

Translation of the Children Helping Out – Responsibilities, Expectations and Supports (CHORES) questionnaire into Brazilian-Portuguese: semantic, idiomatic, conceptual and experiential equivalences and application in normal children and adolescents and in children with cerebral palsy

Tradução do questionário Children Helping Out – Responsibilities, Expectations And Supports (CHORES) para o português - Brasil: equivalências semântica, idiomática, conceitual, experiencial e administração em crianças e adolescentes normais e com paralisia cerebral

Maíra Amaral¹, Rebeca L. Paula¹, Adriana Drummond², Louise Dunn³, Marisa C. Mancini^{2,4}

Abstract

Background: The participation of children with disabilities in daily chores in different environments has been a therapeutic goal shared by both parents and rehabilitation professionals, leading to increased demand for instrument development. The Children Helping Out: Responsibilities, Expectations and Supports (CHORES) questionnaire was created with the objective of measuring child and teenager participation in daily household tasks. **Objectives:** To translate the CHORES questionnaire into Brazilian Portuguese, evaluate semantic, idiomatic, experiential, and conceptual equivalences, apply the questionnaire to children and teenagers with and without disabilities, and test its test-retest reliability. **Method:** Methodological study developed through the following stages: (1) translation of the questionnaire by two different translators; (2) synthesis of translations; (3) back-translation into English; (4) analysis by an expert committee to develop the pre-final version; (5) test-retest reliability; (6) administration to a sample of 50 parents of children with and without disabilities. **Results:** The CHORES translation was validated in all stages. The implemented adaptations aimed to improve the understanding of the instrument's content by families of different socioeconomic and educational levels. The questionnaire showed strong consistency within a 7 to 14-day interval (ICCs=0.93 a 0.97; p=0.0001). After application, there was no need to change any items in the questionnaire. **Conclusions:** The translation of the CHORES questionnaire into Brazilian Portuguese offers a unique instrument for health professionals in Brazil, enabling the documentation of child and teenager participation in daily household tasks and making it possible to develop scientific investigation on the topic.

Keywords: assessment; translation; participation; children; home; rehabilitation.

Resumo

Contextualização: A participação de crianças com deficiência nas ocupações diárias em diferentes contextos tem sido uma meta terapêutica compartilhada por pais e profissionais da área de reabilitação, gerando crescente demanda na elaboração de instrumentação. O *Children Helping Out: Responsibilities, Expectations and Supports* (CHORES) foi desenvolvido com o objetivo de

¹Occupational Therapist, Belo Horizonte, MG, Brazil

²Department of Occupational Therapy, School of Physical Education, Physical Therapy and Occupational Therapy, Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, MG, Brazil

³Department of Occupational Therapy and Pediatrics, University of Utah, Salt Lake City, Utah, Estados Unidos da América

⁴Graduate Program in Rehabilitation Science, School of Physical Education, Physical Therapy and Occupational Therapy, UFMG, Belo Horizonte, MG, Brazil

Correspondence to: Marisa Cotta Mancini, Programa de Pós-graduação em Ciências da Reabilitação, Escola de Educação Física, Fisioterapia e Terapia Ocupacional, Av. Antônio Carlos, 6627, Campus Universitário – UFMG, Pampulha, CEP 31270-010, Belo Horizonte, MG, Brazil, e-mail: mcmancini@ufmg.br; marisacmancini@gmail.com

