

Translation, cross-cultural adaptation and psychometric properties of the KIDSCREEN-52 for the Brazilian population

Tradução, adaptação transcultural e propriedades psicométricas do KIDSCREEN-52 para a população brasileira

Traducción, adaptación transcultural y propiedades psicométricas del KIDSCREEN-52 para la población brasileña

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ABSTRACT

Objective: The KIDSCREEN-52 is a questionnaire developed in European countries to assess the health-related quality of life in children and adolescents and to provide proxy measures for parents and guardians. The purpose of this study was to translate the tool into Portuguese, to describe the cross-cultural adaptation and to identify its psychometric properties for a Brazilian population.

Methods: The original questionnaire was translated following international guidelines. Translated versions of the questionnaire were analyzed by a committee of experts. The committee used semantic, idiomatic, cultural and conceptual equivalences as criteria of analysis. The final version of the translated questionnaire was administered to 758 schoolchildren of both genders and 653 parents/guardians, in the city of Londrina, Brazil. In order to identify the psychometric properties, exploratory factorial analysis with varimax rotation were completed. Cronbach's α coefficient was used to assess the internal consistency of each dimension of the KIDSCREEN-52 associated to health-related quality of life.

Results: After minor changes in the translated version, the committee of experts considered that the Portuguese version of the KIDSCREEN-52 questionnaire showed semantic, idiomatic, cultural and conceptual equivalences. The exploratory factorial analysis confirmed that the structure of the ten-dimension

health-related quality of life questionnaire explained 63-69% of the total variance and presented reasonable values of internal consistency. The Cronbach's α coefficient ranged from 0.725 to 0.894.

Conclusions: The translation, cross-cultural adaptation and psychometric qualities of the KIDSCREEN-52 questionnaire were satisfactory, enabling its application in future studies in Brazil.

Key-words: quality of life; questionnaires; validation studies; child; adolescent.

RESUMO

Objetivo: O KIDSCREEN-52 é um questionário desenvolvido em países europeus para avaliar a qualidade de vida relacionada à saúde de crianças e adolescentes. Também fornece informações quanto às percepções de pais e tutores. O propósito do estudo foi traduzir o questionário para o português, realizar a adaptação transcultural e identificar suas propriedades psicométricas para a população brasileira.

Métodos: O questionário original foi traduzido de acordo com recomendações internacionais. Um comitê de juízes foi formado para analisar as versões traduzidas do questionário. O comitê utilizou como critério de análise as equivalências semântica, idiomática, cultural e conceitual. A versão final do questionário

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traduzido foi administrada em uma amostra de 758 escolares de ambos os sexos e 653 pais/tutores, em Londrina (PR). Para identificar as propriedades psicométricas, foi realizada análise fatorial exploratória com rotação *varimax* e, na sequência, para análise da consistência interna de cada dimensão associada à qualidade de vida relacionada à saúde, foi empregado o coeficiente α de Cronbach.

Resultados: Após discretas modificações apontadas no processo de tradução, o comitê de juízes considerou que a versão para o português do questionário KIDSCREEN-52 apresentou equivalências semântica, idiomática, cultural e conceitual. A análise fatorial exploratória confirmou a estrutura de dez dimensões de qualidade de vida originalmente proposta, explicando 63-69% da variância total com valores satisfatórios de consistência interna. O α de Cronbach apresentou coeficientes entre 0,725 e 0,894.

Conclusões: A tradução, a adaptação transcultural e as qualidades psicométricas do questionário KIDSCREEN-52 foram satisfatórias, o que viabiliza sua aplicação em futuros estudos no Brasil.

Palavras-chave: qualidade de vida; questionários; estudos de validação; criança; adolescente.

RESUMEN

Objetivo: El KIDSCREEN-52 es un cuestionario desarrollado en países europeos, utilizado para evaluar la calidad de vida relacionada a la salud de niños y adolescentes. También suministra informaciones respecto a las percepciones de padres y tutores. El propósito del estudio fue traducir al idioma portugués, realizar la adaptación transcultural e identificar sus propiedades psicométricas para la población brasileña.

