

Brazilian version of the Preschool-age Children's Physical Activity Questionnaire (Pre-PAQ)

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Nathalia Trasmonte Silva¹, Cristina dos Santos Cardoso de Sá², Mariana Callil Voos³,
Raquel de Paula Carvalho⁴

ABSTRACT | The translation and cross-cultural adaptation of the Preschool-age Children's Physical Activity Questionnaire into Brazilian Portuguese was carried out. The questionnaire was translated into two different versions by two professionals proficient in the English language. Based on these two independent translations, a single translation was created, which was then back translated into English by two other translators. The back-translations went through a new consensus process, which generated a single version, that was compared with the original English questionnaire. The Brazilian Portuguese version of the questionnaire, called "Questionário de Atividade Física de Crianças em Idade Pré-Escolar (Pre-PAQ)", was reviewed by a committee of experts to verify the content and generated the second version of accordance. Then, 28 professionals in the field evaluated the questionnaire regarding the suitability for the Brazilian Portuguese language and the cultural adaptation for Brazilian children from 3 to 5 years old. It is concluded that the stages of translation and cultural adaptation were successfully concluded, although future studies to test the content reliability and validity of the Pre-PAQ's Brazilian version are necessary to ensure the application accuracy in the target population.

Keywords | Translation; Culture; Motor Activity; Child.

RESUMO | Foi realizada a tradução e a adaptação transcultural do *Preschool-age Children's Physical Activity Questionnaire* para a língua portuguesa do Brasil. O questionário foi traduzido em duas versões diferentes por dois profissionais proficientes na língua inglesa. Baseada nessas duas traduções independentes, foi criada

a tradução única, então retrotraduzida para o inglês por outros dois tradutores. As retrotraduções passaram por novo processo de consenso, que gerou uma versão única, que foi comparada com o questionário em inglês original. A versão do questionário em português do Brasil, denominada Questionário de Atividade Física de Crianças em Idade Pré-Escolar (Pre-PAQ), foi revisada por uma comissão de especialistas para verificação do conteúdo e gerou a segunda versão de concordância. Em seguida, 28 profissionais da área avaliaram o questionário quanto à adequação para a língua portuguesa do Brasil e à adaptação cultural para crianças brasileiras de 3 a 5 anos de idade. Conclui-se que as etapas de tradução e adaptação cultural foram concluídas com sucesso, ainda que futuros estudos para testar a confiabilidade e validade do conteúdo da versão brasileira do Pre-PAQ sejam necessários para garantir a acurácia da aplicação na população-alvo.

Descritores | Tradução; Cultura; Atividade Motora; Criança.

RESUMEN | Se ha realizado una traducción y adaptación transcultural del *Preschool-age Children's Physical Activity Questionnaire* al idioma portugués de Brasil. El cuestionario fue traducido por dos profesionales con dominio del inglés para dos versiones diferentes. Sobre la base de estas dos traducciones independientes, se creó una única traducción, que luego se volvió a traducir al inglés por otros dos tradutores. Las retrotraducciones pasaron por un nuevo proceso de consenso, lo cual generó una única versión para comparar con el cuestionario original en inglés. La versión del cuestionario al portugués brasileño, llamada *Questionário de Atividade Física de Crianças em Idade*

¹Federal University of São Paulo (UNIFESP) – Santos (SP), Brazil. E-mail: nathalia.trasmonte@gmail.com. Orcid: 0000-0003-4598-0842

²Federal University of São Paulo (UNIFESP) – Santos (SP), Brazil. E-mail: cristina.sa@uol.com.br. Orcid: 0000-0002-0920-6668

³Pontifícia Universidade Católica – São Paulo (SP), Brazil. E-mail: mcvoos@pucsp.br. Orcid: 0000-0001-6252-7287

⁴Federal University of São Paulo (UNIFESP) – Santos (SP), Brazil. E-mail: raquelcarvalho@gmail.com. Orcid: 0000-0002-5261-7235

Pré-Escolar (Pre-PAQ), fue revisada por un comité de expertos para verificar el contenido y generó la segunda versión del acuerdo. Luego, 28 profesionales en el campo evaluaron el cuestionario en cuanto a la idoneidad para el portugués brasileño y la adaptación cultural para niños brasileños de 3 a 5 años. Se concluye que las

etapas de traducción y adaptación cultural fueron exitosas, aunque son necesarios futuros estudios para probar la confiabilidad y validez de contenido a la versión brasileña del Pre-PAQ para asegurar la precisión de la aplicación en la población objetivo.