mensurar a participação de crianças e adolescentes na rotina domiciliar. **Objetivos:** Traduzir o questionário CHORES para a língua portuguesa - Brasil, avaliar as equivalências semântica, idiomática, experiencial e conceitual, administrá-lo em crianças e adolescentes com e sem deficiência e testar a confiabilidade teste-reteste. **Método:** Estudo metodológico desenvolvido nos seguintes estágios: (1) tradução do questionário por dois tradutores diferentes; (2) síntese das traduções; (3) retrotradução para o inglês; (4) análise por comitê de especialistas para desenvolver a versão pré-final; (5) confiabilidade teste-reteste; (6) administração em uma amostra de 50 pais de crianças com e sem deficiência. **Resultados:** A tradução do CHORES foi validada em todos os estágios. As adaptações implementadas visaram a promover a compreensão do conteúdo por famílias de diferentes níveis socioeconômicos e escolaridade. O questionário apresentou forte consistência no intervalo de 7 a 14 dias (ICCs= 0,93 a 0,97; $p=0,0001$). Após a administração, não houve necessidade de modificação de item do questionário. **Conclusões:** A versão traduzida do CHORES para o português disponibiliza um instrumento inédito para os profissionais da saúde no Brasil, permitindo a documentação da participação de crianças e adolescentes na rotina doméstica e viabilizando pesquisa científica sobre o tema.

Palavras-chave: avaliação; tradução; participação; crianças; domicílio; reabilitação.

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Introduction ...

Participation of children with disabilities in daily chores has been an indicator of social inclusion as well as a therapeutic goal shared by parents and rehabilitation professionals¹. This construct has been incorporated into the professional language and scientific literature², increasing interest in the availability of specific instruments focused on its evaluation in different contexts³.

Access and use of these instruments by healthcare professionals allows the improvement of clinical practice and development of scientific research, making the evaluation process systematic and objective, addressing the intervention and allowing the documentation of the patient's progress throughout treatment. However, most of these instruments are developed in English-speaking countries, and their use in other languages requires a translation process involving both linguistic and cultural adaptations. The use of this procedure has been thoroughly adopted in the rehabilitation area⁴⁻⁸, enabling the comparison of results with those of international studies⁹ and requiring less time, expense, and work compared to the creation of new tools¹⁰.

Several studies that use standardized tests evaluate the participation of children with different health conditions in contexts such as school¹¹⁻¹⁵ and community¹⁵⁻²⁰. Leung et al.¹¹ used School Function Assessment (SFA) to compare the school participation of children with developmental delay and children with normal development. Orlin et al.²⁰, in turn, investigated the effect of gross motor function on the participation of children with cerebral palsy in recreational activities, using as measure of participation the test Children's Assessment of Participation and Enjoyment (CAPE).

Besides school and community environments, the context of the home is also a reference for the child population and it is valued by the parents²¹. Dunn²² comments on the importance

of the participation of children in household activities for their global development and the acquisition of a variety of behaviors and skills required for an independent life. Other studies corroborated this argument by documenting that, due to a regular participation of the child in these activities, there was improvement in self-control abilities²³, development of pro-social behaviors²⁴, and a decrease in behavior-related problems²⁵.

In general, the instruments that report on children's participation in the context of the home usually consider it in conjunction with the participation in school and in the community (Child and Family Follow-up Survey - CFFS)²⁶ and with other activities, such as recreational and leisure activities (CAPE)²⁷. Thus, the participation of children in household activities is evaluated in a generic way, supplying little information on the daily routine at home and hindering the development of goals and of a more specific therapeutic plan. Therefore, there is a need for tools that specifically assess the participation of children with disabilities in their home routine.

Children Helping Out: Responsibilities, Expectations and Supports (CHORES) was developed with the objective of measuring, from the parents' perspective, the participation of school-age children and adolescents in activities in the context of the home²². This instrument provides information on children's involvement in the routine of domestic activities, and it allows the documentation of changes over time. CHORES has been used to document the domestic participation of children with Attention Deficit Disorder and Hyperactivity Disorder (ADHD)^{28,29} and of youths with multiple disabilities³⁰. The original version was published in the English language and, to date, there is no Brazilian Portuguese version, hindering its use in the country.

The aims of the present study were to translate the CHORES questionnaire into Brazilian Portuguese, evaluate semantic, idiomatic, experiential, and conceptual equivalences, apply it

to children with and without disabilities, and test its test-retest reliability, seeking to provide an understandable and specific instrument that describes children’s participation in typical activities in the context of the home.