Métodos: El cuestionario original fue traducido en conformidad con las recomendaciones internacionales. Un comité de jueces fue formado para analizar las versiones traducidas del cuestionario. El comité utilizó como criterio de análisis las equivalencias semántica, idiomática, cultural y conceptual. La versión final del cuestionario traducido fue administrada en una muestra de 758 escolares de ambos sexos y 653 padres/tutores, en Londrina, Paraná. Para identificar las propiedades psicométricas, se realizó análisis factorial exploratorio con rotación *varimax* y, a continuación, para análisis de la consistencia interna de cada dimensión asociada a la calidad de vida relacionada a la salud, se empleó coeficiente alfa de *Cronbach*.

Resultados: Después de discretas modificaciones señaladas en el proceso de traducción, el comité de jueces consideró que la

versión al idioma portugués del cuestionario KIDSCREEN-52 presentó equivalencias semántica, idiomática, cultural y conceptual. El análisis factorial exploratorio confirmó la estructura de 10 dimensiones de calidad de vida originalmente propuesta, explicando 63-69% de la variancia total con satisfactorios valores de consistencia interna. El alfa de *Cronbach* presentó coeficientes entre 0,725 y 0,894.

Conclusiones: La traducción, la adaptación transcultural y las calidades psicométricas del cuestionario KIDSCREEN-52 fueron satisfactorias, lo que hace viable su aplicación en futuros estudios en Brasil.

Palabras clave: calidad de vida; cuestionario; estudios de validación; niños; adolescentes.

Introduction

Any conceptual differences notwithstanding, there is broad agreement that quality of life (QoL) constitutes a multidimensional construct, which includes physical, social, emotional, and productive well-being as well as personal satisfaction with various aspects of life^(1,2). Information on health-related quality of life (HRQoL) is a subject of increasing scientific interest in the fields of epidemiology and public health, as a complement to objective data on morbidity and mortality^(3,4). HRQoL data is particularly important in children and adolescents, in view of the lower likelihood of diagnosing diseases in this population^(5,6). HRQoL can also help distinguish different levels of well-being in seemingly healthy segments of the population^(7,8). Furthermore, there is notable interest in monitoring HRQoL in younger populations in light of its repercussions on quality of life and overall health in adulthood^(9,10).

Self-report measures are considered the standard method for collection of data on HRQoL⁽¹¹⁾. Accordingly, a wide variety of questionnaires designed for this purpose have been published in the literature; however, most were conceived for use in Anglo-Saxon populations⁽¹²⁾. Therefore, use of these questionnaires in populations other than those for which they were designed will face several limitations, as it will require cross-cultural adaptation of the wording used in the items and of the concepts underlying the QoL dimensions measured. As an alternative, the use of a single questionnaire developed simultaneously by several countries and cultures enables harmonization of principles and concepts with the languages used, and makes future comparison of results easier, as findings will be produced by the same questionnaire⁽¹³⁾.

The KIDSCREEN Project (Screening and Promotion for Health-Related Quality of Life in Children and Adolescents – A European Public Health Perspective), a project carried out between 2001 and 2004 with 13 European countries participating (Austria, Czech Republic, France, Germany, Greece, Hungary, Ireland, Poland, Spain, Sweden, Switzerland, the Netherlands and the United Kingdom), had as one of its main purposes the development and validation of a standardized, cross-cultural questionnaire for assessment of HRQoL in young populations⁽¹⁴⁾. This questionnaire was successfully developed as the KIDSCREEN-52 instrument.

The KIDSCREEN-52 questionnaire is a generic instrument that is applicable in different national and cultural contexts, complies with international quality standards in instrument development, and provides practical measurements for clinician and researcher assessment of subjective health and well-being in both healthy and chronically ill children and adolescents between the ages of 8 and 18 years. Proxy instruments for parents and guardians are also available. The child/adolescent and parent/guardian version assess the same components by means of parallel items, enabling more reliable comparisons between parent/guardian and child/adolescent responses⁽¹⁵⁾. The psychometric properties of the instrument have made it appealing for use even outside the 13 European nations for which it was designed, and the questionnaire has been translated and adapted for use in Asian⁽¹⁶⁾ and Spanish-speaking Latin American⁽¹⁷⁾ nations.

