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DSM-IV-defined anxiety disorder symptoms in a middle-childhood-aged group of Malaysian children using the Spence Children's Anxiety Scale

Sintomas de transtorno de ansiedade definidos conforme o DSM-IV em um grupo de crianças malaias na terceira infância segundo a Escala de Ansiedade Infantil de Spence

Atefeh Ahmadi,¹ Mohamed Sharif Mustafa,² Amirmudin Udin,³ AliAkbar Haghdoost⁴

Abstract

Introduction: Pediatric anxiety disorders are the most common mental health disorders in the middle-childhood age group. The purpose of this study is to assess anxiety disorder symptoms, as defined by the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV), in a large community sample of low socioeconomic level rural children and to investigate some of the psychometric properties (internal consistency, construct and convergent validity and items rated as often or always experienced) of the Malay version of the Spence Children's Anxiety Scale - Child version (SCAS-C).

Method: Six hundred children aged 9-11 and 424 of their parents completely answered the child or parent versions of the SCAS.

Results: Results indicated that the internal reliability of subscales were moderate to adequate. Significant correlations between child and parent reports supported the measure's concurrent validity. Additionally, anxiety levels in this Malaysian sample were lower than among South-African children and higher than among their Western peers. There were both similarities and differences between symptom items reported as often or always experienced by Malaysian students and by children from other cultures. Confirmatory factor analysis provided evidence of the existence of five inter-correlated factors for anxiety disorders based on SCAS-C.

Conclusion: Although some of the instrument's psychometric properties deviated from those observed in some other countries, it nevertheless appears to be useful for assessing childhood anxiety symptoms in this country.

Keywords: Spence Children's Anxiety Scale, anxiety, children, Malay version.

Resumo

Introdução: Transtornos de ansiedade são a doença de saúde mental mais comum em crianças na terceira infância. O objetivo deste estudo foi examinar sintomas de transtorno de ansiedade conforme definidos na 4ª edição do Manual Diagnóstico e Estatístico de Transtornos Mentais (DSM-IV) em uma grande amostra comunitária de crianças de baixo nível socioeconômico vivendo em zona rural na Malásia e investigar as propriedades psicométricas (consistência interna, construto, validade convergente e frequência de respostas muitas vezes e sempre) da versão malaia da Escala de Ansiedade Infantil de Spence - Versão para Crianças.

Método: Um total de 600 crianças com idade entre 9 e 11 anos e 424 pais responderam todas as questões das versões da escala para crianças e para pais.

Resultados: Os resultados indicaram que a confiabilidade interna das subescalas variou de moderada a suficiente. Correlações significativas entre os relatos das crianças e de seus pais reforçaram a validade convergente do instrumento. O nível de ansiedade observado na amostra de crianças malaias foi menor do o nível relatado para crianças na África do Sul e maior do que em crianças de países ocidentais. A frequência das respostas escolhidas pelos estudantes malaios demonstrou algumas similaridades e diferenças em relação a outras culturas. A análise fatorial confirmatória revelou evidência da presença de cinco fatores inter-relacionados para transtorno de ansiedade com base na escala avaliada.

Conclusão: Embora algumas propriedades psicométricas do instrumento avaliado tenham desviado dos resultados obtidos em outros países, a escala parece útil para avaliar sintomas de ansiedade na infância na Malásia.

Descritores: Escala de Ansiedade Infantil de Spence, ansiedade, crianças, versão malaia.

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Introduction

Anxiety disorders (AD) are among the most common mental health disorders, with a prevalence of approximately 15-31.9%.¹⁻⁴ They have high co-morbidity with other psychiatric diseases and a high rate of onset later in life.^{5,6} Pediatric AD have been linked to impairing characteristics and difficulties and to lower academic achievement and have a tendency to become chronic.^{7,8} These findings highlight the importance of timely diagnosis of pediatric AD to enable prevention of severity, chronicity and harmful effects on other aspects of life through the use of suitable treatments.⁹ Standard instruments are a good option for screening for AD among rural children because non-rating assessment and diagnostic tools are expensive and time consuming and require trained interviewers.¹⁰ Furthermore, the ease of administration of self-report instruments makes them suitable tools for screening, diagnosis and follow-up. The Spence Children's Anxiety Scale (SCAS) is a self-report questionnaire based on criteria from the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV), adapted for children's psychological stages of development.^{11,12} It was developed to measure symptoms of generalized anxiety disorder (GAD), obsessive-compulsive disorder (OCD), separation anxiety disorder (SAD), social phobia (SP), physical injury, and panic attack/agoraphobia. The SCAS has been culturally adapted for several cultures and languages and has exhibited good internal consistency for total score and domains.^{8,10,13-20} A factor model of SCAS with six correlated factors has been confirmed in some studies, but not in all cultures and populations,^{13,19,21,22} since psychopathological symptoms are influenced by cultural factors, genetic differences and educational and socialization conditions.²¹

