Translation and Cultural Adaptation to Brazilian Portuguese of the Children's Physical Activity Questionnaire (C-PAQ)*

Tradução e adaptação cultural para o português do Brasil do Children's Physical Activity Questionnaire (C-PAQ)

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Abstract

Objective To perform the translation and cultural adaptation to Brazilian Portuguese of the Children's Physical Activity Questionnaire

Methods The process involved the stages of translation, synthesis, back-translation, and revision by the translation group. A prefinal version of the questionnaire was then created, and, subsequently, the final version.

Results Due to the lifestyle of the population, eight activities described in the questionnaire were changed to adapt it to Brazilian culture: six sports activities and two leisure activities. Eight parents/legal guardians answered the questionnaire during the pretest, quickly, without inconsistencies, and without reporting difficulties in understanding when the final interview was conducted.

Conclusion The translation and cultural adaptation of the Children's Physical Activity Questionnaire to Brazilian Portuguese resulted in the version called C-PAQ.PT.

Keywords
- exercise
- fitness trackers
- child
- surveys and questionnaires
- translation
- cultural characteristics
- COVID-19

Introduction

Accelerometers are instruments that act as motion sensors and enable the assessment of the level and frequency of physical activity in children. Its use enables the immediate collection of information, with low cost and great

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Resumo

Objetivo Realizar a tradução e adaptação cultural para o português do Brasil do Children's Physical Activity Questionnaire.

Métodos O processo envolveu as etapas de tradução, síntese, retrotradução, e revisão pelo grupo de tradução. Foi então criada uma versão pré-final e, posteriormente, a versão final do questionário.

Resultados Devido ao estilo de vida da população, oito atividades descritas no questionário foram mudadas com o objetivo de adaptá-lo à cultura brasileira, sendo seis atividades esportivas e duas atividades de lazer. Oito pais/responsáveis responderam o questionário no pré-teste, com rapidez, sem inconsistências, e sem relatar dificuldades no entendimento quando realizada a entrevista final.

Conclusão A tradução e adaptação cultural do Children's Physical Activity Questionnaire para o português do Brasil resultou na versão C-PAQ.PT.

Palavras-chave

- exercício físico
- monitores de aptidão física
- criança
- pesquisas e questionários
- tradução
- características culturais
- COVID-19

applicability, considering different contexts and the practice of physical activities.[1,2] In situations which require social isolation, such as during the pandemic caused by coronavirus disease 2019 (COVID-19), the use of an accelerometer for this kind of research becomes virtually impossible. Therefore, we have sought in the literature other forms that would enables us to assess the level and frequency of physical activity in children without compromising social isolation.

Self-reported questionnaires on physical activity routines are used on a large scale as an option to monitor children. There are several questionnaires, for different age groups, and most have been validated by the comparison with the concomitant use of accelerometers.[3–6] The Children's Physical Activity Questionnaire (C-PAQ) is a tool that can be accessed freely, and is available for download on the website of the Medical Research Council Epidemiology Unit/University of Cambridge School of Clinical Medicine (https://www.mrc-epid.cam.ac.uk/wp-content/uploads/2014/08/CPAQ.pdf). The original questionnaire in English has been previously validated[7]and used in a previous study.[8] In our opinion, the advantages of the C-PAQ over the other questionnaires are the fact that it consists of questions on different activities commonly practiced by children, such as sports, leisure, and school activities, as well as sedentary behaviors. Due to these characteristics, we consider this tool to be ideal to evaluate the impact of the social isolation resulting from the COVID-19 pandemic on the activities of children and adolescents living in Brazil. The translation and cultural adaptation of a self-assessment questionnaire requires little time when compared to the time required to develop a brand-new questionnaire. This methodology enables the use of instruments to perform comparisons between groups who speak different languages and have different cultures, and they are very useful in th clinical practice.[9–13]

The main objective of the present study was to translate and validate the C-PAQ to Brazilian Portuguese.

Materials and Methods

The preent study was sent to the research ethics committee by our university, and it was approved in May 2020. All parents/legal guardians signed the consent form electronically.