Broadly speaking, the KIDSCREEN-52 questionnaire consists of 52 questions designed to measure respondent perceptions of 10 HRQoL dimensions. Responses are provided on a five-point Likert scale, which seeks to identify the frequency of behaviors or feelings or, in some cases, the intensity of specific attitudes. The recall period is one week prior to administration of the questionnaire. Scores for each dimension are computed using a syntax that considers answers to the group of questions that make up the dimension, with these questions assigned equal weight. Final scores for each dimension are re-coded on a scale of zero to 100, with zero being the lowest and 100 the highest perception of the HRQoL indicator that corresponds to the dimension of interest. Furthermore, an additional indicator provided by the answers to the 52 questions as a whole can be computed in an attempt to provide inferences on global HRQoL⁽¹⁸⁾.

The objectives of this study were the translation into Portuguese, cross-cultural adaptation, and identification of psychometric properties of the child/adolescent and parent/guardian versions of the KIDSCREEN-52 questionnaire.

Method

Translation and cross-cultural adaptation procedures followed the guidelines recommended by Guillemin *et al*⁽¹⁹⁾. Initial translation from the original English into Portuguese was performed independently by two university professors with a detailed knowledge of the KIDSCREEN-52 instruments. Both translators were native speakers of Portuguese with demonstrated mastery of the English language and prior experience in translation of academic content. Both translators were also asked to provide a report of any expressions that might give rise to uncertain interpretation.

A bilingual panel of three health psychology and public health researchers compared the initial translations and harmonized any divergences to produce a single version of both questionnaires—a synthesis of the two initial translations. The questionnaires were then independently translated back into English by two other translators. The translators chosen for this stage were native speakers of English who mastered the Portuguese language and were employed as professors at a Brazilian university. Again, the translators were asked to record any expressions that might give rise to doubts during the back-translation process. The bilingual panel then compared the two back-translations and synthesized them into a single version.

The translation process and the results achieved during the prior stages of adaptation⁽¹⁷⁾ were analyzed by a committee of nine members, including the authors of the study, the translators and back-translators, and three health psychology and public health researchers, all bilingual in English and Portuguese. This committee revised the seven available versions of each KIDSCREEN-52 questionnaire (child/adolescent and parent/guardian): the original instrument in English, two initial translations into Portuguese, synthesis of these two translations into Portuguese, two back-translations into English, and synthesis of the two back-translations.

The committee then assessed the equivalence between the original instruments and their Portuguese versions. Members were given written guidelines on the objective of the study and on the definitions adopted for equivalence. Each member of the committee filled out an analysis form that compared each questionnaire item with the corresponding answer alternatives in the original instrument, in the synthesis versions of the Portuguese translations, and in the synthesis versions of the back-translations into English, in terms of semantic, idiomatic, cultural, and conceptual equivalence. The analysis form was structured around a differential scale with the

following alternatives: “unchanged”, “changed somewhat”, “changed substantially” and “changed completely”.

The final stage of the translation and cross-cultural adaptation process was a pilot test of the translated questionnaires, designed to assess understanding of questionnaire items, evaluate the wording of the questionnaire, and measure the mean time spent by children or adolescents and their parents/guardians in answering their respective instruments. The questionnaire was administered experimentally, by the authors of the study, on a sample of 77 children between the ages of 10 and 18 (41 females and 36 males, all students at three schools in Londrina, state of Paraná, Brazil) and 62 parents/guardians (40 mothers and 22 fathers) in May 2009. The results of this pilot test were again analyzed by the bilingual assessment committee.

In order to ascertain the psychometric properties of the instrument, a sample of students from the 5th through 8th year of primary education and the 1st through 3rd year of secondary education were recruited from two schools in the municipality of Londrina, Paraná, one public and one private. Toward this end, all 1763 children and adolescents enrolled in these two facilities for the 2009 school year and their respective parents or guardians were contacted and informed of the nature and objectives of the study and invited to take part in data collection. A total of 758 schoolchildren (391 females and 367 males) and 653 parents/guardians agreed to take part in the study and provided written informed consent.

