Instruments to Assess Anxiety Symptoms in Brazilian Population and the Case of the Spence Children's Anxiety Scale (SCAS): Cross-Cultural Adaptation and Psychometric Properties

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Aos meus pais, por terem acreditado e investido no moleque que, frente às ansiedades e medos da escolha de uma profissão, disse: “quero ser Psicólogo”.

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"*Fear of danger is ten thousand times more terrifying than danger itself, when apparent to the eyes; and we find the burden of anxiety greater, by much, than the evil which we are anxious about.*"
(Robinson Crusoe, in Robinson Crusoe, by Daniel Defoe)

"*Every decision you make is a product of fear... You married your wife because you were scared of dying alone. You had children because you're scared you won't leave behind anything important. You go to doctors because you're scared of dying... Need I go on?*"
(The Scarecrow, in Batman: Arkham Asylum, by Paul Dini)

"*You have plenty of courage, I am sure,' answered Oz. 'All you need is confidence in yourself. There is no living thing that is not afraid when it faces danger. The true courage is in facing danger when you are afraid, and that kind of courage you have in plenty.*"
(Oz, in The Wizard of Oz, by L. Frank Baum)

SUMMARY

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ABSTRACT

This Master Thesis encompasses four studies about instruments to the assessment of anxiety symptoms. The aim of the **Study 1** was to conduct a systematic review of the instruments available to assess anxiety symptoms and anxiety disorders (AD) in Brazilian population. The aim of the **Study 2** was to perform the cross-cultural adaptation process of the Spence Children's Anxiety Scale (SCAS) to Brazil. The aim of the **Study 3** was to examine the sensitivity and specificity of the Screen for Child Anxiety Related Emotional Disorders (SCARED) to the diagnosis of AD in a community sample of Brazilian children and adolescents. The aim of the **Study 4** was to investigate the psychometric properties of the SCAS in a community and a clinical sample of Brazilian children and adolescents. Results from Study 1 provide an overview of the characteristics and the adequacy evidences of the instruments available to assess anxiety symptoms and AD in Brazilian population. Results from Studies 2, 3, and 4, altogether, present the Brazilian version of the SCAS as an instrument suitable to assess pediatric anxiety symptoms in Brazilian community and clinical settings. Implications for the psychological and psychiatric assessment and treatment of AD are discussed.

Keywords: anxiety; anxiety disorders; assessment; psychometrics; Spence Children's Anxiety Scale.

RESUMO

Esta dissertação é composta por quatro estudos acerca de instrumentos para a avaliação de sintomas de ansiedade. O objetivo do **Estudo 1** foi realizar uma revisão sistemática dos instrumentos disponíveis para avaliar sintomas de ansiedade e transtornos de ansiedade (TA) em população brasileira. O objetivo do **Estudo 2** foi realizar o processo de adaptação transcultural da *Spence Children's Anxiety Scale* (SCAS) para o Brasil. O objetivo do **Estudo 3** foi examinar a sensibilidade e especificidade da *Screen for Child Anxiety Related Emotional Disorders* (SCARED) para o diagnóstico de TA em uma amostra comunitária de crianças e adolescentes brasileiros. O objetivo do **Estudo 4** foi investigar as propriedades psicométricas da SCAS em amostras comunitária e clínica de crianças e adolescentes brasileiros. Os resultados do Estudo 1 fornecem um panorama das características e evidências de adequação dos instrumentos disponíveis para avaliar sintomas de ansiedade e TA em população brasileira. Os resultados dos Estudos 2, 3 e 4, em conjunto, apresentam a versão brasileira da SCAS como um instrumento adequado para avaliar sintomas de ansiedade infantil em contextos comunitário e clínico no Brasil. Implicações para a avaliação e o tratamento psicológico e psiquiátrico de TA são discutidas.

Palavras-chave: ansiedade; transtornos de ansiedade; avaliação; psicometria; *Spence Children's Anxiety Scale*.

– CHAPTER I –

INTRODUCTION

Anxiety and fear are essential conditions to human life, responsible for preparing the individual to danger and threatening situations. These emotional states encompass cognitive, behavioral, affective, physiological, and neurological features that altogether modulate the individual's perception of the environment, eliciting specific responses and leading to certain types of action (Clark & Beck, 2012; Craske et al., 2009). Anxiety can be defined as a future-oriented emotional state, characterized by apprehension related to not being able to control or predict a potential adverse event, physical tension symptoms, and a shift in the attentional focus to the adverse event or the emotional responses that it elicits. Fear can be defined as an immediate alarm response to a present or imminent adverse event, characterized by strong physiological excitement and a tendency to escape or avoidance behaviors (Barlow & Durand, 2008; Craske et al., 2009).

In some cases, however, individuals experience persistent intense anxiety and/or fear, not proportional to the eliciting event or in situations in which they are not adaptive, causing interference and impairment in their normal functioning. These conditions characterize the group of Anxiety Disorders (AD) (Barlow & Durand, 2008; Craske et al., 2009). AD constitute the most common group of psychiatric disorders (Hollander & Simeon, 2008; Kessler, Chiu, Demler, Merikangas, & Walters, 2005). For instance, in a review of general population surveys, the prevalence of AD was around 5.6% to 18.1% depending on the age range and the country (Baumeister & Härter, 2007). AD may severely interfere in the daily functioning of individuals, compromising social relationships, work activities, and other life aspects. Moreover, this category of psychiatric disorder is usually associated to chronicity throughout the lifespan (Kessler et al., 2005).

Thus, adequate tools to the assessment, screening and diagnosis of AD are highly important. However, as multifaceted phenomena, anxiety and fear symptoms are assessed through various different approaches and instruments (Craske et al., 2009). Therefore, it is important that clinicians, researchers, and other practitioners pay attention to information regarding the quality and specificities of the instruments available to the assessment of AD symptoms. Good-quality instruments provide a standardized and trustworthy apparatus to assess the indicators of a construct, latent factor, or underlying mental process (Primi, 2010) – in this case, the emotional states of anxiety and fear. That way, adequate instruments guarantee consistent and reliable data to professionals involved in the fields of

anxiety research and treatment, which can be translated into benefits to the individuals that suffer from the impairment and distress caused by AD.

In order to investigate the current alternatives available in Brazil to this need, we conducted the Study 1, reported in Chapter II. The aim of the **Study 1** was to carry out a systematic review of the instruments available to assess anxiety symptoms and AD in Brazilian population. Results from the Study 1 showed a lack of self-report instruments specifically focused on the assessment of pediatric anxiety symptoms from different dimensions (e.g., separation anxiety, social phobia, generalized anxiety). In fact, only one instrument suitable to this objective was found to have already been translated to Brazilian-Portuguese and proved valid and reliable: the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997, 1999; Isolan et al., 2011).

This finding gave support to the relevance of conducting the Study 2, reported in Chapter III. The aim of the **Study 2** was to perform the cross-cultural adaptation of the Spence Children's Anxiety Scale (SCAS; Spence, 1997, 1998) to Brazil. The SCAS is a self-report measure of pediatric anxiety that investigates anxiety symptoms from different dimensions based on the DSM-IV diagnostic criteria (American Psychiatric Association, 1994). The SCAS is a particularly prominent instrument that has been examined in several countries and cultures and overall proved to be reliable and valid in community and clinical settings. The Study 2 provided us the adapted Brazilian version of the SCAS.

Building on this result, we planned an empirical investigation of the psychometric properties of the Brazilian SCAS. However, before doing so, we identified the need to further analyze the psychometric properties of the Brazilian version of the SCARED, specifically the sensitivity and specificity of the instrument. This procedure would allow us to screen for youths in community settings with anxiety symptoms in a clinical range, which would be valuable information to the psychometric investigation of the SCAS. We thereby conducted the Study 3, reported in Chapter IV. The aim of the **Study 3** was to examine the sensitivity and specificity of the SCARED to the diagnosis of AD in a community sample of Brazilian children and adolescents. Results from the Study 3 provided a suggested optimal cutoff point to the SCARED score in Brazilian population.

This finding was useful to carry out some of the analyses in the psychometric investigation of the SCAS. Hence, after that, we conducted the Study 4, reported in Chapter V. The aim of the **Study 4** was to investigate the psychometric properties of the SCAS in a community sample of Brazilian children and adolescents and in a clinical sample of Brazilian children. Finally, in Chapter VI, we discuss the overall results from the four studies and present a conclusion to the Thesis.

– CHAPTER II –

STUDY 1: SYSTEMATIC REVIEW OF INSTRUMENTS TO ASSESS ANXIETY SYMPTOMS IN BRAZILIAN POPULATION

The authors of this study are Diogo Araújo DeSousa, André Luiz Moreno, Gustavo Gauer, Gisele Gus Manfro, and Silvia Helena Koller. A version of this study written in Brazilian Portuguese was submitted as an original article to Avaliação Psicológica and is under review since October 3rd, 2012.

Abstract

The aim of this study was to conduct a systematic review of the instruments available to assess anxiety symptoms and anxiety disorders in Brazilian population. A literature review was conducted in IndexPsi, PePSIC, SciELO, LILACS, PsycINFO, and PUBMED databases regarding studies from 2002 to 2012. The review included 97 studies about 68 assessment instruments. Most of the instruments were cross-cultural adaptations, psychometric-based and self-reported. Results were divided into seven categories of instruments, supporting the multifaceted nature of the anxiety construct. Alternatives for the assessment of anxiety symptoms in different age ranges and contexts were found. Most of the studies presented good validity and reliability evidences of the instruments evaluated, although some still need further investigations. The progress and continuous monitoring of the studies about anxiety assessment provide theoretical and empirical support for the development of the anxiety construct and for the prevention and treatment of anxiety disorders.

Keywords: anxiety; anxiety disorders; assessment; scales.

The aim of this study was to conduct a systematic review of the instruments available to assess anxiety symptoms and anxiety disorders (AD) in Brazilian population. Based on the results found, we discuss the current situation of the field, highlighting its strengths and limitations and suggesting future directions.

Method

On November 2011, a query was conducted in the six following databases: Index Psi, PePSIC, SciELO, LILACS, PsycINFO, and PUBMED. For the first four bases, we used the following descriptors (in Brazilian Portuguese) and Boolean operators: "(*ansiedade* OR *pânico* OR *fobia* OR *preocupação* OR *medo*) AND (*instrumento* OR *escala* OR *teste* OR *inventário* OR *entrevista* OR *questionário* OR checklist OR screen)". For the latter two, we used the same descriptors, translated to English, adding new descriptors with a Boolean operator to limit the query to studies with Brazilian samples: "(anxiety OR panic OR phobia OR preoccupation OR worry OR fear) AND (instrument OR scale OR test OR inventory OR interview OR questionnaire OR checklist OR screen) AND (Brazil OR Brazilian OR Portuguese)".

Initially, no limit was set to the publication date. As a first selection criterion, the titles of the articles identified in the databases were analyzed and the ones that showed the study focused on an instrument to assess anxiety symptoms and/or AD were selected. After that, we excluded duplicate studies among databases. The abstracts of the selected studies were then analyzed through five inclusion/exclusion criteria. At this stage, we excluded: (a) studies for which neither the full text nor the abstract was available; (b) other reviews of the literature; (c) studies that focused mainly on a construct other than anxiety (e.g., quality of life, depression, self-concept); (d) studies that did not investigate Brazilian samples; and (e) studies that investigated instruments to assess anxiety symptoms in non-humans (rats and domestic dogs).

On April 2012, a new query was conducted in the same databases using the same descriptors so that studies published in the meantime could be encompassed. Besides, as an attempt to conduct a review as thorough as possible, we also (1) conducted a query in the list of psychological tests with the formal assent of the Psychological Test Evaluation System of the Brazilian Federal Council of Psychology (SATEPSI), and (2) consulted two psychology and two psychiatry experts in the field of anxiety research. These two extra search strategies were used to search for instruments that could have possibly not returned from the query in the databases. Studies identified in this stage were analyzed through the same aforementioned inclusion/exclusion criteria.

The analysis of the studies reviewed was based on the description of the instruments and on some conceptual indicators defined in the literature, specially aspects related to the field of psychological assessment and measurement (Pasquali, 2009; Primi, 2010). Each study was reviewed in detail so that we could evaluate and synthesize information concerning (1) the characterization of the instrument and (2) evidences of the adequacy of the instrument to the assessment of anxiety. Regarding the characterization of the instruments, we analyzed: name of the instrument; whether it was developed in Brazil or adapted to the country; category/class of the instrument; method of assessment (Primi, 2010); context to which it is suitable; and age range to which it is suitable. The categorization of the instruments followed a qualitative approach in which the categories or classes of instruments were defined based on the set of the results of the queries. Regarding the adequacy evidences, we analyzed: validity (construct, convergent, discriminant, and content) and reliability (internal consistency and correlational methods) (Pasquali, 2009).

Results

The initial query identified 5.697 titles (Index Psi: 307; PePSIC: 96; SciELO: 683; LILACS: 1.790; PsycINFO: 1.419; PUBMED: 1.402). Of these, 527 were selected based on the first selection criterion: to focus on an instrument to assess anxiety symptoms and/or AD (Index Psi: 55; PePSIC: 7; SciELO: 77; LILACS: 140; PsycINFO: 147; PUBMED: 101). After that, 224 were excluded as they were duplicated among databases. The abstracts and full texts of the remaining 303 were then analyzed through the five predetermined inclusion/exclusion criteria. This stage is depicted in Figure 1, showing that 120 were selected at the end of the initial query. Of these, 100 made available the full text of the article – the remaining 20 were analyzed through their abstracts only. Given the limitation of journals regarding space to publish systematic reviews, we deemed necessary to reduce the number of studies included in the review and therefore considered only the studies with publication dates from the last ten years (i.e., from 2002 to 2012). A total of 91 studies were then selected. The full references of the studies included in the review are highlighted with an asterisk in the reference list.

Figure 1 around here

Besides these 91 studies, the extra strategies identified two studies (Brasil, 2003; Cunha, 2001) not included through the search in the databases. Moreover, four new studies were identified in the subsequent query on April 2012 (Martins, Polvero, Rocha, Foss, &

Santos Junior, 2012; Osório, Crippa, & Loureiro, 2011; Pereira et al., 2011; Woodruff et al., 2011). In the end, the review encompassed 97 studies (Figure 1), regarding 68 different instruments to the assessment of anxiety symptoms and AD in Brazilian population.

The analysis for the categorization of the reviewed instruments, based on a qualitative approach, used as criterion the classification of the available instruments in terms of their underlying theoretical backgrounds, diagnostic domains, and specific purposes related to the assessment of anxiety symptoms and AD. Seven categories or classes of instruments were thereby defined, as depicted in Table 1.

Table 1 around here

The first category covers instruments that assess anxiety as a broad construct, i.e., assess anxiety regardless of the characterization of AD and therefore do not consider the examined behaviors, thoughts or feelings as symptoms from specific AD, but as anxiety symptoms broadly. The second category covers instruments that assess multiple psychiatric disorders, either instruments to assess multiple types of AD or instruments to assess AD and other types of psychiatric disorders. The third category covers instruments that assess a specific AD through the investigation of symptomatic behaviors, thoughts and feelings. The fourth category covers instruments that assess anxiety symptoms related to a specific context (e.g., hospital, dental, sports). The fifth category covers instruments that assess a specific feature of anxiety (e.g., worry, sensitivity to anxiety, attentional bias). The sixth category covers instruments that assess mental health globally – including complaints related to anxiety symptoms –, used as screening to refer to further psychiatric evaluation. Finally, the seventh category covers the instruments reviewed that were not covered by the previously described categories (Table 1).

The majority of the studies reviewed examined foreign instruments translated/adapted to Brazil. Only ten instruments reviewed were developed in Brazil (highlighted with "[a]" in Table 1). Regarding the age range to which the instruments are suitable, nine of them are specifically suited to pediatric assessment; one to adolescent; two to elderly; and one to adult (highlighted with "[1, 2, 3, 4]" respectively in Table 1). The remaining instruments do not explicit an age range of applicability – but are usually suited to individuals aged 18 years or older. When considering their theoretical method of assessment (Primi, 2010), nearly all instruments reviewed (64 of them) were psychometric-based. Only four instruments were impressionistic-based: *Teste das Pirâmides Coloridas; Teste de Relações Objetais de Phillipson*; Rorschach; and *Desenho Infantil*.

Table 2 depicts the adequacy evidences of the instruments described in the studies reviewed – involving the psychometric-based instruments (Pasquali, 2009). Regarding evidences of validity, construct validity was generally evidenced through confirmatory and exploratory factor analyses and through the analysis of hypothesis (e.g., comparison of scores between the original and the Brazilian version of the instruments, or between genders or other groups). Convergent validity was evidenced through the comparison with other existent valid measures for the same construct. Discriminant validity was evidenced through the comparison of scores between clinical and non-clinical groups or through sensitivity/specificity analyses. Content validity was the least investigated from the major types of validity (Pasquali, 2009). Regarding evidences of reliability, internal consistency was generally evidenced through the Cronbach's alpha or through the split-half technique. Correlational methods included test-retest reliability analysis and interrater agreement analysis. Table 2 depicts the instruments that presented positive, negative, and inconsistent evidences of validity and reliability in the studies reviewed.

Table 2 around here

Discussion

In this study we were able to demonstrate that there are currently several instruments available to assess anxiety symptoms and AD in Brazilian population. Most of them are cross-culturally adapted and psychometric-based self-report questionnaires, scales, and inventories. The reviewed instruments investigate anxiety in different age ranges, contexts, and assessment purposes. Regarding psychometric evidences of adequacy, most studies reviewed showed positive evidences of validity and reliability of the instruments. However, we also found quite a number of instruments for which studies presented only a translation or adaptation process, or investigated psychometric properties in very specific samples, which limits the generalizability and applicability of their findings. The investigation of the psychometric properties of an instrument is essential to provide evidences to examine its adequacy as a tool to the assessment of anxiety symptoms frequency and severity, and the diagnosis of AD.

Regarding the query procedures used in the current review, the extra strategies have proven useful once they identified studies that did not return from the search in the databases. For instance, the BAI was cross-culturally adapted to Brazil by Cunha (2001) and is currently commercialized exclusively to graduated psychologists as a psychological test with assent of the SATEPSI. Similar to what happens to other psychological tests in

Brazil, the fact that the BAI is commercialized restricts information on its cross-cultural adaptation process to the manual of the Brazilian version of the instrument, which is not available in scientific databases. Hence, resorting to extra strategies apart from the well-established database search is a valuable and sometimes necessary procedure to conduct a systematic review as thorough as possible.

Most of the studies reviewed concern instruments adapted from other cultures to Brazil. This practice is often the choice of many researchers, since it is faster than the construction of a new instrument and it allows further cross-cultural research (Cassepp-Borges, Balbinotti, & Teodoro, 2010). In such cases, it is mandatory to conduct a careful and methodologically appropriate cross-cultural adaptation, since the instrument is planned to be used in a new context with different culture, values, among others (Gjersing, Caplehorn, & Clausen, 2010). It was not our objective to examine the cross-cultural adaptation processes followed in the studies reviewed. Further research may contribute to the area by investigating the methods and techniques generally used to perform the cross-cultural adaptations of foreign instruments available in Brazil to assess anxiety symptoms.

Moreover, the majority of the instruments reviewed are psychometric-based self-report questionnaires, scales, and inventories. This type of instrument is widely used by clinicians and researchers because of some of its advantages, such as it is easy to administer, not expensive and time-efficient. On the other hand, other types of instruments such as structured interviews – less common than the self-report instruments in this review – present other benefits, such as a comprehensive evaluation of the presence or absence of symptoms and an investigation of the longitudinal course of the symptoms (Picon, 2003). Therefore, in a psychological/psychiatric assessment, the use of both types of instruments combined assists in the diagnosis and appropriate referral to interventions.

We argue that there is a need for continuously updating the available instruments to assess anxiety symptoms and AD. For instance, the DSM is widely used for the diagnosis of AD because of both the quality of the description of the disorders and the specification of objective criteria required for the diagnosis, which allow mental health professionals to have standards to their practice and a common language for interdisciplinary discussion (Matos, Matos, & Matos, 2005). In order to keep up as a gold standard to the diagnostic characterization, this manual is revised and updated from time to time, taking into account clinical and research data that indicate the need for changes. Since many instruments included in our review use the DSM criteria (both as diagnostic criteria in the structured psychiatric interviews and as descriptive criteria to the development of items in the

questionnaires, scales, and inventories), it is reasonable to argue that, as well as the DSM is periodically updated, these instruments should also be periodically updated.

The categories/classes of instruments derived from the results found support the multifaceted nature of the anxiety construct (Craske et al., 2009). For instance, some of the instruments reviewed were developed to assess a specific AD or even a specific feature related to AD symptoms. Other instruments are used to assess anxiety symptoms in specific age ranges or contexts. Others purport to assess anxiety as a broad construct, or within a global assessment of mental health, beyond the categorization of AD. This variety of approaches to assess anxiety symptoms and AD provide a number of valid alternatives to researchers and clinicians depending on the purpose of the psychiatric/psychological evaluation (e.g., screening for AD in a community level; diagnosing a specific AD; assessing the severity of a disorder; evaluating remission/response to treatments; assessing broad anxiety symptoms in experimental contexts). Nonetheless, the variety of underlying theories on which these different instruments rely may suggest the need for remodeling the anxiety construct. For instance, recent discussions regarding the development of the DSM-5 suggest the relocation of the Post-Traumatic Stress Disorder (Miller, Resick, & Keane, 2009) and the Obsessive-Compulsive Disorder (Hollander, Braun, & Simeon, 2008) to new categories of mental disorders other than the AD.

An interesting finding was that, in the category of instruments developed to assess a specific AD, the social phobia (SoP), also referred as social anxiety disorder, is the diagnosis that presented more assessment alternatives. The large number of instruments to assess this specific AD might assist in the quality of intervention research focused on SoP, since it contributes to appropriate patient recruitment and screening, better characterization of groups by symptoms frequency and severity, and more alternatives to evaluate intervention outcomes. Perhaps partly driven by that aspect, national interventions focused on SoP have been constantly evaluated, providing data to improve the treatment of this AD (e.g., Maia & Rohde, 2007; Mululo, Menezes, Fontenelle, & Versiani, 2009).

Another finding was that the content validity was the least investigated validity parameter in the studies reviewed. Pasquali (2009) argues that the content validity cannot be examined through statistical analyses, but is generally investigated in analyses by committees of experts to judge if the instrument comprises a representative sample of a finite universe of characteristics related to the construct to be assessed. Hence, the author highlights that the content validity is generally applied when it is possible to limit in advance and clearly the universe of characteristics related to the construct. That way, the multifaceted nature and the various definitions in the literature of the anxiety construct

(Craske et al., 2009) might be acknowledged reasons why the content validity was the least investigated in the studies reviewed.

The major limitations of this review were the use of the first selection criterion that the study focused on the anxiety assessment instrument and the limiting of a period of ten years of the publishing date of the studies. For instance, it is plausible to consider the existence of studies that focused on other investigation objects, and even so conducted and somehow described characteristics, adaptation processes, or psychometric investigations of an instrument used to measure the variables needed to fulfill their broader objectives. Nonetheless, these criteria were needed for limiting the number of studies included in the review, given the large number of titles identified in the databases. The major strength of our study concerns the fact that multiple databases were consulted in the query, accessing articles published in Brazilian and international journals. The major contribution of this review is to present a comprehensive current overview of the availability of instruments to assess anxiety symptoms and AD in Brazilian population.

Conclusion

The assessment process requires adequate instruments (i.e., instruments with strong theoretical support and empirical evidences) to provide valid and reliable diagnoses and prognoses (Primi, 2010). Therefore, adequate instruments to the assessment of anxiety symptoms and AD assist clinicians and researchers to conduct better screening and diagnosis procedures, which, in turn, support clinical and research practices in planning effective interventions. Moreover, it is important that professionals are aware of the characteristics and empirical evidences of the instruments available in Brazil to assess anxiety symptoms and AD in order to judge if the instrument they choose is the most appropriate to their clinical or research objectives.

The fields of psychological and psychiatric assessment must be acknowledged as more than just fields devoted to the use of instruments and measures. Assessing, in general, and developing instruments, in particular, give us the possibility of objectifying and operationalizing constructs and theories (Primi, 2010). They deal with the conversion of theoretical concepts into observable elements and require the use of scientific method through adequate study designs. By seeking adequacy evidences of the assessment instruments, research also collaborates to the development of the constructs being assessed (Pasquali, 2009; Primi, 2010). Therefore, the progress and continuous monitoring of the studies about anxiety assessment provide theoretical and empirical support for the development of the anxiety construct and for the prevention and treatment of AD.

