et al. 2021. "Revised Child Anxiety and Depression Scale: A Psychometric Examination in Chinese Youth." *Journal of Psychopathology and Behavioral Assessment* 43: 707–716.

Malhotra, K., T. Schwartz, and U. Hameed. 2004. "Presence of Suicidality as a Prognostic Indicator." *Journal of Postgraduate Medicine* 50, no. 3: 185–187.

Matsumoto, D., and S. F. Davis. 2003. "Cross-Cultural Research." In *Handbook of Research Methods in Experimental Psychology*, edited by S. F. Davis. Blackwell.

McCambridge, J., M. De Bruin, and J. Witton. 2012. "The Effects of Demand Characteristics on Research Participant Behaviours in Non-Laboratory Settings: A Systematic Review." *PLoS One* 7, no. 6: e39116.

McKay, M. T., and J. R. Andretta. 2017. "Evidence for the Psychometric Validity, Internal Consistency and Measurement Invariance of Warwick

Edinburgh Mental Well-being Scale Scores in Scottish and Irish Adolescents." *Psychiatry Research* 255: 382–386.

Mehmood, T., and S. Sultan. 2014. "Translation and Adaptation of Revised Children's Anxiety and Depression Scale." *International Journal of Liberal Arts and Social Science* 2, no. 5: 95–106.

Michelson, D., K. Malik, R. Parikh, et al. 2020. "Effectiveness of a Brief Lay Counsellor-Delivered, Problem-Solving Intervention for Adolescent Mental Health Problems in Urban, Low-Income Schools in India: A Randomised Controlled Trial." *Lancet Child & Adolescent Health* 4, no. 8: 571–582.

Mossman, S. A., M. J. Luft, H. K. Schroeder, et al. 2017. "The Generalized Anxiety Disorder 7-Item Scale in Adolescents With Generalized Anxiety Disorder: Signal Detection and Validation." *Annals of Clinical Psychiatry: Official Journal of the American Academy of Clinical Psychiatrists* 29, no. 4: 227–234.

Muris, P., C. Meesters, and E. Schouten. 2002. "A Brief Questionnaire of DSM-IV-Defined Anxiety and Depression Symptoms Among Children." *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice* 9, no. 6: 430–442.

Nair, S., J. Ganjiwale, N. Kharod, J. Varma, and S. M. Nimbalkar. 2017. "Epidemiological Survey of Mental Health in Adolescent School Children of Gujarat, India." *BMJ Paediatrics Open* 1, no. 1: e000139.

Nicolini, H., R. Salin-Pascual, B. Cabrera, and N. Lanzagorta. 2017. "Influence of Culture in Obsessive-Compulsive Disorder and Its Treatment." *Current Psychiatry Reviews* 13, no. 4: 285–292.

Oakes, J. M., and P. H. Rossi. 2003. "The Measurement of SES in Health Research: Current Practice and Steps Toward a New Approach." *Social Science & Medicine* 56, no. 4: 769–784.

Orçan, F. 2018. "Exploratory and Confirmatory Factor Analysis: Which One to Use First?" *Journal of Measurement and Evaluation in Education and Psychology* 9, no. 4: 414–421.

Palmer, A. R., D. B. O'Connor, and P. Bhola, et al. 2025. "Towards Cultural Validation of the Revised Children's Anxiety and Depression Scale in Karnataka, India: Think Aloud Interviews Among 14-17 Year Olds." [Manuscript submitted for publication].

Patel, V., C. Ramasundarahettige, L. Vijayakumar, et al. 2012. "Suicide Mortality in India: A Nationally Representative Survey." *Lancet* 379, no. 9834: 2343–2351.

Piqueras, J. A., M. Martín-Vivar, B. Sandin, C. San Luis, and D. Pineda. 2017. "The Revised Child Anxiety and Depression Scale: A Systematic Review and Reliability Generalization Meta-Analysis." *Journal of Affective Disorders* 218: 153–169.

Poongothai, S., R. Pradeepa, A. Ganesan, and V. Mohan. 2009. "Reliability and Validity of a Modified PHQ-9 Item Inventory (PHQ-12) as a Screening Instrument for Assessing Depression in Asian Indians (CURES-65)." *Journal of the Association of Physicians of India* 57, no. 2: 1–6.

Puwar, T., S. Yasobant, and D. Saxena. 2018. "Are School-Going Adolescents Mentally Healthy? Case Study From Sabarkantha, Gujarat, India." *Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine* 43, no. Suppl 1: S23.

Raval, V. V., A. M. Luebbe, and A. Sathiyaseelan. 2019. "Parental Socialization of Positive Affect, Adolescent Positive Affect Regulation, and Adolescent Girls' Depression in India." *Social Development* 28, no. 2: 274–289.

Richardson, L. P., C. Rockhill, J. E. Russo, et al. 2010. "Evaluation of the PHQ-2 as a Brief Screen for Detecting Major Depression Among Adolescents." *Pediatrics* 125, no. 5: e1097–e1103.

Sahoo, S., S. Yadav, M. A. Shamim, et al. 2023. "Prevalence of Suicidal Behavior in Adolescents in India: A Systematic Review and Meta-Analysis." *Asian Journal of Psychiatry* 86: 103661.

Schmitt, T. A. 2011. "Current Methodological Considerations in Exploratory and Confirmatory Factor Analysis." *Journal of Psychoeducational Assessment* 29, no. 4: 304–321.

Senapati, R. E., S. Jena, J. Parida, et al. 2024. "The Patterns, Trends and Major Risk Factors of Suicide Among Indian Adolescents–A Scoping Review." *BMC Psychiatry* 24, no. 1: 35.