The child/adolescent version of the KIDSCREEN-52 questionnaire was administered to each subject in a single sitting, by one investigator, at the time and place where classes were held. Participants were given the questionnaire with a variety of instructions and recommendations on how to fill it out. No time limit was set for the activity. Data collection was observed by the investigator, who promptly clarified any doubts expressed by the participants. Mean time for self-reporting was 30 minutes.

The parent/guardian KIDSCREEN-52 questionnaire was mailed to parents or guardians in a sealed envelope, along with specific instructions and recommendations on how to fill it in. Questionnaires were scheduled to be returned within 7 days. Most instruments were filled out by mothers (74.3%), followed by fathers (21.7%). The child/adolescent and parent/guardian questionnaires were numbered and paired to ensure anonymity.

Statistical treatment of the data obtained was performed in the Statistical Package for the Social Sciences (SPSS) 17.0 software environment. Exploratory factor analysis was used to assess and confirm the factor structure originally proposed for KIDSCREEN-52. The principal components analysis process

was used, with varimax orthogonal rotation and Kaiser normalization. Items with a factor loading <0.40 were excluded, as were those loaded on more than one factor⁽²⁰⁾. Internal consistency was measured by estimation of Cronbach's alpha for the items of each dimension. All study procedures were approved by the Universidade Estadual de Londrina Research Ethics Committee and were carried out in compliance with National Health Council Resolution 196/96, which regulates human subject research in Brazil.

Results

Slight differences in wording were uncovered during analysis of the translation process. These divergences were discussed by the assessment committee and, for ease of understanding, the expressions more readily comprehensible to and most often used by Brazilian youths were kept. Of the 52 questions that compose the KIDSCREEN instrument, 43 (83%) were rated by the committee members as having “unchanged” semantic, idiomatic, cultural, and conceptual equivalence. The 9 remaining questions (17%) were found to have been “somewhat changed” in at least one of the above aspects. No items in the translated version of the KIDSCREEN-52 questionnaire were rated as “changed substantially” or “changed completely” when compared to the original.

A detailed outline of the sample of children and adolescents selected for analysis of the psychometric properties of the Brazilian Portuguese KIDSCREEN-52 is shown in Table 1. Prior to

Table 1 – Demographic characteristics of the study sample (n=758)

| | n | % |
|---|-----|------|
| Gender | | |
| Female | 391 | 51.6 |
| Male | 367 | 48.4 |
| Age | | |
| 10 – 11 years | 168 | 22.2 |
| 12 – 13 years | 174 | 23.0 |
| 14 – 15 years | 197 | 26.1 |
| ≥16 years | 219 | 28.7 |
| School grade | | |
| 5 th or 6 th year of primary school | 212 | 28.0 |
| 7 th or 8 th year of primary school | 238 | 31.4 |
| 1 st to 3 rd year of secondary school | 308 | 40.6 |
| Family economic class^a | | |
| Upper | 198 | 26.1 |
| Middle | 386 | 50.9 |
| Lower | 174 | 23.0 |

^aAccording to the 2008 Brazilian Economic Classification Criteria.

exploratory factor analysis of the 52 items that make up KIDSCREEN, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were performed. These statistical tests enable detection of significant linear correlations between items, an essential condition for proper exploratory factor analysis. The KMO measure of sampling adequacy was 0.904 and Bartlett's test yielded a $\chi^2_{(217)} = 12964.46$ ($p < 0.001$), confirming the legitimacy of factor analysis of this instrument.

According to exploratory factor analysis with varimax orthogonal rotation and Kaiser normalization, 10 dimensions had eigenvalues greater than one unit in both versions. Together, these explained approximately 63% and 69% of total variance

in the child/adolescent and parent/guardian versions of the instrument, respectively. After extraction of the 10 quality of life dimensions, the factor structure of KIDSCREEN-52 for the selected sample of children/adolescents and parents/guardians was identified (Table 2). As no items had a factor loading of < 0.40 or were loaded on more than one dimension, all 52 items were kept in the factor structure of the Brazilian Portuguese child/adolescent and parent/guardian versions of KIDSCREEN-52.