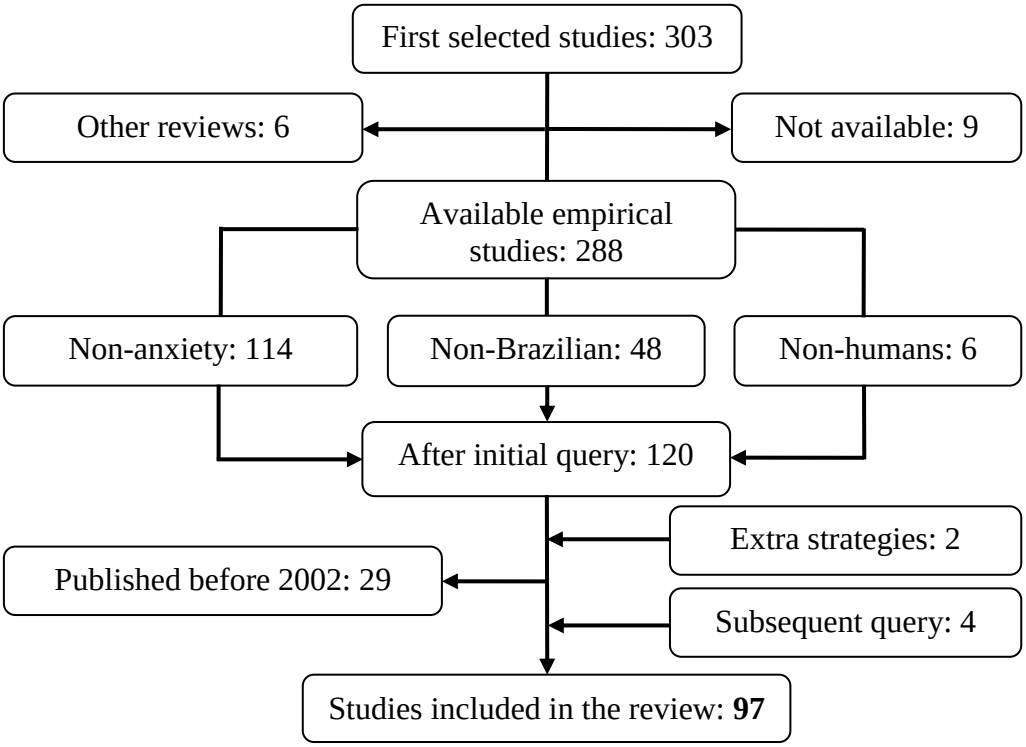

Figure 1. Flowchart of the studies selected through the inclusion/exclusion criteria

Table 1

Instruments to Assess Anxiety Symptoms and Anxiety Disorders in Brazilian Population

Instrument name* (Abbreviation; References)
Category 1. Anxiety as a broad construct
Inventário de Ansiedade Traço-Estado (IDATE, STAI; Fioravanti et al., 2006; Fioravanti-Bastos, Cheniaux, & Landeira-Fernandez, 2011; Kaipper et al., 2010)
Escala de Ansiedade de Hamilton (Ham-A; Kummer, Cardoso, & Teixeira, 2010)
Inventário de Ansiedade de Beck (BAI; Cunha, 2001; Osório et al., 2011)
Escala de Ansiedade Infantil "O Que Penso e Sinto" [1] (RCMAS; Gorayeb & Gorayeb, 2008)
Escala de Ansiedade para Adolescentes [a 2] (Batista & Sisto, 2005)
Inventário de Ansiedade Geriátrica [3] (GAI; Martiny, Silva, Nardi, & Pachana, 2011)
Category 2. Multiple psychiatric disorders
Screen for Child Anxiety Related Emotional Disorders [1] (SCARED; Isolan et al., 2011)
Children's Interview for Psychiatric Syndromes [1] (ChIPS; Souza et al., 2009)
Entrevista Semi-Estruturada para Diagnóstico em Psiquiatria da Infância, Versão Epidemiológica [1] (K-SADS-E; Polanczyk et al., 2003)
Schedule for Affective Disorders and Schizophrenia for School-Age Children, Present and Lifetime Version [1] (K-SADS-PL; Brasil, 2003; Brasil & Bordin, 2010)
Escala Multidimensional de Ansiedade para Crianças [1] (MASC-VB; Vianna, 2009)
Entrevista Clínica Estruturada para o DSM-IV (SCID; Crippa et al., 2008)
Composite International Diagnostic Interview (CIDI; Rocha, Vorcaro, Uchoa, & Lima-Costa, 2005) and Composite International Diagnostic Interview 2.1 (CIDI 2.1; Quintana et al., 2007)
Primary Care Evaluation of Mental Disorders Questionnaire (PRIME-MD; Ferreira et al., 2010)
Category 3. Specific anxiety disorder [anxiety disorder]
Escala Breve de Fobia Social (BSPS; Osório et al., 2006, 2010b, 2010d) [SoP]
Escala para Autoavaliação ao Falar em Público (SSPS; Osório et al., 2008, 2010d) [SoP]
Inventário de Ansiedade e Fobia Social (SPAI; Picon et al., 2005, 2006; Picon, Gauer, Fachel, & Manfro, 2006) [SoP]
Inventário de Ansiedade e Fobia Social para Crianças [1] (SPAI-C; Gauer et al., 2005, 2009) [SoP]
Social Interaction Self-Statement Test (SISST; Silva & Nardi, 2010) [SoP]
Escala de Comportamento de Segurança na Ansiedade Social (ECSAS; Burato, Crippa, & Loureiro, 2009) [SoP]
Fear of Negative Evaluation Scale (FNE; Silva & Nardi, 2009) [SoP]
Social Avoidance and Distress Scale (SADS; Levitan et al., 2008) [SoP]
Social Anxiety Questionnaire for Adults [4] (SAQ-A) and Social Anxiety Questionnaire for Adults Revised [4] (SAQ-AR; Caballo et al., 2010) [SoP]
Escala de Ansiedade Social Liebowitz (LSAS; Kummer, Cardoso, & Teixeira, 2008; Terra et al., 2006) [SoP]
Inventário de Fobia Social (SPIN; Osório et al., 2009, 2010c; Vilete, Coutinho, & Figueira, 2004; Vilete, Figueira, & Coutinho, 2006) [SoP]
Mini-Inventário de Fobia Social (Mini-SPIN; D'El Rey, Lavaca, & Cardoso, 2007; D'El Rey & Matos, 2009; Osório et al., 2007, 2010a, 2010d) [SoP]
Escala D'El Rey de Medo de Falar em Público [a] (EDMF; D'El Rey, 2008) [SoP]
Post-Traumatic Stress Disorder Checklist – Civilian Version (PCL-C; Berger, Mendlowicz, Souza, & Figueira, 2004; Costa et al., 2011) [PTSD]
Trauma History Questionnaire (THQ; Fiszman, Cabizuca, Lanfredi, & Figueira, 2005) [PTSD]
Clinician-Administered PTSD Scale (CAPS; Pupo et al., 2011) [PTSD]
Obsessive-Compulsive Inventory (OCI; Souza, Foa, et al., 2008) and Obsessive-Compulsive Inventory-Revised (OCI-R; Souza, Foa, et al., 2008; Souza et al., 2011) [OCD]
Teste de Associação Implícita para Transtorno Obsessivo-Compulsivo (TAI-TOC; Victoria & Fontenelle, 2010, 2011) [OCD]
Dimensional Yale–Brown Obsessive–Compulsive Scale [a] (DY-BOCS; Rosario-Campos et al., 2006) [OCD]
Escala Tampa de Cinesiofobia (ETC; Siqueira, Teixeira-Salmela, & Magalhães, 2007; Souza, Marinho et al., 2008) [SpecP]

Questionário para Medo de Aranha (FSQ; Granado, Peláez, & Garcia-Mijares, 2005) [SpecP]
Questionário para Fobia de Aranha (SPQ; Granado et al., 2005) [SpecP]
Questionário de Automaticidade e Irracionalidade (AI; Granado et al., 2005) [SpecP]
Questionário de Claustrofobia (Gouveia et al., 2008) [SpecP]
Avaliação Clínica do Medo de Cair em Idosos [a 4] (Macedo, Marques, & Pereira, 2006) [SpecP]
Teste das Pirâmides Coloridas (Villemor-Amaral, Farah, & Primi, 2004) [PD]
Teste de Relações Objetais de Phillipson (Silva et al., 2004) [PD]
Rorschach (Farah & Villemor-Amaral, 2008; Villemor-Amaral, Franco, & Farah, 2008) [PD]
Category 4. Specific context [context]
Burns Specific Pain Anxiety Scale (BSPAS; Echevarria-Guanilo et al., 2006, 2011) [burn-injured patients]
Escala Hospitalar de Ansiedade e Depressão (HADS; Castro et al., 2006; Marcolino et al., 2007; Soares-Filho et al., 2009) [hospital]
Desenho Infantil [1] (Menezes, Moré, & Cruz, 2008) [hospital]
Competitive State Anxiety Inventory-2 (CSAI-2; Coelho, Vasconcelos-Raposo, & Cielo, 2010) [sports]
Dental Anxiety Scale (DAS; Hu, Gorenstein, & Fuentes, 2007; Torriani et al., 2008) [dental]
Escala de Padrão Comportamental de Venhan (Torriani et al., 2008) [dental]
Fear Avoidance Beliefs Questionnaire (FABQ; Abreu, Faria, Cardoso, & Teixeira-Salmela, 2008; Souza, Marinho, et al., 2008) [back-injured patients]
Questionário de Ansiedade Cardíaca (CAQ; Sardinha, Nardi, & Eifert, 2008) [heart problems]
Escala de Ansiedade Pré-operatória de Yale Modificada (EAPY-m; Guaratini et al., 2006) [pre-surgical]
Questionário de Impacto de Fibromialgia (FIQ; Martins et al., 2012) [fibromyalgia patients]
Escala de Ansiedade Escolar para Crianças [a 1] (Oliveira & Sisto, 2002) [school]
Escala de Ansiedade para Pacientes de Ambulatório [a] (Oliveira & Sisto, 2004) [outpatient clinic]
Category 5. Specific feature of anxiety [feature]
Penn State Worry Questionnaire (PSWQ; Castillo, Macrini, Cheniaux, & Landeira-Fernandez, 2010) [worry]
Anxiety Sensitivity Index-3 (ASI-3; Escocard, Fioravanti-Bastos, & Landeira-Fernandez, 2009) [anxiety sensitivity]
Teste de Associação Implícita-Ansiedade (TAI-*Ansiedade*, IAT-Anxiety; Victoria & Soares, 2008) [attentional bias]
Tarefa de Stroop *Emocional* [a] (Fava, Kristensen, Melo, & Araujo, 2009) [attentional bias]
Blood pressure and heart rate tests (Conceição, Schonhorst, Conceição, & Oliveira Filho, 2004) [physiological measures]
Panic-inducing challenge tests: Oral caffeine intake (Nardi, Valença, et al., 2007; Nardi, Lopes, et al., 2007, 2009); Carbon dioxide inhalation (Nardi, Valença, et al., 2007; Valença et al., 2002); Breath-holding (Nardi et al., 2003) [panic induction]
Category 6. Global mental health
Escala de Avaliação de Sintomas-40 [a] (EAS-40; Yoshida & Silva, 2007)
Self-Reporting Questionnaire-20 (SRQ-20; Scazufca, Menezes, Vallada, & Araya, 2009)
Category 7. Other purposes
Escala Analógica de Humor (EAH; Sanchez & Gouveia Jr, 2008)
Diagnóstico de Enfermagem de Ansiedade pela Taxonomia da North American Nursing Diagnosis Association (NANDA; Bergamasco, Rossi, Carvalho, & Dalri, 2004; Oliveira, Chianca, & Rassool, 2008; Pereira et al., 2011; Vieira et al., 2010)
Questionário de Autoavaliação para o Espectro do Pânico Agorafóbico (PAS-SR; Matos, 2005)
Temperament Evaluation of Memphis, Pisa, Paris, and San Diego (TEMPS-A; Woodruff, 2011)
Affective and Emotional Composite Temperament Scale [a] (AFECTS; Lara et al., 2011)
Combined Emotional and Affective Temperament Scale [a] (CEATS; Lara et al., 2008)

Note. * Brazilian translated name is presented when available. [a] Instrument developed in Brazil; [1] For children/adolescents only; [2] For adolescents only; [3] For elderly only; [4] For adults only. SoP: Social phobia; PTSD: Posttraumatic stress disorder; OCD: Obsessive-compulsive disorder; SpecP: Specific phobia; PD: Panic disorder.

Table 2

Evidences of Adequacy of the Instruments to Assess Anxiety Symptoms and Anxiety Disorders in Brazilian Population

Name/Abbreviation	Validity				Reliability	
	Construct	Convergent	Discriminant	Content	Internal consistency	Correlation
Instruments Developed in Brazil						
Escala de Ansiedade para Adolescentes	P	-	-	-	P	-
EDMF	-	-	-	-	-	-
Avaliação Clínica do Medo de Cair em Idosos	-	P	-	-	-	P
DY-BOCS	P	I	-	-	P	P
Escala de Ansiedade Escolar para Crianças	P	-	-	-	P	-
Escala de Ansiedade para Pacientes de Ambulatório	P	-	-	-	P	-
Tarefa de Stroop *Emocional*	-	-	N	-	-	-
EAS-40	-	P	P	-	-	P
CEATS	P	-	-	-	P	-
AFECTS	P	-	-	-	P	-
Instruments Adapted to Brazil						
IDATE	I	P	P	-	P	N
RCMAS	P	P	-	-	P	P
Ham-A	P	P	P		P	
GAI	-	-	-	-	-	-
BAI	P	P	P	-	P	P
SCARED	P	P	-	-	P	P
ChIPS	-	-	-	-	-	-
K-SADS-E	-	-	-	-	-	P
K-SADS-PL	P	P	-	P	-	P
MASC-VB	-	-	-	-	-	-
SCID	-	-	-	-	-	P
CIDI/CIDI 2.1	-	-	P	-	-	-
PRIME-MD	-	P	-	-	-	-
BSPS	I	P	P	-	P	P
SSPS	-	P	P	-	P	-
SPAI	-	-	-	-	P	P
SPAI-C	P	-	P	-	P	P
SISST	-	-	-	-	-	-
ECSAS	-	P	P	-	P	P
FNE	-	-	-	-	-	-
SADS	-	-	-	-	-	-
SAQ-A/SAQ-AR	P	P	-	-	P	-
LSAS	P	P	P	-	P	-
SPIN	P	P	P	-	P	P
Mini-SPIN	-	P	P	-	P	-
PCL-C	P	-	-	-	P	P
THQ	-	-	-	-	-	-

CAPS	-	P	P	-	P	P
OCI e OCI-R	P	P	P	_	P	P
TAI-TOC	-	N	-	-	P	-
ETC	P	P	-	-	P	-
FSQ	N	P	-	-	P	-
SPQ	N	P	-	-	P	-
AI	N	P	-	-	P	-
Questionário de Claustrofobia	P	P	-	-	P	-
BSPAS	P	P	P	-	P	-
HADS	-	P	P	-	P	-
CSAI-2	P	-	-	-	P	-
DAS	-	-	P	-	P	P
Escala de Padrão Comportamental de Venhan	-	-	P	-	-	-
FABQ	P	P	-	-	P	-
CAQ	-	-	-	-	-	-
EAPY-m	-	-	-	-	-	-
FIQ	-	-	P	-	-	-
PSWQ	P	P	-	-	P	-
ASI-3	P	P	P	-	P	-
TAI-*Ansiedade*	P	N	-	-	P	P
Blood pressure and heart rate tests	-	-	N	-	-	-
Panic-inducing challenge tests	-	-	P	-	-	-
SRQ-20	P	-	P	-	P	P
EAH	-	-	-	-	-	-
Diagnóstico de Enfermagem de Ansiedade pela Taxonomia da NANDA	-	-	-	P	-	-
PAS-SR	-	-	-	-	-	-
TEMPS-A	P	-	-	-	P	-

Note. P: Positive evidences; I: Inconsistent evidences (i.e., positive and negative evidences among studies); N: Negative evidences; '-': Information not available in the studies reviewed.

– CHAPTER III –

STUDY 2: BRAZILIAN PORTUGUESE VERSION OF THE SPENCE CHILDREN'S ANXIETY SCALE (SCAS-BRASIL)

The authors of this study are Diogo Araújo DeSousa, Circe Salcides Petersen, Rafaela Behs, Gisele Gus Manfro, and Silvia Helena Koller. This study was submitted as an original article to Trends in Psychiatry and Psychotherapy (*Revista de Psiquiatria do Rio Grande do Sul*) and accepted for publication on July 6th, 2012. Full reference is: DeSousa, D. A., Petersen, C. S., Behs, R., Manfro, G. G., & Koller, S. H. (2012). Brazilian Portuguese version of the Spence Children's Anxiety Scale (SCAS-Brasil). *Trends in Psychiatry and Psychotherapy, 34,* 147-153. doi:10.1590/S2237-60892012000300006. We present here the text of the article for the purpose of the Thesis composition, acknowledging the copyright of Trends in Psychiatry and Psychotherapy.

Abstract

Objective: To describe the cross-cultural adaptation of the Spence Children's Anxiety Scale (SCAS) for use in Brazil.

Methods: Cross-cultural adaptation followed a four-step process, based on specialized literature: 1) investigation of conceptual and item equivalence; 2) translation and back-translation; 3) pretest; and 4) investigation of operational equivalence. All these procedures were carried out for both the child and the parent versions of the SCAS.

Results: A final Brazilian version of the instrument, named SCAS-Brasil, was defined and is presented.

Conclusion: The SCAS-Brasil instrument seems to be very similar to the original SCAS in terms of conceptual and item equivalence, semantics, and operational equivalence, suggesting that future cross-cultural studies may benefit from this early version. As a result, a new instrument is now available for the assessment of childhood anxiety symptoms in community, clinical, and research settings.

Keywords: anxiety; anxiety disorders; cross-cultural adaptation.

Anxiety disorders are among the most frequent psychiatric illnesses in the general population.[1,2] Considering the overall scenario of mental disorders, data from international[3,4] and Brazilian[5-8] studies have shown prevalence rates ranging from 6 to 20% for anxiety disorders during childhood and adolescence.

Pediatric anxiety disorders may severely interfere with the daily functioning of children and adolescents and are associated with chronicity.[9-11] These disorders may also predict difficulties in adulthood, such as anxiety and depressive disorders,[12,13] substance abuse and dependence,[14] and suicidal behavior,[15] especially if inadequately diagnosed and/or left untreated.[5,8,16-18] Hence, it is important to have adequate tools for the assessment of anxiety symptoms, as well as for the screening and diagnosis of anxiety disorders, especially among youth.

Self-report questionnaires and scales are frequently used in research and clinical practice for evaluating and measuring anxiety symptoms. Among other advantages, they are easy and fast to administer and focus on symptoms from the point of view of the respondent.[19]

Instruments used to assess childhood anxiety symptoms are mainly downward versions of instruments developed to evaluate anxiety in adults.20 In Brazil, some examples of instruments that follow this pattern are the State-Trait Anxiety Inventory for Children (STAI-C),[21] rendered as Inventário de Ansiedade Traço-Estado para Crianças (IDATE-C),[22] and the Revised Children's Manifest Anxiety Scale (RCMAS),[23] translated/adapted into Escala de Ansiedade Infantil "O Que Penso e Sinto?"[24] However, it is also important to consider that there are developmental characteristics involved in the evaluation of childhood anxiety symptoms.[20]

Another important aspect to be considered about some instruments used to assess childhood anxiety symptoms, such as the STAI-C and the RCMAS, is that they measure anxiety in general, and not anxiety symptoms related to specific disorders. Nevertheless, when dealing with diagnosis and treatment of anxiety disorders, information about specific clusters of anxiety problems may be useful for practitioners and investigators.[20]

To overcome these limitations, the Spence Children's Anxiety Scale (SCAS)[20,25] was developed with the following objectives: 1) to assess specific symptoms of childhood anxiety, considering the developmental specificities of anxiety symptoms among children; and 2) to assess symptoms according to diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)[26] for childhood anxiety disorders (e.g., social phobia, generalized anxiety disorder, separation anxiety disorder).

The SCAS was introduced as a new childhood anxiety scale with evidence of adequate reliability and validity for international use in the measurement of childhood anxiety symptoms.[19] The scale has already been cross-culturally adapted to many languages, countries, and cultures after its original Australian version was proposed. Examples include German,[27] Dutch,[28] Hellenic Greek,[29] Japanese,[30] Mexican,[31] Arab Syrian,[32] Cypriot Greek,[33] English, Swedish, and Italian.[34]

The objective of the present study was to describe the cross-cultural adaptation of the SCAS (both child and parent versions) for use in Brazil.

Method

The study protocol was approved by the Ethics Committee of the Hospital de Clínicas de Porto Alegre, Universidade Federal do Rio Grande do Sul (number of the project: 08-017).

Instruments

Spence Children's Anxiety Scale (SCAS).

The SCAS contains 44 items. Of these, 38 deal with specific anxiety symptoms, arranged in six factors or subscales: 1) separation anxiety (six items); 2) social phobia (six items); 3) obsessive-compulsive problems (six items); 4) panic (six items) and agoraphobia (three items); 5) generalized anxiety (six items); and 6) physical injury fears (five items). The latter subscale relates to specific phobias. The remaining six items in the SCAS are positive filler questions used to reduce negative response bias. There is also an open question at the end of the questionnaire that provides the respondents with the opportunity to report any additional fears.[20,25]

In each item, respondents are instructed to check the word that best describes how often the behaviors, feelings, and reactions described in the scale (reflecting anxiety symptoms) happen to them. A four-point word scale is used: never, sometimes, often, always. The fact that there are no right or wrong answers is also emphasized during instrument administration.[20,25]

Spence Children's Anxiety Scale - Parent Version (SCAS-P).

The SCAS also has a version developed to assess children's anxiety symptoms based on their parents report.[28] The items of the parents' version (SCAS-P) are all equivalent to the items included in the original child version, except for the filler items, which are not present in the SCAS-P. In the SCAS-P, parents are asked to evaluate how

often their children demonstrate the symptoms described in the 38 items of the scale using a four-point word scale: never, sometimes, often, always.

Steps of the Cross-Cultural Adaptation Process

First of all, the authors of the present study contacted the author of the original SCAS scale via e-mail so that she could authorize the cross-cultural adaptation process. After that, a four-step process was followed, based on specialized literature[35-37] and on the International Test Commission Guidelines for Translating and Adapting Tests.[38] The four steps were: 1) investigation of conceptual and item equivalence; 2) translation and back-translation; 3) pretest; and 4) investigation of operational equivalence. These procedures were applied to both the child and the parent versions of the SCAS.

Investigation of Conceptual and Item Equivalence.

In the first step, the scale was analyzed in terms of conceptual and item equivalence between the original and target contexts.[35-37] Equivalence was assessed through a literature review about childhood anxiety and the instruments available for the assessment of anxiety in Brazil. The objectives were: 1) to investigate if the relationship between the scale and its underlying concept (i.e., childhood anxiety) in the original setting would be the same in Brazil; and 2) to investigate if the items comprising the original scale would remain relevant and acceptable in the Brazilian context. Literature review and instrument analysis results were also discussed with two experts in the field: a PhD psychologist specialized in childhood psychopathology and a PhD psychologist specialized in cross-cultural adaptation of instruments.

Translation and Back-Translation.

In the second step, the scale was translated from English into Brazilian Portuguese and then back-translated into English. Two independent translators produced forward-translations of the SCAS, and a third one synthesized both translations into a single version in Brazilian Portuguese. This synthesized version was then back-translated independently by two other translators, and again a third one synthesized both back-translations into a single version in English.[35,39-41] All translators involved in this step were fluent in both languages, English and Brazilian Portuguese.

The original version of the SCAS, the synthesized forward-translation version, and the synthesized back-translation version were all evaluated by an expert committee,[35,39-41] including a PhD psychologist specialized in methodology, a PhD psychologist specialized in childhood anxiety, a translator, and a back-translator. The committee assessed whether the items included in the three versions reflected the same ideas regarding the target

construct (i.e., childhood anxiety). The objective was to make sure that the translation process was adequately conducted and that the translated items were relevant to the Brazilian context. Adjustment of instrument items was performed after a consensus was reached among all members of the committee.

Pretest.

The third step of the cross-cultural adaptation process consisted of a pilot study.[35,39] The aim of this step was to evaluate the understanding of the scale by the target population (i.e., Brazilian children aged 7 to 12 and their parents). Eight children (four boys and four girls) and their parents (four mothers, one father and three couples) were requested to read and then rephrase the sentences contained in the child and parent versions of the scale, respectively.[37] These children were recruited from an anxiety disorders treatment program and were from families with different socioeconomic statuses. Answers were analyzed in an attempt to identify any problems in the wording of the items, as well as any confusing or misleading items. All children and parents involved in this step of the process signed an informed consent form prior to their participation.

Investigation of Operational Equivalence.

In the fourth step, the scale was analyzed in terms of the operational equivalence between the original and target contexts.[35-37] The following aspects were evaluated considering the use of the instrument in Brazil: instructions, method of administration, questionnaire format, and measurement methods used in the original SCAS. Operational equivalence was analyzed through a literature review focusing on operational models of other childhood anxiety instruments available in Brazil. The results of this review were also discussed with two experts in the field: a PhD psychologist specialized in childhood psychopathology and a PhD psychologist specialized in cross-cultural adaptation of instruments.

Results

Results obtained in each step of the adaptation process for both versions of the SCAS (child and parent) are described below. The aspects or areas where differences emerged over the cross-cultural adaptation process are discussed.

Investigation of Conceptual and Item Equivalence

As suggested by Herdman et al.,[36] analyzing literature reviews and studies that employ the basic concept of the original instrument in the assessment of the target population is a useful approach to investigate conceptual and item equivalence of an

instrument across cultures. Silva & Figueiredo[7] conducted a systematic review of the literature about instruments that evaluate anxiety in children and adolescents and found that, among the 118 instruments analyzed, there was a whole category of instruments emerging as a result of a series of studies based on the DSM-IV diagnostic criteria. One example of instrument that fell into this category and has recently been adapted to Brazilian Portuguese is the Screen for Child Anxiety-Related Emotional Disorders (SCARED).[42,43]

In addition to the literature review, we also discussed our results with experts in the fields of childhood psychopathology and cross-cultural adaptation of instruments.[35] The results of this discussion pointed to evidence of equivalence between SCAS items in both the original and the Brazilian contexts. Both experts agreed that the domains and theoretical rationale that served as the basis for the original SCAS, as well as the items representing them, were equally relevant and important in the target context, and that the construct itself was likely to be equally valid in Brazil.

However, both experts identified problems in one specific item of the SCAS, present in both the child and the parent versions: "I have [My child has] trouble going to school in the mornings because I feel [(s)he feels] nervous or afraid." Differently from the Australian context, in Brazil many children go to school only in the morning or only in the afternoon. Therefore, even though the idea underlying this specific item (separation anxiety symptom) would be equivalent in Brazil, the assumption of "going to school in the mornings" would not work for all children. That consideration was taken into account and this item was edited as follows: "I have [My child has] trouble going to school because I feel [(s)he feels] nervous or afraid."

Also, one of the experts stressed a possible problem in another item of the parent version: "My child is scared of heights (e.g., being at the top of a cliff)." In Brazil, even though being scared of heights may also indicate a symptom of a specific phobia, the example of "being at the top of a cliff" might not be useful due to particular experiences of the Brazilian population with geographical terrains. As the child version of this item only states "I am scared of being in high places," the parent version item was replaced with "My child is scared of heights," by removing the example in parentheses.

Finally, the experts suggested the inclusion of new items to investigate anxiety characteristics that are relevant in Brazilian settings. For instance, they suggested the inclusion of an item specifically referring to phobia symptoms related to burglars and thieves. However, in order to maintain the structure of the SCAS-Brasil as similar as possible to that of the original scale,[25] consensus was reached that it would be preferable

not to add this item. This decision was further justified by the fact that the last item in the SCAS prompts the respondent to refer to anything else the child is afraid of, enabling the respondents to provide more specific information about other relevant symptoms and characteristics.

Translation and Back-Translation

The forward- and back-translations followed the steps described above, involving six translators throughout the process. Few items showed discrepancies between the versions of the two independent translators and of the two back-translators, which facilitated the task of the translators responsible for synthesizing the versions. The expert committee checked the synthesized forward- and back-translations, comparing them to the original SCAS. The committee noticed that the words "scared" and "afraid," used in many items of the original instrument, were randomly translated into Portuguese as "assustado" and "com medo," not following a standardized pattern. After discussing this issue, adjustments were performed and a decision was reached about the final wording of items in the SCAS-Brasil. Table 1 shows the original items of the SCAS and the final versions of the Brazilian Portuguese correlate items after the forward- and back-translations and review by the expert committee.

Table 1 around here

Pretest

Parents did not have any problems rephrasing the items of the scale. Out of the eight children selected for this stage, only one had difficulty rephrasing the items: a 7-year boy who did not have problems understanding the items, but rather reading them. When the items were read aloud by a research assistant, he was able to rephrase the sentences without further difficulties.