Since pediatric psychiatric disorders are largely under-recognized and under-treated in developing countries such as Malaysia, screening and treatment of childhood AD, which are common mental health problems, is essential to improve psychological health indicators.²³ There are very few published studies about pediatric AD in urban and rural areas in Malaysia. A trend for mental health problem among Malaysian children to increase was identified from 2006 to 2011. Many researchers believe that this is attributable to recent changes within households and in society, such as family lifestyle; negative and stressful effects of media; and an increased awareness of children's mental health among their parents.²⁴ There is no culturally-adapted Malay instrument specifically for assessment of childhood anxiety symptoms of different AD. Furthermore, there are no studies that have investigated the psychometric

properties of the SCAS among rural children. The purpose of this study is to assess anxiety disorder symptoms, as defined by the DSM-IV, in a large community sample of low socioeconomic level rural children and to investigate some of the psychometric properties (factor structure, child-parent correlation, and internal consistency and most frequently experienced symptoms) of the Malay version of the SCAS - Child version (SCAS-C). Additionally, this is one of the first studies using the SCAS in a rural population and the secondary objective is to illustrate differences and similarities in expression of anxiety as measured by the SCAS.

Method

Procedure and participants

All stages of this research were approved by the Psychometric Department of University Technology Malaysia (UTM) and by the Ministry of Education's Ethics Committee. The Ministry of Higher Education and the Ministry of Education both gave permission for the present study to be conducted with primary school students. Four primary schools (SK Sanglang, Parit Markom, Ayer Baloi and Kampung Sawah) were selected by randomized cluster sampling. All of them are located in Pontian, which is a rural district in Johor, Malaysia. All of the schools' principals gave permission for the study to be conducted at their schools. Six hundred and forty questionnaires were distributed to children and their parents. The questionnaires were administered to the children in their classrooms and school counselors were available to help them if necessary. Parents were asked to self-administer the questionnaires at home. Students who were absent on the day of administration were not assessed. Respondents were not paid for participation in this study. After the study, the results of data analysis were reported to the school principals and to the parents of students who had high levels of anxiety. Any instrument that was missing more than 10% of item responses was coded as incomplete and excluded from analyses. Data from 600 children and 421 parents which had responses for more than 90% of items were used in the final analysis. Little's Missing Completely at Randomness technique was used so that items with less than 10% missing data were replaced with the mean scores of the item. The sex distribution of the sample was 50.3% boys and 49.7% girls. Their ages ranged from 9 to 11 years (mean = 10.17±0.77 years). Most of the participants had very low socioeconomic status (88% of incomes below \$1000/month), 93.6% were from crowded families (families with 5 or more

members) and most of them came from families with low educational levels (89.2% of fathers and 87.3% of mothers did not have university education).

Measure

The SCAS-C¹¹ is a 44-item instrument for measuring child anxiety with 6 subscales. All items are rated on a 4-point scale, from never (0) to always (3). There are 6 positive filler items in the child version. The distribution of items within the six anxiety domains of the SCAS is as follows: SAD: items 5, 8, 12, 15, 16, and 44; SP: items 6, 7, 9, 10, 29, and 35; OCD: items 14, 19, 27, 40, 41, and 42; panic/agoraphobia: items 13, 21, 28, 30, 32, 34, 36, 37, and 39; fear of physical injury: items 2, 18, 23, 25, and 33; and GAD: items 1, 3, 4, 20, 22, and 24. The internal consistency and validity of the SCAS-C have been reported to be excellent.¹⁰ The parent version of the SCAS (SCAS-P)¹¹ is used to assess children's anxiety from the parental perspective. This questionnaire is a 38-item instrument measuring child anxiety on 6 subscales that is similar to the SCAS-C and has the same Likert scale. There are no positive filler items in the parent version. Total scoring and items are the same as in the SCAS-C. Both test-retest stability and internal consistency of the SCAS-P have been reported to be satisfactory.¹⁴ In comparison with other instruments (e.g., Screen for Child Anxiety Related Emotional Disorders [SCARED]) that also include a parent version for measuring anxiety,²⁵ the SCAS-P has greater symptom coverage with fewer items, an SP subscale that more closely corresponds to DSM-IV criteria and a broader range of answers (based on a four-point, rather than three-point, Likert-type response scale). Translation and cultural adaptation of the SCAS for the Malay language was conducted scientifically in Malaysia²⁶ and the Malay version was used in this study.

Data analysis

The internal consistencies of total scores and subscales were estimated using Cronbach's alpha.

Patterns of agreement and disagreement between children and their parents were investigated by calculating Pearson coefficients for correlations between SCAS-P and SCAS-C for both total scores and subscales.