Exploratory factor analysis revealed similar factor saturation for both versions of KIDSCREEN-52, with all factor loadings > 0.50 , with the exceptions of item "Bom humor" in the sentiments dimension (Psychological Well-Being) in the child/

Table 2 – Explanatory factor structure of the Brazilian Portuguese version of KIDSCREEN-52, when administered to children/adolescents and their respective parents/guardians.

| Quality of life dimension / Item | KIDSCREEN-52 version | | | |
|--|----------------------|------------------|-----------------|------------------|
| | Child/Adolescent | | Parent/guardian | |
| | Factor weight | Cronbach's alpha | Factor weight | Cronbach's alpha |
| <i>Dimensão 1 – Saúde e Atividade Física</i> | | 0.756 | | 0.803 |
| 1.1. Como você descreve a sua saúde | 0.657 | | 0.647 | |
| 1.2. Você se sentiu bem e em boa forma física | 0.743 | | 0.793 | |
| 1.3. Você foi ativo/a fisicamente | 0.809 | | 0.885 | |
| 1.4. Você foi capaz de correr (" <i>brincadeiras de corrida</i> ") | 0.832 | | 0.861 | |
| 1.5. Você se sentiu com muita energia/disposição | 0.657 | | 0.736 | |
| <i>Dimensão 2 – Sentimentos</i> | | 0.811 | | 0.834 |
| 2.1. Sua vida tem sido agradável | 0.658 | | 0.639 | |
| 2.2. Você se sentiu bem por estar vivo/a | 0.794 | | 0.625 | |
| 2.3. Você se sentiu satisfeito/a com sua vida | 0.761 | | 0.666 | |
| 2.4. Você se sentiu de bom humor | 0.459 | | 0.711 | |
| 2.5. Você se sentiu alegre | 0.625 | | 0.818 | |
| 2.6. Você se divertiu | 0.604 | | 0.693 | |
| <i>Dimensão 3 – Estado Emocional</i> | | 0.878 | | 0.856 |
| 3.1. Você se sentiu como estivesse feito tudo errado | 0.623 | | 0.666 | |
| 3.2. Você se sentiu triste | 0.737 | | 0.724 | |
| 3.3. Você se sentiu tão mal que não queria fazer nada | 0.741 | | 0.761 | |
| 3.4. Você se sentiu como tudo em sua vida estava mal | 0.759 | | 0.789 | |
| 3.5. Você se sentiu farto/a (" <i>cheio/a</i> ") | 0.704 | | 0.735 | |
| 3.6. Você se sentiu sozinho | 0.618 | | 0.652 | |
| 3.7. Você se sentiu pressionado (" <i>estressado</i> ") | 0.643 | | 0.587 | |
| <i>Dimensão 4 – Auto-Percepção</i> | | 0.725 | | 0.752 |
| 4.1. Você se sentiu contente com a sua maneira de ser | 0.498 | | 0.438 | |
| 4.2. Você se sentiu contente com as suas roupas | 0.456 | | 0.459 | |
| 4.3. Você esteve preocupado/a com a sua aparência | 0.762 | | 0.654 | |
| 4.4. Você sentiu inveja da aparência de seus colegas | 0.674 | | 0.727 | |
| 4.5. Você gostaria de mudar alguma parte do seu corpo | 0.699 | | 0.781 | |
| <i>Dimensão 5 – Autonomia e Tempo Livre</i> | | 0.797 | | 0.804 |
| 5.1. Você teve tempo suficiente para você mesmo | 0.713 | | 0.723 | |
| 5.2. Você fez o que gosta de fazer no seu tempo livre | 0.735 | | 0.737 | |
| 5.3. Você teve oportunidade suficiente de estar ao ar livre | 0.781 | | 0.781 | |