Investigation of Operational Equivalence

The results of the pretest stage support the idea that the SCAS can be used even in patients with reading disabilities or difficulties, provided someone can read the sentences to the subjects; this method of administration may also be useful when dealing with illiterate parents. There were no other sources of difficulty regarding the format, instructions, method of assessment, or measurement methods of the SCAS in the Brazilian context. The review of the literature also demonstrated that many of the instruments used

for assessing anxiety symptoms in Brazilian children follow operational procedures similar to those of the SCAS, e.g., the SCARED,[42,43] the STAI-C,[21,22] and the RCMAS.[23-24]

Discussion

The main concept assessed by the SCAS is childhood anxiety. As mentioned before, this concept is based on diagnostic criteria set forth in the DSM-IV[28] for childhood anxiety disorders. Specifically, the SCAS assesses symptoms related to the following anxiety disorders: separation anxiety disorder, social anxiety disorder or social phobia, obsessive-compulsive disorder, panic disorder and agoraphobia, generalized anxiety disorder, and specific phobias. The symptoms described in the DSM-IV for diagnosing anxiety disorders that are represented by the SCAS items tend to be universal, and are therefore also used by Brazilian practitioners and investigators to study anxiety disorders in Brazilian population.[5,8,17,18]

A major difficulty in the translation steps of this adaptation process involved the selection of translators and back-translators fluent in both languages. It was necessary to find English or Portuguese native-speaker linguists or translators with excellent fluency and a long experience working with both languages.[39,41] The difficulty was also caused by financial constraints: none of the translators could receive any financial compensation for their work due to budget limitations. As a result, the time spent translating/back-translating the instrument was particularly long (about 5 months), mainly because one of the translators and one of the back-translators had to become members of the expert committee afterwards. This illustrates well how time and financial constraints may impose obstacles to the adoption of adequate cross-cultural adaptation guidelines.[35]

In addition to evaluating the understanding of items,[35,39] another key aspect of the pretest stage in the present study was providing evidence for the need of alternatives to the self-answered mode of administration of the scale. Investigating the operational equivalence of the SCAS thus confirmed that the scale can be used with patients with reading disabilities or difficulties with the help of an interviewer.

Conclusion

Even though the SCAS is a well-established scale, a careful cross-cultural adaptation process is always recommended when dealing with a foreign instrument in a new cultural context.[35] Therefore, the procedures followed in the present study for the adaptation of the SCAS into Brazilian Portuguese (SCAS-Brasil) were highly important for generating an adequate instrument for the assessment of childhood anxiety in Brazil.

According to the International Test Commission Guidelines for Translating and Adapting Tests,[38] as a general guideline, professionals should always "implement systematic judgmental evidence, both linguistic and psychological, to improve the accuracy of the adaptation process and compile evidence of the equivalence of all language versions" (p. 2).

The SCAS-Brasil here presented seems to be very similar to the original SCAS, suggesting that future cross-cultural studies may benefit from this early version. However, other studies are needed in order to take on further steps in the cross-cultural adaptation process of the SCAS-Brasil. For example, next steps could include administering the scale to Brazilian samples of children and adolescents, so as to collect evidence of instrument validity based on psychometric properties of the SCAS-Brasil through recognized statistical methods.[35,38-40]

The SCAS-Brasil is presented as a new instrument now available for the assessment of childhood anxiety symptoms. The scale can be used in community settings, serving as a screening tool to identify children at risk for developing anxiety disorders, assisting in preventive interventions. It can also be used in academic settings, in studies designed to assess anxiety indicators or symptoms in terms of their frequency, severity, or structure among children and adolescents. Finally, another possible application of the SCAS-Brasil, yet to be tested, is its use in clinical settings, as an auxiliary tool for diagnostic and therapeutic evaluations regarding the structure and severity of anxiety symptoms, as well as treatment response.

References

1. Baumeister H, Härter M. Prevalence of mental disorders based on general population surveys. Soc Psychiatry Psychiatr Epidemiol. 2007;42:537-46.
2. Hollander EH, Simeon D. Anxiety disorders. In: Hales RE, Yudofsky SC, Gabbard GO, editors. The American Psychiatric Publishing textbook of psychiatry. 5th ed. Washington: American Psychiatric Publishing; 2008.
3. Costello EJ, Mustillo S, Erkanli A, Keeler G, Angold A. Prevalence and development of psychiatric disorders in childhood and adolescence. Arch Gen Psychiatry. 2003;60:837-44.
4. Fisak Jr BJ, Richard D, Mann A. The prevention of child and adolescent anxiety: a meta-analytic review. Prev Sci. 2011;12:255-69.
5. Asbahr FR. Anxiety disorders in childhood and adolescence: clinical and neurobiological aspects. J Pediatr (Rio J). 2004;80:S28-34.

6. Fleitlich-Bilyk B, Goodman R. Prevalence of child and adolescent psychiatric disorders in southeast Brazil. J Am Acad Child Adolesc Psychiatry. 2004;43:727-34.
7. Silva WV, Figueiredo VLM. Childhood anxiety and assessment instruments: a systematic review. Rev Bras Psiquiatr. 2005;27:329-35.
8. Vianna RB, Campos AA, Landeira-Fernandez J. Anxiety disorders in childhood and adolescence: a review. Rev Bras Ter Cogn. 2009;5:46-61.
9. Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. Arch Gen Psychiatry. 1994;51:8-19.
10. Pine DS. Childhood anxiety disorders. Curr Opin Pediatr. 1997;9:329-38.
11. Sylvester CS. Separation anxiety disorder and other anxiety disorders. In: Kaplan HI, Sadock JB, editors. Comprehensive textbook of psychiatry. 7th ed. Washington: Lippincott Williams & Wilkins; 2000.
12. 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.
13. Pine DS, Cohen P, Gurley D, Brook J, Ma Y. The risk for early-adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. Arch Gen Psychiatry. 1998;55:56-64.
14. Konnopka A, Leichsenring F, Leibing E, König HH. Cost-of-illness studies and cost-effectiveness analyses in anxiety disorders: a systematic review. J Affect Disord. 2009;114:14-31.
15. Bolton JM, Cox BJ, Afifi TO, Enns MW, Bienvenu OJ, Sareen J. Anxiety disorders and risk for suicide attempts: findings from the Baltimore Epidemiologic Catchment Area Follow-Up Study. Depress Anxiety. 2008;25:477-81.
16. Isolan LR, Zeni CP, Mezzomo K, Blaya C, Kipper L, Heldt E, et al. Behavioral inhibition and history of childhood anxiety disorders in Brazilian adult patients with panic disorder and social anxiety disorder. Rev Bras Psiquiatr. 2005;27:97-100.
17. Manfro GG, Isolan L, Blaya C, Maltz S, Heldt E, Pollack MH. Relationship between adult social phobia and childhood anxiety. Rev Bras Psiquiatr. 2003;25:96-9.
18. Manfro GG, Isolan L, Blaya C, Santos L, Silva M. Retrospective study of the association between adulthood panic disorder and childhood anxiety disorders. Rev Bras Psiquiatr. 2002;24:26-9.

19. Muris P, Merckelbach H, Ollendick T, King N, Bogie N. Three traditional and three new childhood anxiety questionnaires: their reliability and validity in a normal adolescent sample. Behav Res Ther. 2002;40:753-72.
20. Spence SH. A measure of anxiety symptoms among children. Behav Res Ther. 1998;36:545-66.
21. Spielberger CD. Manual for the State-Trait Anxiety for Children. Palo Alto: Consulting Psychologist Press; 1973.
22. Biaggio AMB, Spielberger CD. Manual do Inventário de Ansiedade Traço-Estado – Forma infantil: IDATE-C. Rio de Janeiro: CEPA; 1983.
23. Reynolds CR, Richmond BO. What I think and feel: a revised measure of children's manifest anxiety. J Abnorm Child Psychol. 1978;6:271-80.
24. Gorayeb MAM, Gorayeb R. Revised Children's Manifest Anxiety Scale (RCMAS) adapted to Portuguese in Brazil. Temas Psicol. 2008;16:35-45.
25. Spence SH. Structure of anxiety symptoms among children: a confirmatory factor-analytic study. J Abnorm Psychol. 1997;106:280-97.
26. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed. Washington, DC: APA; 1994.
27. 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.
28. 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.
29. 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.
30. Ishikawa S, Sato H, Sasagawa S. Anxiety disorder symptoms in Japanese children and adolescents. J Anxiety Disord. 2009;23:104-11.
31. Hernández-Guzmán L, Bermúdez-Ornelas G, Spence SH, González MJ, Martínez-Guerrero JI, Aguilar J, et al. Spanish version of the Spence Children's Anxiety Scale (SCAS). Rev Latinoam Psicol. 2010;42:13-24.
32. Boaini K. Spence Children's Anxiety Symptoms Scale: standardization of the scale on samples of children and their mothers [thesis]. Syrian Arab Republic: Damascus University; 2010.

33. 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.
34. Essau CA, Sasagawa S, Anastassiou-Hadjicharalambous X, Guzmán BO, Ollendick TH. Psychometric properties of the Spence Child Anxiety Scale with adolescents from five European countries. J Anxiety Disord. 2011;25:19-27.
35. Gjersing L, Caplehorn JRM, Clausen T. Cross-cultural adaptation of research instruments: language, setting, time and statistical considerations. BMC Med Res Methodol. 2010;10:1-10.
36. Herdman M, Fox-Rushby J, Badia X. A model of equivalence in the cultural adaptation of HRQoL instruments: the universalist approach. Qual Life Res. 1998;7:323-35.
37. Reichenheim ME, Moraes CL. Operationalizing the cross-cultural adaptation of epidemiological measurement instruments. Rev Saude Publica. 2007;41:665-73.
38. International Test Commission. International Test Commission guidelines for translating and adapting tests. 2010. http://www.intestcom.org/Guidelines/Adapting+Tests.php. Accessed 2012 April 10.
39. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. Spine. 2000;25:3186-91.
40. Guillemin F, Bombardier C, Beaton D. Cross-cultural adaptation of health related quality of life measures: literature review and proposed guidelines. J Clin Epidemiol. 1993;46:1417-32.
41. Wang W, Lee H, Fetzer SJ. Challenges and strategies of instrument translation. West J Nurs Res. 2006;28:310-21.
42. Birmaher B, Khetarpal S, Brent D, Cully M, Balach L, Kaufman J, et al. The Screen for Child Anxiety Related Emotional Disorders (SCARED): scale construction and psychometric characteristics. J Am Acad Child Adolesc Psychiatry. 1997;36:545-53.
43. Isolan L, Salum GA, Osowski AT, Amaro E, Manfro GG. Psychometric properties of the Screen for Child and Anxiety Related Emotional Disorders (SCARED) in Brazilian children and adolescents. J Anxiety Disord. 2011;25:741-8.

Table 1

SCAS original items and corresponding SCAS-Brasil items

Factor/Subscale	**Original item**	**Brazilian Portuguese item**
Separation Anxiety (Ansiedade de Separação)	I would feel afraid of being on my own at home	Eu ficaria com medo de ficar sozinho(a) em casa
	I worry about being away from my parents	Eu me preocupo em estar longe dos meus pais
	I worry that something awful will happen to someone in my family	Eu me preocupo que algo terrível vá acontecer com alguém da minha família
	I feel scared if I have to sleep on my own	Eu sinto medo se eu tenho que dormir sozinho(a)
	I have trouble going to school in the mornings because I feel nervous or afraid	Eu tenho problemas em ir para a escola porque me sinto nervoso(a) ou assustado(a)
	I would feel scared if I had to stay away from home overnight	Eu ficaria com medo se eu tivesse que passar a noite longe de casa
Social Phobia (Fobia Social)	I feel scared when I have to take a test	Eu fico com medo quando tenho que fazer uma prova
	I feel afraid if I have to use public toilets or bathrooms	Eu fico com medo se eu tenho que usar banheiros públicos
	I feel afraid that I will make a fool of myself in front of people	Eu fico com medo de fazer papel de bobo na frente das pessoas
	I worry that I will do badly at my school work	Eu me preocupo em ir mal no meu trabalho escolar
	I worry what other people think of me	Eu me preocupo com o que outras pessoas pensam de mim
	I feel afraid if I have to talk in front of my class	Eu sinto medo se eu tenho que falar em frente a minha sala de aula
Generalized Anxiety Disorder (Ansiedade Generalizada)	I worry about things	Eu me preocupo com as coisas
	When I have a problem, I get a funny feeling in my stomach	Quando eu tenho um problema, eu fico com uma sensação esquisita no meu estômago
	I feel afraid	Eu sinto medo
	When I have a problem, my heart beats really fast	Quando eu tenho um problema, meu coração bate muito rápido
	I worry that something bad will happen to me	Eu me preocupo que algo ruim vá acontecer comigo
	When I have a problem, I feel shaky	Quando eu tenho um problema, eu me sinto nervoso(a)
Panic Attack (Ataque de Pânico) e Agoraphobia (Agorafobia)	I suddenly feel as if I can't breathe when there is no reason for this	Eu sinto como se de repente eu não pudesse respirar quando não há razão para isso
	I suddenly start to tremble or shake when there is no reason for this	Eu começo de repente a tremer ou me agitar quando não há razão para isso
	All of a sudden I feel really scared for no reason at all	Eu me sinto muito assustado(a) de repente, sem razão nenhuma
	I suddenly become dizzy or faint when there is no reason for this	Eu fico tonto(a) ou desmaio de repente quando não há razão para isso
	My heart suddenly starts to beat too quickly for no reason	Meu coração começa a bater muito rápido de repente sem nenhuma razão
	I worry that I will suddenly get a scared feeling when there is nothing to be afraid of	Eu me preocupo que vou me sentir assustado(a) de repente quando não há nada do que ter medo

Table 1(continuation)

SCAS original items and corresponding SCAS-Brasil items

Factor/Subscale	**Original item**	**Brazilian Portuguese item**
Panic Attack (Ataque de Pânico) e Agoraphobia (Agorafobia)	I feel scared if I have to travel in the car, or on a bus or a train	Eu fico assustado(a) se tenho que viajar em um carro, um ônibus ou um trem
	I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds)	Eu tenho medo de ficar em lugares cheios de gente (como shoppings, cinemas, ônibus ou parquinhos lotados)
	I am afraid of being in small closed places, like tunnels or small rooms	Eu tenho medo de estar em locais pequenos fechados, como túneis ou quartos pequenos
Physical Injury Fears (Medo de Danos Físicos)	I am scared of the dark	Eu tenho medo do escuro
	I am scared of dogs	Eu tenho medo de cachorros
	I am scared of going to the doctors or dentists	Eu tenho medo de ir a médicos ou dentistas
	I am scared of being in high places or lifts (elevators)	Eu tenho medo de estar em lugares altos ou elevadores
	I am scared of insects or spiders	Eu tenho medo de insetos ou aranhas
Fillers (Itens Positivos *Fillers*)	I am popular amongst other kids my own age	Eu sou popular entre outras crianças da minha idade
	I am good at sports	Eu sou bom nos esportes
	I am a good person	Eu sou uma pessoa boa
	I feel happy	Eu me sinto feliz
	I like myself	Eu gosto de mim
	I am proud of my school work	Eu estou orgulhoso(a) das minhas tarefas escolares
Obsessive-Compulsive Disorder (Problemas Obsessivo-Compulsivos)	I have to keep checking that I have done things right (like the switch is off, or the door is locked)	Eu tenho que ficar checando se eu fiz as coisas direito (como se apaguei a luz, ou tranquei a porta)
	I can’t seem to get bad or silly thoughts out of my head	Parece que eu não consigo tirar pensamentos ruins ou idiotas da minha cabeça
	I have to think of special thoughts to stop bad things from happening (like numbers or words)	Eu tenho que pensar em pensamentos especiais para impedir que coisas ruins aconteçam (como números ou palavras)
	I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order)	Eu tenho que fazer algumas coisas repetidamente (como lavar as mãos, limpar ou colocar as coisas em certa ordem)
	I get bothered by bad or silly thoughts or pictures in my mind	Eu fico incomodado(a) com pensamentos ou imagens ruins ou idiotas na minha mente
	I have to do some things in just the right way to stop bad things happening	Eu tenho que fazer algumas coisas da forma correta para impedir que coisas ruins aconteçam

– CHAPTER IV –

STUDY 3: SENSITIVITY AND SPECIFICITY OF THE SCREEN FOR CHILD ANXIETY RELATED EMOTIONAL DISORDERS (SCARED): A COMMUNITY-BASED STUDY

The authors of this study are Diogo Araújo DeSousa, Giovanni Abrahão Salum, Luciano Rassier Isolan, and Gisele Gus Manfro. This study was submitted as an original article to Child Psychiatry and Human Development and accepted for publication on August 28th, 2012. Full reference is: DeSousa, D. A., Salum, G. A., Isolan, L. R., & Manfro, G. G. (in press). Sensitivity and specificity of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a community-based study. *Child Psychiatry and Human Development*. Epub ahead of print, September 9th 2012. doi:10.1007/s10578-012-0333-y. We present here the text of the article for the purpose of the Thesis composition, acknowledging the copyright of Child Psychiatry and Human Development.

Abstract

The aim of this cross-sectional community-based study was to examine the sensitivity and specificity of the Screen for Child Anxiety Related Emotional Disorders (SCARED) to the diagnosis of anxiety disorders (AD). Participants were 119 students aged 9-18. Psychiatric diagnoses were assessed by a psychiatrist throughout a structural clinical interview (K-SADS-PL). Forty-four participants had positive diagnosis for at least one AD. The total score of the SCARED significantly differentiated anxious from non-anxious children with an optimal cutoff point of 22 (sensitivity = 81.8%; specificity = 52.0%). SCARED subscales of social phobia and separation anxiety disorder, but not generalized anxiety disorder, revealed better discrimination proprieties than total scores to screen for that specific disorder ($p < .05$). Both total and specific SCARED scores presented moderate sensitivity and specificity for detecting AD in a community sample. Investigators interested in screening for specific AD, rather than the group of AD, may benefit from using the specific subscales.

Keywords: psychometrics; anxiety; panic; phobia; child

Anxiety disorders are very prevalent during childhood and adolescence [1-3], resulting in significant impairment if inadequately diagnosed and/or left untreated. Moreover anxiety disorders can lead to several psychiatry problems in adulthood [1, 4-6], as anxiety and depressive disorders [7, 8], substance abuse and dependence [9], and suicide behavior [10]. Therefore, adequate tools for the assessment of anxiety symptoms and screening for anxiety diagnosis are highly important.

The Screen for Child Anxiety Related Emotional Disorders (SCARED) [11, 12] is a self-report measure that is consistently being use for several studies assessing anxious symptoms in children and adolescents. This instrument holds characteristics that make it an important tool for the assessment of anxiety among children. First, the SCARED was specifically developed to assess pediatric anxiety and it is not a downward version of an instrument previously developed to assess adult anxiety. Second, the scale evaluates symptoms according to DSM-IV diagnostic criteria [13] for specific anxiety disorders (social phobia, generalized anxiety disorder (GAD), separation anxiety disorder, panic disorder). School anxiety, also measured by the SCARED, although a very prevalent problem, is not a DSM-IV anxiety disorder.

Data from international studies have consistently considered the SCARED to be a reliable and valid screening instrument to assess anxiety symptoms in children and adolescents [11, 12, 14-22]. These studies have investigated different psychometric properties and found good evidences of internal consistency and test–retest reliability [11, 12, 14-16, 20, 21], parent–child correlation [11, 20-22], convergent validity [14, 15; 17-19, 21], and discriminant validity [11, 12, 17, 21] of the SCARED. In addition to that, the results of a meta-analysis conducted by Hale, Crocetti, Raaijmakers, & Meeus [23] that evaluated the cross-cultural psychometric properties of the original SCARED scale, as well as its adapted versions, also suggested that the scale can be used as a robust screening instrument for DSM-IV-TR anxiety disorder symptom dimensions in different populations.

Sensitivity and specificity are two important characteristics to be evaluated in an instrument that is used as a screening tool. Nonetheless, few of the previous adaptation and validation studies presented data about the sensitivity and specificity of the SCARED for DSM-IV diagnostic categories [11, 12, 17, 21]. In these studies, the SCARED showed to be a useful tool to differentiate children with anxiety disorders from children without anxiety disorders for screening purposes.

The Brazilian version of the SCARED has demonstrated good psychometric properties in a community sample comprised of 2,410 students aged 9-18 years [24] and showed a five-factor structure, as suggested in its original theoretical conceptualization

[11, 12]. It was also equally well fitted to boys and girls, and to children and adolescents. Moreover it presented good reliability properties as measured by internal consistency and test–retest reliability, as well as good evidences of construct validity [24]. The aim of this paper is to contribute with new evidences of the validity of the Brazilian version of the SCARED, specifically addressing its sensitivity and specificity to DSM-IV anxiety disorders.

Methods

Participants

A hundred and nineteen Brazilian students aged 9-18 years (M = 12.66; SD = 2.32) participated on this specific study, including 80 females (67.2%). The participants were randomly selected from a larger sample that participated in the cross-sectional study denominated the Multidimensional Evaluation and Treatment of Anxiety in Children and Adolescents – the PROTAIA Project that was designed to study anxiety disorder in children and adolescents [25]. These children and adolescents were recruited from six schools that belong to the Primary Care Unit of the *Hospital de Clínicas de Porto Alegre – Universidade Federal do Rio Grande do Sul* (HCPA-UFRGS) catchment area.

Prior to the study, both students and their parents received written information and the parents were required to provide written informed dissent. Parents who did not give permission for their child to participate were asked to return a signed dissent form. Written informed consent was obtained for all the participating schools and the study design was reviewed and approved by the ethics committee of the *Hospital de Clínicas de Porto Alegre* (number 08-017). From a total of 2,537 students invited in the schools, 80 (3.2%) refused to participate. The sample that attended school screening was fairly similar to the one that refused to participate, with the exception of a higher proportion of females (OR = 1.6; p = .049) and being younger [M = 12.8 years (SD = 2.37) vs. M = 14.0 years (SD = 2.51); p < .001]. The SCARED was administered to all children and the sample was divided into 4 equal-sized groups ordered according to the SCARED scores (from the lower scores to the higher scores). We further invited for diagnostic interviews with the Schedule for Affective Disorders and Schizophrenia for School-Age Children/Present and Lifetime Version (K-SADS-PL) all of those at the top 25% scores of SCARED (higher than percentile 75%) and a random sample of 10% of each of the remaining three quartiles: (1) lower than percentile 25%; (2) between percentiles 25% and 50% and (3) between percentiles 50% and 75%. The sample that attended school screening but not diagnostic assessment was also similar, with no difference regarding gender (OR = .79; p = .151), but

with a higher chance of being older [M = 12.8 (SD = 2.38) vs. M = 13.9 (SD = 2.51); p < .001]. There were no other significant differences regarding symptoms or risk factors evaluated [25]. For more detailed descriptions about sample procedures and design, see Salum et al. [25].

Instruments

Measurement Instrument.

The SCARED is a self-report instrument used to measure anxiety in children and adolescents [11, 12, 24]. The questionnaire is composed by 41 items, divided into five factors: panic/somatic (13 items); generalized anxiety (9 items); separation anxiety (8 items); social phobia (7 items), and school phobia (4 items). For each item, respondents choose the number that best describes how they have been feeling during the past 3 months in a 3-point scale (0 = not true or hardly ever true; 1 = sometimes true; 2 = true or often true). Total scores, therefore, range from 0 to 82, with higher scores reflecting higher levels of anxiety.

The SCARED has been validated to Brazilian Portuguese [24], and presented good internal consistency for the total score (alpha = .90), as well as for the subscale scores (.83 for somatic/panic, .77 for generalized anxiety, .69 for separation anxiety, .74 for social phobia, and .45 for school phobia). Test–retest reliability with a reassessment after 2 weeks reached a Pearson correlation coefficient (r) of .68 and an intraclass correlation coefficient of .81 for the total score. The SCARED total score also presented good partial correlations with other validated self-reports measures of psychopathology such as the Multidimensional Anxiety Scale for Children (MASC) [26] total score (r = .81, p < .001) and respective subscales of physical symptoms (r = .74, p < .001), harm avoidance (r = .53, p < .001), social anxiety (r = .72, p < .001), and separation/panic (r = .61, p < .001); the Children's Depression Inventory (CDI) [27] total score (r = .58, p < .001), and the Strengths and Difficulties Questionnaire (SDQ) [28] total score (r = .66, p < .001).

Psychiatric Diagnosis.

The Schedule for Affective Disorders and Schizophrenia for School-Age Children/Present and Lifetime Version (K-SADS-PL) is a semi-structured interview used for the diagnosis of childhood psychiatric disorders [29], based on the DSM-IV criteria [13] for the following diagnostic areas: (a) disruptive behavioral disorders (attention deficit hyperactivity disorder/ADHD, conduct disorder, oppositional defiant disorder); (b) anxiety disorders (social phobia, agoraphobia, specific phobia, obsessive-compulsive disorder, separation anxiety disorder, generalized anxiety disorder, panic disorder, posttraumatic

stress disorder); (c) affective disorders (major depression, dysthymia, mania, hypomania); (d) psychotic disorders; and (e) substance abuse, tic disorders, eating disorders, and elimination disorders (enuresis, encopresis). The Brazilian version of the K-SADS-PL has already been cross-cultural adapted and evaluated showing good psychometric properties [30]. For the purposes of this study, anxiety disorders as a group encompass the following psychiatric diagnosis: (1) social phobia; (2) separation anxiety disorder; and (3) generalized anxiety disorder (GAD).

Procedures

Participants were asked to complete the Brazilian version of the SCARED at schools. The time necessary to complete the SCARED instrument is around 10 minutes. The K-SADS-PL, a structured clinical interview, was performed at the hospital by two child and adolescent psychiatrists and one resident in child and adolescent psychiatry in order to evaluate the psychiatric diagnosis. Interviewers were required to have clinical experience and extensive training in using the K-SADS-PL and were also blind to previously SCARED scores. All interviewers had undergone a K-SADS-PL training process for one month that consisted of four phases: (1) Four 2-hour-seminars concerning K-SADS-PL structure and diagnostic criteria, conducted by two child and adolescent psychiatrists with an experience of more than 100 K-SADS-PL interviews; (2) observation of 5 K-SADS-PL interviews, *in vivo*, performed by a senior interviewer; (3) administration of the K-SADS-PL in 2 patients under the supervision of a trained interviewer; (4) pair by pair factorial combination of each interviewer (i.e., at least two interviews with every interviewer). Inter-rater reliability was checked after all interviewers watched and rated 16 DVD K-SADS-PL interviews and resulted in a kappa-value of .932 for DSM-IV anxiety diagnoses. No information about *a priori* diagnostic probability of each subject was told for evaluators.

Data Analysis

Analysis of variance (ANOVA) and Receiver Operating Characteristic (ROC) curve analysis were used to evaluate the discriminant validity, sensitivity and specificity of the SCARED. Current diagnoses of anxiety disorders established by the clinical interview with K-SADS-PL were used as gold standard. The SCARED scores were summed up producing total and subscale scores. Higher scores represent higher number of anxiety symptoms.