Palabras clave | Traducción; Cultura; Actividad Motora; Niño.

INTRODUCTION

The preschool phase is important in the child's life to establish health-promoting routines and behaviors. In Brazil, this phase is equivalent from 4 to 6 years old, with the average daily stay of children in school being nine hours¹. Nowadays, children have increasingly presented a higher weight than expected, little practice of physical activity (PA) and excessive screen time, such as tablets and cell phones². The main factors that determine the profile of sedentary behavior in preschoolers are the parents' PA habits³ and the excessive screen time exposure⁴.

The environment is a factor that positively influences the practice of PA in this age group. Places like neighborhood parks or condominium playgrounds motivate parents or caregivers to take their children to experience physically active play⁵. Additionally, environments such as daycare centers and schools also play this role⁵.

Given the importance of the PA practice in childhood, regardless of age, it is recommended to know how to measure it⁶ to assess the subject's inclination to practice PA, ascertain the relationship between PA and health and examine the effectiveness of interventions. Hidding et al.⁶ suggest the use of accelerometers, which provide valid and reliable measures, but do not provide information on behavior characteristics and circumstances. As an alternative, it is suggested the use of a self-report questionnaire, considered adequate and inexpensive to assess PA practice and offer information about the environment and the context in which the person is inserted⁷. At preschool age, children do not yet have the cognitive ability to assess, qualify or recall the activities they practiced⁷, consequently the questionnaires based on parents' responses are the preferred measure for assessing PA in this age group⁸.

The Preschool-age Children's Physical Activity Questionnaire (Pre-PAQ) is a questionnaire developed in Australia with the purpose of measuring the levels of PA practice and physical inactivity of preschoolers at home, with questions answered by parents⁹. The

Pre-PAQ was prepared based on the assumption that there are multidimensional factors that are reflective of the socioecological structures to which children are inserted, influencing their behavior. Regarding the psychometric properties, the Pre-PAQ has both reliability and adequate validity, ranging from moderate to very good⁷. The questionnaire consists of items that specifically address: habits and attitudes related to the practice of PA practiced by the parents of the evaluated child; family demographic data; family and neighborhood environment and activities inherent to childhood⁷ – such as running, jumping, cycling, watching television, among others.

To assess which physical activities are performed by the children, the Pre-PAQ presents a list of activities typical of preschool age in which the answer options are "yes" or "no". If the answer is "yes", the time the child spent doing the activity is asked. To assess the parents' habits, they inform what types, duration and number of times they perform a specific PA per week⁷.

Many of the assessments used in research and clinical practice are developed and validated in English-speaking countries; thus, there is a need for native researchers of other languages to translate and validate them for their country's cultural context¹⁰. The cultural adaptation process comprises the analysis of the linguistic terms used for the questionnaire application in an environment different from the one for which it was designed¹¹.

In Brazil, there is an interest in the translation of tests already standardized in foreign languages instead of creating new tests in the Brazilian Portuguese language¹². Translation and cultural adaptation are recommended by the World Health Organization (WHO) because they favor the result comparison of the research carried out in different countries and the communication between researchers¹³.

The questionnaires that investigate the PA levels translated into Brazilian Portuguese are limited to the older age group than that covered in the Pre-PAQ¹⁴, such as, for example, the PAQ-C questionnaires (which assess children with ages between 8 and 13 years old)

and PAQ-A (for adolescents between 14 and 18 years old). In the bibliographic review made for this study, no questionnaires were found in Portuguese for children of preschool age, reinforcing the need to translate a questionnaire for this population. Thus, this study aimed at translating and culturally adapting the Preschool-age Children's Physical Activity Questionnaire to Brazilian Portuguese.