Method ⋮⋮⋮

Study design

The methodological study of the translation of the CHORES instrument was authorized by the author and followed the guidelines presented by Beaton et al.³¹, which propose five stages to carry out the translation in the sequence shown in Figure 1.

In the first stage, the original version of CHORES was translated by two translators fluent in English, resulting in two versions, T1 and T2. In the second stage, these two versions were synthesized to produce version T1-2. In the third stage, version T1-2 was translated back into the original language by a fourth person who resided in the United States for 15 years and who did not have access to the original version of CHORES. In the fourth stage, an expert committee, composed by a methodologist and two occupational therapists, combined the version T1-2 and the back-translated version, eliminating discrepancies and producing the pre-final version of CHORES, tested in the fifth stage of translation.

During the entire translation process, the researchers looked for the equivalence between the original and translated versions in terms of the essence of the content, rather than the literal translation of words (semantic equivalence), and in terms of the

concept of the evaluated phenomenon (conceptual equivalence), the colloquialisms and linguistic expressions (idiomatic equivalence), and cultural experience (experiential equivalence)^{5,31}.

Participants

The pre-final version of the CHORES translation was applied to a sample of 50 parents of children and adolescents. This sample was composed of 25 parents of children with cerebral palsy (CP), recruited by convenience at a charitable rehabilitation institution, located in Belo Horizonte/MG, and 25 parents of children with normal development (ND) who were recruited by convenience in Belo Horizonte and rural cities of Minas Gerais. The sample size for administration of the instrument was based on the recommendations of Beaton et al.³¹, who suggest a group of 30 to 40 individuals.

The inclusion criterion for all children and adolescents was age between six and 14 years. Children who had mild and moderate levels of gross motor function and manual ability (I, II, and III) according to the expanded and revised Gross Motor Function Classification System (GMFCS-ER)³² and the Manual Ability Classification System (MACS)³³ were included in the CP group. Such levels are considered compatible with the performance of domestic activities proposed by CHORES. Children and adolescents with uncorrected sensory impairment (hearing and visual), with pervasive developmental disorders, and who underwent invasive surgery and/or were hospitalized prior to the interview were excluded from the study.

Instrumentation

CHORES

The questionnaire evaluates the participation of children and adolescents in domestic tasks. It is divided into four parts: application instructions, items related to the household tasks, a semi-structured interview about the values and beliefs of the parents regarding the children’s participation in these tasks, and demographic information about the children and their caregivers.

The instrument is composed of 34 items that evaluate functional tasks, divided into two subscales: self-care, composed of 13 domestic tasks, and family care, composed of 21 tasks²². The self-care tasks involve looking after the child’s needs and belongings in his or her own space, while the family care tasks involve looking after the needs and belongings of the other members of family and of the common home space³⁴. Each item is scored on one of two types of response scales: a dichotomous response scale (yes/no) for the items regarding the

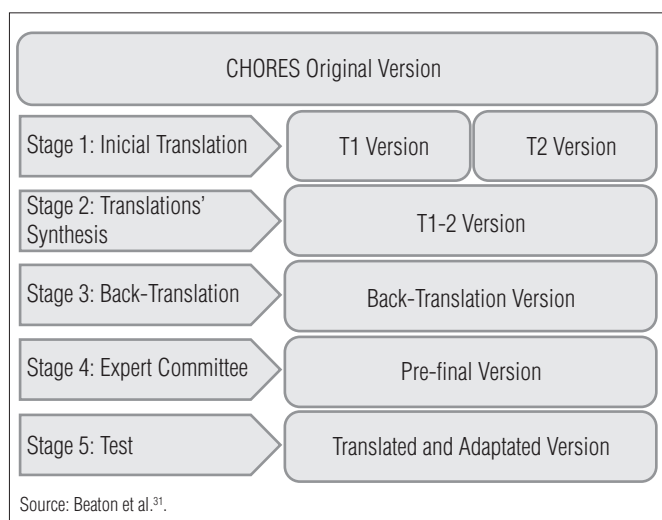


Figure 1. Summary of the methodology used in the process of the CHORES translation.

child's performance and a six-point Likert scale for the items related to the level of care taken by the child in the task (6=own initiative, 5=with verbal suggestion, 4=with supervision, 3=with some help, 2=with a lot of help, 1=unable to perform the task, and 0=not expected to perform the task). Thus, the CHORES questionnaire generates six types of scores, i.e. performance in the self-care and family care subscales and total performance, besides the scores of assistance in the two subscales and the score for total assistance²². This instrument showed high levels of reliability and validity in a study that investigated its psychometric properties²².