General Liner Model using Type III Sum of Squares was used to adjust for the differences between the numbers of participants (*n*) in each subgroup. The ROC curve analysis assessed multiple pairs of test sensitivities (rates of true positives) and 1-specificities (rates of false positives) at numerous cutoff scores for the total score of the SCARED. The index of accuracy used in the ROC curve analysis was the Area Under the Curve (AUC). The AUC value varies between .50 and 1.00. An AUC of .50 represents a scale in which the probability is that chance alone accounts for the identification of a patient with the disorder over one without it. An AUC of 1.00 represents a perfect scale in terms of diagnostic accuracy.

The Youden's J index was used to determine the optimal cutoff point (OCP) scores for the total and subscale scores of the Brazilian version of the SCARED. This index can be obtained through the sum of sensitivity and specificity minus 1 (sensitivity + specificity = 1 + J, where J is the Youden's index) [31, 32]. The index was calculated for each cutoff point in the ROC curve analysis and its maximum value indicated the OCP.

The values for the group scores in the analysis of variance are reported as means and standard deviations. The values for the AUC are expressed in percentages and within a 95% confidence interval. All *p*-values are based on two-tailed tests with alphas set at 5%.

Results

Forty-four participants (37.0%) had at least one anxiety disorder diagnosis. From those, 26 had GAD (21.8%), 24 social phobia (20.2%), and 9 separation anxiety disorder (7.6%). Regarding comorbidities, 3 participants were diagnosed with all mentioned anxiety disorders, 6 with GAD and social phobia, 2 with GAD and separation anxiety disorder, and 1 with social phobia and separation anxiety disorder. The primary diagnosis was based on the severity of Clinical Global Impressions – Severity (CGI) rating scale. As no subject was diagnosed with panic disorder, the sensitivity and specificity of the SCARED panic subscale was not investigated. Even though school anxiety is a very common anxiety problem, it is not a DSM-IV-TR anxiety disorder, and therefore it was excluded from the final psychiatric assessment. Moreover data from the SCARED Brazilian version study have demonstrated that the school anxiety subscale has less reliable psychometrics properties [24], in agreement with other previous studies [23].

Since anxiety disorders were oversampled in our study design and we had a prevalence of 37.0% of anxiety disorder in our sample, we suspected that a higher number of individuals with high SCARED scores might have attended the diagnostic interview if compared to subjects without any anxiety disorders. However, the adjustment Chi-square

test revealed no significant differences concerning the number of participants that attended diagnostic interviews among strata of patients based on the quartiles of the SCARED scale ($\chi^2 = 5.34$; $df = 3$; $p = .149$).

The total and subscale scores of the SCARED were compared between children diagnosed with any anxiety disorder ($n = 44$) and children who had no anxiety diagnoses ($n = 75$). As depicted in Table 1, anxious children presented higher total and subscale SCARED scores as compared to those without anxiety disorder(s) diagnosis ($p < .001$).. The differences in scores between groups showed moderate to strong effect sizes, with Cohen's *d* of .72 for social anxiety subscale score, .82 for generalized anxiety subscale score, and .90 for the total and the social phobia subscale scores.

Table 1 around here

The total and subscale scores of the SCARED were also compared between children diagnosed with each of the specific anxiety disorders evaluated (social phobia: $n = 24$; GAD: $n = 26$; separation anxiety disorder: $n = 9$) and children who had no diagnosis for any specific anxiety disorder. In general, all total and subscale scores significantly differentiated the anxious from the non-anxious groups, except for separation anxiety disorder, which was significantly differentiated only by the separation anxiety subscale score (Table 1).

Our data suggested that the SCARED subscales are not only sensitive, but also somewhat specific to deal with the screening of specific anxiety disorders. To further investigate this hypothesis, new ANOVA analyses were performed after excluding participants who presented comorbidities ($n = 12$). By excluding these subjects who presented comorbidities, it was possible to investigate how each of the SCARED subscale scores were specific to the respective anxiety disorder according to the gold standard K-SADS-PL diagnosis and not to a presence of mixed anxiety symptoms from more than one type of anxiety disorders. Table 2 shows the analyses comparing the groups that presented only one specific anxiety disorder and a control group comprised by children with no diagnosis for anxiety disorders. Concerning the diagnosis of social phobia, the total score and the social phobia subscale score presented significant differences between the two groups. Similar results were found concerning the diagnosis of GAD (Table 2). It was not possible to conduct these analyses for separation anxiety disorder group because of the very small sample size ($n = 3$) after the exclusion of the ones with comorbidities.

Table 2 around here

The results regarding the ROC curve analysis are presented in Table 3. The *p*-values reported represent the test of the null hypothesis that chance alone accounted for the differences between the observed Area Under the Curve (AUC) for the SCARED and the random ROC (AUC = .50).

Table 3 around here

The SCARED total score significantly differentiated anxious from non-anxious individuals. Furthermore, the subscale scores could also differentiated participants with specific diagnosis for the different anxiety disorder assessed by the subscale from other participants. When screening for any type of anxiety disorders, the SCARED total score reached a higher AUC than the subscale scores (Figure 1), although the differences were not significant (p = .466). On the other hand, when screening for a specific type of anxiety disorder, the SCARED subscale score relative to that anxiety disorder reached higher AUC than the other subscale scores or the total score. Differences were significant to the screening of social phobia (p = .003) and separation anxiety disorder (p = .023), but not to GAD (p = .216) (Table 3). The optimal cutoff point (OCP) scores for the total score and the subscale scores of the SCARED are depicted in Table 3.

Figure 1 around here

Discussion

In this study we were able to demonstrate that the Brazilian version of the SCARED satisfactorily differentiated children with and without anxiety disorder(s) diagnosis. Anxious children presented higher total and subscale rating scores, with moderate to strong effect sizes. The total score of the SCARED reached an Area Under the Curve (AUC) of .732, with an Optimal Cutoff Point (OCP) of 22, accounting for 81.8% of sensitivity and 52.0% of specificity regarding any type of anxiety disorder, presenting itself as a useful instrument to the screening of pediatric anxiety disorders. Furthermore, the subscale scores differentiated participants better when screening for the specific anxiety disorder assessed by the subscale. These results suggest that both the total and the subscales SCARED scores are useful in screening for anxiety disorders in general as well as for specific anxiety disorders. Children and adolescents could complete the SCARED in

few minutes while they wait to be seen by the clinicians. In Brazilian community samples, a total score of ≥ 22 should increase the clinical suspicion for the presence of one or more anxiety disorders evaluated by the SCARED.

In the studies of Birmaher et al. [11, 12], the SCARED total and the subscale scores significantly differentiated children with anxiety disorders from children with other non-anxiety psychiatry disorders in a clinically referred sample. In our study, the total and the subscale scores significantly differentiated children with anxiety disorders from those without anxiety disorders in a community sample. The OCP of 15 and the sensitivity of 70% and specificity of 50% were suggested by Birmaher et al. study [11]. Another study suggested an OCP of 25 with sensitivity of 71% and specificity of 67% [12]. In our study, the OCP was in that range (22) with a higher sensitivity, but lower specificity. Our results could disagree from Birmaher et al. [11, 12], because we used a community sample as the other studies used clinically referred samples.

In another previous study, Monga et al. [17] described that the original version of the SCARED significantly differentiated anxious from non-anxious participants in a ROC curve analysis with an AUC of .67 ($p < .001$), close to the AUC of .732 found in our study. On the other hand, our cutoff point for the total score was somewhat lower than the one suggested by Su et al. [21] for the Chinese version of the SCARED (OCP = 25, with sensitivity of 79% and specificity of 82%) to separate clinically referred children with an anxiety disorder from community children. Our results pointed to slightly better sensitivity, but worse specificity than the ones described by Su et al. [21].

The discrepancies between our results and the ones described by Su et al. [21] might be accounted for some methodological differences. The gold standard for psychiatry diagnosis used in our study was the K-SADS-PL, while Su et al. [21] used an interview schedule developed by the researchers. On the other hand, the study of Monga et al. [17], which found a somewhat similar result for the AUC, also used a version of the K-SADS to establish psychiatry diagnosis. Other differences could also be related to cultural aspects or sample particularities. For instance, Brazilian children and adolescents are exposed to stressful environments, including poverty, violence, and parental mental illness, which are conditions associated with child mental health problems. This characteristic may be responsible for the high level of anxiety symptoms found in our study. Previous studies have also showed a high prevalence of mental health problems among young people in Brazil [3].

The major limitation of our study regards to the small sample, specially for children diagnosed with separation anxiety disorder, or children without anxiety disorders

comorbidities. We hypothesize that symptoms of separation anxiety are particularly frequent in children and less common in adolescent, if compared to the other symptoms dimensions. Since our sample was comprised mainly by adolescents, we may not have had enough power to investigate that specific symptom dimension. Other limitations concern the background of these children. Since our sample was recruited from schools belonging to a specific primary care unit from a Brazilian city, the results presented here are specific to students living in an urban environment. In addition, although adherence test did not shown a significant result, the high prevalence of anxiety disorders in that sample suggest some differential attendance between strata of the diagnostic phase of that study. The major strength of our study concerns the fact that a community sample was assessed and that the participants that were recruited to the psychiatric evaluation were randomly selected, providing higher ecological validity to our data. Also, the establishment of the psychiatry diagnosis through out a clinical interview with the K-SADS-PL, performed by blinded psychiatrists with extensive clinical experience and training, allowed us to use a strong gold standard.

In conclusion, our data suggested that the SCARED does not substitute a complete diagnostic interview conducted by specialized professionals. Nonetheless, the Brazilian version of the scale demonstrated satisfactory sensitivity and specificity to anxiety disorders diagnosis in general and also for specific types of anxiety disorders, showing a reasonable value for predicting pediatric anxiety disorders. Considering this result together with the results of the previous study showing good psychometric properties regarding reliability and validity [24], it could be suggested that the Brazilian version of the SCARED is a useful screening instrument for anxiety disorders in children and adolescents. Among other benefits, the instrument takes much less time than a full diagnostic interview, it can be used over a larger number of children and adolescents at the same time, it is not expensive to use, and it still accounts for different symptoms from specific anxiety disorders (e. g. GAD, separation anxiety disorder). The possibility of having a good instrument to detect anxiety symptoms among youth can contribute to a better assessment and detection of anxiety disorders in children and adolescents leading to decreasing the morbidity associated to the inadequately diagnosis in this specific population.

Summary

The Screen for Child Anxiety Related Emotional Disorders (SCARED) is a self-report instrument to assess anxiety symptoms in children [11, 12]. Data from international

studies have consistently considered the SCARED to be a reliable and valid screening instrument to assess anxiety symptoms in children and adolescents [11, 12, 14-22]. The results of a meta-analysis conducted by Hale, Crocetti, Raaijmakers, & Meeus [23] that evaluated the cross-cultural psychometric properties of the original SCARED scale, as well as its adapted versions, also suggested that the scale can be utilized as a robust screening instrument for DSM-IV-TR anxiety disorder symptom dimensions in different populations. However, few of the adaptation and validation studies presented data about the sensitivity and specificity of the SCARED for DSM-IV diagnostic categories [11, 12, 17, 21].

The aim of this cross-sectional community-based study was to examine the sensitivity and specificity of the SCARED to the diagnosis of anxiety disorders. Participants were a 119 students aged 9-18 years (M = 12.66; SD = 2.32). Psychiatric diagnosis was assessed through out the Schizophrenia for School-Age Children/Present and Lifetime Version (K-SADS-PL). Results indicated that the total score of the SCARED significantly differentiated children with positive diagnosis of anxiety disorders from those with no anxiety disorders diagnosis (AUC = .732; CI 95% .643 – .821) with an optimal cutoff point (OCP) of 22 (sensitivity = 81.8%; specificity = 52.0%). SCARED subscales of social phobia and separation anxiety, but not generalized anxiety, revealed better discrimination proprieties than total scores to screen for that specific disorder in the community ($p < .05$). The SCARED using both total and specific scores presented moderate sensitivity and specificity for detecting anxiety disorders in a community sample. Investigators interested in specific anxiety disorders, rather than the group of anxiety disorders, may benefit from using specific SCARED subscales for screening purposes.

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References

1. Asbahr FR (2004) Anxiety disorders in childhood and adolescence: clinical and neurobiological aspects. J Pediatr 80:S28-34. doi:10.1590/S0021-75572004000300005

2. Fisak Jr. BJ, Richard D, Mann A (2011) The prevention of child and adolescent anxiety: a meta-analytic review. Prev Sci 12:255-269. doi:10.1007/s11121-011-0210-0
3. Fleitlich-Bilyk B., Goodman R (2004) Prevalence of child and adolescent psychiatric disorders in southeast Brazil. J Am Acad Child Adolesc Psychiatry 43:727-734. doi:10.1097/01.chi.0000120021.14101.ca
4. Isolan LR, Zeni CP, Mezzomo K, Blaya C, Kipper L, Heldt E, Manfro GG (2005) Behaviorial inhibition and history of childhood anxiety disorders in Brazilian adult patients with panic disorder and social anxiety disorder. Rev Bras Psiquiatr 27:97-100. doi:10.1590/S1516-44462005000200005
5. Manfro GG, Isolan L, Blaya C, Maltz S, Heldt E, Pollack MH (2003) Relationship between adult social phobia and childhood anxiety. Rev Bras Psiquiatr 25:96-99. doi:10.1590/S1516-44462003000200009
6. Manfro GG, Isolan L, Blaya C, Santos L, Silva M (2002) Retrospective study of the association between adulthood panic disorder and childhood anxiety disorders. Rev Bras Psiquiatr 24:26-29. doi:10.1590/S1516-44462002000100008
7. Bittner A et al. (2007) What do childhood anxiety disorders predict? J Child Psychol Psychiatry 48:1174-1183. doi:10.1111/j.1469-7610.2007.01812.x
8. Pine DS, Cohen P, Gurley D, Brook J, Ma Y (1998) The risk for early-adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. Arch Gen Psychiatry 55:56-64. doi:10.1001/archpsyc.55.1.56
9. Konnopka A et al. (2009) Cost-of-illness studies and cost-effectiveness analyses in anxiety disorders: a systematic review. J Affect Disord 114:14-31. doi:10.1016/j.jad.2008.07.014
10. Bolton JM et al. (2008) Anxiety disorders and risk for suicide attempts: findings from the Baltimore Epidemiologic Catchment area follow-up study. Depress Anxiety 25:477-481. doi:10.1002/da.20314
11. Birmaher B, Khetarpal S, Brend D, Cully M, Balach L, Kaufman J et al. (1997) The Screen for Child Anxiety Related Emotional Disorders (SCARED): scale construction and psychometric characteristics. J Am Acad Child Adolesc Psychiatry 36:545–553. doi:10.1097/00004583-199704000-00018
12. Birmaher B, Brent DA, Chiappetta L, Bridge J, Monga S, Baugher M (1999). Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a replication study. J Am Acad Child Adolesc Psychiatry 38:1230–1236. doi:10.1097/00004583-199910000-00011

13. American Psychiatric Association (1994) Diagnostic and Statistical Manual of Mental Disorders (4th ed). Washington, DC: Author.
14. Boyd RC, Ginsburg GS, Lambert SF, Cooley MR, Campbell KDM (2003) Screen for Child Anxiety Related Emotional Disorders (SCARED): psychometric properties in an African American Parochial high school sample. J Am Acad Child Adolesc Psychiatry 42:1188–1196. doi:10.1097/00004583-200310000-00009
15. Essau CA, Muris P, Ederer EM (2002) 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 33:1–18. doi:10.1016/S0005-7916(02)00005-8
16. Haley T, Puskar K, Terhorst L (2011) Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders in a rural high school population. J Child Adolesc Psychiatr Nurs 24:23–32. doi:10.1111/j.1744-6171.2010.00264.x
17. Monga S, Birmaher B, Chiappetta L, Brent D, Kaufman J, Bridge J et al. (2000) Screen for Child Anxiety Related Emotional Disorders (SCARED): convergent and divergent validity. Depress Anxiety 12:85–91. doi:10.1002/1520-6394(2000)12:2<85::AID-DA4>3.0.CO;2-2
18. Muris P, Merckelbach H, Mayer B, van Brakel A, Thissen S, Moulaert V et al. (1998) The Screen for Child Anxiety Related Emotional Disorders (SCARED) and traditional childhood anxiety measures. J Behav Ther Exp Psy 29:327–339. doi:10.1016/S0005-7916(98)00023-8
19. Muris P, Merckelbach H, Ollendick T, King N, Bogie N (2002) Three traditional and three new childhood anxiety questionnaires: their reliability and validity in a normal adolescent sample. Behav Res Ther 40:753–772. doi:10.1016/S0005-7967(01)00056-0
20. Muris P, Merckelbach H, van Brakel A, Mayer B (1999) The revised version of the Screen for Child Anxiety Related Emotional Disorders (SCARED-R): further evidence for its reliability and validity. Anxiety Stress Coping 12:411–425. doi:10.1080/10615809908249319
21. Su L, Wang K, Fan F, Su Y, Gao X (2008) Reliability and validity of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in Chinese children. J Anxiety Disord 22:612–621. doi:10.1016/j.janxdis.2007.05.011
22. Wren FJ, Bridge JA, Birmaher B (2004) Screening for childhood anxiety symptoms in primary care: integrating child and parent reports. J Am Acad Child Adolesc Psychiatry 43:1364–1371

23. Hale WW, Crocetti E, Raaijmakers QAW, Meeus WHJ (2011) A metaanalysis of the cross-cultural psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED). J Child Psychol Psychiatry 52:80–90. doi:10.1111/j.1469-7610.2010.02285.x
24. Isolan L, Salum GA, Osowski AT, Amaro E, Manfro GG (2011) Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in Brazilian children and adolescents. J Anxiety Disord 25:741–748. doi:10.1016/j.janxdis.2011.03.015
25. Salum GA et al. (2011) The multidimensional evaluation and treatment of anxiety in children and adolescents: rationale, design, methods and preliminary findings. Rev Bras Psiquiatr 33:182-195. doi:10.1590/S1516-44462011000200015
26. March J, Parker JD, Sullivan K, Stallings P, Conners CK (1997) The Multidimensional Anxiety Scale for Children (MASC): factor structure, reliability and validity. J Am Acad Child Adolesc Psychiatry 336:554–565. doi:10.1097/00004583-199704000-00019
27. Kovacz MA (1992) Children's Depression Inventory manual. North Tonawanda, NY: Multi-Health Systems.
28. Goodman R (2001) Psychometric properties of the Strengths and Difficulties Questionnaire. J Am Acad Child Adolesc Psychiatry 40:1337–1345. doi:10.1097/00004583-200111000-00015
29. Kaufman J, Birmaher B, Brent DA, Rao U, Flynn C, Moreci P, Williamson D, Ryan N (1997) Schedule for Affective Disorders and Schizophrenia for School-Age Children - Present and Lifetime Version (K-SADS-PL): initial reliability and validity data. J Am Acad Child Adolesc Psychiatry 36:980-988. doi:10.1097/00004583-199707000-00021
30. Brasil HHA (2003) Development of the Brazilian version of the K-SADS-PL (Schedule for Affective Disorders and Schizophrenia for School Aged Children Present and Lifetime Version): a study of its psychometric properties. Dissertation, Departament of Psychiatry, Universidade Federal de São Paulo, São Paulo, Brazil.
31. Böhning D, Böhning W, Holling H (2008) Revisiting Youden's index as a useful measure of the misclassification error in meta-analysis of diagnostic studies. Stat Methods Med Res 17:543-554. doi:10.1177/0962280208081867
32. Shaik SA (2011) Measures derived from a 2 x 2 table for an accuracy of a diagnostic test. J Biomet Biostat 2:128. doi:10.4172/2155-6180.1000128

Table 1

Comparison of the SCARED total and subscale scores between children with and without anxiety disorders

SCARED scores		Any Anxiety Disorder		Statistics		
		Positive diagnosis (n = 44)	Negative diagnosis (n = 75)	F	p-value	Cohen's d [CI 95%]
Total score M (SD)		33.01 (11.85)	22.97 (10.73)	22.47	< .001	0.90 [0.51 – 1.29]
Subscale score M (SD)	Social phobia	7.40 (3.19)	4.76 (2.76)	22.68	< .001	0.90 [0.51 – 1.29]
	Generalized anxiety	10.30 (3.55)	7.44 (3.48)	18.47	< .001	0.82 [0,43 – 1,20]
	Separation anxiety	7.01 (3.16)	4.97 (2.62)	14.42	< .001	0.72 [0.34 – 1.10]
		Social Phobia		Statistics		
		Positive diagnosis (n = 24)	Negative diagnosis (n = 95)	F	p-value	Cohen's d [CI 95%]
Total score M (SD)		34.75 (13.24)	24.65 (10.99)	14.89	< .001	.88 [.42 – 1.34]
Subscale score M (SD)	Social phobia	8.54 (2.92)	5.02 (2.84)	29.03	< .001	1.23 [.75 – 1.70]
	Generalized anxiety	10.17 (3.64)	8.07 (3.68)	6.25	.014	.57 [.12 – 1.02]
	Separation anxiety	7.08 (3.51)	5.38 (2.75)	6.53	.012	.58 [.13 – 1.04]
		GAD		Statistics		
		Positive diagnosis (n = 26)	Negative diagnosis (n = 93)	F	p-value	Cohen's d [CI 95%]
Total score M (SD)		34.46 (11.31)	24.51 (11.48)	15.34	< .001	.87 [.42 – 1.32]
Subscale score M (SD)	Social phobia	7.14 (3.37)	5.34 (3.03)	6.80	.010	.58 [.14 – 1.02]
	Generalized anxiety	11.30 (3.49)	7.71 (3.45)	21.94	< .001	1.04 [.58 – 1.49]
	Separation anxiety	7.02 (2.68)	5.36 (2.98)	6.52	.012	.57 [.12 – 1.01]
		Separation Anxiety Disorder		Statistics		
		Positive diagnosis (n = 9)	Negative diagnosis (n = 110)	F	p-value	Cohen's d [CI 95%]
Total score M (SD)		33.94 (9.78)	26.09 (12.14)	3.56	.062	.66 [-.03 – 1.34]
Subscale score M (SD)	Social phobia	7.11 (2.76)	5.62 (3.20)	1.84	.177	.47 [-.21 – 1.16]
	Generalized anxiety	9.32 (3.28)	8.43 (3.80)	0.47	.493	.24 [-.44 – .92]
	Separation anxiety	9.00 (2.50)	5.46 (2.87)	12.91	< .001	1.25 [.55 – 1.95]

Note. Score values are presented as means with standard deviations in parentheses.

Table 2

Comparison of the SCARED total and subscale scores between children with only one specific anxiety disorder and a control group

SCARED scores		Diagnosis for only social phobia (*n* = 14)	No anxiety disorder (*n* = 75)	Statistics		
				F	*p*-value	Cohen's *d* [CI 95%]
Total score *M* (*SD*)		31.08 (13.47)	22.97 (10.73)	6.21	.015	.73 [.14 – 1.30]
Subscale score *M* (*SD*)	Social phobia	8.14 (2.93)	4.76 (2.76)	17.47	< .001	1.22 [.62 – 1.81]
	Generalized anxiety	8.72 (3.02)	7.44 (3.48)	1.68	.198	.38 [-.20 – .95]
	Separation anxiety	6.50 (4.01)	4.97 (2.62)	3.36	.070	.54 [-.04 – 1,11]
SCARED scores		Diagnosis for only GAD (*n* = 15)	No anxiety disorder (*n* = 75)	Statistics		
				F	*p*-value	Cohen's *d* [CI 95%]
Total score *M* (*SD*)		30.40 (10.41)	22.97 (10.73)	6.04	.016	.70 [.13 – 1.26]
Subscale score *M* (*SD*)	Social phobia	5.77 (3.13)	4.76 (2.76)	1.62	.207	.36 [-.20 – .92]
	Generalized anxiety	11.00 (3.38)	7.44 (3.48)	13.25	< .001	1.03 [.45 – 1.60]
	Separation anxiety	5.83 (2.19)	4.97 (2.62)	1.41	.238	.34 [-.22 – .89]

Note. Score values are presented as means with standard deviations in parentheses.

Table 3

ROC curve analysis

SCARED scores		Any Anxiety Disoder								
		AUC	S.E.	*p*-value	CI 95%	OCP	Sensitivity	Specificity	Youden's index	χ^2 between total and subscale scores (*p*-value)
Total score		**.732**	**.045**	**< .001**	**[.643 – .821]**	**22**	**.818**	**.520**	**.338**	2.55 (.466)
Subscale score	Social phobia	.726	.048	< .001	[.632 – .820]	5	.705	.613	.318	
	Generalized anxiety	.711	.048	< .001	[.616 – .806]	7	.818	.533	.351	
	Separation anxiety	.684	.051	.001	[.584 – .783]	5	.659	.587	.246	
SCARED scores		Social Phobia (*n* = 24 diagnosed)								
		AUC	S.E.	*p*-value	CI 95%	OCP	Sensitivity	Specificity	Youden's index	χ^2 between total and subscale scores (*p*-value)
Total score		.717	.058	.001	[.604 – .830]	27	.667	.663	.330	13.71 (.003)
Subscale score	**Social phobia**	**.799**	**.048**	**< .001**	**[.705 – .892]**	**7**	**.625**	**.789**	**.414**	
	Generalized anxiety	.647	.060	.026	[.530 – .764]	7	.875	.474	.349	
	Separation anxiety	.634	.066	.044	[.504 – .763]	9	.292	.916	.208	
SCARED scores		GAD (*n* = 26 diagnosed)								
		AUC	S.E.	*p*-value	CI 95%	OCP	Sensitivity	Specificity	Youden's index	χ^2 between total and subscale scores (*p*-value)
Total score		.735	.050	< .001	[.638 – .832]	20	1.000	.419	.419	4.46 (.216)
Subscale score	Social phobia	.652	.063	.018	[.528 – .775]	8	.385	.860	.245	
	Generalized anxiety	**.760**	**.053**	**< .001**	**[.657 – .863]**	**9**	**.731**	**.656**	**.387**	
	Separation anxiety	.671	.056	.008	[.560 – .782]	5	.692	.570	.262	
SCARED scores		Separation Anxiety Disorder (*n* = 9 diagnosed)								
		AUC	S.E.	*p*-value	CI 95%	OCP	Sensitivity	Specificity	Youden's index	χ^2 between total and subscale scores (*p*-value)
Total score		.705	.074	.041	[.560 – .850]	26	.778	.582	.360	9.53 (.023)
Subscale score	Social phobia	.633	.077	.185	[.482 – .784]	5	.889	.418	.307	
	Generalized anxiety	.567	.089	.507	[.393 – .740]	6	.889	.364	.253	
	Separation anxiety	**.819**	**.070**	**.002**	**[.682 – .956]**	**7**	**.778**	**.791**	**.569**	

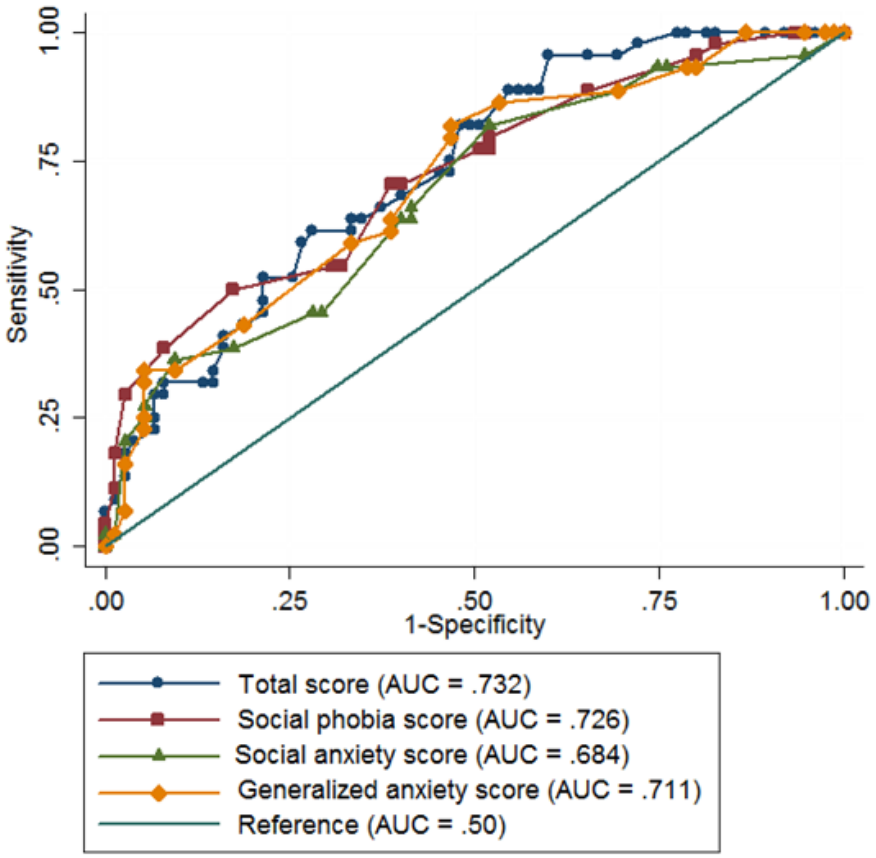

Figure 1. ROC curve analysis for the SCARED total and subscale scores regarding diagnosis of any anxiety disorders

– CHAPTER V –

STUDY 4: PSYCHOMETRIC PROPERTIES OF THE SPENCE CHILDREN'S ANXIETY SCALE (SCAS) IN BRAZILIAN COMMUNITY AND CLINICAL SAMPLES

The authors of this study are Diogo Araújo DeSousa, Anderson Siqueira Pereira, Circe Salcides Petersen, Gisele Gus Manfro, Giovanni Abrahão Salum, and Silvia Helena Koller. This study is intended to be submitted as an original article to Journal of Anxiety Disorders after the Thesis presentation.