Sharma, E., A. Tripathi, S. Grover, et al. 2019. "Clinical Profile of Obsessive-Compulsive Disorder in Children and Adolescents: A Multicentric Study From India." *Indian Journal of Psychiatry* 61, no. 6: 564.

Singh, K., and M. Raina. 2020. "Demographic Correlates and Validation of PERMA and WEMWBS Scales in Indian Adolescents." *Child Indicators Research* 13: 1175–1186.

Skoczeń, I., R. Rogoza, M. Rogoza, C. Ebesutani, and B. Chorpita. 2019. "Structure, Reliability, Measurement Stability, and Construct Validity of the Polish Version of the Revised Child Anxiety and Depression Scale." *Assessment* 26, no. 8: 1492–1503.

Spitzer, R. L., K. Kroenke, J. B. W. Williams, and B. Löwe. 2006. "A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7." *Archives of Internal Medicine* 166, no. 10: 1092–1097.

Stevanovic, D., Z. Bagheri, O. Atilola, et al. 2017. "Cross-Cultural Measurement Invariance of the Revised Child Anxiety and Depression Scale Across 11 World-Wide Societies." *Epidemiology and Psychiatric Sciences* 26, no. 4: 430–440.

Tabachnick, B. G., and L. S. Fidell. 2014. *Using Multivariate Statistics* 6th ed. Pearson Education.

Tennant, R., L. Hiller, R. Fishwick, et al. 2007. "The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): Development and UK Validation." *Health and Quality of Life Outcomes* 5, no. 1: 63.

Tiirikainen, K., H. Haravuori, K. Ranta, R. Kaltiala-Heino, and M. Marttunen. 2019. "Psychometric Properties of the 7-Item Generalized Anxiety Disorder Scale (GAD-7) in a Large Representative Sample of Finnish Adolescents." *Psychiatry Research* 272: 30–35.

Trevethan, M., A. T. Jain, A. Shatiyaseelan, A. M. Luebbe, and V. V. Raval. 2022. "A Longitudinal Examination of the Relation Between Academic Stress and Anxiety Symptoms Among Adolescents in India: The Role of Physiological Hyperarousal and Social Acceptance." *International Journal of Psychology* 57, no. 3: 401–410.

Tsai, F. J., Y. H. Huang, H. C. Liu, K. Y. Huang, Y. H. Huang, and S. I. Liu. 2014. "Patient Health Questionnaire for School-Based Depression Screening Among Chinese Adolescents." *Pediatrics* 133, no. 2: e402–e409.

Wasil, A. R., S. J. Park, and R. J. DeRubeis. 2020. "Stigma Toward Individuals With Mental Illness Among Indian Adolescents: Findings From Three Secondary Schools and a Cross-Cultural Comparison." Preprint, PsyArXiv. https://doi.org/10.31234/osf.io/8xcrq.

Weobong, B., B. Akpalu, V. Doku, et al. 2009. "The Comparative Validity of Screening Scales for Postnatal Common Mental Disorder in Kintampo, Ghana." *Journal of Affective Disorders* 113, no. 1–2: 109–117.

Wong, N., L. Kady, L. Mewton, M. Sunderland, and G. Andrews. 2014. "Preventing Anxiety and Depression in Adolescents: A Randomised Controlled Trial of Two School Based Internet-Delivered Cognitive Behavioural Therapy Programmes." *Internet Interventions* 1, no. 2: 90–94.

Wulsin, L., E. Somoza, and J. Heck. 2002. "The Feasibility of Using the Spanish PHQ-9 to Screen for Depression in Primary Care in Honduras." *Primary Care Companion for CNS Disorders* 4, no. 5: 191.

Zhou, Y., J. Xu, and W. Rief. 2020. "Are Comparisons of Mental Disorders Between Chinese and German Students Possible? An Examination of Measurement Invariance for the PHQ-15, PHQ-9 and GAD-7." *BMC Psychiatry* 20: 1–11.

Appendix A

Rephrasing of RCADS-47 Items

RCADS subscale	RCADS item	Suggested rephrasing
MDD	6. Nothing is much fun anymore	I do not have a lot of fun anymore
	15. I have problems with my appetite	I have problems with my eating patterns
	21. I am tired a lot	I feel tired a lot of the time
	40. I feel like I don't want to move	I feel like I don't have the energy to move
	47. I feel restless	I feel restless and it is hard for me to sit still or relax
GAD	13. I worry that something awful will happen to someone in my family	I worry that something bad will happen to someone in my family (e.g., my parents, brother or sister)
PD	3. When I have a problem I get a funny feeling in my stomach	When I have a problem, my stomach doesn't feel good
	14. I suddenly feel as if I can't breathe when there is no reason for this	I suddenly feel it is difficult to breathe even though there is no clear reason for this
	41. I worry that I will suddenly get a scared feeling when there is nothing to be afraid of	I worry that I will suddenly feel scared even though there is nothing to be afraid of
SoP	4. I worry when I think I have done poorly at something	I worry when I think I have done badly at something
OCD	16. I have to keep checking that I have done things right (like the switch is off, or the door is locked)	I spend a lot of time checking things repeatedly even when there is no need (e.g., if the door is locked)
	31. I have to think of special thoughts (like numbers or words) to stop bad things from happening	I need to use special thoughts (like numbers or words) to stop bad things from happening
	42. I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order)	I have to do some things repeatedly to feel okay (e.g., putting things in a certain order)
	44. I have to do some things in just the right way to stop bad things from happening	I sometimes think that bad things will happen, to stop the bad things from happening I have to do some things in just the right way