Sociodemographic questionnaire

This questionnaire was created with the objective of collecting information on the descriptive variables of the sample, such as age, gender, parent education, relationship of the respondent with the child, and family structure. This questionnaire also captured the parents' opinion on the clarity of the CHORES items as well as on the difficulty in understanding and the pertinence of the content. The Brazil Economical Classification Criteria (2008) of the Brazilian Association of Research Companies (ABEP)³⁵ was used in order to document the socioeconomic level of the families participating in the study.

Procedures

Participants were informed about the objectives of the study. After agreeing with the procedures, parents and children over seven years of age, when capable, were asked to sign an informed consent form. The parents answered the translated questionnaire and were then interviewed to verify if they understood the meaning of the items. They were asked to rate each item of the instrument on a dichotomous scale (clear/unclear). When the parents chose "unclear", they were asked to rephrase the command in a way that made it clear³⁶. The interviews were performed at the most convenient location for the participants and lasted on average 30 minutes.

This study was approved by the Research Ethics Committee of Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, MG, Brazil, protocol ETIC 0384.0.203.000-10.

Statistical analysis

Indexes of frequency, central tendency (mean), and dispersion (standard deviation) were used to describe the variables age and gender. Family structure was described by the socioeconomic level and the number of siblings at home.

Respondents were characterized according to the relationship with the child/adolescent, age, and education. Chi-square tested the frequency distribution of the children of both groups in the respective categories of each descriptive variable.

Test-retest reliability was investigated by administering the CHORES twice, with an interval of seven to 14 days between the administrations, in a subgroup of 13 children, five having ND and eight having CP. The analysis was carried out using the Intraclass Correlation Coefficient (ICC).

The program Statistical Package for Social Sciences (SPSS), version 19.0 was used for all analyses. The significance level and the confidence interval were set at $\alpha=0.05$ and 95%, respectively.

Results

Translation of CHORES: semantic, idiomatic, conceptual, and experiential equivalences

During the translation process of CHORES, some discrepancies between the translated and the original versions in the four parts of the test were observed. In the initial part, researchers identified the need to add complementary information to the test instructions in what refers to the scoring criteria.

Regarding the content of the instrument items, the translators identified discrepancies in 17 of the 34 items. The expert committee reiterated the need to provide examples during the application of the questionnaire for items 4 ("Picks up area shared by others"), 6 ("makes self a snack"), 7 ("makes self a cold meal"), 31 ("Organizes own belongings for after-school events") and 33 ("runs errand"). Table 1 shows the items of CHORES in its original and translated versions, highlighting the divergent items during the translation process.

With regard to the demographic information shown in the final part of the questionnaire, there was divergence in the questions related to the race/ethnicity and education of the child's caregivers, as will be discussed later.

Administration of CHORES

As seen in Table 2, the sample was composed of 25 children with ND and 25 with CP. Twenty-seven children (54%) were male. The children's mean age was of 9.4 years (SD=2.3), and 44% (n=22) of the children were aged six to eight; 42% (n=21) were aged nine to 11; and 14% of the children (n=7), between

12 and 14. Forty-three volunteers (86%) were the children's mothers, and the remaining volunteers were distributed as parents (8%, n=4) and others (6%, n=3). Most of the interviewees had incomplete primary education (40%, n=20), followed by complete secondary education (28%, n=14), complete primary education (18%, n=9), complete tertiary education (8%, n=4), no education (4%, n=2), and incomplete secondary and tertiary education (2%, n=1 each). Most of the children (90%, n=45) were an only child or they have only one brother/sister at home. Most families (30%, n=15) received the classification C1, according to ABEP, corresponding to a monthly mean income of one thousand one hundred and ninety-five real (R\$ 1.195,00), followed by C2 (26%, n=13, mean income of R\$ 726.00), B2 (22%, n=11, mean income of R\$ 2.013,00), B1 and D (10%, n=5 each,

mean income of R\$ 3,479.00 and R\$ 485.00, respectively) and A2 (2%, n=1, mean income of R\$ 6,564.00).