In order to assess another aspect of Internal Consistency Reliability, average inter-item correlations were tested by calculating Pearson correlation coefficients between SCAS-C subscales.

Confirmatory factor analysis (CFA) is a useful method for determining whether an existing model fits a different cultural sample.²⁷ In this study, CFA was used to evaluate whether the factor structure of the SCAS proposed by

the original study fits the Malaysian context. Structural equation modeling (SEM) with Amos software was used to access the factor structure in this study. In SEM, there are several fitness indexes that reflect how well the model fits the data, but it is acceptable to use at least one fitness index from each category of model fit.²⁸ The root mean square error of approximation (RMSEA), comparative fit index (CFI), goodness of fit index (GFI), chi-square/degrees of freedom (df) and adjusted goodness of fit index (AGFI) were chosen, since they are frequently reported in the literature. Recommended results are RMSEA less than 0.08, chi-square/df less than 5 and CFI and GFI greater than 0.9.²⁹

Additionally, analysis of variance (ANOVA) was applied to children's data to investigate age and gender effects on the mean SCAS total and subscale scores. Post-hoc test were run to confirm where differences between groups occurred.

Results

Validity and reliability

In this rural population, Cronbach's alpha was 0.86 for both SCAS versions. The lowest subscale alphas were for GAD, physical injury fears and OCD, with values of 0.50, 0.53 and 0.51 respectively. The subscale with the highest alpha was panic/agoraphobia, with a value of 0.68. The SAD disorder and SP subscales alpha values were 0.63 and 0.61 respectively.

The total SCAS-C anxiety score and its subscale scores were significantly correlated with the total SCAS-P scores. The correlation coefficient for SCAS-C against SCAS-P was 0.53 (Table 1).

Table 2 shows correlations between SCAS subscales. In order to discriminate between levels of different AD, intercorrelations between subscale scores should be substantially lower than correlations between scores for each subscale and total anxiety scores.¹⁸ In this study, all intercorrelations were lower than the respective correlations between scores for each subscale and the total score.

The highest correlation between subscales was between SP and SAD ($r = 0.52$), and the lowest was between obsessive compulsive disorder and physical injury fears ($r = 0.28$).

Factor analysis for the Malay SCAS

The model exhibited an excellent fit (chi-square = 220.94, $df = 125$, $p < 0.001$, chi-square/df = 1.76, CFI = 0.905, RMSEA = 0.04, AGFI = 0.93 and GFI = 0.95), supporting

Table 1 - Correlations between SCAS-P and SCAS-C domains

	SCAS-P	SAD-P	GAD-P	Panic-P	OCD-P	Fear-P	SP-P
SCAS-C	0.53*						
SAD-C	0.39*	0.37*					
GAD-C	0.39*	0.27*	0.27*				
Panic-C	0.33*	0.24*	0.22*	0.30*			
OCD-C	0.25*	0.15*	0.22*	0.11 [†]	0.27*		
Fear-C	0.37*	0.27*	0.20*	0.26*	0.19*	0.36*	
SP-C	0.41*	0.26*	0.31*	0.27*	0.30*	0.24*	0.39*

C = child version; Fear = physical injury fears; GAD = generalized anxiety disorder; OCD = obsessive-compulsive disorder; P = parent version; SAD = separation anxiety disorder; SCAS = Spence Children's Anxiety Scale; SP = social phobia.

* $p < 0.01$; [†] $p > 0.05$.

Table 2 - Intercorrelations between the Spence Children's Anxiety Scale (SCAS) total score and subscale scores

	F1	F2	F3	F4	F5	F6
F1: Separation anxiety						
F2: Social phobia	0.52*					
F3: Obsessive-compulsive disorder	0.47*	0.48*				
F4: Physical injury fears	0.46*	0.45*	0.28*			
F5: Panic disorder	0.39*	0.45*	0.37*	0.40*		
F6: Generalized anxiety	0.44*	0.54*	0.47*	0.41*	0.44 [†]	
F7: Total anxiety	0.70*	0.73*	0.64*	0.62*	0.70*	0.70*

* Correlation is significant at the 0.01 level (2-tailed).

[†] $p > 0.01$.

the five-factor structure of the Malay SCAS and indicating that symptoms of GAD and SP were loaded onto the same factor (Table 3). Fitness indexes for the original six-factor model were unacceptable in this study. Some of the items had low loadings in the 5-factor model for the results of this study and were removed from the measurement model to achieve an acceptable model. Other than these items, however, all items had loadings between 0.34 and 0.67. Overall, the factor loadings were acceptable and they can measure each target factor adequately.

Age and gender differences

Table 4 lists the means and standard deviations of the SCAS total scores and all subscales for the total sample, for girls and boys, and for different ages.