Abstract

This study examined the psychometric properties of the Spence Children's Anxiety Scale (SCAS) self- and parent-report versions in a community (*n* = 712) and a clinical (*n* = 70) sample of Brazilian children and adolescents. Analyses conducted in the community sample using confirmatory factor analysis provided support to the original six correlated factors model of the SCAS. Moreover, the SCAS showed good internal consistency, convergent and divergent validity, and a significant informant effect on the total score with higher anxiety levels in the self-report than in the parent-report. Analyses conducted in the clinical sample revealed that the SCAS total scores showed good discriminant validity differentiating: (a) anxious, community, and negative screening groups; and (b) children diagnosed with different severity levels of anxiety disorders. Our findings suggest that the SCAS (self- and parent-report versions) is suitable for assessing anxiety symptoms in Brazilian children and adolescents in community and clinical settings.

Keywords: Spence Children's Anxiety Scale; anxiety; psychometrics; children; adolescents

Anxiety disorders are among the most common psychiatric disorders (Baumeister & Härter, 2007; Kessler et al., 2005). They begin early in life (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003), compromise family and social relationships, school activities (Essau, Conradt, & Petermann, 2000), and are associated with a variety of negative outcomes latter in life (Bittner et al., 2007; Costello et al., 2003; Woodward & Fergusson, 2001). To have adequate tools for evaluating symptoms of anxiety disorders is highly important and needed for both clinical and research purposes. This is especially important in low and middle-income countries that concentrate the majority of psychiatric disorders worldwide (Kieling et al., 2011). Despite that, in those countries these disorders are largely under-recognized and untreated.

Among a variety of instruments developed to assess anxiety symptoms in children and adolescents, the Spence Children's Anxiety Scale (SCAS; Spence, 1997, 1998) is a particularly prominent one. The SCAS is a self-report measure of child and adolescent anxiety that investigates anxiety symptoms based on the DSM-IV diagnostic criteria. Developed in Australia, the original version of the SCAS was considered as an instrument with good to excellent psychometric properties to the assessment of anxiety symptoms in children (Spence, 1997, 1998) and adolescents (Spence, Barrett, & Turner, 2003). Also, as an extension of the SCAS self-report version, a parent-report version (SCAS-P) was developed to assess youth anxiety symptoms based on their parents' report (Nauta et al., 2004).

Since its development, the psychometric properties of the SCAS have been examined in several countries and cultures, including in the Netherlands (Muris, Schmidt, & Merckelbach, 2000; Nauta et al., 2004); Germany (Essau, Muris, & Ederer, 2002; Essau, Sakano, Ishikawa, & Sasagawa, 2004; Essau, Leung, Conradt, Cheng, & Wong, 2008; Essau, Sasagawa, Anastassiou-Hadjicharalambous, Guzmán, & Ollendick, 2011); South Africa (Muris, Schmidt, Engelbrecht, & Perold, 2002); Japan (Essau et al., 2004; Ishikawa, Sato, & Sasagawa, 2009); Spain (Tortella-Feliu, Balle, Servera, & de la Banda, 2005; Orgilés, Méndez, Spence, Huedo-Medina, & Espada, 2012); Greece (Mellon & Moutavelis, 2007); China (Essau et al., 2008; Li, Lau, & Au, 2011; Zhao, Xing, & Wang, 2012); the USA (Whiteside & Brown 2008); Mexico (Hernández-Guzmán et al., 2010); Colombia (Crane Amaya & Campbell, 2010); Cyprus (Essau, Anastassiou-Hadjicharalambous, & Muñoz, 2011; Essau, Sasagawa et al., 2011); Italy (Essau, Sasagawa et al., 2011); Sweden (Essau, Sasagawa et al., 2011); the UK (Essau, Sasagawa et al., 2011); and Iran (Essau, Olaya, Pasha, O'Callaghan, & Bray, 2012).

Data from studies with community samples have demonstrated that the SCAS presented good evidences of internal consistency (Crane Amaya & Campbell, 2010; Essau et al., 2002, 2008, 2012; Essau, Anastassiou-Hadjicharalambous et al., 2011; Essau, Sasagawa et al., 2011; Hernández-Guzmán et al., 2010; Ishikawa et al., 2009; Li et al., 2011; Mellon & Moutavelis, 2007; Muris et al., 2000, 2002; Orgilés et al., 2012; Spence, 1997, 1998; Spence et al., 2003; Zhao et al., 2012), test-retest reliability (Essau, Anastassiou-Hadjicharalambous et al., 2011; Ishikawa et al., 2009; Mellon & Moutavelis, 2007; Spence, 1998; Spence et al., 2003; Zhao et al., 2012), child-parent correlation (Li et al., 2011; Whiteside & Brown, 2008), convergent and divergent validity with several anxiety and other psychopathology symptoms measures (Essau et al., 2002, 2012; Essau, Anastassiou-Hadjicharalambous et al., 2011; Essau, Sasagawa et al., 2011; Hernández-Guzmán et al., 2010; Ishikawa et al., 2009; Li et al., 2011; Mellon & Moutavelis, 2007; Orgilés et al., 2012; Muris et al., 2000, 2002; Spence, 1998; Spence et al., 2003; Zhao et al., 2012), and discriminant validity differentiating demographic groups (Crane Amaya & Campbell, 2010; Essau et al., 2002, 2004, 2008, 2012; Essau, Anastassiou-Hadjicharalambous et al., 2011; Ishikawa et al., 2009; Mellon & Moutavelis, 2007; Muris et al., 2000, 2002; Orgilés et al., 2012; Spence, 1997, 1998; Spence et al., 2003; Zhao et al., 2012). Moreover, data from studies with clinical samples have demonstrated that the SCAS presented good evidences of discriminant validity differentiating anxious from non-anxious youths (Nauta et al., 2004; Spence, 1998; Whiteside & Brown, 2008). In general, these studies have suggested that the SCAS is reliable and valid in community and clinical settings.

Nonetheless, to our knowledge, no studies have been conducted on the psychometric properties of the SCAS in Brazil. In addition, there is still a lack of reliable and valid instruments to specifically assess childhood anxiety symptoms in Brazilian population (Isolan et al., 2011; Silva & Figueiredo, 2005). Therefore, examining the psychometric properties of the SCAS in Brazil may (1) provide further evidences about the cross-cultural reliability and validity of the SCAS and (2) offer an alternative to Brazilian researchers and practitioners of an internationally recognized cost-effective tool to the assessment of youth anxiety symptoms.

The main aim of the present study was to examine the psychometric properties of the SCAS (self- and parent-report versions) in a community sample of Brazilian children and adolescents and in a clinical sample of Brazilian children. Within the community sample, the specific aims were: (1) to examine the factor structure of the Brazilian SCAS; (2) to examine age (children and adolescents), gender (boys and girls), and residential area

(urban and suburban) differences on the SCAS mean scores; (3) to evaluate the convergent and divergent validity of the Brazilian SCAS with different anxiety and other psychopathology symptoms measures; (4) to examine the child-parent correlation and the informant effect on the SCAS scores; and (5) to evaluate the internal consistency of the Brazilian SCAS. Within the clinical sample, the specific aim was (6) to examine the discriminant validity of the SCAS scores: (a) differentiating a clinically anxious group from a community and a negative screening groups; and (b) differentiating clinically anxious children diagnosed with different severity levels of anxiety disorders.

Method

Participants and Procedures

Community Sample.

A total of 970 students were invited to participate in the study in schools from urban and suburban areas in the states of Rio Grande do Sul, São Paulo, and Sergipe, that are located in different Brazilian regions (South, Southeast, and Northeast, respectively). School approval and child and adolescent assent were obtained before participation. All children and adolescents were thereafter given a project protocol to take home containing parental written informed consent forms together with the parent-report version of the SCAS (SCAS-P) and SCARED (SCARED-P). From the 970 students, 735 returned their parent's signed consent form (419 returned both the signed consent form and the completed parent-report instruments, and 316 returned only the signed consent form). These 735 youths then answered the self-report instruments in their schools. Demographic data available from the school records about students who did not return the parental consent forms showed that this group did not significantly differ from the analytic sample in terms of gender and age. Protocols from each participant with any instrument missing more than 10% of the items were encoded as incomplete and excluded from analyses. Based on this procedure, 23 protocols (3.1%) were excluded because of incomplete data. This excluded group also did not significantly differ from the analytic sample in terms of demographic characteristics. Little's Missing Completely At Random (MCAR) test showed remaining missing values in the analytic sample were MCAR and therefore were estimated in SPSS using the Expectation-Maximization (EM) procedure.

The analytic youth community sample consisted of 712 children and adolescents. The demographic characterization of the community sample in general and for each research site is depicted in Table 1. Parents and other relatives (i.e., stepparents and

grandparents) responsible for 411 participants comprised the parent community sample – ages 25 to 74 years old (M = 41.02, SD = 8.96), 85.2% females.

Table 1 around here

All children and adolescents were asked to complete the SCAS and subgroups were asked to also complete other instruments (SCARED, CDI, and SDQ) during their classroom period. Research assistants explained the research objectives and instructions before each data collection time. The informed consent forms sent to parents explained the research objectives, risks, benefits, their rights as participants, and the research procedures including asking for them to complete the attached SCAS-P and SCARED-P. Parents answered the SCAS-P and SCARED-P at home, sending back to schools the completed signed questionnaires together with the signed consent form through their children.

After the survey, feedback was given to the participating schools. First, we informed them about the etiology, characteristics, course and outcomes of childhood anxiety disorders, and reported the general findings of the study through a newsletter. Second, a psychologist or counselor in each school was contacted to refer to health services cases of children whose scores in the instruments suggested risk for anxiety disorders, as analyzed through the suggested SCARED cutoff point in Brazil (DeSousa, Salum, Isolan, & Manfro, in press). Finally, the three cases in which the youth's answers to the open question in the SCAS suggested occurrence of parental abuse or neglect (i.e., "I am afraid of being beaten up by my father again"; "I am afraid of my custody being given to my mother"; "I am afraid of my father") were referred, with prior assent of the youths, to a psychologist or counselor in their schools offering them help with the opportunity to seek for assistance from a governmental child protection agency. For ethical reasons, this latter procedure is not only advisable but also mandatory in studies with children and adolescents in Brazil.

Clinical Sample.

Multiple announcements were released in media vehicles (i.e., newspapers and radio programs) inviting parents whose children (ages 7-12) suffered from "too much fear of being away from their parents", and/or "too much shyness", and/or "exaggerated worries" to call the university health service to participate with their children on a research project. The objective of this larger project is to test the combination of active or placebo Attentional Bias Modification Treatment (ABMT) to either Cognitive Behavioral Group

Therapy (CBGT) or Psychoeducational Control Intervention (PCI) for anxiety disorders in children (ClinicalTrials.gov registration: NCT01687764).

The inclusion criterion to the clinical sample used in the present study was to have a primary diagnosis of an anxiety disorder as defined by the DSM-IV-TR criteria (American Psychiatry Association, 2000). For the purposes of this study, childhood anxiety disorders as a group encompassed the following psychiatric diagnoses: 1) generalized anxiety disorder (GAD); 2) separation anxiety disorder (SAD); 3) social phobia (SP); and 4) panic disorder (PD). The exclusion criteria were: 1) to have a diagnosis of any disruptive behavioral disorders or affective disorders that were more clinically impairing than the anxiety disorder; 2) to be (or to have been in the last four months) in psychological or psychiatric treatment. Based on these criteria, the clinical sample consisted of 70 children and their respective parents. The demographic characterization of the clinical sample is depicted in Table 1. They all had undergone a comprehensive psychiatric evaluation with the K-SADS-PL. Interviewers were required to have clinical experience and all had undergone a K-SADS-PL extensive training process prior to the beginning of the project. All included children answered the SCAS and SCARED, and their parents answered the SCAS-P and SCARED-P.

The study design for both community and clinical samples was reviewed and approved by the Ethics Committee of the Federal University of Rio Grande do Sul.

Instruments

Measurement Instruments.

The *Spence Children's Anxiety Scale* (SCAS; Spence, 1997, 1998) is a 44-item self-report measure of child and adolescent anxiety. Of the 44 items, 38 deal with specific anxiety symptoms, arranged in six factors/subscales: 1) generalized anxiety (GAD; 6 items, e.g., "I worry about things"); 2) separation anxiety (SAD; 6 items, e.g., "I worry about being away from my parents"); 3) social phobia (SP; 6 items, e.g., "I feel afraid that I will make a fool of myself in front of people"); 4) panic/agoraphobia (PD; 9 items, e.g., "All of a sudden I feel really scared for no reason at all"); 5) obsessive-compulsive problems (OCD; 6 items, e.g., "I have to do some things in just the right way to stop bad things happening"); and 6) fears of physical injury (FEARS; 5 items, e.g., "I am scared of insects or spiders"). The latter subscale relates to specific phobias. The remaining 6 items are positive fillers used to reduce negative response bias, and therefore are not considered in the SCAS scoring. Written instructions ask respondents to check, in each item, the word that best describes how often the behaviors, feelings, and reactions described in the

sentences happen to them in a 4-point scale (never = 0; sometimes = 1; often = 2; always = 3). The SCAS-P is a 38-item parent-report measure of child and adolescent anxiety (Nauta et al., 2004), with all items equivalent to the ones in the self-report version. The SCAS (self- and parent-report versions) has been translated and cross-culturally adapted to Brazil following recognized procedures based on specialized literature and on the International Test Commission Guidelines for Translating and Adapting Tests. For an extensive description of the cross-cultural adaptation process of the instrument, see DeSousa, Petersen, Behs, Manfro, and Koller (2012). Total SCAS scores range from 0 to 114, with higher scores reflecting higher levels of anxiety.

The *Screen for Child Anxiety Related Emotional Disorders* (SCARED; Birmaher et al., 1997, 1999) is a 41-item self-report measure of child and adolescent anxiety. The instrument is divided into five factors/subscales: 1) generalized anxiety (9 items); 2) 3) separation anxiety (8 items); 3) social phobia (7 items); 4) panic/somatic (13 items); and 5) school phobia (4 items). For each item, respondents choose the number that best describes how they have been feeling during the past 3 months in a 3-point scale (0 = not true or hardly ever true; 1 = sometimes true; 2 = true or often true). There is also a version of the SCARED to assess children's anxiety symptoms based on their parents report (SCARED-P), with all items equivalent to the ones in the self-report version. The SCARED has been translated to Brazilian-Portuguese and presented good psychometric properties in Brazil (Isolan et al., 2011). Total SCARED scores range from 0 to 82, with higher scores reflecting higher levels of anxiety.

The *Children's Depression Inventory* **(**CDI; Kovacz, 1992) is a 27-item self-report measure of child and adolescent depressive symptoms. For each item, respondents choose the number that best describes how they have been feeling during the past 2 weeks. Each one of the items has three response options that score 0 (absence of symptomatology), 1 (mild symptomatology), or 2 (severe symptomatology). The CDI has been translated to Brazilian-Portuguese and studies investigating the psychometric properties of the Brazilian version developed a shortened 20-item version of the instrument that presented good psychometric properties (Golfeto, Veiga, Souza, & Barbeira, 2002; Gouveia, Barbosa, Almeida, & Gaião, 1995). Total CDI scores of the Brazilian version range from 0 to 40, with higher scores reflecting higher levels of depressive symptomatology.

The *Strengths and Difficulties Questionnaire* (SDQ; Goodman, 2001) is a 25-item self-report screening questionnaire for youth mental health problems. The instrument is divided into five factors/subscales of 5 items each: 1) emotional symptoms; 2) conduct problems; 3) hyperactivity-inattention; 4) peer problems; and 5) prosocial behavior. For

each item, respondents choose the number that best describes them in a 3-point scale (0 = not true; 1 = somewhat true; 2 = certainly true). The SDQ has been translated to Brazilian-Portuguese and functioned well in Brazil (Cury & Golfeto, 2003; Goodman, Fleitlich-Bilyk, Patel, & Goodman, 2007). SDQ subscale scores of the four difficulty factors range from 0 to 10, with higher scores reflecting larger problems.

Psychiatric Diagnosis.

The *Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime* (K-SADS-PL; Kaufman et al., 1997) is a semi-structured interview used for the diagnosis of childhood psychiatric disorders based on the DSM-IV criteria, comprising the following areas: 1) disruptive behavioral disorders; 2) anxiety disorders; 3) affective disorders; 4) psychotic disorders; and 5) substance abuse, tic disorders, eating disorders, and elimination disorders. The K-SADS-PL has been adapted to Brazil and presented good psychometric properties (Brasil, 2003). Primary diagnoses were based on the *Clinical Global Impression – Severity* scale (CGI-S) that was rated independently for each psychiatric disorder on a 7-point scale (1 = normal, not at all ill; 2 = borderline mentally ill; 3 = mildly ill; 4 = moderately ill; 5 = markedly ill; 6 = severely ill; and 7 = among the most extremely ill patients).

Data Analysis

Community Sample.

Confirmatory Factor Analysis (CFA) was used to evaluate whether the factor structure of the SCAS proposed by studies from other cultures fits to the Brazilian context. We tested the four theoretical models evaluated by Spence (1997, 1998): 1) one factor; 2) six uncorrelated factors; 3) six correlated factors; and 4) six correlated factors loading into one higher-order factor. We also tested a fifth model as proposed by Nauta et al. (2004): 5) five correlated factors loading into one higher-order factor of generalized anxiety. As the data did not justify the assumption of multivariate normality, the estimation method of Unweighted Least Squares (ULS) was employed, as in previous studies (Ishikawa et al., 2009; Muris et al., 2000; Spence, 1997), in the AMOS 18 software (Arbuckle, 2009). For fit indices, the Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), Root Mean Square Residual (RMR), and Standardized Root Mean Square Residual (SRMR) were calculated. However, to take into account the categorical nature of the scale items, we also conducted another CFA using the Weighted Least Square Mean Variance (WLSMV) estimation method, in the Mplus software. For fit indices, the Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root Mean Square

Error of Approximation with 90% Confidence Interval (RMSEA – 90% CI), and Weighted Root Mean Square Residual (WRMR) were calculated. Criteria used to interpret the indexes were based on specialized literature (Byrne, 2010). Values of the GFI, AGFI, NFI, CFI, and TLI above .90 or close to .95 represent a good fit. Values of the RMR, SRMR, and RMSEA close to or below .05 represent a good fit, and below .08 represent an acceptable fit. Values of the WRMR close to or below .10 represent a good fit. To test the differences between the best-fit models we used the chi-square test. The model with the best fit to the data was further explored by the subsequent described analyses.

Descriptive analyses of means and standard deviations were calculated for the SCAS total and subscale scores. Age group (children and adolescents), gender (boys and girls), and residential area (urban and suburban) differences were examined using Multivariate Analysis of Variance (MANOVA) with effect size statistics (partial η^2 and Cohen's *d*). Pearson correlations were calculated between the SCAS scores and other self-report measure scores to investigate evidences of convergent (SCARED and SDQ emotional symptoms subscale) and divergent validity (CDI and SDQ conduct problems and hyperactivity-inattention subscales). To assess if the magnitude of the correlations were significantly different between convergent and divergent instruments, we used specific *Z* tests (Meng, Rosenthal, & Rubin, 1992). Pearson correlations were also calculated between the scores of the self- and parent-report versions of the SCAS and SCARED (SCAS and SCAS-P; SCARED and SCARED-P). We used *Z* tests to compare the magnitudes of correlations between instruments (SCAS and SCARED; SCAS-P and SCARED-P) *versus* between informants (SCAS and SCAS-P; SCARED and SCARED-P). Moreover, to investigate informant effects on the mean SCAS total and subscale scores considering different dimensions of anxiety disorder symptoms, we calculated a 2 x 6 Within-Subjects Analysis of Variance (ANOVA) using informant (self and parent) and anxiety dimension (GAD, SAD, SP, PD, OCD, and FEARS) as factors. Corrections for multiple comparisons were performed using the Bonferroni procedure.

Cronbach's alpha coefficients were calculated to evaluate the internal consistency of the SCAS total and subscales sores. Alpha values of .70 to .90 were deemed adequate. (Onwuegbuzie & Daniel, 2002). Nonetheless, the alpha coefficient is recognized to be affected by the scale length with larger numbers of items producing higher coefficients and smaller numbers producing lower coefficients (Cronbach, 1951). Literature suggests that this effect is particularly noticeable when the number of items is below seven (Swailes & McIntyre-Bhatty, 2002), which is the case for five SCAS subscales (GAD, SAD, SP, OCD, and FEARS). Therefore, for the SCAS subscale scores we also used the Spearman-Brown

formula to correct for the number of items, predicting the alpha coefficient of the same subscales with twice their number of items. To have another measure of internal consistency, independent of the scale length, we calculated the average inter-item correlation (ρ) of the SCAS total and subscales sores, as proposed by Cronbach (1951). For broad constructs (such as anxiety), it is recommended a ρ of .15 to .20 at least, with higher ρs indicating higher internal consistency (Clark & Watson, 1995).

Clinical Sample.

Descriptive analyses of frequency were calculated for the primary diagnoses in the clinical sample. To investigate the discriminant validity of the SCAS, two comparison groups, of the same size as the clinical sample (n = 70 each) and equally divided by gender (50% girls each), were randomly drawn from the community children subsample considering the participants that came from the same catchment area of the released announcements used to the recruitment of the clinical sample. The first comparison group consisted of a simple random comparison community group. Since this comparison group was randomly selected from the community children subsample, we must consider that anxious children in a clinical range might have been included in it. Because of that, the second comparison group was randomly drawn from this same community children subsample considering only children who presented SCARED scores below the OCP of 22 suggested to Brazil (DeSousa et al., in press), which had a high sensitivity (81.8%) to the diagnosis of anxiety disorders performed with K-SADS-PL interviews (same instrument used for the diagnosis in our clinical sample). Hence, the second comparison group consisted of a random comparison negative screening group. The demographic characterization of the comparison groups is depicted in Table 1. Analyses of Variance (ANOVA) with effect size statistics (Cohen's d) were used to examine evidences of discriminant validity of the SCAS in two ways. First, we compared SCAS scores among the three groups: clinical, community, and negative screening. Second, we compared SCAS scores among the groups considering the CGI-S rates, dividing the clinical sample into a mildly/moderately-disordered subgroup (rates 3 and 4) and a markedly/severely-disordered subgroup (rates 5 and 6). Corrections for multiple comparisons were performed using the Bonferroni procedure.

Results

Factor Structure

The CFA results are depicted in Table 2. The six correlated factors model (Model 3) had the best fit to the sample. When using the ULS estimator, the higher-order factor

models (Models 4 and 5) also presented acceptable fit. However, Model 3 had a significantly better fit than Models 4 and 5 (Model 3 – Model 4: $\Delta\chi^2 = 138.05$, $df = 9$, $p < .001$; Model 3 – Model 5: $\Delta\chi^2 = 148.34$, $df = 9$, $p < .001$). When using the WLSMV estimator, although Model 3 had the best fit, the fit indices presented mixed results (i.e., acceptable RMSEA, but inadequate CFI, TLI, and WRMR). Because of that, a post-hoc model (Clustered Model 3) was tested, considering the schools as clusters in the data. This Clustered Model 3 showed overall better fit indices, although not yet fully adequate. Since Model 3 had the best fit in the CFA using both estimators and is consistent with previous empirical findings and the theoretical conceptualizations of the SCAS (Spence, 1997, 1998), this model was further investigated. Standardized regression weights ranged from .25 to .64 with a mean of .48 (*SD* = .09) for SCAS and from .20 to .79 with a mean of .53 (*SD* = .11) for SCAS-P. Items 18 and 40 had loadings below .30 for SCAS and item 1 had a loading below .30 for SCAS-P (Table 3).

Tables 2 and 3 around here

Descriptive Analyses and Age, Gender, and Area Differences

The mean SCAS total and subscale scores in our samples are depicted in Table 1. Results of the MANOVA showed that the combined SCAS subscale scores were significantly different between children and adolescents ($F(6, 699) = 5.09$, $p < .001$, partial $\eta^2 = .042$); boys and girls ($F(6, 699) = 9.48$, $p < .001$, partial $\eta^2 = .075$); and urban and suburban areas ($F(6, 699) = 4.98$, $p < .001$, partial $\eta^2 = .041$). None of the interactions among these variables were significant: age by gender ($F(6, 699) = 1.03$, $p = .403$, partial $\eta^2 = .009$); age by area ($F(6, 699) = 1.17$, $p = .323$, partial $\eta^2 = .010$); and gender by area ($F(6, 699) = 1.07$, $p = .380$, partial $\eta^2 = .009$). As can be seen in Table 4, regarding significant differences, children were found to score higher than adolescents on the SAD and OCD subscales. The SCAS total score and the other four subscale scores did not differ between the age groups. Girls were found to score higher than boys on the SCAS total and all subscales except for the OCD subscale, which did not differ between gender groups. Suburban youths were found to score higher than urban youths on the SCAS total and the SAD, PD, and FEARS subscales. The other three subscale scores did not differ between the area groups.