There was no difference between groups regarding the distributions by age group, gender, relationship of the respondent to the child, number of siblings at home, and clarity of the items of CHORES. However, the children with CP were from families with lower education and lower socioeconomic levels, compared to the group of children with ND.

As seen in Figure 2, forty-nine interviewees (98%) reported that all items contained in CHORES were clear and that there was no difficulty in understanding them. Only one interviewee of the group of children with ND believed that item 31 ("Organizes own belongings for after-school events") was unclear. However, the respondent refused to rewrite it, stating that,

Table 1. Discrepancies between the translated version and the original version found in the CHORES items during the process of translation.

CHORES –original version	CHORES – translated version
1. Cleans up after own play	1. Guarda os próprios brinquedos depois de brincar #
2. Picks up own bedroom	2. Arruma o próprio quarto #
3. Makes own bed	3. Arruma a própria cama #
4. Picks up area shared by others	4. Arruma área compartilhada com outros * #
6. Makes self a snack	6. Prepara seu próprio lanche (1) * #
7. Makes self a cold meal	7. Prepara refeições frias (2) para si mesmo * #
8. Prepares part of a cold meal for the family	8. Prepara parte de uma refeição fria (2) para a família
9. Makes self a hot meal	9. Prepara refeições quentes (3) para si mesmo #
10. Prepares part of a hot meal for the family	10. Prepara parte de uma refeição quente (3) para a família
11. Sets or clears the table	11. Arruma ou tira a mesa #
12. Brings in or puts away groceries	12. Traz ou guarda as compras de supermercado #
17. Puts own laundry in hamper	17. Coloca a própria roupa suja no local determinado #
22. Sweeps or vacuums own room	22. Varre ou passa pano no próprio quarto #
24. Sweeps or vacuums home	24. Varre ou passa pano na casa #
30. Organizes own belongings for school	30. Organiza seu material escolar #
31. Organizes own belongings for after-school events	31. Organiza seus pertences para eventos extra-escolares * #
33. Runs errand	33. Cumpre afazeres fora de casa *

(1) Snack: already prepared; (2) Cold meal: the stove or microwave is not used; (3) Hot meal: the stove or microwave is used.* Items in which examples were needed; # diverging items.

Table 2. Sample's descriptive statistics (stage 5).

			ND (n=25)		CP (n=25)		p-value	TOTAL (N=50)	
			n	%	n	%		n	%
Children	Sex	Boy	15	60	12	48	0.571	27	54
		Age range	6 to 8	10	40	12		48	22
			9–11 years	10	40	11	44	21	42
			12–14 years	5	20	2	8	7	14
Respondents	Relationship with the child	Mother	22	88	21	84	0.894	43	86
		Father	1	4	3	12		4	8
	Schooling	IPE	4	16	16	64	0.007	20	40
		CPE	6	24	3	12		9	18
SE		10	40	4	16	14		28	
Family Structure	SEL	A2	1	4	0	0	0.039	1	2
		B1–B2	11	44	5	20		16	32
		C1–C2	13	52	15	60		28	56
		D	0	0	5	20		5	10
	siblings in the house	0–1	23	92	22	88	0.5	36	90
	2–3	2	8	3	12	5		10	

ND: normal development; CP: cerebral palsy; IPE: incomplete primary education; CPE: complete primary education; SE: secondary education; SEL: social economic level.

after reading it again and hearing the examiner’s explanation, it became understandable. All interviewees reported that the items of the instrument are representative of the domestic activities performed routinely by the family, and 10% (n=5) identified other routine activities that were not included in CHORES, particularly “cleans backyard “ and “washes porch”.