The highest score in the total sample was for OCD, and the lowest was for the physical injury fears subscale. There were statistically significant differences between the sexes, as determined for total SCAS score ($F_{1,593} = 7.40$, $p < 0.05$), physical injury fears ($F_{1,593} = 22.35$, $p < 0.001$), and separation anxiety ($F_{1,593} = 10.11$, $p < 0.05$). Girls reported significantly higher levels of anxiety, fears of physical injury and separation anxiety symptoms than boys. Girls did not report significantly more anxiety in

other subscales. Significant main effects of age were found for total SCAS score ($F_{2,407} = 10.37$, $p < 0.001$), separation anxiety ($F_{2,407} = 11.38$, $p < 0.001$), SP ($F_{2,407} = 14.39$, $p < 0.001$), and OCD ($F_{2,407} = 18.29$, $p < 0.001$). The older age group had significantly higher total SCAS scores and scores for SP, OCD symptoms, and separation anxiety, as revealed by post-hoc test.

Endorsement of symptoms

Table 5 lists the most frequently endorsed anxiety symptoms reported by Malay children. The item to which most children responded often and always was a SAD item (I worry that something awful will happen to someone in my family). Next, three items representing OCD were also frequently observed in our sample. The least frequently reported item corresponded to GAD and panic/agoraphobia.

Discussion

Although the core features of AD remain the same in DSM-5 (no age limitation, consideration of minimum duration, exclusion of trauma-related and stressor-related disorders and obsessive-compulsive and related

Table 3 - Confirmatory factor analysis loadings

DSM-IV category/item	Factor loadings				
	F1	F2	F3	F4	F5
Separation anxiety disorder					
8	0.59				
12	0.67				
44	0.36				
Social phobia and generalized anxiety disorder					
9		0.49			
10		0.55			
22		0.65			
29		0.54			
35		0.40			
Obsessive-compulsive disorder					
19			0.40		
41			0.50		
42			0.34		
Physical injury fears					
2				0.44	
23				0.34	
33				0.37	
Panic attack/agoraphobia					
21					0.62
34					0.49
36					0.54
37					0.39

DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, 4th edition.

Table 4 - Mean level of anxiety sub-scale total scores and broken down by sex and age

	SCAS	SAD	SP	OCD	Panic	Fear	GAD
Total sample	32.84±13.07	6.10±3.40	5.49±3.13	6.46±3.07	5.43±4.00	3.66±2.54	5.78±2.78
Males	31.49±12.92	5.67±3.31	5.38±3.03	6.37±3.26	5.23±4.03	3.17±2.42	5.67±2.85
9 years	30.24±13.36	5.61±3.26	5.07±3.08	5.09±3.10	5.26±3.53	3.35±1.88	5.87±3.11
10 years	29.32±12.48	5.44±3.10	5.09±3.06	5.39±2.65	4.73±3.83	3.44±2.61	5.24±2.79
11 years	33.41±12.28	6.79±3.22	6.05±2.91	7.25±3.21	4.84±4.21	2.82±2.29	5.67±2.80
Females	34.36±13.05	6.55±3.42	5.60±3.23	6.54±2.82	5.62±3.95	4.16±2.57	5.91±2.64
9 years	28.87±11.04	5.16±3.14	4.07±2.81	5.75±2.74	4.87±3.47	3.62±2.26	5.40±2.74
10 years	31.82±11.16	6.31±3.39	4.98±2.76	5.92±2.12	4.83±3.39	4.31±2.40	5.48±2.57
11 years	38.16±14.26	7.58±3.51	6.71±3.37	7.38±3.15	5.87±4.01	4.38±2.66	6.23±2.75

Data presented as mean ± standard deviation.

Fear = physical injury fears; GAD = generalized anxiety disorder; OCD = obsessive-compulsive disorder; SAD = separation anxiety disorder; SCAS = Spence Children's Anxiety Scale; SP = social phobia.

disorders, and separation of agoraphobia and panic attack and some other minor changes),³⁰ there is a growing body of evidence suggesting that patterns of psychopathological symptoms in children are affected by cultural factors which cannot be included in DSM criteria.³¹

There are a number of standard instruments for measuring pediatric AD. In view of its research objectives, the best instrument to match the research objectives of this study had to include the middle childhood age group and had to be DSM-based (the best criteria for diagnosis

of AD), time effective, and have both parent and child version to increase the validity of screening.