Table 4 around here

Convergent and Divergent Validity

A subgroup of 577 children and adolescents aged 7 to 17 years old (M = 11.52, SD = 2.18), 53.6% girls, answered the SCARED, which presented a total score very strongly correlated to the SCAS total score (r = .81, p < .001). A subgroup of 69 children aged 7 to 12 years old (M = 9.87 years old, SD = 1.59), 44.9% girls, answered the CDI, which presented a total score weakly correlated to the SCAS total score (r = .29, p = .016). A subgroup of 52 children and adolescents aged 11 to 17 years old (M = 12.48, SD = 1.24), 48.1% girls, answered the SDQ. The SDQ emotional symptoms subscale score was strongly correlated to the SCAS total score (r = .53, p < .001). The SDQ hyperactivity-inattention subscale score was moderately correlated (r = .34, p = .013) to the SCAS total score. The SDQ conduct problems subscale score was not significantly correlated to the SCAS total score (r = .14, p = .337).

Results of the Z tests showed that the correlation between the SCAS and SCARED total scores was stronger than all other correlations (p < .001), and the correlation between the SCAS total score and the SDQ emotional symptoms subscale score was stronger than the one between the SCAS total score and the SDQ conduct problems subscale score (p = .023). All other comparisons among the correlations of the SCAS and the other instruments scores were not statistically significant (p > .10).

Table 5 depicts the Pearson correlations of the SCAS and SCARED subscale scores for both self- and parent-report versions of the instruments. The SCAS subscale scores presented strong to very strong correlations with their corresponding SCARED subscales scores for the same anxiety dimensions (i.e., GAD, SAD, SP, and PD). For the self-report version, the SCAS-GAD had a stronger correlation with the SCARED-GAD than with the SCARED-SAD, -SP, and -SCH (p < .001) and not different from the one with the SCARED-PD (p = .721). The SCAS-SAD had a stronger correlation with the SCARED-SAD than with all other four SCARED subscales (p < .001). The SCAS-SP had a stronger correlation with the SCARED-SP than with the SCARED-SCH (p < .001) and not different from the ones with the SCARED-GAD (p = .277), -SAD (p = .066), and -PD (p = .124). The SCAS-PD had a stronger correlation with the SCARED-PD than with all other four SCARED subscales (p < .001). For the parent-report version, the SCAS-P-GAD had a stronger correlation with the SCARED-P-GAD than with the SCARED-P-SP and -SCH (p < .001) and not different from the ones with the SCARED-P-SAD (p = .502) and -PD (p = .241). The SCAS-P-SAD had a stronger correlation with the SCARED-P-SAD than with all other four SCARED-P subscales (p < .001). The SCAS-P-SP had a stronger correlation with the SCARED-P-SP than with the SCARED-P-SAD, -PD, and -SCH (p < .01) and not

different from the one with the SCARED-P-GAD (p = .832). The SCAS-P-PD had a stronger correlation with the SCARED-P-PD than with all other four SCARED-P subscales (p < .001).

Table 5 around here

Child-Parent Correlation and Informant Effect on the SCAS Scores

Pearson correlations with Z tests calculated between the self- and parent-report SCAS and SCARED total scores showed that the correlations between both instrument scores from the same informant (SCAS and SCARED: r = .811, p < .001; SCAS-P and SCARED-P: r = .850, p < .001) were stronger (p < .001) than the ones between both informant scores concerning the same instrument (SCAS and SCAS-P: r = .548, p < .001; SCARED and SCARED-P: r = .500, p < .001). Moreover, results from the Within-Subjects ANOVA showed a significant informant effect on the SCAS total score (F(1,410) = 189.10, p < .001, partial η^2 = 0.316) and a significant informant by anxiety dimension interaction effect on the SCAS scores (F(5,406) = 103.88, p < .001, partial η^2 = .561), depicted in Figure 1. For the total score, and the GAD, SP, OCD, and PD subscales, the self-report had significantly higher mean scores than the parent-report. On the other hand, for the FEARS subscale, the parent-report had significantly higher mean scores than the self-report. For the SAD subscale, there was no informant effect on mean scores.

Figure 1 around here

Internal Consistency

Table 6 depicts the internal consistency coefficient values calculated for the SCAS total and subscale scores. Both α and ρ values were good for the SCAS and SCAS-P total scores in the total sample and in the gender and age subgroups. Overall, for the SCAS and SCAS-P subscale scores, although the α values were just satisfactory, the Spearman-Brown corrected α values and the ρ values showed good internal consistency in the total sample and in the gender and age subgroups. It is also relevant to note that the SCAS-PD subscale (the only subscale with more than 6 items) already presented good raw α values in the total sample and in the gender and age subgroups for both self- and parent-report versions.

Table 6 around here

Clinical Sample Analyses and Discriminant Validity

Primary diagnoses in the clinical sample are depicted in Table 1, along with descriptive analyses for comorbidities and the CGI-S rates. No cases of PD were primarily diagnosed. As can be seen in Table 1, the clinical sample presented higher SCAS total scores than the community group for both self- (p = .006) and parent-report (p < .001) versions. Similarly, the clinical sample presented higher SCAS total scores than the negative screening group for both self- (p < .001) and parent-report (p < .001) versions. The differences in scores between the clinical and community groups showed a moderate effect size for SCAS (Cohen's d = .475) and large for SCAS-P (Cohen's d = 1.453). The differences in scores between the clinical and negative screening groups showed large effect sizes for both SCAS (Cohen's d = .974) and SCAS-P (Cohen's d = 1.597).

Table 7 depicts the comparison of the SCAS total scores of children with different CGI-S rates in the clinical subgroups (mildly/moderately- and markedly/severely-disordered) and in the comparison groups. For both SCAS and SCAS-P, the scores of the groups followed the predicted direction: markedly/severely-disordered clinical subgroup > mildly/moderately-disordered clinical subgroup > community and negative screening groups. For the parent-report version, all combinations involving the clinical subgroups were significantly differentiated by the SCAS total scores in the predicted direction, with large effect sizes. For the self-report version, the differences in scores for two combinations of groups were not significantly different: the two clinical subgroups between themselves, and the mildly/moderately-disordered clinical subgroup *versus* the community group. All other combinations involving clinical subgroups were significantly differentiated by the SCAS total scores in the predicted direction, with large effect sizes.

Table 7 around here

Discussion

The present study investigated the psychometric properties of the SCAS (self- and parent-report versions) in community and clinical samples of Brazilian children and adolescents. Our results suggest that the Brazilian SCAS has appropriate psychometric properties and is a reliable and valid instrument to the assessment of anxiety symptoms in Brazilian youth, as examined in six domains: (1) factor structure; (2) age, gender, and residential area differences; (3) convergent and divergent validity; (4) child-parent correlation and informant effect; (5) internal consistency; and (6) discriminant validity

differentiating (a) clinically anxious, community, and negative screening groups; and (b) clinically anxious children diagnosed with different severity levels of anxiety disorders.

First, the original six correlated factors model (Spence, 1997, 1998) had the best fit to the Brazilian version of the SCAS, in line with previous studies (e.g., Essau et al., 2012; Li et a., 2011; Zhao et al., 2012). However, results from the CFA using the WLSMV estimator showed mixed results in the indices regarding the goodness-of-fit of this model, which requires further investigation. Overall, the items in the scale presented good factor loadings, except for items 18 and 40, which also presented low factor loadings in previous studies (Hernández-Guzmán et al., 2010; Ishikawa et al, 2009; Zhao et al., 2012).

Second, our findings showed that children, girls and those living in suburban areas presented higher mean SCAS scores. This is in accordance with a variety of previous evidence in other countries (e.g., Essau et al., 2012; Ishikawa et al., 2009; Muris et al., 2000), with a few exceptions (Zhao et al., 2012). It is also in line with Brazilian studies using other anxiety measures (e.g., Isolan et al., 2011).

Third, we found significant strong correlations between the SCAS and the SCARED and SDQ emotional symptoms scores, and significant but weaker correlations between the SCAS and the CDI and SDQ hyperactivity-inattention and conduct problems scores. These findings support the convergent and divergent validity of the Brazilian SCAS, in line with numerous previous studies in other countries that used the same measures (e.g., Essau et al., 2002, 2012; Muris et al., 2002; Spence, 1998; Spence et al., 2003). Moreover, our findings showed that correlations between scores of the SCAS and SCARED corresponding subscales were stronger than (or at least not different from) correlations between scores of subscales of different anxiety dimensions, supporting the convergent and divergent validity of the SCAS subscales, except for nominally (but not significantly) stronger correlations between SCAS-GAD and SCARED-PD, and between the SCAS-SP and SCARED-GAD. Prior studies correlating the SCAS and SCARED subscales have found very similar patterns (Essau et al., 2002; Muris et al., 2002; Zhao et al., 2012), which led us to examine in detail the items in these subscales. It can be noted that both the SCAS-GAD and the SCARED-PD have very similar items regarding somatic symptoms (e.g., SCAS-GAD item 4: “When I have a problem, my heart beats really fast”; and SCARED-PD item 18: “When I get frightened, my heart beats fast”). On the other hand, items in the SCAS-PD focus on somatic symptoms associated to a sudden triggering characteristic (e.g., “My heart suddenly starts to beat too quickly for no reason”). It can be argued that on their underlying theoretical assumptions, the SCAS focus on panic somatic symptoms as episodes with sudden triggering, and somatic symptoms in the presence of a

problem as associated to the generalized anxiety dimension, while the SCARED focus on panic somatic symptoms as episodes in the presence of a feeling of frightening. As for the SCAS-SP, the presence of items considering performance anxiety symptoms (e.g., "I worry what other people think of me"; "I worry that I will do badly at my school work") might explain its strong association to the SCARED-GAD, which also contains similar items (e.g., "I worry about other people liking me"; "I worry about how well I do things"). In view of these results, we highlight the need to always consider that a psychometrical instrument is composed of items intended to reflect a latent factor, and that this latent factor is interpreted based on the theoretical foundations used in the development of the instrument. Therefore, even when using an instrument computed score, one might never lose sight of the items that compose the measure and the fact that specificities of these items might account for unexpected results regarding the scores derived from them.

Fourth, consistent with previous studies, we found a significant moderate correlation between self and parent reports of the youth anxiety levels (Li et al., 2011; Whiteside & Brown, 2008). Furthermore, our data suggested a significant informant effect on mean SCAS scores, with higher scores in the self report than in the parent report. A possible explanation to this finding is that, as an internalizing dimension of mental health, children might be more aware of their anxiety symptoms while parents might underestimate the severity or frequency of their children's symptoms (Conolly, Bernstein, & Work Group on Quality Issues, 2007). This explanation also seems reasonable to cast some light in our informant by anxiety dimension interaction finding, i.e., the GAD, SP, OCD, and PD symptoms were reported at a higher level in the self-report, but not the SAD and FEARS symptoms. It can be hypothesized that anxiety symptoms might be more concealed in the GAD, SP, OCD, and PD dimensions, while SAD and FEARS symptoms might involve parents more directly, forcing more active and frequent behaviors towards their children's manifestation of anxiety, which could lead them to be more aware of the frequency of their children's anxiety symptoms for these two latter dimensions. All that taken into consideration, we agree with the recommendation by Kraemer et al. (2003) that the most useful way to collect data from multiple informants in psychiatric assessment and research is to consider the trait or characteristic to be assessed, the context of assessment, and the perspective from which the informant views the subject of assessment.

Fifth, our findings showed good internal consistency indices for the SCAS total scores. For the subscale scores, the Cronbach's alpha coefficient values were satisfactory for all subscales other than the FEARS subscale, in line with previous studies (e.g., Essau et al., 2012; Nauta et al., 2004; Spence, 1998; Spence et al., 2003). This may be due to the

low number of items in the FEARS subscale since that, considering corrected alpha coefficient values, all subscales presented satisfactory to good internal consistency. Furthermore, the average inter-item correlation (ρ) showed adequate internal consistency for the SCAS total and all subscale scores. In fact, the total score presented a lower ρ coefficient value than the subscale scores, as it could be hypothesized since the total score accounts for symptoms from distinct anxiety dimensions, which could lower the internal consistency of the measure.

Sixth, our findings showed that children in the clinical sample reported higher anxiety levels than children in the comparison groups, supporting the clinical discriminant validity of the SCAS, in accordance with previous studies (Spence, 1998; Nauta et al., 2004; Whiteside & Brown, 2008). Building on these findings, our data gave support to the clinical discriminant validity of the SCAS considering different severity levels of anxiety disorders. To our knowledge, the current study was the first to test the discriminant validity of the SCAS concerning different CGI-S levels in the diagnosis of anxiety disorders.

There are some limitations in the present study that need to be taken into consideration. First, our participants were recruited from urban and suburban areas, impeding the generalizability of our findings to youths living in other settlements. Second, our analyses were conducted on samples from three specific regions in Brazil. Brazil is the largest and most populous country in South America, with several regional variations. Hence, the extent to which our results apply to other Brazilian regions is unknown. Third, due to our rather small clinical sample size and to its level of comorbidity, it was not possible to test the discriminant validity of the SCAS subscale scores differentiating groups with diagnosis of specific anxiety disorders. Fourth, the comparison groups were not perfectly matched to the clinical group in terms of age and gender. That happened due to the decision to selected only children from the community subsample that came from the same catchment area used in the recruitment of the clinical sample. This procedure, despite preventing a perfect demographic matching, was used to enhance the correspondence of the comparison and clinical groups in terms of the children community background. Moreover, there are other psychometric properties of the SCAS yet to be tested in Brazil. Future studies should examine the test-retest reliability of the Brazilian SCAS; its discriminant validity differentiating children diagnosed with anxiety disorders from other forms of psychopathology; its sensitivity and specificity regarding the diagnosis of anxiety disorders; and the extent to which the instrument is sensitive to treatment responses (i.e., changes in anxiety symptoms due to psychological/psychiatric treatment).

Despite these limitations, there are some strengths in the present study that should be emphasized. First, our study recruited both community and clinical samples, which allowed us to investigate a large set of psychometric properties of the Brazilian SCAS. Second, all participants in our clinical sample had undergone a complete psychiatric diagnostic interview with a standardized instrument, serving as a strong gold standard to the anxiety disorder diagnosis to establish evidences of the clinical validity of the Brazilian SCAS. Third, our results were based in a multi-informant approach, as acknowledged to be the best method to assess psychopathology in children and adolescents (Essau & Barrett, 2001). In conclusion, our findings suggest that the SCAS (self- and parent-report versions) seems to be a reliable and valid instrument to the assessment of anxiety symptoms in Brazilian children and adolescents in community and clinical settings. The SCAS can contribute to a better assessment, assisting in the screening for youths at risk for the development of anxiety disorders, in preventive and treatment interventions, and in academic research in the Brazilian context as well as in cross-cultural research including data from Brazilian samples.

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Table 1

Demographics and descriptive analyses for the community sample, clinical samples, and comparison groups

Community Sample					
	RS – Urban (*n* = 236)	RS – Suburban (*n* = 227)	SP – Suburban (*n* = 76)	SE – Urban (*n* = 173)	Total (*N* = 712)
Gender (male) *n* (%)	108 (45.8)	111 (48.9)	33 (43.4)	82 (47.4)	334 (46.9)
Age range (years)	9-17	7-17	8-14	8-15	7-17
Age *M* (*SD*) (years)	13.06 (2.17)	10.72 (1.58)	10.80 (1.77)	10.78 (1.58)	11.52 (2.11)
Age group (children) *n* (%)	115 (48.7)	206 (90.7)	62 (81.6)	149 (86.1)	532 (74.7)
SCAS score *M* (*SD*)	35.55 (13.97)	39.90 (16.74)	40.44 (16.47)	34.84 (16.12)	37.29 (15.84)
GAD	8.63 (3.47)	8.03 (3.64)	8.26 (3.43)	7.56 (3.69)	8.14 (3.59)
SAD	4.60 (2.47)	6.42 (3.52)	6.93 (3.66)	5.66 (3.22)	5.69 (3.26)
SP	7.61 (3.50)	7.40 (3.58)	7.67 (3.94)	7.52 (4.06)	7.53 (3.71)
PD	4.15 (4.06)	5.35 (4.30)	6.19 (4.80)	3.40 (3.47)	4.57 (4.19)
OCD	7.26 (3.36)	8.32 (3.97)	7.63 (3.43)	7.47 (4.27)	7.69 (3.82)
FEARS	3.29 (2.58)	4.38 (3.30)	3.75 (2.83)	3.24 (2.82)	3.67 (2.95)
SCAS-P score *M* (*SD*)	25.15 (14.16)	31.96 (17.17)	--	21.86 (11.89)	27.05 (15.47)
GAD	5.59 (3.27)	6.08 (3.45)	--	4.92 (2.70)	5.64 (3.25)
SAD	4.21 (3.10)	6.39 (3.72)	--	4.66 (3.27)	5.13 (3.52)
SP	6.69 (3.71)	6.82 (3.71)	--	5.60 (2.84)	6.51 (3.57)
PD	2.13 (3.30)	2.93 (3.98)	--	1.43 (2.52)	2.29 (3.48)
OCD	3.26 (3.46)	4.50 (4.26)	--	1.90 (1.98)	3.45 (3.68)
FEARS	3.27 (2.42)	5.23 (3.25)	--	3.36 (2.81)	4.03 (2.99)
Clinical Sample and Comparison Groups					
	Clinical (*N* = 70)	Community (*n* = 70)	Negative screening (*n* = 70)		
Gender (male) *n* (%)	32 (45.7)	35 (50%)	35 (50%)		
Age range (years)	7-12	9-12	9-12		
Age *M* (*SD*) (years)	9.25 (1.60)	10.7 (0.67)	10.66 (0.87)		
Primary diagnosis *n* (%)					
GAD	38 (54.3)	--	--		
SAD	38 (54.3)	--	--		
SP	13 (18.6)	--	--		
Comorbidities *n* (%)					
GAD-SAD	14 (20.0)	--	--		
GAD-SP	3 (4.3)	--	--		
SAD-SP	2 (2.8)	--	--		
CGI-S rate *n* (%)					
3	17 (24.3)	--	--		
4	44 (62.9)	--	--		
5	7 (10)	--	--		
6	2 (2.8)	--	--		
SCAS score *M* (*SD*)	40.64 (18.43)	33.08(12.93)	26.18 (10.05)		
GAD	7.23 (4.03)	8.01 (3.20)	6.20 (2.63)		
SAD	9.06 (4.40)	4.30 (2.53)	3.73 (2.43)		
SP	8.07 (4.17)	7.17 (3.76)	5.49 (2.59)		
PD	4.45 (4.21)	3.33 (3.13)	1.94 (2.34)		
OCD	5.58 (3.77)	7.50 (3.20)	6.22 (3.46)		
FEARS	6.24 (3.63)	2.76 (2.63)	2.60 (2.54)		
SCAS-P score *M* (*SD*)	42.82 (15.43)	22.15 (12.90)	21.36 (11.10)		
GAD	8.60 (3.56)	5.12 (3.17)	4.67 (2.82)		
SAD	10.42 (4.00)	4.29 (2.96)	4.47 (3.22)		
SP	8.71 (3.85)	5.96 (3.64)	5.09 (2.93)		
PD	4.46 (3.89)	1.21 (2.38)	1.30 (1.82)		
OCD	3.84 (3.00)	2.30 (3.13)	2.28 (3.14)		
FEARS	6.79 (2.99)	3.27 (2.55)	3.53 (2.46)		

Note. RS: Rio Grande do Sul research site; SP: São Paulo research site; SE: Sergipe research site.

Table 2

Model fit indices for the SCAS five theoretical models tested by means of Confirmatory Factor Analysis

Estimator: ULS in AMOS	GFI	AGFI	NFI	RMR	SRMR
SCAS (*N* = 712)					
Model 1: 1	.936	.929	.885	.057	.064
Model 2: 6 uncorrelated	.579	.530	.240	.147	.161
Model 3: 6 correlated	**.952**	**.945**	**.913**	**.050**	**.056**
Model 4: 6 correlated and 1 higher-order	.947	.940	.904	.052	.059
Model 5: 5 correlated and 1 higher-order	.946	.940	.903	.053	.059
SCAS-P (*N* = 411)					
Model 1: 1	.922	.913	.874	.060	.077
Model 2: 6 uncorrelated	.519	.464	.229	.148	.196
Model 3: 6 correlated	**.935**	**.925**	**.895**	**.055**	**.067**
Model 4: 6 correlated and 1 higher-order	.932	.924	.891	.056	.069
Model 5: 5 correlated and 1 higher-order	.932	.924	.891	.056	.069
Estimator: WLSMV in Mplus	CFI	TLI	RMSEA[90% CI]		WRMR
SCAS (*N* = 712)					
Model 1: 1	.811	.801	.061 [.059 - .064]		1.800
Model 2: 6 uncorrelated	.218	.173	.125 [.122 - .127]		4.651
Model 3: 6 correlated	**.865**	**.854**	**.052 [.050 - .055]**		**1.558**
Model 4: 6 correlated and 1 higher-order	.850	.840	.055 [.052 - .058]		1.640
Model 5: 5 correlated and 1 higher-order	.849	.839	.055 [.052 - .058]		1.646
Clustered Model 3 [clusters: schools]	**.897**	**.889**	**.025 [.021 - .028]**		**1.602**

Note. ULS: Unweighted Least Squares; GFI: Goodness of Fit Index; AGFI: Adjusted GFI; NFI: Normed Fit Index; RMR: Root Mean Square Residual; SRMR: Standardized Root Mean Square Residual; WLSMV: Weighted Least Square Mean Variance; CFI: Comparative Fit Index; TLI: Tucker–Lewis Index; RMSEA[90% CI]: Root Mean Square Error of Approximation with 90% Confidence Interval; WRMR: Weighted Root Mean Square Residual.

Table 3

Standardized regression weights of the six correlated factors model for the SCAS

Questionnaire item	Standardized regression weights											
	GAD		SAD		SP		PD		OCD		FEARS	
	C	P	C	P	C	P	C	P	C	P	C	P
22. I worry that something bad will happen to me	.604	.641										
20. When I have a problem, my heart beats really fast	.592	.560										
24. When I have a problem, I feel shaky	.569	.612										
4. I feel afraid	.499	.560										
3. When I have a problem, I get a funny feeling in my stomach	.428	.503										
1. I worry about things	.388	.196										
15. I feel scared if I have to sleep on my own			.526	.453								
5. I would feel afraid of being on my own at home			.505	.428								
44. I would feel scared if I had to stay away from home overnight			.465	.433								
8. I worry about being away from my parents			.464	.575								
12. I worry that something awful will happen to someone in my family			.448	.622								
16. I have trouble going to school because I feel nervous or afraid			.415	.405								
29. I worry what other people think of me					.535	.477						
6. I feel scared when I have to take a test					.514	.525						
9. I feel afraid that I will make a fool of myself in front of people					.482	.459						
35. I feel afraid if I have to talk in front of my class					.453	.546						
7. I feel afraid if I have to use public toilets or bathrooms					.448	.480						
10. I worry that I will do badly at my school work					.388	.424						
32. All of a sudden I feel really scared for no reason at all							.602	.736				
13. I suddenly feel as if I can't breathe when there is no reason for this							.575	.660				
37. I worry that I will suddenly get a scared feeling when there is nothing to be afraid of							.550	.662				
36. My heart suddenly starts to beat too quickly for no reason							.546	.608				
21. I suddenly start to tremble or shake when there is no reason for this							.544	.551				
39. I am afraid of being in small closed places, like tunnels or small rooms							.522	.564				
28. I feel scared if I have to travel in the car, or on a bus or a train							.440	.469				
34. I suddenly become dizzy or faint when there is no reason for this							.377	.519				
30. I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds)							.348	.443				
41. I get bothered by bad or silly thoughts or pictures in my mind									.642	.786		
19. I can't seem to get bad or silly thoughts out of my head									.595	.657		
27. I have to think of special thoughts to stop bad things from happening (like numbers or words)									.477	.631		
42. I have to do some things in just the right way to stop bad things happening									.441	.581		
14. I have to keep checking that I have done things right (like the switch is off, or the door is locked)									.400	.491		
40. I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order)									.254	.467		
2. I am scared of the dark											.609	.445
25. I am scared of being in high places or lifts (elevators)											.548	.569
33. I am scared of insects or spiders											.457	.537
23. I am scared of going to the doctors or dentists											.415	.417
18. I am scared of dogs											.288	.315

Note. C: SCAS self-report (child) version; P: SCAS parent-report version.

Table 4

SCAS total and subscale scores by age, gender, and area groups

SCAS Scores	Age group *M* (*SD*)				Gender group *M* (*SD*)				Area group *M* (*SD*)			
	Children	Adolescents	*F*	*d*	Boys	Girls	*F*	*d*	Urban	Suburban	*F*	*d*
Total	37.63 (16.44)	36.26 (13.89)	0.70	.090	33.81 (14.59)	40.36 (16.27)	24.23***	.424	35.25 (14.90)	40.04 (16.65)	4.19*	.303
GAD	7.92 (3.65)	8.79 (3.33)	2.48	.249	7.32 (3.25)	8.87 (3.73)	29.09***	.443	8.18 (3.60)	8.09 (3.58)	.20	.025
SAD	5.99 (3.44)	4.78 (2.43)	6.64**	.406	5.13 (3.12)	6.18 (3.30)	13.91***	.327	5.05 (2.86)	6.55 (3.55)	13.94***	.465
SP	7.48 (3.85)	7.68 (3.27)	.30	.056	7.01 (3.70)	7.99 (3.66)	9.43**	.266	7.57 (3.74)	7.47 (3.67)	.02	.027
PD	4.60 (4.13)	4.49 (4.37)	.05	.026	3.90 (3.79)	5.16 (4.43)	11.50***	.306	3.84 (3.83)	5.56 (4.44)	9.22**	.415
OCD	7.92 (3.94)	7.00 (3.38)	7.46**	.251	7.61 (3.71)	7.76 (3.92)	.70	.039	7.35 (3.77)	8.15 (3.85)	.26	.210
FEARS	3.72 (3.04)	3.53 (2.67)	.13	.066	2.84 (2.75)	4.41 (2.93)	35.77***	.553	3.27 (2.68)	4.22 (3.20)	7.41**	.322

Note. *d* = Cohen's *d* effect size statistic; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 5

Pearson correlations between the SCAS and SCARED subscale scores for self- (lower diagonal) and parent-report (upper diagonal) versions

			SCAS						SCARED					
			GAD	SAD	SP	PD	OCD	FEARS	GAD	SAD	SP	PD	SCH	
SCAS	GAD			.585*	.557*	.629*	.559*	.396*	**.606***	.575*	.420*	.656*	.381*	
	SAD		.442*		.450*	.442*	.468*	.527*	.416*	**.791***	.423*	.422*	.324*	
	SP		.568*	.457*		.431*	.463*	.363*	.573*	.423*	**.583***	.447*	.334*	
	PD		.535*	.500*	.384*		.585*	.408*	.479*	.541*	.430*	**.767***	.468*	
	OCD		.504*	.406*	.405*	.522*		.365*	.577*	.537*	.420*	.638*	.397*	
	FEARS	Self-	.374*	.475*	.334*	.472*	.286*		.246*	.510*	.427*	.342*	.232*	Parent-
SCARED	GAD		**.572***	.364*	.526*	.496*	.496*	.275*		.542*	.505*	.597*	.409*	
	SAD		.378*	**.685***	.390*	.488*	.459*	.405*	.436*		.492*	.540*	.390*	
	SP		.406*	.360*	**.478***	.394*	.325*	.364*	.462*	.389*		.413*	.328*	
	PD		.586*	.389*	.405*	**.708***	.551*	.373*	.546*	.520*	.398*		.518*	
	SCH		.217*	.314*	.264*	.382*	.335*	.195*	.306*	.397*	.237*	.478*		

Note. Gray highlighted cells refer to correlations within the same scale. **Bold** cells refer to correlations between corresponding SCAS-SCARED subscale scores (GAD, SAD, SP, and PD); * $p < .001$.