Reliability

The test-retest reliability was assessed for each CHORES score, showing levels over 0.90 and evidencing strong consistency of the test when administered at intervals of up to 14 days³⁷ (Table 3).

Discussion

The process of translating an instrument requires standardized and predefined techniques and procedures aimed at the systematization of actions to produce a reliable measure with valid content^{5,38}. The translation of CHORES was validated

in all stages of the structure proposed by Beaton et al.³¹; the adaptations implemented in the translated version of the test sought to promote understanding of the content and its adaptation in order to offer information on the participation of children and adolescents with and without disabilities in daily household tasks.

The translation process aimed to prioritize words and expressions that best represent the test situation, considering the proposals of the instrument and the social and cultural reality of most of the Brazilian population⁵. Thus, the translated version used simple language representative of the evaluated construct, reaching semantic, idiomatic, conceptual, and experiential equivalences between the original instrument and the translation³¹. The translation of the word “help” in the instructions for test application exemplifies this statement. The translators opted for the word “ajuda” in the translated version, instead of the words “assistência” and “auxílio”, because its use is more prevalent in the colloquial language of the Brazilian people.

The comments inserted in the CHORES instructions aimed to further explain the score criteria of some items and they were deemed necessary by the researchers based on the administration of the questionnaire, when the examiner faced situations that were not covered in the instructions of the original version. For instance, if the child performs the appraised task independently only part of the time, the examiner should opt for the performance score “no”, since the child’s participation in the task is not routine. When the item deals with objects or specific tasks that do not match the family routine, such as “dries the dishes” or “takes care of plants”, the option of assistance score that should be marked is “I do not expect that from my child”.

In relation to the differences observed in the CHORES items, the researchers looked for the translation that best corresponds to the domestic tasks performed in Brazil. For example, the Portuguese word “arruma”, widely used in everyday language of domestic tasks, was chosen as the translation for three words/expressions in the original language of the instrument: “picks up”, “makes” and “sets”, corresponding to items 2, 3, 4, and 11, which refer to “picks up own bedroom”, “makes own bed”, “picks up area shared by others”, and “sets or clears the table”, respectively. At the same time, the word “makes” was also translated as “prepara” when it referred to meals (items 6, 7, and 9). The words/expressions “cleans up” and “organizes” in items 1, 30, and 31 were represented by the single word “organiza”. In item 12, we opted to translate “groceries” for “compra de supermercado”, considering a larger inclusion of this expression in comparison with “mantimentos”, literal translation of the word. Another example is in the literal translation of the item 17 (“Puts own laundry in hamper”), where the word “cesto” was replaced by the expression “local determinado”, which

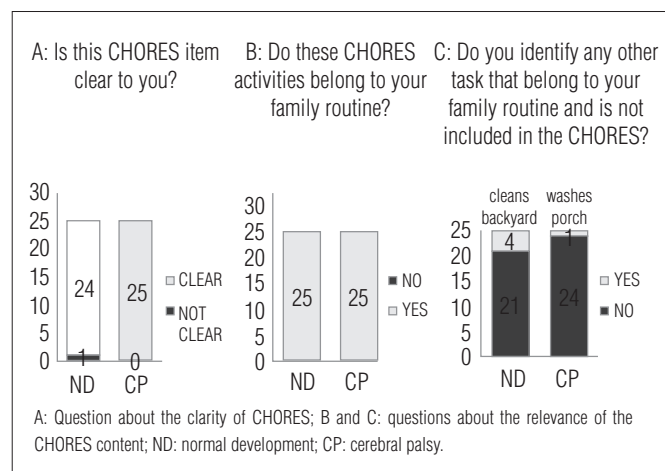


Figure 2. Questions to the participants regarding the clarity and relevance of the CHORES content during stage 5 of the translation process.

Table 3. Test-retest reliability indices, 95% confidence interval and p-value.