Table 2 – Continuation

| Quality of life dimension / Item | KIDSCREEN-52 version | | | |
|--|----------------------|------------------|-----------------|------------------|
| | Child/Adolescent | | Parent/guardian | |
| | Factor weight | Cronbach's alpha | Factor weight | Cronbach's alpha |
| 5.4. Você teve tempo suficiente para encontrar amigos/as | 0.698 | | 0.703 | |
| 5.5. Você escolheu o que fazer no seu tempo livre | 0.706 | | 0.679 | |
| <i>Dimensão 6 – Família/Ambiente Familiar</i> | | 0.853 | | 0.828 |
| 6.1. Seus pais entendem você | 0.718 | | 0.719 | |
| 6.2. Você se sentiu amado/a pelos seus pais | 0.754 | | 0.794 | |
| 6.3. Você se sentiu feliz em sua casa | 0.667 | | 0.641 | |
| 6.4. Seus pais tiveram tempo suficiente para você | 0.743 | | 0.635 | |
| 6.5. Seus pais trataram você de forma justa | 0.675 | | 0.657 | |
| 6.6. Você conversou com seus pais como você queria | 0.709 | | 0.663 | |
| <i>Dimensão 7 – Aspecto Financeiro</i> | | 0.894 | | 0.881 |
| 7.1. Você teve dinheiro suficiente para fazer as mesmas coisas que os seus amigos/as fazem | 0.861 | | 0.875 | |
| 7.2. Você teve dinheiro suficiente para os seus gastos | 0.838 | | 0.862 | |
| 7.3. Você teve dinheiro suficiente para fazer o que deseja com seus amigos/as | 0.845 | | 0.847 | |
| <i>Dimensão 8 – Amigos e Apoio Social</i> | | 0.838 | | 0.849 |
| 8.1. Você teve tempo suficiente para ficar com amigos/as | 0.618 | | 0.758 | |
| 8.2. Você realizou atividades com outros jovens | 0.541 | | 0.786 | |
| 8.3. Você se divertiu com seus amigos/as | 0.704 | | 0.813 | |
| 8.4. Você e seus amigos/as se ajudaram uns aos outros | 0.779 | | 0.787 | |
| 8.5. Você falou o que queria com seus amigos/as | 0.805 | | 0.762 | |
| 8.6. Você sentiu que pode confiar em seus amigos/as | 0.812 | | 0.785 | |
| <i>Dimensão 9 – Ambiente Escolar</i> | | 0.821 | | 0.840 |
| 9.1. Você se sentiu feliz na escola | 0.715 | | 0.735 | |
| 9.2. Você foi bom/boa aluno/a na escola | 0.669 | | 0.744 | |
| 9.3. Você se sentiu satisfeito/a com seus professores | 0.801 | | 0.809 | |
| 9.4. Você foi capaz de prestar atenção nas aulas | 0.707 | | 0.731 | |
| 9.5. Você gostou de ir à escola | 0.812 | | 0.767 | |
| 9.6. Você teve uma boa relação com seus professores | 0.809 | | 0.783 | |
| <i>Dimensão 10 – Provocação/Bullying</i> | | 0.798 | | 0.833 |
| 10.1. Você sentiu medo de outros jovens | 0.789 | | 0.872 | |
| 10.2. Outros jovens zombaram (“gozaram”) você | 0.885 | | 0.916 | |
| 10.3. Outros jovens intimidaram ou ameaçaram você | 0.852 | | 0.894 | |

adolescent version (0.459) and items “Satisfação com a maneira de ser” and “Satisfação com roupa” in the *Auto-Percepção* (Self-Perception) dimension in both the child/adolescent and parent/guardian versions (0.498; 0.456 and 0.438; 0.459 respectively). Internal consistency in the child/adolescent version ranged between 0.725 in the *Auto-Percepção* (Self-Perception) dimension to 0.894 in the *Aspecto Financeiro* (Financial Resources) dimension, with an overall mean alpha of 0.817. In the parent/guardian version, consistency ranged from 0.752 to 0.881 (also in the *Auto-Percepção* and *Aspecto Financeiro* dimensions), with an overall mean alpha of 0.828.

Discussion

This study sought to make available a measurement instrument for assessment of HRQoL in young Brazilian populations. The product of this attempt was the Brazilian version of KIDSCREEN-52 questionnaire, a self-report measure for children and adolescents that can, optionally, be administered to parents or guardians as well. Translation and cross-cultural adaptation were performed according to expert guidelines⁽¹⁹⁾, in an attempt to obtain instruments that were adequately translated, adjusted to the cultural

background of local populations, and equivalent to the original questionnaires.