The present study examined the psychometric properties of the SCAS and the profile of AD in a large sample of Malaysian children in the rural area of Pontian. This study's unique characteristic is that the

Malay version of SCAS was used to investigate AD in a sample entirely made up of rural children for the first time. Our results demonstrated that the SCAS-C total score has good internal consistency and the subscales have adequate validity for assessment of anxiety symptoms among Malay children. Cronbach's

Table 5 - Most common anxiety symptoms in Malay children

Items	Percent
Q12: I worry that something awful will happen to someone in my family.	47
Q14: I have to keep checking that I have done things right like the switch is off, or the door is locked.	40.5
Q40: I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order).	36.6
Q42: I have to do some things in just the right way to stop bad things happening.	34.5
Q8: I worry about being away from my parents.	33.6
Q22: I worry that something bad will happen to me.	33.1
Q10: I worry that I will do badly at my school work.	31.6
Q39: I am afraid of being in small closed places, like tunnels or small rooms.	30.5
Q5: I would feel afraid of being on my own at home.	29.8
Q2: I am scared of the dark.	25.1
Q29: I worry what other people think of me.	25.1
Q20: When I have a problem, my heart beats really fast.	22.6
Q44: I would feel scared if I had to stay away from home overnight.	22.1
Q25: I am scared of being in high places or lifts (elevators).	21.8
Q41: I get bothered by bad or silly thoughts or pictures in my mind.	21
Q27: I have to think of special thoughts to stop bad things from happening like numbers or words.	19.6
Q24: When I have a problem, I feel shaky.	19.5
Q9: I feel afraid that I will make a fool of myself in front of people.	19.16
Q30: I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds).	19.1
Q6: I feel scared when I have to take a test.	19
Q15: I feel scared if I have to sleep on my own.	18.3
Q35: I feel afraid if I have to talk in front of my class.	16.6
Q33: I am scared of insects or spiders.	15.3
Q4: I feel afraid.	14.8
Q21: I suddenly start to tremble or shake when there is no reason for this.	14.1
Q23: I am scared of going to the doctors or dentists.	13.3
Q3: When I have a problem, I get a funny feeling in my stomach.	13
Q37: I worry that I will suddenly get a scared feeling when there is nothing to be afraid of.	12.1
Q1: I worry about things.	11.3
Q7: I feel afraid if I have to use public toilets or bathrooms.	9.8
Q36: My heart suddenly starts to beat too quickly for no reason.	9.6
Q34: I suddenly become dizzy or faint when there is no reason for this.	8.1
Q13: I suddenly feel as if I can't breathe when there is no reason for this.	8
Q18: I am scared of dogs.	6.8
Q19: I can't seem to get bad or silly thoughts out of my head.	6.3
Q16: I have trouble going to school in the mornings because I feel nervous or afraid.	5.8
Q32: All of a sudden I feel really scared for no reason at all.	5.8
Q28: I feel scared if I have to travel in the car, or on a bus or a train.	5.5

alpha for the subscales ranged from 0.50 to 0.68. These findings are in the line with previous studies in urban populations,^{8,10,14} but internal consistencies were lower for GAD and OCD. The lowest internal consistency score was for physical injury fears, and the highest was for panic/agoraphobia, which is in line with some previous studies^{10,17,32} and may be related to the low number of items for fears (each item is related to a specific fear and they are not strongly related to other items) and the high number of items related to symptoms of panic/agoraphobia.¹⁷ There was low internal consistency for GAD and OCD, which could be related to a low degree of variability among GAD and OCD items in our sample's reports and these respondents may have misunderstood or misread the context. There may also be wording and expressions with which the Malay students were unfamiliar, since the cross-culturally adapted version of the Depression Anxiety Stress Scale (DASS) produced similar results in Malaysia.³³ Furthermore, Cronbach's alpha is influenced by scale length (lower numbers of items produce lower coefficients and larger numbers of items produce higher coefficients).³⁴ This effect is significant when the number of items is less than seven.³⁵ Four SCAS subscales have six items and one has five. The reliability of an instrument's scores depends as much on the sample being tested as on the instrument.³⁶ Undoubtedly, the respondents' rural Malay culture might have influenced this study's outcomes and even driven them to give socially desirable answers.³³ In short, it is recommended that items be refined further for the Malay context in order to achieve an SCAS with greater reliability and validity.

The results of CFA showed that a model with five correlated factors had the best fit to the Malay version of SCAS. A five-factor structure is not that surprising, since some other populations also exhibited this structure, such as a sample of South-African children, for example.³¹ These findings are not consistent with the six-factor structure observed in some other countries (e.g., Iran, Bulgaria, and Cyprus).^{8,10,13} It is possible that cultural

values (social rules, religious worldviews, philosophical points of view, environmental factors, academic and parenting practices) and methodological differences (e.g., age characteristics) could be responsible for these differences in factor structures.⁸ The loading of GAD and SP onto a single construct may indicate that children with SP are more frequently in trouble or plagued by worrisome thoughts.³¹

In agreement with previous studies, a significant moderate correlation was observed between the child and parent versions.^{15,37} This merits verification since the mean SCAS-P score was 25.94 while the mean SCAS-C score was 32.84. Furthermore, this significant difference between means was found between all subscales. It is well known that self-reporting children are better informants than their parents responding to parent versions of instruments and that this is related to the internalizing nature of AD which results in the frequency and severity of their problems remaining underestimated by their parents.^{17,38}

Intercorrelations between domains and total score confirmed that the SCAS is an appropriate instrument for discriminating between different AD on the basis of DSM-IV criteria. In common with reports by Essau et al.⁸ and Mellon & Moutavelis,¹⁸ the lowest intercorrelation between SCAS subscales was between OCD and physical injury fears.