CHORES scores	ICC	(95%) Confidence Interval	p-value
SCP	0.94	0.790–0.980	0.0001
FCP	0.95	0.819–0.983	0.0001
P	0.96	0.855–0.987	0.0001
SCA	0.97	0.900–0.991	0.0001
FCA	0.93	0.766–0.978	0.0001
A	0.97	0.898–0.990	0.0001

SCP: self-care performance; FCP: family care performance; P: performance; SCA=self-care assistance; FCA: family care assistance; A: assistance; ICC: Intraclass Correlation Coefficient.

better corresponds to the reality of Brazilian families. For this same reason, in items 22 (“Sweeps or vacuums own room”) and 24 (“Sweeps or vacuums home”), we opted to substitute the action of “vacuum” with “mop”.

We also evaluated the need for providing examples in items 4 (“Picks up area shared by others”), 6 (“makes self a snack”), 7 (“makes self a cold meal”), 31 (“organizes own belongings for after-school events”) and 33 (“runs errand”). In item 4, we found the need to exemplify the rooms of the home that are usually shared by the family members. It is necessary to investigate, however, if the respondents have those rooms in their home and if they correspond to areas of common access among the residents. In items 6 and 7, there was a need to differentiate between the terms “snack” and “cold meal”, since the latter is not very common in Brazilian culture. The first word refers to fast meals, such as bread and butter, cookies, sandwiches. The second refers to a cold dish (lunch or dinner) such as a salad. The solution found by the researchers was to add a footnote to the items related to meals and snacks, distinguishing the criteria used to evaluate them. In items 31 and 33, the expert committee deemed it necessary to exemplify the after-school events, such as language classes, and the tasks performed out of home, such as going to the bakery.

Regarding the demographic information, the original version of CHORES proposed the characterization of the child’s race/ethnicity in five categories (African American – not Hispanic origin; white – not Hispanic; Asian – Pacific Islands; Hispanic and Native American). This information was considered inappropriate for the Brazilian reality, given the intensity of the country’s miscegenation that hinder categorization. Therefore, the researchers chose to remove this classification in the translated version.

Another change considered necessary by the committee was the inclusion of three educational options: “unschooled”, “incomplete primary education”, and “complete primary education”. These insertions were necessary due to a great contingent of the Brazilian population in these educational conditions.

After the administration, it was not necessary to modify any CHORES items given that there was no report of lack of clarity of the content by more than 20% of the participants³⁶. It is worth noting that the translated version was understood by the parents and caregivers despite the difference in educational and socioeconomic level between the groups, which suggests that the instrument addresses these differences commonly found in the Brazilian population. It is also noteworthy that 10% of the parent interviewees pointed out the absence

of two routine family activities that were not included in the CHORES questionnaire: “cleans backyard” and “washes porch”. It is believed that the spontaneous eligibility of these activities deserves attention by future users of this instrument.

The high levels of test-retest reliability found in the present study (ICC total scores of performance and assistance were 0.95 and 0.96, respectively) corroborate the test-retest reliability levels of the original instrument (0.92 and 0.88, respectively)²², indicating that the translated version shows excellent stability. In other words, the parents provide consistent reports of the children’s participation in domestic tasks. Nevertheless, the translated CHORES questionnaire was applied to children with CP and ND, whereas the original instrument was administered to children with ADHD.

The translation of a measure of participation of children with and without disabilities in tasks performed exclusively in the context of the home is of great relevance to clinical practice and to scientific research. It provides a snapshot of the children’s experience in their domestic routine as well as the variability of family values, while allowing comparative studies and improving documentation of the performance and gradual level of assistance provided to children and adolescents as a result of both development and intervention strategies.

In the present study, the translation stages were carefully followed and the semantic, idiomatic, conceptual, and experiential discrepancies were solved by the expert specialists, aiming at the cultural adaptation of CHORES. The administration of the pre-final version showed that it is a clear and comprehensible tool for families with different socioeconomic and educational levels. The translated version offers a new instrument to health and rehabilitation professionals in the country.

Acknowledgments : : : .

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