Table 6

Internal consistency coefficient values for the SCAS total and subscale scores

SCAS	Total sample (N = 712)			Boys (n = 334)			Girls (n = 378)			Children (n = 532)			Adolescents (n = 180)		
	α	α cor.	ρ	α	α cor.	ρ	α	α cor.	ρ	α	α cor.	ρ	α	α cor.	ρ
Total	.885	--	.168	.872	--	.152	.888	--	.173	.890	--	.176	.870	--	.150
GAD	.683	.812	.264	.621	.766	.215	.699	.823	.279	.684	.812	.265	.677	.807	.259
SP	.625	.769	.217	.631	.774	.222	.609	.757	.206	.650	.788	.236	.526	.689	.156
SAD	.614	.761	.210	.603	.752	.202	.607	.755	.205	.625	.769	.217	.507	.673	.146
PD	.756	.861	.256	.739	.850	.321	.759	.863	.344	.738	.849	.319	.810	.895	.415
OCD	.636	.778	.226	.592	.744	.139	.671	.803	.185	.640	.780	.165	.610	.758	.148
FEARS	.582	.736	.218	.612	.759	.240	.537	.699	.188	.604	.753	.234	.503	.669	.168
SCAS-P	Total (n = 411)			Boys (n = 189)			Girls (n = 222)			Children (n = 280)			Adolescents (n = 131)		
	α	α cor.	ρ	α	α cor.	ρ	α	α cor.	ρ	α	α cor.	ρ	α	α cor.	ρ
Total	.902	--	.195	.889	--	.174	.907	--	.204	.903	--	.197	.904	--	.199
GAD	.680	.810	.262	.667	.800	.250	.684	.812	.265	.692	.818	.272	.658	.794	.243
SP	.644	.783	.232	.638	.779	.227	.634	.776	.224	.641	.781	.229	.635	.777	.225
SAD	.658	.794	.243	.619	.765	.213	.679	.809	.261	.657	.793	.242	.654	.791	.240
PD	.811	.896	.323	.760	.864	.345	.832	.908	.452	.777	.875	.367	.846	.917	.478
OCD	.771	.871	.359	.775	.873	.277	.766	.867	.267	.785	.880	.289	.740	.851	.240
FEARS	.587	.740	.221	.581	.735	.217	.582	.736	.218	.617	.763	.244	.488	.656	.160

Note. α: Cronbach's α; α cor.: Cronbach's α corrected with the Spearman-Brown formula; ρ: average inter-item correlation.

Table 7

SCAS scores for the clinical subgroups with different CGI-S rates and the comparison (community and negative screening) groups

Scores	Group *M* (*SD*)				Statistics				
	Clinical subgroup		Com	Neg	*F*	*p*	Post-hoc tests		Cohen's *d*
	CGI-S 6-5 (*n* = 9)	CGI 4-3 (*n* = 61)	(*n* = 70)	(*n* = 70)			Comparison	*p*	
SCAS	49.65 (25.03)	39.42 (17.27)	33.08 (12.93)	26.18 (10.05)	13.30	< .001	CGI 6-5 *vs.* 4-3	.330	.476
							CGI 6-5 *vs.* Com	.011	.832
							CGI 6-5 *vs.* Neg	< .001	1.231
							CGI 4-3 *vs.*Com	.069	.416
							CGI 4-3 *vs.* Neg	< .001	.937
							Com *vs.* Neg	.025	.596
SCAS-P	54.48 (15.82)	41.10 (14.73)	22.15 (12.90)	21.36 (11.10)	42.57	< .001	CGI 6-5 *vs.* 4-3	.028	.875
							CGI 6-5 *vs.* Com	< .001	2.240
							CGI 6-5 *vs.* Neg	< .001	2.424
							CGI 4-3 *vs.* Com	< .001	1.369
							CGI 4-3 *vs.* Neg	< .001	1.514
							Com *vs.* Neg	> .999	.066

Note. Com: Community group; Neg: Negative screening group.

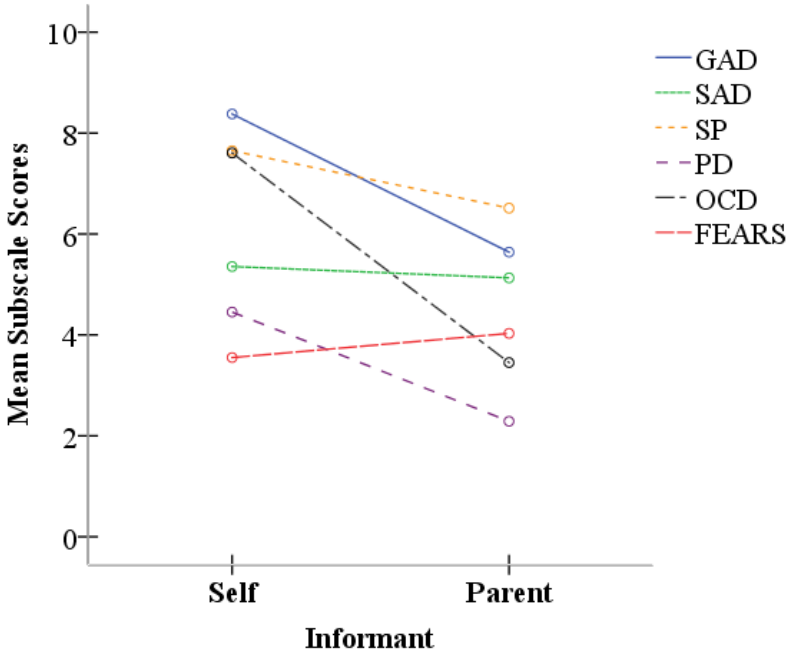

Figure 1. Informant by anxiety dimension interaction effect on mean SCAS scores.

– CHAPTER VI –

DISCUSSION AND CONCLUSION

In the Study 1, we were able to demonstrate that there are currently several instruments available to assess anxiety symptoms and AD in Brazilian population. Most of them are cross-culturally adapted and psychometric-based self-report questionnaires, scales, and inventories. They investigate anxiety in different age ranges, contexts, and assessment purposes. Most instruments showed positive evidences of validity and reliability. However, there were also instruments for which studies presented only a translation or adaptation process, or investigated psychometric properties in very specific samples. The investigation of the psychometric properties of an instrument is essential to provide evidences to examine its adequacy as a valid and reliable tool. Adequate instruments to the assessment of anxiety symptoms and AD provide valid and reliable diagnoses and prognoses, assisting clinicians and researchers to conduct better screening and diagnosis procedures, which, in turn, support clinical and research practices in planning effective interventions. Therefore, it is important that professionals are aware of the characteristics and empirical evidences of the instruments available in Brazil to assess anxiety symptoms and AD in order to judge if the instrument they choose is the most appropriate to their clinical or research objectives. The fields of psychological and psychiatric assessment are responsible for objectifying and operationalizing constructs and theories (Primi, 2010). They deal with the objectification of theoretical concepts into observable elements and, by seeking adequacy evidences of the assessment instruments, support the development of the constructs being assessed (Pasquali, 2009; Primi, 2010). Therefore, the progress and continuous monitoring of the studies about anxiety assessment provide theoretical and empirical support for the development of the anxiety construct and for the prevention and treatment of AD.

In the Study 2, we reported the cross-cultural adaptation of the Spence Children's Anxiety Scale (SCAS) to Brazil. Cross-cultural adaptation is currently acknowledged as a procedure as important as the statistical analyses that follow the investigation of psychometric properties of the instrument's new version (Gjersing et al., 2010; International Test Commission, 2010) to produce an adequate adapted measure of a construct in a new context. Cross-culturally adapting existing foreign instrument is many times an option to which Brazilian researchers resort due to the fact that it is faster than developing a new instrument and also allows the comparability to international studies

about the same construct or study object, a very useful aspect concerning cross-cultural studies (Cassepp-Borges et al., 2010). However, in these cases, it is mandatory to assure that the cross-cultural adaptation was performed according to rigorous methodological criteria, since the adapted version of the instrument will be used in a new context with particular culture and values (Gjersing et al., 2010). Therefore, even though the SCAS is a well-established scale worldwide, the careful cross-cultural adaptation process was highly important for supporting the adequacy of the instrument to assess anxiety symptoms in Brazilian children and adolescents. The Brazilian version of the SCAS is very similar to the original SCAS, suggesting that future cross-cultural studies may benefit from it.

In the Study 3, we were able to demonstrate that the Brazilian version of the Screen for Child Anxiety Related Emotional Disorders (SCARED) satisfactorily differentiated children and adolescents with and without AD diagnosis in a community sample. That way, the SCARED scores proved valuable in screening for AD in Brazilian community settings. This result allowed us, in the subsequent Study 4, to screen for youths in community settings with anxiety symptoms in a clinical range, which was useful to carry out some of the analyses in the psychometric investigation of the SCAS.

Finally, in the Study 4, we were able to demonstrate that the Brazilian version of the SCAS presented appropriate psychometric properties to the assessment of anxiety symptoms in Brazilian population. The SCAS (self- and parent-report versions) seems to be a reliable and valid instrument to assess anxiety symptoms in Brazilian children and adolescents in community and clinical settings. Therefore, the SCAS can contribute to a better assessment, assisting in the screening for youths at risk for the development of anxiety disorders, in preventive and treatment interventions, and in academic research in the Brazilian context as well as in cross-cultural research including data from Brazilian samples. Among other benefits, the instrument takes much less time than a full diagnostic interview, it can be used over a larger number of children and adolescents at the same time, it is not expensive to use, and it still accounts for different symptoms from specific anxiety disorders (e. g., generalized anxiety disorder, separation anxiety disorder, social phobia).

In summary, the major contribution of the Study 1 was to present a comprehensive current overview of the availability of instruments to assess anxiety symptoms and AD in Brazilian population. The major contribution of the Studies 2, 3, and 4, altogether, was to present the Brazilian version of the SCAS as an instrument suitable to assess pediatric anxiety symptoms in Brazilian community and clinical settings.

REFERENCES

*Abreu, A. M., Faria, C. D. C. M., Cardoso, S. M. V., & Teixeira-Salmela, L. F. (2008). Versão brasileira do Fear Avoidance Beliefs Questionnaire. *Cadernos de Saúde Pública*, *24*(3), 615–623

American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed, text rev.). Washington, DC: Author

Arbuckle, J. L. (2009). *Amos 18 user's guide*. Crawfordville, FL: Amos Development Corporation

Barlow, D. H., & Durand, V. M. (2008). *Psicopatologia: Uma abordagem integrada* (4º ed.). São Paulo: Cengage Learning

*Batista, M. A., & Sisto, F. F. (2005). Estudo para a construção de uma escala de ansiedade para adolescentes. *Estudos de Psicologia (Campinas)*, *22*(4), 347-354

Baumeister, H., & Härter, M. (2007). Prevalence of mental disorders based on general population surveys. *Social Psychiatry and Psychiatric Epidemiology*, *42*(7), 537-546. doi:10.1007/s00127-007-0204-1

*Bergamasco, E. C., Rossi, L. A., Carvalho, E. C. C., & Dalri, M. C. B. (2004). Diagnósticos de medo e ansiedade: Validação de conteúdo para o paciente queimado. *Revista Brasileira de Enfermagem*, *57*(2), 170–177

*Berger, W., Mendlowicz, M. V., Souza, W. F., & Figueira, I. (2004). Equivalência semântica da versão em português da Post-Traumatic Stress Disorder Checklist-Civilian Version (PCL-C) para rastreamento do transtorno de estresse pós-traumático. *Revista de Psiquiatria do Rio Grande do Sul*, *26*(2), 167–175

Birmaher, B., Khetarpal, S., Brend, D., Cully, M., Balach, L., Kaufman, J. et al. (1997). The Screen for Child Anxiety Related Emotional Disorders (SCARED): scale construction and psychometric characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 545–553. doi:10.1097/00004583-199704000-00018

Birmaher, B., Brent, D. A., Chiappetta, L., Bridge, J., Monga, S., & Baugher, M. (1999). Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a replication study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *38*, 1230–1236. doi:10.1097/00004583-199910000-00011

Bittner, A., Egger, H. L., Erkanli, A., Jane Costello, E., Foley, D. L., & Angold, A. (2007). What do childhood anxiety disorders predict? *Journal of Child Psychology and Psychiatry*, *48*, 1174-1183. doi:10.1111/j.1469-7610.2007.01812.x

*Brasil, H., & Bordin, I. (2010). Convergent validity of K-SADS-PL by comparison with CBCL in a Portuguese speaking outpatient population. *BMC Psychiatry*, *10*(1), 83-94

*Brasil, H. H. A. (2003). *Development of the Brazilian version of K-SADS-PL (Schedule for Affective Disorders and Schizophrenia for School Aged Children Present and Lifetime Version) and study of psychometric properties*. Doctoral Dissertation. Universidade Federal de São Paulo, Department of Psychiatry, São Paulo, Brazil

*Burato, K. R. S. S., Crippa, J. A. S., & Loureiro, S. R. (2009). Validade e fidedignidade da escala de comportamento de segurança na ansiedade social, *36*(5), 175-181

Byrne, B. M. (2010). *Structural equation modeling with AMOS: basic concepts, applications, and programming*. 2nd ed. New York: Taylor and Francis Group

*Caballo, V. E., Salazar, I. C., Irurtia, M. J., Arias, B., & Hofmann, S. G. (2010). Measuring social anxiety in 11 countries: Development and validation of the Social Anxiety Questionnaire for Adults. *European Journal of Psychological Assessment, 26*(2), 95-107

Cassepp-Borges, V., Balbinotti, M. A. A., & Teodoro, M. L. M. (2010). Tradução e validação de conteúdo: Uma proposta para a adaptação de instrumentos. In: L. Pasquali et al. (Eds.), *Instrumentação psicológica* (pp. 506-520). Porto Alegre: Artmed

*Castillo, C., Macrini, L., Cheniaux, E., & Landeira-Fernandez, J. (2010). Psychometric properties and latent structure of the Portuguese version of the Penn State Worry Questionnaire. *The Spanish Journal of Psychology, 13*(1), 431–443

*Castro, M. M. C., Quarantini, L., Batista-Neves, S., Kraychete, D. C., Daltro, C., & Miranda-Scippa, A. (2006). Validade da escala hospitalar de ansiedade e depressão em pacientes com dor crônica. *Revista Brasileira de Anestesiologia, 56*(5), 470–477

Clark, D. A., & Beck, A. T. (2012). *Terapia cognitiva para os transtornos de ansiedade: Ciência e prática*. Porto Alegre: Artmed

Clark, L. A. & Watson, D. (1995). Constructing validity: basic issues in objective scale development. *Psychological Assessment, 7*, 309-319. doi:10.1037/1040-3590.7.3.309

*Coelho, E. M., Vasconcelos-Raposo, J., & Cielo Mahl, A. (2010). Confirmatory Factorial Analysis of the Brazilian Version of the Competitive State Anxiety Inventory-2 (CSAI-2). *The Spanish Journal of Psychology, 13*(1), 453–460

*Conceição, D. B., Schonhorst, L., Conceição, M. J., & Oliveira Filho, G. R. (2004). A pressão arterial e a frequência cardíaca não são bons parâmetros para avaliação do nível de ansiedade pré-operatória. *Revista Brasileira de Anestesiologia, 54*(6), 769–773

Conolly, S. D., Bernstein, G. A., & Work Group on Quality Issues. (2007). Practice parameter for the assessment and treatment of children and adolescents with anxiety disorders.

Journal of the American Academy of Child and Adolescent Psychiatry, 46, 267-283. doi:10.1097/01.chi.0000246070.23695.06

*Costa, M. F., Mendlowicz, M. V., Vasconcelos, A. G. G., Berger, W., Luz, M. P., Figueira, I., & Garcia Rosa, M. L. (2011). Confirmatory factor analysis of posttraumatic stress symptoms in Brazilian primary care patients: An examination of seven alternative models. *Journal of Anxiety Disorders, 25*(7), 950-963

Costello, E. J., Mustillo, S., Erkanli, A., Keeler, G., & Angold, A. (2003). Prevalence and development of psychiatric disorders in childhood and adolescence. *Archives of General Psychiatry, 60,* 837-844. doi:10.1001/archpsyc.60.8.837

Crane Amaya, A. & Campbell, M. (2010). Cross-cultural comparison of anxiety symptoms in Colombian and Australian children. *Electronic Journal of Research in Educational Psychology, 8*, 497-516

Craske, M. G., Rauch, S. L., Ursano, R., Prenoveau, J., Pine, D. S., & Zinbarg, R. E. (2009). What is an anxiety disorder? *Depression and Anxiety, 26*(12), 1066-1085

*Crippa, J. A. S., Osório, F. L., Del-Ben, C. M., Santos Filho, A., Freitas, M. C. S., & Loureiro, S. R. (2008). Comparability between telephone and face-to-face Structured Clinical Interview for DSM–IV in assessing social anxiety disorder. *Perspectives in Psychiatric Care*, *44*(4), 241–247

Cronbach, L. J. (1951). Coefficient Alpha and the internal structure of tests. *Psychometrika, 16,* 297-334. doi:10.1007/BF02310555

*Cunha, J. A. (2001). *Manual da versão em português das Escalas Beck*. São Paulo: Casa do Psicólogo

Cury, C. R. & Golfeto, J. H. (2003). Strengths and difficulties questionnaire (SDQ): a study of school children in Ribeirão Preto. *Revista Brasileira de Psiquiatria, 25,* 139-45. doi:10.1590/S1516-44462003000300005

*D'El Rey, G. J. F. (2008). Escala D'El Rey de medo de falar em público: Elaboração de um instrumento de auto-avaliação. *Psicol. Argum.*, *26*(52), 67-72

*D'El Rey, G. J. F., Lavaca, J. P. L., & Cardoso, R. (2007). Consistência interna da versão em português do Mini-Inventário de Fobia Social (Mini-SPIN). *Revista de Psiquiatria Clínica*, *34*(6), 266-269

*D'El Rey, G. J. F., & Matos, C. W. (2009). Validação da versão em português do Mini-Inventário de Fobia Social (Mini-SPIN). *Ciência & Saúde Coletiva*, *14*(5), 1681-1686

DeSousa, D. A., Salum, G. A., Isolan, L. R., & Manfro, G. G. (in press). Sensitivity and specificity of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a

community-based study. *Child Psychiatry and Human Development,* in press. Epub ahead of print September 9, 2012. doi:10.1007/s10578-012-0333-y

DeSousa, D. A., Petersen, C. S., Behs, R., Manfro, G. G., & Koller, S. H. (2012). Brazilian Portuguese version of the Spence Children's Anxiety Scale (SCAS-Brasil). *Trends in Psychiatry and Psychotherapy, 34*, 147-153. doi:10.1590/S2237-60892012000300006

*Echevarria-Guanilo, M. E., Dantas, R. A. S., Farina Jr., J. A., Faber, A. W., Alonso, J., Rajmil, L., & Rossi, L. A. (2011). Reliability and validity of the Brazilian-Portuguese version of the Burns Specific Pain Anxiety Scale (BSPAS). *International Journal of Nursing Studies, 48*(1), 47-55

*Echevarria-Guanilo, M. E., Rossi, L. A., Dantas, R. A. S., & Santos, C. B. (2006). Adaptação transcultural da "Burns Specific Pain Anxiety Scale - BSPAS" para ser aplicada em pacientes queimados brasileiros. *Revista Latinoamericana de Enfermagem*, *14*(4), 526-533

*Escocard, M. R. P. G., Fioravanti-Bastos, A. C. M., & Landeira-Fernandez, J. (2009). Anxiety Sensitivity factor structure among Brazilian patients with anxiety disorders. *Journal of Psychopathology and Behavioral Assessment, 31*(3), 246-255

Essau, C. A., Anastassiou-Hadjicharalambous, X., & Muñoz, L. C. (2011). Psychometric properties of the Spence Children's Anxiety Scale (SCAS) in Cypriot children and adolescents. *Child Psychiatry and Human Development, 42*, 557–568. doi:10.1007/s10578-011-0232-7

Essau, C. A. & Barrett, P. (2001). Developmental issues in the assessment of anxiety. In C. A. Essau & F. Petermann (Eds.), *Anxiety disorders in children and adolescents: epidemiology, risk factors, and treatment*. London: Harwood.

Essau, C. A., Conradt, J., & Petermann, F. (2000). Frequency, comorbidity, and psychosocial impairment of anxiety disorders in German adolescents. *Journal of Anxiety Disorders, 14*, 263-279. doi:10.1016/S0887-6185(99)00039-0

Essau, C. A., Leung, P. W. L., Conradt, J., Cheng, H., & Wong, T. (2008). Anxiety symptoms in Chinese and German adolescents: their relationship with early learning experiences, perfectionism and learning motivation. *Depression and Anxiety, 25*, 801-810. doi:10.1002/da.20334

Essau, C. A., Muris, P., & Ederer, E. M. (2002). Reliability and validity of the Spence Children's Anxiety Scale and the Screen for Child Anxiety Related Emotional Disorders in German children. *Journal of Behavior Therapy and Experimental Psychiatry, 33*, 1–18. doi:10.1016/S0005-7916(02)00005-8

Essau, C. A., Olaya, B., Pasha, G., O'Callaghan, J., & Bray, D. (2012). The structure of anxiety symptoms among adolescents in Iran: a confirmatory factor analytic study of the Spence

Children's Anxiety Scale. *Journal of Anxiety Disorders, 26*, 871– 878. doi:10.1016/j.janxdis.2012.08.001

Essau, C. A., Sakano, Y., Ishikawa, S., & Sasagawa, S. (2004). Anxiety symptoms in Japanese and in German children. *Behaviour Research and Therapy, 42*, 601–612. doi:10.1016/S0005-7967(03)00164-5

Essau, C. A., Sasagawa, S., Anastassiou-Hadjicharalambous, X., Guzmán, B. O., & Ollendick, T. H. (2011). Psychometric properties of the Spence Child Anxiety Scale with adolescents from five European countries. *Journal of Anxiety Disorders, 25*, 19–27. doi:10.1016/j.janxdis.2010.07.001

*Farah, F. H. Z., & Villemor-Amaral, A. E. (2008). O transtorno do pânico e o Rorschach no sistema compreensivo. *Boletim de Psicologia, 58*(128), 103–119

*Fava, D. C., Kristensen, C. H., Melo, W. V., & Araujo, L. B. (2009). Construção e validação de tarefa de Stroop Emocional para avaliação de viés de atenção em mulheres com Transtorno de Ansiedade Generalizada. *Paidéia*, *19*(43), 159–165

*Ferreira, L. S. S., Pereira, C. B., Rossini, S., Kanashiro, A. M. K., Adda, C. C., & Scaff, M. (2010). Psychological assessment in patients with phobic postural vertigo. *Arquivos de Neuropsiquiatria*, *68*(2), 224–227

*Fioravanti, A. C. M., Santos, L. F., Maissonette, S., Cruz, A. P. M., & Landeira-Fernandez, J. (2006). Avaliação da estrutura fatorial da Escala de Ansiedade-Traço do IDATE. *Avaliação Psicológica*, *5*(2), 217–224

*Fioravanti-Bastos, A. C. M., Cheniaux, E., & Landeira-Fernandez, J. (2011). Development and validation of a short-form version of the Brazilian State-Trait Anxiety Inventory. *Psicologia: Reflexão e Crítica*, *24*(3), 485–494

*Fiszman, A., Cabizuca, M., Lanfredi, C., & Figueira, I. (2005). The cross-cultural adaptation to Portuguese of the Trauma History Questionnaire to identify traumatic experiences. *Revista Brasileira de Psiquiatria*, *27*(1), 63–66

*Gauer, G. C., Picon, P., Davoglio, T. R., Silva, L. M., & Beidel, D. C. (2009). Psychometric characteristics of the Brazilian Portuguese version of Social Phobia and Anxiety Inventory for Children (SPAI-C). *PSICO, Porto Alegre, PUCRS*, *40*(3), 354-358

*Gauer, G. J. C., Picon, P., Vasconcellos, S. J. L., Turner, S. M., & Beidel, D. C. (2005). Validation of the Social Phobia and Anxiety Inventory for Children (SPAI-C) in a sample of Brazilian children. *Brazilian Journal of Medical and Biological Research, 38*(5), 795–800

Gjersing, L., Caplehorn, J. R. M., & Clausen, T. (2010). Cross-cultural adaptation of research instruments: language, setting, time and statistical considerations. *BMC Medical Research Methodology*, *10*, 13-22

Golfeto, J. H., Veiga, M. H., Souza, L., & Barbeira, C. (2002). Psychometrical properties of the Inventory of Child Depression (CDI) in a sample of children in Ribeirão Preto. *Revista de Psiquiatria Clínica, 29*, 66-70

Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 1337–1345. doi:10.1097/00004583-200111000-00015

Goodman, A., Fleitlich-Bilyk, B., Patel, V., & Goodman, R. (2007). Child, family, school and community risk factors for poor mental health in Brazilian schoolchildren. *Journal of the American Academy of Child and Adolescent Psychiatry*, *46*, 448-456. doi:10.1097/chi.0b013e31803065b5

*Gorayeb, M. A. M., & Gorayeb, R. (2008). "O Que Penso e Sinto" – Adaptação da Revised Children's Manifest Anxiety Scale (RCMAS) para o português. *Temas em Psicologia*, *16*(1), 35-45