Children's Physical Activity Questionnaire (C-PAQ)

Initially, the questionnaire presents blanks to be filled out with data to identify the child, such as name, date of birth, and the relation of the legal guardian who will fill out the questionnaire. Then, a brief explanation and guidance regarding the completion of the questionnaire are provided. The C-PAQ consists of questions regarding the practice by the child of different daily activities, including sports, leisure, and school activities, and sedentary behaviors. The parents or legal guardians should provide answers considering the activities performed by the child in the seven days preceding the completion of the questionnaire. In order to make the questionnaire easier to understand by the parents, there is an example with a hypothetical question and the correct way to answer it. After each question about participation in each activity, the answer options are simple: YES or NO. In case of an affirmative answer, the intensity is evaluated by the number of hours that dedicated to the performance of each activity, both on weekdays and on weekends.

The data contained in a completed questionnaire enables the calculation of the number of hours/minutes spent by the child in the performance of each activity within seven days.[7,8]

The process of translation and cultural adaptation

Due to their importance in the literature, we decided to use the works by Beaton et al.[14] and Guillemin et al.[15] as guidelines for the entire process of translation and cultural adaptation. This methodology follows the specific stages of initial translations and synthesis of translations, back-translation, review by an expert committee, and the pretest, until reaching the final version.

With the cultural adaptation, we can consider the cultural differences in the perception of health, language, cultural context, and lifestyle of the population in question. Through these methods, it is possible to maintain the linguistic and

cultural equivalence of the items of the instrument, as well as their relevance, even with the modifications made.

Stage 1
The original C-PAQ was initially translated from English to Brazilian Portuguese by two translators, fluent in both languages, who developed two versions of the questionnaire (B1 and B2).

Stage 2
Questionnaires B1 and B2 were evaluated, compared, and synthesized by two researchers responsible for the study, resulting in questionnaire B12.

Stage 3
A new translation of the B12 questionnaire into English was made, also by two translators fluent in both languages, without prior knowledge of the original version, resulting in questionnaires B12.1 and B12.2.

Stage 4
At that time, all documents, original classifications, and translations (B1, B2, B12, B12.1, and B12.2) were reevaluated by an interdisciplinary committee. The committee was composed of the researchers, a PhD student in economics fluent in both languages, a physiotherapist, and a previously-selected legal guardian of one child participating in the study who was fluent in English. All discrepancies and misinterpretations were evaluated, reaching a prefinal version (B13).

Stage 5
In this pretest, version B13 was applied to a sample of the target population and, based on the answers, any changes the committee deemed necessary to improve understanding were made. The process ended with the final questionnaire.

Results
Due to the lifestyle of the population in question, the activities contained in the original version that are not commonly performed in Brazil were replaced by activities commonly performed in the country, with the objective of adapting it to the Brazilian culture. The changes are summarized in ►**Table 1.** The sports activities contained in the C-PAQ were arranged s follows: *aeróbica*, *base 4*, *basquete/vôlei*, *queimada*, *dança*, *futebol*, *ginástica*, *handebol*, *lutas*, *rouba-bandeira*, *jogo de taco*, *corrida*, *aulas de natação*, *natação por diversão*, and *tênis*. The leisure activities were arranged as follows: *andar de bicicleta (exceto à escola)*, *empinar pipa*, *jogar boliche*, *realizar tarefas domésticas*, *brincar de casinha*, *brincar no parquinho*, *brincar com bichos de estimação*, *andar de patins*, *de patinete*, *de skate*, *brincar de polícia e ladrão*, *pular corda*, *brincar de pega-pega (todos os tipos)*, *caminhar com o cachorro*, and *caminhada/trilha*. The school activities were thus arranged: *aula de Educação Física*, *ir para a escola a pé (ida e volta)*, and *ir para a escola de bicicleta (ida e volta)*. And the sedentary behaviors were arranged as follows: *assistir a TV/vídeos*, *fazer arte e artesanato*, *fazer desenho e pintura*, *fazer a lição de casa*, *brincar de faz de conta*, *escutar música*, *brincar com brinquedos dentro de casa*, *jogar jogos de tabuleiro/cartas*, *jogar jogos de computador*, *brincar com eletrônicos, celular e tablet*, *tocar instrumento musical*, *leitura*, sentar-se *e conversar*, *falar ao telefone*, *ir e voltar para escola de carro ou ônibus*, and *navegar na internet ou outras atividades*.

Table 1 Summary of changes in activities due to the lifestyle of the Brazilian population

	Original	Changes for cultural adaptation
Physical activity	Baseball	Base 4
	Cricket	Jogo de taco
	Martial arts	Lutas
	Netball	Rouba-bandeira
	Rugby	Handebol
	Hockey	Queimada
Leisure	Bounce on the trampoline	Empinar pipa
	Skiing, snowboarding, sledging	Polícia e ladrão

In the pretest, the questionnaire was sent to eight parents, who filled it out and returned it. All questions were answered, and we did not observe inconsistencies in the answers. We made contact by telephone for an interview with the parents, who reported not having had difficulty answering the questions.