METHOD

Initially, the authorization from the original Pre-PAQ author was requested by sending documentation describing all the steps for translation and cultural adaptation. The second step was the translation into Brazilian Portuguese according to international recommendations¹¹; this step was carried out by two independent translators, only one of whom was aware of the study's objectives (despite not knowing the questionnaire). The two Brazilian Portuguese translations (called T1 and T2, respectively) were merged into a single translated version (ST) after the consensus between translators and researchers.

Then, the ST was back-translated (BT) into the initial language (English), following the same rules as the initial translation, which were to be unaware of the study's purposes. These two English versions (BT1 and BT2) underwent a new consensus process between translators and researchers, resulting in a final back-translated version (BT_{final}) in English, which was compared with the original version in order to identify possible semantic differences.

The Brazilian Portuguese version of the questionnaire (ST) was reviewed by the expert committee composed of two physical therapists and an occupational therapist, all with experience of at least five years in the field of childhood and with knowledge of both languages, to verify the content validity. The committee compared the Brazilian Portuguese version, item by item, with the original English version to confront its consistency and suggest changes that could improve the translation. Each item was also assessed for relevance in the instrument's content assessment, verifying the equivalence. After this review, the final back-translated version (BT_{final}) was sent to the author of the original questionnaire and, with the approval of the BT_{final} version, the final translated version (T_{final}) in Brazilian Portuguese was obtained. Figure 1 shows the flowchart that outlines the translation process until obtaining the final version (T_{final}).

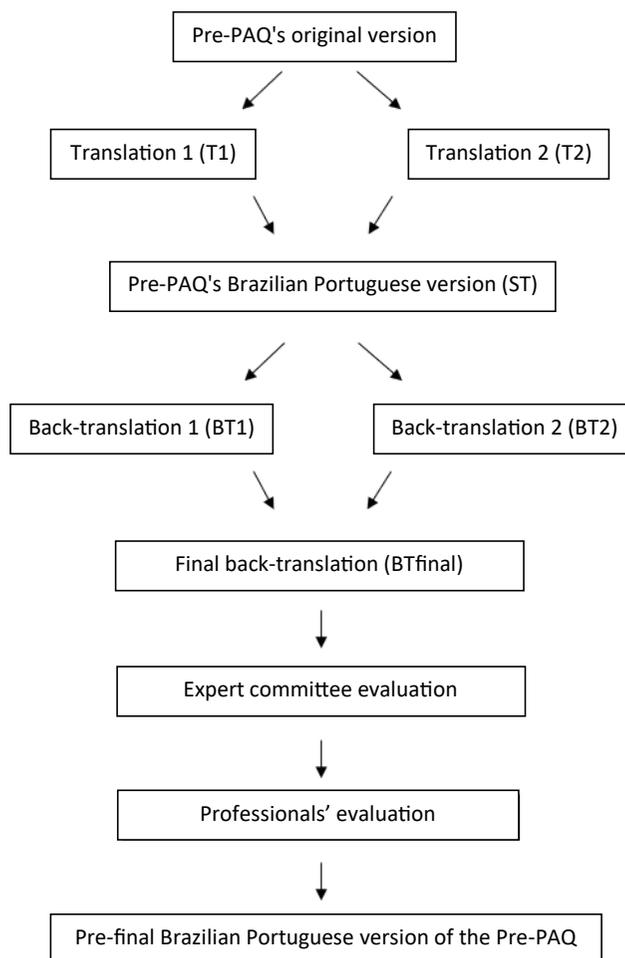


Figure 1. Flowchart of the translation process

T_{final} was delivered to 28 professionals with at least two years of experience in the field of physiotherapy, occupational therapy or physical education to ensure that cultural adaptations could be incorporated into the questionnaire without resulting in changes in content. These professionals evaluated the questionnaire item by item and filled out a table, in which there was space to describe suggestions for the items that they thought did not match the reality of the Brazilian children between 4 and 6 years old. Suggestions could also be made regarding the adequacy to the Brazilian Portuguese language.