Gouveia, V. V., Barbosa, G. A., Almeida, H. J. F., & Gaião, A. A. (1995). Children's depression inventory – CDI: adaptation study with students of João Pessoa. *Jornal Brasileiro de Psiquatria, 44*, 345-349

*Gouveia, V. V., Medeiros, E. D., Gouveia, R. S. V., Santos, W. S., & Diniz, P. K. C. (2008). Cuestionario de claustrofobia: Evidencias de su validez y fiabilidad. *Revista Interamericana de Psicología*, *42*(3), 604–610

*Granado, L. C., Peláez, F. J. R., & Garcia-Mijares, M. (2005). Estudo no contexto brasileiro de três questionários para avaliar aracnofobia. *Avaliação Psicológica*, *4*(2), 125–139

*Guaratini, A. A., Marcolino, J. A. M., Teixeira, A. B., Bernardis, R. C., Passarelli, M. L. B., & Mathias, L. A. S. T. (2006). Estudo transversal de ansiedade pré-operatória em crianças: Utilização da Escala de Yale Modificada. *Revista Brasileira de Anestesiologia*, *56*(6), 591-601

Hernández-Guzmán, L., Bermúdez-Ornelas, G., Spence, S. H., Montesinos, M. J. G., Martínez-Guerrero, J. I., Villalobos, J. A., & Guajardo, J. G. (2010). Spanish version of the Spence Children's Anxiety Scale (SCAS). *Revista Latinoamericana de Psicología, 42*, 13-24

Hollander, E., Braun, A., & Simeon, D. (2008). Should OCD leave the anxiety disorders in DSM-V? The case for obsessive-compulsive-related disorders. *Depression and Anxiety*, *25*(4), 317-329

Hollander, E. H. & Simeon, D. (2008). Anxiety disorders. In: R. E. Hales, S. C. Yudofsky, & G. O. Gabbard (Eds.) *The American Psychiatric Publishing textbook of psychiatry*. 5th ed. Washington: American Psychiatric Publishing

*Hu, L. W., Gorenstein, C., & Fuentes, D. (2007). Portuguese version of Corah's Dental Anxiety Scale: Transcultural adaptation and reliability analysis. *Depression and Anxiety*, *24*(7), 467–471

Ishikawa, S., Sato, H., & Sasagawa, S. (2009). Anxiety disorder symptoms in Japanese children and adolescents. *Journal of Anxiety Disorders, 23*, 104–111. doi:10.1016/j.janxdis.2008.04.003

*Isolan, L., Salum, G. A., Osowski, A. T., Amaro, E., & Manfro, G. G. (2011). Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in Brazilian children and adolescents. *Journal of Anxiety Disorders*, *25*(5), 741-748. doi:10.1016/j.janxdis.2011.03.015

*Kaipper, M. B., Chachamovich, E., Hidalgo, M. P. L., Torres, I. L. S., & Caumo, W. (2010). Evaluation of the structure of Brazilian State-Trait Anxiety Inventory using a Rasch psychometric approach. *Journal of Psychosomatic Research*, *68*(3), 223–233

Kaufman, J., Birmaher, B., Brent, D. A., Rao, U., Flynn, C., Moreci, P., Williamson, D., & Ryan, N. (1997). Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime Version (K-SADS-PL): initial reliability and validity data. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*, 980–988. doi:10.1097/00004583-199707000-00021

Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*(6), 617-627

Kieling, C., Baker-Henningham, H., Belfer, M., Conti, G., Ertem, I., Omigbodum, O., Rohde, L. A., et al. (2011). Child and adolescent mental health worldwide: evidence for action. *The Lancet, 378*, 1515-1525. doi:10.1016/S0140-6736(11)60827-1

Kovacz, M. A. (1992). *Children's Depression Inventory manual*. Multi-Health Systems, North Tonawanda

Kraemer, H. C., Measelle, J. R., Ablow, J. C., Essex, M. J., Boyce, W. T., & Kupfer, D. J. (2003). A new approach to integrating data from multiple informants in psychiatric assessment and research: mixing and matching contexts and perspectives. *The American Journal of Psychiatry, 160*, 1566–1577. doi:10.1176/appi.ajp.160.9.1566

*Kummer, A., Cardoso, F., & Teixeira, A. L. (2008). Frequency of social phobia and psychometric properties of the Liebowitz Social Anxiety Scale in Parkinson's disease. *Mov Disord, 23*(12), 1739-1743

*Kummer, A., Cardoso, F., & Teixeira, A. L. (2010). Generalized anxiety disorder and the Hamilton Anxiety Rating Scale in Parkinson's disease. *Arquivos de Neuropsiquiatria, 68*(4), 495–501

*Lara, D. R., Bisol, L. W., Brunstein, M. G., Reppold, C. T., Carvalho, H. W., & Ottoni, G. L. (2011). The Affective and Emotional Composite Temperament (AFECT) model and scale: A system-based integrative approach. *Journal of Affective Disorders*. doi:10.1016/j.jad.2011.08.036

*Lara, D. R., Lorenzi, T. M., Borba, D. L., Silveira, L. C. L., & Reppold, C. T. (2008). Development and validation of the Combined Emotional and Affective Temperament Scale (CEATS): Towards a brief self-rated instrument. *Journal of Affective Disorders, 111*, 320–333

*Levitan, M. N., Nascimento, I., Freire, R. C., Mezzasalma, M. A., & Nardi, A. E. (2008). Equivalência semântica da versão brasileira da Social Avoidance and Distress Scale (SADS). *Revista de Psiquiatria do Rio Grande do Sul, 30*(1), 49–58

Li, J. C., Lau, W., & Au, T. K. (2011). Psychometric properties of the Spence Children's Anxiety Scale in a Hong Kong Chinese community sample. *Journal of Anxiety Disorders, 25*, 584–591. doi:10.1016/j.janxdis.2011.01.007

*Macedo, B. G., Marques, K. S. F., & Pereira, L. S. M. (2006). Análise das propriedades psicométricas de uma avaliação clínica para detectar medo de cair em idosos. *Fisioterapia Brasil, 7*(4), 250-254

Maia, C. R. M., & Rohde, L. A. (2007). Psicofármacos para o tratamento de transtornos de ansiedade em crianças e adolescentes: Uma revisão sistemática. *Revista Brasileira de Psiquiatria, 29*(1), 72-79

*Marcolino, J. A. M., Mathias, L. A. S. T., Piccinini Filho, L., Guaratini, A. A., Suzuki, F. M., & Alli, L. A. C. (2007). Escala Hospitalar de Ansiedade e Depressão: Estudo da validade de critério e da confiabilidade com pacientes no pré-operatório. *Revista Brasileira de Anestesiologia, 57*(1), 52–62

*Martins, M. R. I., Polvero, L. O., Rocha, C. E. R., Foss, M. H., & Santos Junior, R. (2012). Uso de questionários para avaliar a multidimensionalidade e a qualidade de vida do fibromiálgico. *Revista Brasileira de Reumatologia, 52*(1), 21-26

*Martiny, C., Silva, A. C. O., Nardi, A. E., & Pachana, N. A. (2011). Tradução e adaptação transcultural da versão brasileira do Inventário de Ansiedade Geriátrica (GAI). *Revista de Psiquiatria Clínica, 38*(1), 08–12

Matos, E. G., Matos, T. M. G., & Matos, G. M. G. (2005). A importância e as limitações do uso do DSM-IV na prática clínica. *Revista de Psiquiatria do Rio Grande do Sul*, *27*(3), 312-318

*Matos, E. G., Sardelli, L. R., Ravera, L., D'Agostino, G., & Matos, T. M. G. (2005). Versão para o português de um novo instrumento para o diagnóstico do espectro do transtorno do pânico (PAS-SR). *Jornal Brasileiro de Psiquiatria*, *54*(2), 108-113

Mellon, R. C. & Moutavelis, A. G. (2007). Structure, developmental course, and correlates of children's anxiety disorder-related behavior in a Hellenic community sample. *Journal of Anxiety Disorders, 21*, 1–21. doi:10.1016/j.janxdis.2006.03.008

*Menezes, M., Moré, C. L. O. O., & Cruz, R. M. (2008). O desenho como instrumento de medida de processos psicológicos em crianças hospitalizadas. *Avaliação Psicológica*, *7*(2), 189–198

Meng, X., Rosenthal, R., & Rubin, D. B. (1992). Comparing correlated correlation coefficients. *Psychological Bulletin, 111*, 172-175. doi:10.1037//0033-2909.111.1.172

Miller, M. W., Resick, P. A., & Keane, T. M. (2009). DSM–V: Should PTSD Be in a Class of Its Own? *The British Journal of Psychiatry*, *194*(1), 90

Mululo, S. C. C., Menezes, G. B., Fontenelle, L., & Versiani, M. (2009). Eficácia do tratamento cognitivo e/ou comportamental para o transtorno de ansiedade social. *Revista de Psiquiatria do Rio Grande do Sul*, *31*(3), 177-186

Muris, P., Schmidt, H., Engelbrecht, P., & Perold, M. (2002). DSM-IV–defined anxiety disorder symptoms in South African children. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*, 1360-1368. doi:10.1097/00004583-200211000-00018

Muris, P., Schmidt, H., & Merckelbach, H. (2000). Correlations among two self-report questionnaires for measuring DSM-defined anxiety disorder symptoms in children: the Screen for Child Anxiety Related Emotional Disorders and the Spence Children's Anxiety Scale. *Personality and Individual Differences, 28*, 333-346. doi:10.1016/S0191-8869(99)00102-6

Nauta, M. H., Scholing, A., Rapee, R. M., Abbott, M., Spence, S. H., & Waters, A. (2004). A parent-report measure of children's anxiety: psychometric properties and comparison with child-report in a clinic and normal sample. *Behaviour Research and Therapy, 42*, 813–839. doi:10.1016/S0005-7967(03)00200-6

*Nardi, A. E., Lopes, F. L., Freire, R. C., Veras, A. B., Nascimento, I., Valença, A. M., de-Melo-Neto, V. L., et al. (2009). Panic disorder and social anxiety disorder subtypes in a caffeine challenge test. *Psychiatry Research*, *169*(2), 149–153

*Nardi, A. E., Lopes, F. L., Valença, A. M., Freire, R. C., Veras, A. B., de-Melo-Neto, V. L., Nascimento, I., et al. (2007). Caffeine challenge test in panic disorder and depression with panic attacks. *Comprehensive Psychiatry*, *48*(3), 257–263

*Nardi, A. E., Nascimento, I., Valença, A. M., Lopes, F. L., Mezzasalma, M. A., & Zin, W. A. (2003). Panic disorder in a breath-holding challenge test: A simple tool for a better diagnosis. *Arquivos de Neuropsiquiatria*, *61*, 718–722

*Nardi, A. E., Valença, A. M., Lopes, F. L., de-Melo-Neto, V. L., Freire, R. C., Veras, A. B., Nascimento, I., et al. (2007). Caffeine and 35% carbon dioxide challenge tests in panic disorder. *Human Psychopharmacology: Clinical and Experimental*, *22*, 231-240

*Oliveira, J. C. S., & Sisto, F. F. (2004). Construção de uma escala de ansiedade para pacientes de ambulatório: Um estudo exploratório. *Psicologia: Teoria e Prática*, *6*(1), 45–57

*Oliveira, N., Chianca, T., & Rassool, G. H. (2008). A validation study of the Nursing Diagnosis Anxiety in Brazil. *International Journal of Nursing Terminologies and Classifications*, *19*(3), 102-110

*Oliveira, S. M. S. S., & Sisto, F. F. (2002). Estudo para uma escala de ansiedade escolar para crianças. *Psicologia Escolar e Educacional (Impresso)*, *6*(1), 57–66

Onwuegbuzie, A. J. & Daniel, L. G. (2002). A framework for reporting and interpreting internal consistency reliability estimates. *Measurement and Evaluation in Counseling and Development*, *35*, 89-103.

Orgilés, M., Méndez, X., Spence, S. H., Huedo-Medina, T. B., & Espada, J. P. (2012). Spanish validation of the Spence Children's Anxiety Scale. Child Psychiatry and Human Development, 43, 271-281. doi:10.1007/s10578-011-0265-y

*Osório, F. L., Crippa, J. A., & Loureiro, S. R. (2006). Cross-cultural validation of the Brief Social Phobia Scale for use in Portuguese and the development of a structured interview guide. *Revista Brasileira de Psiquiatria*, *28*(3), 212-217

*Osório, F. L., Crippa, J. A., & Loureiro, S. R. (2007). A study of the discriminative validity of a screening tool (MINI-SPIN) for social anxiety disorder applied to Brazilian university students. *European Psychiatry*, *22*(4), 239–243

*Osório, F. L., Crippa, J. A., & Loureiro, S. R. (2008). Escala para Auto-Avaliação ao Falar em Público (SSPS): Adaptação transcultural e consistência interna da versão brasileira. *Revista de Psiquiatria Clínica*, *35*(6), 207–211

*Osório, F. L., Crippa, J. A., & Loureiro, S. R. (2009). Cross-cultural validation of the Brazilian Portuguese version of the Social Phobia Inventory (SPIN): Study of the items and internal consistency. *Revista Brasileira de Psiquiatria*, *31*(1), 25–29

*Osório, F. L., Crippa, J. A., & Loureiro, S. R. (2010a). Further study of the psychometric qualities of a brief screening tool for social phobia (MINI-SPIN) applied to clinical and nonclinical samples. *Perspectives in Psychiatric Care*, *46*(4), 266-278

*Osório, F. L., Crippa, J. A., & Loureiro, S. R. (2010b). Study of the psychometric qualities of the Brief Social Phobia Scale (BSPS) in Brazilian university students. *European Psychiatry*, *25*(3), 178–188

*Osório, F. L., Crippa, J. A., & Loureiro, S. R. (2010c). Evaluation of the psychometric properties of the Social Phobia Inventory in university students. *Comprehensive Psychiatry*, *51*(6), 630–640

*Osório, F. L., Crippa, J. A., & Loureiro, S. R. (2010d). Estudos de validação de instrumentos no transtorno de ansiedade social para o contexto brasileiro. *Salud(i)ciencia, (Impresa)*, *17*(6), 533-536

*Osório, F. L., Crippa, J. A., & Loureiro, S. R. (2011). Further psychometric study of the Beck Anxiety Inventory including factorial analysis and social anxiety disorder screening. *International Journal of Psychiatry in Clinical Practice*, *15*(4), 255-262

Pasquali, L. (2009). Psicometria. *Revista da Escola de Enfermagem da USP*, *43*(SPE), 992-999

*Pereira, J. M. V., Cavalcanti, A. C. D., Santana, R. F., Cassiano, K. M., Queluci, G. C., & Guimarães, T. C. F. (2011). Diagnósticos de enfermagem de pacientes hospitalizados com doenças cardiovasculares. *Escola Anna Nery*, *15*(4), 737-745

Picon, P. (2003). Epidemiologia e psiquiatria. In: A. C. Neto, G. J. C. Gauer, & N. R. Furtado (Eds.), *Psiquiatria para estudantes de medicina* (pp. 83-90). Porto Alegre: EDIPUCRS

*Picon, P., Gauer, G. J. C., Fachel, J. M. G., Beidel, D. C., Seganfredo, A. C., & Manfro, G. G. (2006). The Portuguese language version of Social Phobia and Anxiety Inventory: Analysis of items and internal consistency in a Brazilian sample of 1,014 undergraduate students. *Jornal Brasileiro de Psiquiatria*, *55*(2), 114–119

*Picon, P., Gauer, G. J. C., Fachel, J. M. G., & Manfro, G. G. (2005). Desenvolvimento da versão em português do Social Phobia and Anxiety Inventory (SPAI). *Revista de Psiquiatria do Rio Grande do Sul*, *27*(1), 40–50

*Picon, P., Gauer, G. J. C., Hirakata, V. N., Haggsträm, L. M., Beidel, D. C., Turner, S. M., & Manfro, G. G. (2005). Reliability of the Social Phobia and Anxiety Inventory (SPAI) Portuguese version in a heterogeneous sample of Brazilian university students. *Revista Brasileira de Psiquiatria*, *27*(2), 124–130

*Polanczyk, G. V., Eizirik, M., Aranovich, V., Denardin, D., Silva, T. L., Conceição, T. V., Pianca, T. G., et al. (2003). Interrater agreement for the schedule for affective disorders and schizophrenia epidemiological version for school-age children (K-SADS-E). *Revista Brasileira de Psiquiatria*, *25*(2), 87–90

Primi, R. (2010). Avaliação psicológica no Brasil: Fundamentos, situação atual e direções para o futuro. *Psicologia: Teoria e Pesquisa*, *26*(SPE), 25-35

*Pupo, M. C., Jorge, M. R., Schoedl, A. F., Bressan, R. A., Andreoli, S. B., Mello, M. F., & Mari, J. J. (2011). The accuracy of the Clinician-Administered PTSD Scale (CAPS) to identify PTSD cases in victims of urban violence. *Psychiatry Research*, *185*, 157-160

*Quintana, M. I., Gastal, F. L., Jorge, M. R., Miranda, C. T., & Andreoli, S. B. (2007). Validity and limitations of the Brazilian version of the Composite International Diagnostic Interview (CIDI 2.1). *Revista Brasileira de Psiquiatria*, *29*(1), 18-22

*Rocha, F. L., Vorcaro, C. M. R., Uchoa, E., & Lima-Costa, M. F. (2005). Comparing the prevalence rates of social phobia in a community according to ICD-10 and DSM-III-R. *Revista Brasileira de Psiquiatria*, *27*(3), 222-224

*Rosario-Campos, M. C., Miguel, E. C., Quatrano, S., Chacon, P., Ferrao, Y., Findley, D., Katsovich, L., et al. (2006). The Dimensional Yale-Brown Obsessive-Compulsive Scale (DY-BOCS): An instrument for assessing obsessive-compulsive symptom dimensions. *Molecular Psychiatry*, *11*(5), 495-504

*Sanchez, C. N. M., & Gouveia Jr, A. (2008). Adaptação da EAH para população de surdos falantes de LIBRAS. *Revista Brasileira de Terapia Comportamental e Cognitiva*, *10*(2), 171-179

*Sardinha, A., Nardi, A. E., & Eifert, G. H. (2008). Tradução e adaptação transcultural da versão brasileira do Questionário de Ansiedade Cardíaca. *Revista de Psiquiatria do Rio Grande do Sul*, *30*, 139-149

*Scazufca, M., Menezes, P. R., Vallada, H., & Araya, R. (2009). Validity of the self reporting questionnaire-20 in epidemiological studies with older adults: Results from the Sao Paulo Ageing & Health Study. *Social Psychiatry and Psychiatric Epidemiology*, *44*(3), 247-254

*Silva, A. C. O., & Nardi, A. E. (2009). Tradução e adaptação transcultural da versão brasileira da Fear of Negative Evaluation Scale (FNE). *Revista de Psiquiatria do Rio Grande do Sul*, *31*(3), 159-169

*Silva, A. C. O., & Nardi, A. E. (2010). Versão brasileira do Social Interaction Self-Statement Test (SISST): tradução e adaptação transcultural. *Revista de Psiquiatria Clínica*, *37*(5), 199-205

*Silva, J. V. V., Rosa, J. T., Paegle, I. C., Braunholz, M. A. S., & Bolgar, M. F. (2004). Contribuições do Teste de Relações Objetais de Phillipson para o diagnóstico do funcionamento mental de pacientes com transtorno de pânico. *PSIC: Revista de Psicologia da Vetor Editora, 5*(1), 48-65

Silva, W. V. & Figueiredo, V. L. M. (2005). Childhood anxiety and assessment instruments: a systematic review. *Revista Brasileira de Psiquiatria, 27*, 329-335. doi:10.1590/S1516-44462005000400014

*Siqueira, F. B., Teixeira-Salmela, L. F., & Magalhães, L. C. (2007). Análise das propriedades psicométricas da versão brasileira da Escala Tampa de Cinesiofobia. *Acta Ortopédica Brasileira, 15*(1), 19-24

*Soares-Filho, G. L. F., Freire, R. C., Biancha, K., Pacheco, T., Volschan, A., Valença, A. M., & Nardi, A. E. (2009). Use of the hospital anxiety and depression scale (HADS) in a cardiac emergency room - Chest Pain unit. *Clinics, 64*(3), 209-214

*Souza, F. P., Foa, E. B., Meyer, E., Niederauer, K. G., & Cordioli, A. V. (2011). Psychometric properties of the Brazilian Portuguese version of the Obsessive-Compulsive Inventory-Revised (OCI-R). *Revista Brasileira de Psiquiatria*

*Souza, F. P., Foa, E. B., Meyer, E., Niederauer, K. G., Raffin, A. L., & Cordioli, A. V. (2008). Obsessive-Compulsive Inventory and Obsessive-Compulsive Inventory-Revised scales: Translation into Brazilian portuguese and cross-cultural adaptation. *Revista Brasileira de Psiquiatria, 30*, 42-46

*Souza, F. S., Marinho, C. S., Siqueira, F. B., Maher, C. G., & Costa, L. O. (2008). Psychometric testing confirms that the Brazilian-Portuguese adaptations, the original versions of the Fear-Avoidance Beliefs Questionnaire, and the Tampa Scale of Kinesiophobia have similar measurement properties. *Spine, 33*(9), 1028-1033

*Souza, I. G. S., Serra-Pinheiro, M. A., Mousinho, R., & Mattos, P. (2009). A Brazilian version of the "Children's Interview for Psychiatric Syndromes" (ChIPS). *Jornal Brasileiro de Psiquiatria, 58*(2), 115-118

Spence, S. H. (1997). Structure of anxiety symptoms among children: a confirmatory factor-analytic study. *Journal of Abnormal Psychology, 106*, 280-297. doi:10.1037/0021-843X.106.2.280

Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research and Therapy, 36*, 545-566. doi:10.1016/S0005-7967(98)00034-5

Spence, S. H., Barrett, P. M., & Turner, C. M. (2003). Psychometric properties of the Spence Children's Anxiety Scale with young adolescents. *Journal of Anxiety Disorders, 17*, 605–625. doi:10.1016/S0887-6185(02)00236-0

Swailes, S. & McIntyre-Bhatty, T. (2002). The “Belbin” team role inventory: reinterpreting reliability estimates. *Journal of Managerial Psychology, 17*, 529-536. doi:10.1108/02683940210439432

*Terra, M. B., Barros, H. M. T., Stein, A. T., Figueira, I., Athayde, L. D., Gonçalves, M. S., Tergolina, L. P., et al. (2006). Internal consistency and factor structure of the Portuguese version of the Liebowitz Social Anxiety Scale among alcoholic patients. *Revista Brasileira de Psiquiatria*, *28*(4), 265-269

*Torriani, D. D., Teixeira, A. M., Pinheiro, R., Goettems, M. L., & Bonow, M. L. M. (2008). Adaptação transcultural de instrumentos para mensurar ansiedade e comportamento em clínica odontológica infantil. *Arquivos em Odontologia*, *44*(4), 17-23

Tortella-Feliu, M., Balle, M., Servera, M., & de la Banda, G. G. (2005). Psychometric properties of the Catalan version of the Spence Children’s Anxiety Scale (SCAS). *Behavioral Psychology / Psicología Conductual, 13*, 111-123

*Valença, A. M., Nardi, A. E., Nascimento, I., Zin, W. A., & Versiani, M. (2002). Carbon dioxide test as an additional clinical measure of treatment response in panic disorder. *Arquivos de Neuropsiquiatria, 60*, 358-361

*Vianna, R. R. A. B. (2009). Avaliação dos níveis de ansiedade de uma amostra de escolares no Rio de Janeiro através da Escala Multidimensional de Ansiedade para Crianças (MASC-VB). *Psicologia Clínica*, *21*(2), 500

*Victoria, M. S., & Fontenelle, L. F. (2010). A construção de um novo instrumento para avaliar correlatos implícitos dos sintomas do Transtorno Obsessivo-Compulsivo: Primeira versão do Teste de Associação Implícita. *Revista de Psiquiatria Clínica*, *37*(5), 189-194

*Victoria, M. S., & Fontenelle, L. F. (2011). O Teste de Associação Implícita no Transtorno Obsessivo-Compulsivo (TAI-TOC): Consistência interna e correlações com medidas explícitas. *Revista de Psiquiatria Clínica*, *38*(2), 53-56

*Victoria, M. S., & Soares, A. B. (2008). Avaliação do Teste de Associação Implícita numa amostra de estudantes de Psicologia. *PSIC: Revista de Psicologia da Vetor Editora*, *9*(2), 211-218

*Vieira, F., Bachion, M. M., Coelho, A. S. F., Cordeiro, A. C. A., & Salge, A. K. M. (2010). Utilização da taxonomia II da NANDA para avaliação da ansiedade puerperal na comunidade. *Revista Gaúcha de Enfermagem*, *31*(3), 544-551

*Vilete, L., Coutinho, E., & Figueira, I. (2004). Confiabilidade da versão em Português do Inventário de Fobia Social (SPIN) entre adolescentes estudantes do Município do Rio de Janeiro. *Cadernos de Saúde Pública*, *20*(1), 89-99

*Vilete, L., Figueira, I., & Coutinho, E. (2006). Adaptação transcultural para o português do Social Phobia Inventory (SPIN) para utilização entre estudantes adolescentes. *Revista de Psiquiatria do Rio Grande do Sul*, *28*(1), 40–48

*Villemor-Amaral, A. E., Farah, F. H. Z., & Primi, R. (2004). O teste das pirâmides coloridas e o transtorno do pânico. *Psicologia em Estudo*, *9*(2), 301–307

*Villemor-Amaral, A. E., Franco, R. R. C., & Farah, F. H. Z. (2008). A psicopatologia fenômeno-estrutural e o Rorschach no transtorno de pânico. *Estudos de Psicologia (Campinas)*, *25*, 141-150

Whiteside, S. P. & Brown, A. M. (2008). Exploring the utility of the Spence Children's Anxiety Scales parent- and child-report forms in a North American sample. *Journal of Anxiety Disorders*, *22*, 1440–1446. doi:10.1016/j.janxdis.2008.02.006

*Woodruff, E., Genaro, L. T., Landeira-Fernandez, J., Cheniaux, E., Laks, J., Jean-Louis, G., Nardi, A. E., et al. (2011). Validation of the Brazilian brief version of the temperament auto-questionnaire TEMPS-A: The brief TEMPS-Rio de Janeiro. *Journal of Affective Disorders*, *134*, 65-76

Woodward, L. J. & Fergusson, D. M. (2001). Life course outcomes of young people with anxiety disorders in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*, 1086-1093. doi:10.1097/00004583-200109000-00018

*Yoshida, E. M. P., & Silva, F. R. C. S. (2007). Escala de Avaliação de Sintomas-40 (EAS-40): validade e precisão em amostra não-clínica. *Psicologia Escolar e Educacional (Impresso)*, *11*(1), 89-99

Zhao, J., Xing, X., & Wang, M. (2012). Psychometric properties of the Spence Children's Anxiety Scale (SCAS) in Mainland Chinese children and adolescents. *Journal of Anxiety Disorders*, *26*, 728– 736. doi:10.1016/j.janxdis.2012.05.006