Thanks to the choice of adaptation method and to the simple and objective structure and wording of the original instrument, there were no major issues in the translation and cross-cultural adaptation process. The initial translations of the instrument, performed by two independent translators, underwent few changes over the subsequent stages of adaptation. The back-translations did exhibit minor discrepancies when compared to the original instrument, due to adjustments made to meet the specific needs of certain items. Analysis of semantic, idiomatic, cultural, and conceptual equivalence—which equals the cross-cultural adaptation of the instrument—corroborated the results of the translation stage, showing that the questionnaire was easy to translate.

Equivalence analysis confirmed that the dimensions measured by KIDSCREEN-52 are appropriate and the construct used in the original version is equally valid for the target culture; the translated and adapted instrument thus meets cultural equivalence requirements. Conceptual equivalence ratings showed that few items required adjustment. Overall, items were considered highly similar to those of the original instrument, once again confirming the good design and wording of the original KIDSCREEN-52. In terms of idiomatic equivalence, 87% of items in the Brazilian Portuguese version of the instrument were “unchanged”, and 13% were “changed somewhat”, when the original and back-translated versions of the questionnaire were compared. Regarding semantic equivalence, no members of the analysis committee rated any items as having “changed somewhat” on comparison between the original, translated, and back-translated versions of the instrument.

Classic psychometric analysis techniques confirmed the ability of the child/adolescent and parent/guardian versions of KIDSCREEN-52, translated and adapted into Brazilian Portuguese, to provide information on HRQoL with satisfactory reliability and validity. Factor analysis revealed good model fit and confirmed that instrument structure was similar to that of the original. The internal consistency of each dimension for both versions of KIDSCREEN-52, as measured by Cronbach's alpha, fell mostly within the range of variation reported in member countries of the European KIDSCREEN project⁽¹⁸⁾, with the exception of the *Sentimentos* dimension, which had slightly lower alpha coefficients in the Brazilian version ($\alpha=0.811$ for the child/adolescent instrument and $\alpha=0.834$ for the parent/guardian version). The range of variation between the highest and lowest scores was similar to that reported for the original version of the instrument⁽¹⁸⁾, which suggests an equally desirable balance between the HRQoL measures quantified by KIDSCREEN-52.

From the results of the present study, one may safely infer that the Brazilian Portuguese versions of the KIDSCREEN-52 instrument (child/adolescent and parent/guardian) are capable of collecting HRQoL data in Brazilian populations with quality similar to that of the original questionnaire. However, three limitations remain that should be overcome by future studies of the Brazilian versions of KIDSCREEN-52.

Firstly, Brazil is a multicultural country that features marked regional differences, and the present study was performed on a sample of Brazilian youths with a single cultural background. Hence, there is the possibility that one of the myriad cultural traits found in the country may have influenced understanding of some item of the questionnaire, giving rise to unique interpretations. Other studies might produce new content validity data for the translated versions of the questionnaire when employed in different regions of Brazil, bearing in mind that some specific adaptations may be required.

Furthermore, both versions of KIDSCREEN-52 were designed preferably for self-reporting by children/adolescents and parents/guardians⁽¹⁸⁾; the present study chose to maintain this design. In Brazil, however, there may be children/adolescents and parents/guardians who find the questionnaire difficult to read and understand. Therefore, future studies could focus on investigating the psychometric properties of these questionnaires when administered in a facilitated manner, with items read aloud by a trained administrator.

Abridged versions of the KIDSCREEN questionnaire, assessing the same domains as the original version but with fewer items, are also available. The KIDSCREEN-27 includes 27 items from the original version, grouped into five dimensions⁽²¹⁾. KIDSCREEN-10 is in turn derived from KIDSCREEN-27, selecting from the latter 10 items to compose a single-dimension instrument that provides a global HRQoL score⁽²²⁾. Further studies could provide new data from confirmatory factor analysis, reassessing the robustness of these abridged models and their potential applicability in the Brazilian reality.

In conclusion, the present study provides a significant contribution in the context of HRQoL assessment in children and adolescents, with the Brazilian Portuguese translation and cross-cultural adaptation of KIDSCREEN-52. This questionnaire can be administered by a variety of providers, including psychologists, physicians, nurses, teachers, and other healthcare professionals and educators, for a variety of specific purposes, including epidemiological surveys, identifying at-risk groups, assisting clinical diagnosis, and assessing the impact of health education and health promotion programs.

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