Each professional evaluated the Pre-PAQ questionnaire in relation to the instruction's description and evaluation form, classifying them as: appropriate as it is; need to include any questions/information; need to exclude any information or need to modify any question/information. From the received information, a database was organized to systematize the T_{final} review, taking due care that the content of the original questionnaire in English is not modified. After this review, the Pre-PAQ's Brazilian version was obtained.

RESULTS

After the translation, the evaluation was called the Brazilian version of the Preschool-age Children's Physical Activity Questionnaire (Pre-PAQ). Experts reviewed and compared the ST with the original English version, and topics that caused difficulty in understanding and in

interpreting the questions were highlighted. Thus, these topics have been modified (Chart 1 and 2).

Regarding the description of the application instructions for the Pre-PAQ's Brazilian Portuguese version, all professionals reported that they were adequate, except for two suggestions made by the experts (Chart 3).

Chart 1. Changes to the instrument after expert analysis

Section	Item's description	Adjustments made
1	General information	Included in the application guidance of the questionnaire: "If your child spends the entire day in formal care, ask the primary caregiver for help outside the home (e.g., teacher)".
		Change "never married" for "single".
2	Parents' physical activities and habits	Given the difficulty of quantifying the time of physical activity, it was included in the application guidance that this measure is the "estimate time" and not the "exact time" of practice.
		Removal of the "¼ acre" measurement, which it is not used in Brazil.
		DVD was replaced for cell phone usage.
3	Home and neighborhood	DVD was replaced for cell phone usage.
4	Your child	Check if the language is accessible to a lay person, for example: marched; trotted.

Chart 2. Changes to the instrument after expert analysis

Item	Item's description	Adjustments made
Q4	What is your highest level of education?	Suggestion: Completed elementary school / incomplete elementary school / completed high school / incomplete high school / completed technical or vocational course / incomplete technical or vocational course / completed higher education / incomplete higher education
Q6	What is the language spoken at home?	Removed: Greek, Cantonese, Arabic, Vietnamese and Mandarin
		Included: Portuguese, Spanish, English, French, Japanese, Chinese, Italian and others
Q11a	In the past week, how many times have you done any other moderate physical activity that has not been mentioned (e.g., gentle swimming, social tennis, golf, etc.)?	Included: pilates
		Included: swimming
		Included: running, soccer, gym and pilates
		Removed: tennis
Q12a	In the past week, how many times have you practiced intense physical activity that made you breathe more frequently and deeply (e.g., running, cycling, competitive tennis, gardening or heavy leg work, etc.)?	Removed: gardening
		Included: soccer
Q13	How much would you estimate was the total time you spent watching TV, videos or DVDs as your main activity in the PAST WEEK? Please do not include the time when the TV was on, but you were doing something else such as preparing a meal.	Included: cell phone
		Included: computer - social media and other activities
		Included: social media on cell phone
		After the term "please", a comma was added
		Removed: DVD
Q14	How much would you estimate was the total time you spent playing electronic games in the PAST WEEK? Please circulate the electronic games used: PlayStation, Nintendo, Xbox, Wii II.	Included: tablet and smartphones
		Included: cell phone to play

(continues)