The total SCAS-C score in our research was 32.84, which is in the range of the scores reported in the only five studies that have used SCAS in the middle childhood age group previously, in which scores ranged from 22.3 to 40.02 (Table 6).^{12,16,31,39,40} The results of the present study indicate that the anxiety levels of Malaysian children were relatively high. There are several possible explanations for this finding. Rural children generally have a lower socioeconomic level than urban children, worse living conditions, and inferior education³¹ (all of the other five studies were in urban areas), all of which are predictors of anxiety. Anxiety disorders are a universal phenomenon, but can be more substantial in

Table 6 - Mean scores for Spence Children's Anxiety Scale - Child version (SCAS-C) in different countries (with age ranges similar to the sample in this study)

	SCAS	GAD	SAD	OCD	Panic/A	SP	Fears
Africa ³¹	40.02	7.22	6.57	7.42	6.72	6.8	5.25
Malaysia (present study)	32.84	5.78	6.10	6.46	5.43	5.49	3.66
China-H ³⁹	32.69	5.16	6.08	4.74	4.88	6.13	5.70
Australia ¹²	31.91	6.17	4.90	6.01	4.23	6.92	3.68
Germany ⁴⁰	22.24	4.60	3.72	4.05	2.47	4.58	2.79
Aust-Neth ¹⁶	22.30	4.9	3.00	4.15	2.95	4.45	2.8

Aust-Neth = a mixed sample from Australia and the Netherlands; China-H = Chinese students living in Hong Kong.

some cultures than in others. There is extensive evidence showing the influence of cross-cultural variability on the prevalence of AD, even when the same diagnostic instrument is applied.⁴¹

In line with numerous previous studies, boys scored significantly lower for total anxiety, physical injury fears and SAD and lower for other subscales, but without significance.^{31,42,43} The higher levels of anxiety in some subscales among older children conflict with the findings of some previous studies. Manifestations of fear and anxiety are at least to some extent culturally determined.⁴⁴ On the other hand, a study by Ahmad et al.²⁴ investigating mental health problems in Malaysia identified a direct relationship between the prevalence of mental health problems and age up to 10-12 years old. When a child grows older, certain academic, peer and family boundaries can be obstacles to sufficient psychological development to reduce illogical anxieties and fears.

The most reported item related to separation anxiety, which is the same as in most Western countries. The most frequently experienced symptoms in Australian and South African children were symptoms of OCD^{19,31} and these were the items rated second to fourth by our sample, but they were not ranked within the top ten by German children.²¹ In the Malay educational system, and based on cultural family rules, teachers and parents expect strict discipline from children. In Western countries these expectations have transitioned from heteronomy to autonomy in recent years. Thus, the frequency of OCD symptoms may be related to these exogenous factors.¹⁵ The least frequently endorsed item was in parallel with most of the other countries, e.g., Australia and Japan (Children in the middle childhood age group are accustomed to being in transportation vehicles from birth).

There is no doubt that the characteristics of our rural sample had an influence on some of the differences in this study's results when compared to other studies (mean age, which is among the lowest among samples investigated for SCAS psychometric properties; low parental educational level; low socioeconomic level; crowded families; and some cultural beliefs, such as belief in the existence of ghosts among all age groups).

This study has certain limitations that should be considered when interpreting our findings. First, because of our focus on middle childhood, we only included 9 to 11-year-olds in our study and it is not clear whether our findings can be generalized to other ages covered by the SCAS-C. Second, the participants were recruited from schools and not from clinical settings. Since no diagnostic interview was conducted, the clinical and diagnostic utility of the Malay version

of the SCAS has not yet been confirmed. Third, our data sources were self-report and parent-report instruments. Although the best method for diagnosing psychopathology in children is via multiple informants, the internalizing nature of anxiety reduces this accessibility.⁴⁵ Therefore, use of an instrument alone cannot provide a definitive diagnose of the disease. Fourth, this research did not investigate the test-retest reliability of the Malay SCAS in order to examine its stability across time. Finally, this sample may not be representative of all Malaysian children. Future studies in urban areas and also comparative studies between rural and urban areas in Malaysia are recommended.