After the last stage, the prefinal version (B13) of the translation and cultural adaptation to Brazilian Portuguese of the C-PAQ was established. We named this final version C-PAQ.PT (►**Appendix 1**, online version only).

Discussion
The pandemic caused by COVID-19 has impacted the everyday life of children around the world. Social distancing directly reflected on the intensity and frequency of sports and leisure activities. In the education of children and youths, it is essential to ensure a daily routine regarding physical activity habits to maintain a healthy life.

The C-PAQ enables an assessment that is low cost, easy to apply, and well accepted by the participants due to agility in data collection.[7,8] Despite containing 49 questions, the answers are simple, and the questionnaire can be filled out in approximately 10 minutes.

The decrease in the frequency and intensity of physical activity among children during the period of social isolation prompted by COVID-19 may impact the orthopedic practice. Raitio et al.[16] observed a significant decrease in surgical procedures due to injuries related to daily, school and sports activities performed by children during the period of social isolation. In an Italian trauma center,[17] the number of pediatric patients decreased by 84.6% in this period, with

no observed cases of trauma related to injuries at school, high-energy lesion, or lesions due to the practice of sports. However, a sedentary lifestyle in children is related to obesity, which in turn is related to orthopedic complications during the child's growth and development.[18]

The methods of translation and cultural adaptation are widely described and used for the evaluation, follow-up and comparison of different conditions or situations in the clinical practice of orthopedics and sports medicine.[8,11,19] Cultural adaptation is performed through two basic components: translation of the instrument from its original language to another, and its adaptation to the culture and lifestyle of the population to whom it will be applied.[14] *In this process, certain situations or questions may be completely or partially changed.* These changes, however, must maintain the same characteristics as those of the original instrument to ensure the same measurement.[20] The original C-PAQ is objective, contains short questions and answers, which facilitated the work of literal translation from English to Brazilian Portuguese. However, our greatest difficulty was regarding questions about sports activities that are not practiced by children in Brazil. This situation is described as experience equivalence, when a particular activity cannot be performed, even if it can be translated. In this situation, the term should be replaced by another term that indicates something that can be carried out by the target population of the translation.[20] As recommended by Reichenheim et al.,[21] we promoted discussions with experts and consulted members of the target population to exchange and approve the equivalence of the items. As described in ►**Table 1**, the activities not commonly practiced by children in Brazil were substituted for activities practiced in our country, trying to maintain the same level of intensity. In the changes in question, a physical activity little practiced in Brazil was substituted for another physical activity practiced more frequently. Thus, the physical activity 'Skiing, snowboarding, sledging' was substituted for another frequent physical activity, in this case, the game called *polícia e ladrão* (cops and robbers), without the need to choose a physical activity that uses a board. We must keep in mind that the C-PAC assesses not only the intensity of the physical activity, but also leisure activities, school activities and sedentary behaviors. What we could not do would be to substitute a physical activity for a non-physical activity. The establishment of an interdisciplinary committee in stage 4 of the process has the goal of avoiding biases related to the authors' preferences regarding the cultural adaptation, such as the preference for a type of physical activity, and regarding the translation, to avoid technical jargon not commonly used by people.

The pretest, which comprises the application of the questionnaire to a small target population, has a minimum recommended number that ranges from ten to forty participants.[14–22] Regarding its structure, the questionnaire consists of words used in the daily life of any person, such as the types of activities, yes or no answers, and time measurements such as minutes, hours and days of the week. This feature of the questionnaire prevents us from getting different individual responses or lower or higher scores. In our research, the pretest was only applied to eight participants; we considered this number sufficient due to the speed with which we received the answers, the consistency of these answers, and the result of the interview with parents/legal guardians, who reported its easy understanding and completion. To evaluate the final version, the C-PAQ.PT, we started a research to assess the impact of social isolation on the activities of children and adolescents; data from 136 questionnaires are being compiled, and they will become the topic of the study.

As Brazil is a country with a large area, with some internal cultural differences, we believe that the few substitutions made do not affect the structure of the questionnaire, which contains a many different options of physical activities.

Conclusion

We consider that the C-PAQ has been translated and culturally validated to Brazilian Portuguese, which we called C-PAQ.PT.

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Conflict of Interests
The authors have no conflict of interests to declare.

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