Chart2. Continuation

Item	Item's description	Adjustments made
Q15	How much would you estimate was the total time you spent using the computer at home in your spare time in the PAST WEEK? (DO NOT include hours you spent working on it)	Included: cell phone
		Included: computer – social media and other activities Included: cell phone to play
Q16	How much do you agree with the following sentences? “I am physically active with or in front of my child”	Phrase replaced for: “I am physically active in front of or with my child”
Q17	What best describes your yard?	Specified that the external space in a condominium is considered to be a “non-private yard”
Q18	Do you have access to any of the facilities below, in your yard or home environment?	Removed: SPA and climbing wall
		It was included synonyms for SPA: jacuzzi and hot tub
Q19	How many of each object below do you have at home?	Included: cell phone
		Included: the child has a cell phone to play with
Q21	Does your neighborhood have these places or facilities where your child can play and be physically active?	Included: play on the street or on public roads
		Removed: playground; included: street parks
Q23	How much time did your child spend in the car, in total, in the PAST WEEK (weekdays + Saturday + Sunday)?	Included option for time spent on buses/public transport
		Included: motorcycle taxi, taxi, Uber, school transportation
Q25	What care or services did your child attend LAST week?	Included in the specification that are in informal care: having a commitment to stay with grandparents, friends or nanny
		Included the specification of occasional care: staying with grandparents, neighbors or acquaintances for a short period, on specific occasions, for example, when parents need to go to the doctor
Q29	Does your child eat their meals in front of the television?	Included: tablet and cell phone
Q31	How often does your child use the facilities listed below to play and be physically active, in a typical month when the weather is favorable?	The word “todos” (general, male) has been corrected to “todas” (female; in Portuguese, “child” is a female noun)
		Included: streets, public roads
Q34	Which of the following activities did your child do YESTERDAY?	Included: use of cell phone
		Included: use of tablet
Q35	How was the weather in the PAST WEEKEND?	Included: too dry to play outside
Q37	Which of the following activities did your child do last weekend?	The use of a cell phone was included
		The use of a tablet was included
		The use of skates was included

Chart 3. Changes to application instructions after suggestions from professionals

Section	Professionals' suggestion	Adjustments made in the application instructions
Application instructions	The mother or father may not spend most of the day with the child, it would be interesting to include the teacher	“[...] In this case, the guardian must ask the child's primary caregiver outside the home for help (for example, the teacher).”
	Difficulty of the volunteer in remembering the exact time of physical activity	“[...] Also, in the section's questions where it is necessary to remember the practice time of some activities, it is worth emphasizing for the interviewed that the questionnaire requires estimated time, it is not necessary to know or remember the exact time of practice.”

DISCUSSION

This study translated and adapted Preschool-age Children's Physical Activity Questionnaire (Pre-PAQ) into Brazilian Portuguese, which aims to measure the level of PA practice of children between 3 and 5 years old and describe the factors that influence practice.

Originally, the Pre-PAQ was developed in the English language aimed at the cultural context of Australian children. Therefore, it was necessary to make a cultural adaptation of the evaluation instrument, given that, as described in the original, it would not be sensitive for the collection of data from children inserted in Brazilian culture. Regarding the grammatical context, some words might not have the same meanings when translated in the literal form; thus, translation and cultural adaptation ensure that both the application and the interpretation of the results are valid and reliable¹⁵.

During the planned stages of the translation, no important divergences were raised between what was presented by the independent translators and the experts' committee; The disagreements, however, appeared at the stage of cultural adaptation, in which the experienced professionals who evaluated the questionnaire raised an important number of activities that are not practiced in Brazil and, thus, could impair the accuracy of the answers given by the volunteers in future studies. For example: golf, climbing and gardening are not common practices in our culture, regardless of age group. These options were replaced by common activities of practice by Brazilians after approval by the author of the original questionnaire in English.

Another important factor that deserves to be highlighted is related to technological advancement and how it changes the habits of using electronic devices. The original Pre-PAQ was created and published in Australia in 2011, when the use of DVD players, computers and video games was common in different age groups. Now, 10 years after the original publication in English, the professionals who evaluated the translated version raised the possible trend, in the age group that will be the target of the questionnaire, of replacing these devices with cell phones or tablets, which currently have the "smart" function and operating system that allows the user to download video applications (replacing the use of the DVD player), and games (replacing the use of video games). Despite being removed from the document, they remain embedded in the content in terms of games and video, respectively. Still, for the age group of parents

and caregivers, social medias have become more relevant recently, increasing the time that these users spend in front of screens¹⁶ – it was necessary, therefore, to add these devices to the questionnaire items.

The next step was the Pre-PAQ's content translation, adaptation and validation. Future studies should be done to confirm the psychometric properties related to the reliability and validity of the construct for administering the questionnaire to the target audience. And with that being done, the full process of translation, adaptation and validation of the questionnaire's Brazilian version will be completed and will guarantee the accuracy of its application in the population of children from 4 to 6 years old.

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