Conclusion

Although some of the instrument's psychometric properties were different from those observed in some other countries, it nevertheless appears to be useful for assessing childhood anxiety symptoms in this country. The SCAS is inexpensive, easy to administer and score, and time-efficient, so it can be an effective instrument for screening anxiety symptoms to identify at-risk children who may require further evaluation and diagnosis in Malaysia.

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References

1. Merikangas KR, He JP, Burstein M, Swanson SA, Avenevoli S, Cui L, et al. Lifetime prevalence of mental disorders in US adolescents: results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). *J Am Acad Child Adolesc Psychiatry*. 2010;49:980-9.
2. Chavira DA, Stein MB, Bailey K, Stein MT. Child anxiety in primary care: prevalent but untreated. *Depress Anxiety*. 2004;55:155-64.
3. Kessler RC, Petukhova M, Sampson NA, Zaslavsky AM, Wittchen H-U. Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *Int J Methods Psychiatr Res*. 2012;21:169-84.
4. Abbo C, Kinyanda E, Kizza RB, Levin J, Ndyabangi S, Stein DJ. Prevalence, comorbidity and predictors of anxiety disorders in children and adolescents in rural north-eastern Uganda. *Child Adolesc Psychiatry Ment Health*. 2013;7:21.
5. Kendall PC, Compton SN, Walkup JT, Birmaher B, Albano AM, Sherrill J, et al. Clinical characteristics of anxiety disordered youth. *J Anxiety Disord*. 2010;24:360-5.
6. Lamers F, van Oppen P, Comijs HC, Smit JH, Spinhoven P, van Balkom AJ, et al. Comorbidity patterns of anxiety and

- depressive disorders in a large cohort study: the Netherlands Study of Depression and Anxiety (NESDA). *J Clin Psychiatry*. 2011;72:341-8.
7. Reuschel LM. Generalized anxiety disorder in children and adolescents: implication for research and practice [dissertation]. Normal: Illinois State University; 2011.
8. Essau CA, Olaya B, Pasha G, O'Callaghan J, Bray D. The structure of anxiety symptoms among adolescents in Iran: a confirmatory factor analytic study of the Spence Children's Anxiety Scale. *J Anxiety Disord*. 2012;26:871-8.
9. Bittner A, Egger HL, Erkanli A, Jane Costello E, Foley DL, Angold A. What do childhood anxiety disorders predict? *J Child Psychol Psychiatry*. 2007;48:1174-83.
10. Tsocheva I, Sasagawa S, Georgiou G, Essau C. Psychometric properties of the Bulgarian Translation of the Spence Children's Anxiety Scale. *J Psychol Abnorm Child*. 2013;1:2.
11. Spence SH. A measure of anxiety symptoms among children. *Behav Res Ther*. 1998;36:545-66.
12. Spence SH. Structure of anxiety symptoms among children: a confirmatory factor-analytic study. *J Abnorm Psychol*. 1997;106:280-97.
13. Essau CA, Anastassiou-Hadjicharalambous X, Muñoz LC. Psychometric properties of the Spence Children's Anxiety Scale (SCAS) in Cypriot children and adolescents. *Child Psychiatry Hum Dev*. 2011;42:557-68.
14. Whiteside SP, Brown AM. Exploring the utility of the Spence Children's Anxiety Scales parent- and child-report forms in a North American sample. *J Anxiety Disord*. 2008;22:1440-6.
15. Ishikawa S, Sato H, Sasagawa S. Anxiety disorder symptoms in Japanese children and adolescents. *J Anxiety Disord*. 2009;23:104-11.
16. Nauta MH, Scholing A, Rapee RM, Abbott M, Spence SH, Waters A. A parent-report measure of children's anxiety: psychometric properties and comparison with child-report in a clinic and normal sample. *Behav Res Ther*. 2004;42:813-39.
17. DeSousa DA, Pereira AS, Petersen CS, Manfro GG, Salum GA, Koller SH. Psychometric properties of the Brazilian-Portuguese version of the Spence Children's Anxiety Scale (SCAS): self- and parent-report versions. *J Anxiety Disord*. 2014;28:427-36.
18. Mellon RC, Moutavelis AG. Structure, developmental course, and correlates of children's anxiety disorder-related behavior in a Hellenic community sample. *J Anxiety Disord*. 2007;21:1-21.
19. Spence SH, Barrett PM, Turner CM. Psychometric properties of the Spence Children's Anxiety Scale with young adolescents. *J Anxiety Disord*. 2003;17:605-25.
20. Crane Amaya A, Campbell MA. Cross-cultural comparison of anxiety symptoms in Colombian and Australian children. *Rev Electron Investig Psicoeduc Psigopedag*. 2010;8:497-516.
21. Essau CA, Sakano Y, Ishikawa S, Sasagawa S. Anxiety symptoms in Japanese and in German children. *Behav Res Ther*. 2004;42:601-12.
22. Essau CA, Leung PW, Conradt J, Cheng H, Wong T. Anxiety symptoms in Chinese and German adolescents: their relationship with early learning experiences, perfectionism, and learning motivation. *Depress Anxiety*. 2008;25:801-10.
23. Kieling C, Baker-Henningham H, Belfer M, Conti G, Ertem I, Omigbodun O, et al. Child and adolescent mental health worldwide: evidence for action. *Lancet*. 2011;378:1515-25.
24. Ahmad N, MuhdYusoff F, Ratnasingam S, Mohamed F, Nasir NH, MohdSallehuddin S, et al. Trends and factors associated with mental health problems among children and adolescents in Malaysia. *Int J Cult Ment Health*. 2015;8:125-36.
25. Birmaher B, Brent DA, Chiappetta L, Bridge J, Monga S, Baugher M. Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a replication study. *J Am Acad Child Adolesc Psychiatry*. 1999;38:1230-6.
26. Ahmadi A, Mustaffa MS, Haghdooost A, Khan A, Latif AA. Cross-cultural adaptation of the Spence Children's Anxiety Scale in Malaysia. *Trends Psychiatry Psychother*. 2015;37:37-41.
27. Ritscher JB, Struening EL, Hellman F, Guardino M. Internal validity of an anxiety disorder screening instrument across five ethnic groups. *Psychiatry Res*. 2002;111:199-213.
28. Hair JF, Black WC, Babin BJ, Anderson RE. Multivariate data analysis. 7th ed. Englewood Cliffs: Prentice Hall; 2010.
29. Zainuddin A. Structural equation modeling. Malaysia: Universiti Teknologi MARA; 2014.
30. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Arlington: American Psychiatric Publishing; 2013.
31. Muris P, Schmidt H, Engelbrecht P, Perold M. DSM-IV-defined anxiety disorder symptoms in South African children. *J Am Acad Child Adolesc Psychiatry*. 2002;41:1360-8.
32. Woodward LJ, Fergusson DM. Life course outcomes of young people with anxiety disorders in adolescence. *J Am Acad Child Adolesc Psychiatry*. 2001;40:1086-93.
33. Hashim HA, Golok F, Ali R. Factorial validity and internal consistency of Malaysian adapted Depression Anxiety Stress Scale-21 in an adolescent sample. *Int J Collab Res Intern Med Public Health*. 2011;3:29-39.
34. Cronbach LJ. Coefficient alpha and the internal structure of tests. *Psychometrika*. 1951;16:297-334.
35. Swailes S, McIntyre-Bhatti T. The "Belbin" team role inventory: reinterpreting reliability estimates. *J Manag Psychol*. 2002;17:529-36.
36. Orgilés M, Spence SH, Marzo JC, Méndez X, Espada JP. Psychometric properties and factorial structure of the Spence Children's Anxiety Scale (SCAS) in Spanish adolescents. *Journal of personality assessment*. 2014;96:95-102.
37. Whiteside SP, Brown AM. Exploring the utility of the Spence Children's Anxiety Scales parent- and child-report forms in a North American sample. *J Anxiety Disord*. 2008;22:1440-6.
38. Connolly SD, Bernstein GA; Work Group on Quality Issues. Practice parameter for the assessment and treatment of children and adolescents with anxiety disorders. *J Am Acad Child Adolesc Psychiatry*. 2007;46:267-83.
39. Li JC, Lau WY, Au TK. Psychometric properties of the Spence Children's Anxiety Scale in a Hong Kong Chinese community sample. *J Anxiety Disord*. 2011;25:584-91.
40. Essau CA, Muris P, Ederer EM. Reliability and validity of the Spence Children's Anxiety Scale and the Screen for Child Anxiety Related emotional disorders in German children. *J Behav Ther Exp Psychiatry*. 2002;33:1-18.
41. Lewis-Fernández R, Hinton DE, Laria AJ, Patterson EH, Hofmann SG, Craske MG, et al. Culture and the anxiety disorders: recommendations for DSM-V. *Depress Anxiety*. 2010;27:212-29.
42. Essau CA, Conradt J, Petermann F. Frequency, comorbidity, and psychosocial impairment of anxiety disorders in German adolescents. *J Anxiety Disord*. 2000;14:263-79.
43. Su L, Wang K, Fan F, Su Y, Gao X. Reliability and validity of the screen for child anxiety related emotional disorders (SCARED) in Chinese children. *J Anxiety Disord*. 2008;22:612-21.
44. Muris P, Merckelbach H, Gadet B, Moulart V. Fears, worries, and scary dreams in 4-to 12-year-old children: their content, developmental pattern, and origins. *J Clin Child Psychol*. 2000;29:43-52.
45. Essau CA, Petermann F, editors. Anxiety disorders in childhood and adolescence: epidemiology, risk factors and treatment. Hove: Psychology Press; 2001.

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