

Translation and Brazilian cultural adaptation of the Assessment of Life Habits for Children

Tradução e adaptação cultural brasileira do instrumento de avaliação Assessment of Life Habits for Children

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ABSTRACT: *Background:* Instruments for evaluating child development are increasingly used in clinical and scientific research and Brazil has a shortage of validated instruments for its population. The Canadian Living Habits Assessment (LIFE-H) instrument for children was developed for the assessment of children's lifestyles and illustrates the dynamic interaction between personal and environmental factors. *Objective:* To translate and culturally adapt LIFE-H for children from 0 to 4 years old into Brazilian reality. *Methods:* A certified linguist and three qualified physiotherapists participated in the translation phase. The translated instrument-LIFE-H_BR was subjected to semantic and content analysis by lower strata (five potential users) and sophisticated (four technical users) strata. Thirty health professionals participated in cultural adaptation. A coefficient of raw agreement was applied for the analysis of Semantics and Content and a Correlation of Distances analysis was applied between the judges. *Results:* High agreement and similarity between technical judges in the translation process and the need for cultural adaptation of children. *Conclusions:* LIFE-H_BR can be used to evaluate the life habits of Brazilian children aged 0 to 4 years.

KEYWORDS: Translations; Evaluation of results of therapeutic interventions; Cross-cultural comparison; Child; Activities of daily living.

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RESUMO: *Introdução:* Instrumentos de avaliação do desenvolvimento infantil são cada vez mais utilizados na clínica e pesquisa científica e o Brasil possui escassez de instrumentos validados para sua população. O instrumento Canadense Avaliação de Hábitos de Vida (LIFE-H) para crianças foi desenvolvido para a avaliação dos hábitos de vida de crianças e ilustra a interação dinâmica entre fatores pessoais e ambientais. *Objetivo:* Traduzir e adaptar culturalmente a LIFE-H para crianças de 0 a 4 anos para a realidade brasileira. *Métodos:* Um linguista certificado e três fisioterapeutas qualificados participaram da fase de tradução. O instrumento traduzido-LIFE-H_BR foi submetido à análise semântica e de conteúdo por estratos inferior (cinco usuários em potencial) e sofisticado (quatro usuários técnicos). Trinta profissionais da saúde participaram da adaptação cultural. Um coeficiente de concordância bruta foi aplicado para as análises de Semântica e Conteúdo e uma análise de Correlação de Distâncias foi aplicada entre os juízes. *Resultados:* Alta concordância e similaridade entre os juízes técnicos no processo de tradução e necessidade de adaptação cultural de 29. *Conclusões:* O LIFE-H_BR pode ser utilizado para avaliação dos hábitos de vida de crianças brasileiras de 0 a 4 anos.

DESCRITORES: Traduções; Avaliação de resultado de intervenções terapêuticas; Comparação transcultural; Criança; Atividades cotidianas.

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INTRODUCTION

The increase in the number of multicultural research projects has made it necessary to translate and adapt cross-cultural health measures into languages other than the original¹. These processes facilitate the communication between people from different countries that have different languages and cultures and allow the use for clinician and researchers.

The Canadian Instrument Assessment of Life Habits (LIFE-H) for children was developed by Fougeryrollas et al.² for the evaluation of the infant life habits and illustrates the dynamics of the interactive process between personal and environmental factors, which determine the life habits performed according age, gender and socio-cultural identity. LIFE-H has 61 items to evaluate the areas of life habits of children, refer to the performance of daily activities related to social roles, in order to know the capacity of children in these activities. This is essential for health professionals to understand the needs of the child and her/his family as well as to develop therapist goals that involve them. So, they can diagnose and provide or track the optimal intervention to reduce the daily consequences of general dysfunction for children^{3,4}. The instrument covers the dimensions “Activities and Participation” presented in the International Classification of Functioning Disability and Health (ICF), developed in 2001 by World Health Organization^{5,6}.

In Brazil others instruments have been used to evaluate the activities of daily living of children aged below 4 years old, like Pediatric Motor Activity Log-Revised (PMAL)⁷, Pediatric Evaluation of Disability Inventory (PEDI)⁸ and Childhood Health Assessment Questionnaire (CHAQ)⁹. The instrument PMAL is limited to children with impaired upper limb and CHAQ is intended for children with arthritis, although it has been applied in other pathologies¹⁰. PEDI is more focused on the amount of common activities (what is done), different that LIFE-H, that is more concerned with the quality of the behavior (how it is done). So, it is noteworthy that the translation and cultural adaptation of existing assessment tools will provide a new way to explore important factors that influence the activities of daily life in this population. Therefore, this allows comparisons between studies from different countries as well as the communication among researchers^{11,12} aiming to generate new evidence for clinical interventions that encompass the individual in a biopsychosocial way, as the CIF proposes.

Thus, the purpose of this study is to present the process of translation and cultural adaptation of the instrument

Assessment of Life Habits (LIFE-H) for children aged 0 to 4 to the Brazilian reality.

METHODS

Instrument Description

The first page of LIFE-H is a form with the child's information and the second page has a space for the scores tables and the record of results in each of the domains evaluated.

There are 61 items of the version for children aged 0-4 and they are distributed in 11 domains: Nutrition, Fitness, Personal Care, Communication, Housing and Mobility, that refer to performing daily activities, and Responsibilities, Interpersonal Relations, Community Life, Education and Recreation, that refer to the performance of social roles. In this age group, it is administered through an interview about two levels: Performance and Satisfaction.

The level of performance is accomplished by identifying: 1 – Level of accomplishment: the degree of difficulty in performing the activity or social role (No difficulty, With difficulty, Accomplished by a proxy or Not accomplished); 2 – Type of Assistance: the type of assistance needed for its implementation (No assistance, Assistive device, Adaptation or Additional human assistance). If a specific life habit is not part of regular lifestyle of the child based on a personal choice, this item should be identified as Not Applicable (NA), given that a personal choice cannot be described as a situation of disability, so this exclusion doesn't interfere on the final score. From the answers to these two parts, scores are established in each domain from 0-9 as well as an overall score, where the highest score (weighted score of 10) indicates better participation.

The level of satisfaction identifies the degree of satisfaction of the caregiver in the child's performance in that habit of life (Very dissatisfied, Dissatisfied, Somewhat satisfied, Satisfied, Very satisfied), and there is no score for this part. Thus, the results of this subscale are not considered in the calculation of the final score. The total administration lasts between 20 to 30 minutes.

Step 1 - Translation of LIFE-H

The methodological study of the translation of the LIFE-H instrument was authorized by the author Mr. Luc Noreau, who put us in touch with the Réseau International sur le Processus de Production du Handicap (RIPPH) /

International Network on the Disability Creation (INDCP), the organization that develops and distributes the instrument.

The free translation of the original English version into Portuguese was performed by two physiotherapists. Then, a third physiotherapist (a PhD Professor) conducted a review of the translations and made a Portuguese Version 1 of the instrument. The hired linguist, with no previous contact with the instrument, performed the back-translation of Version 1 to English. Thereat, this version was compared to the original version, taking into account the content and semantics equivalences. After making the adjustments and consulting the INDCP for clarification of the terms of the instrument, the Portuguese Version 2 was made.

Two records were created, one with the objective of verifying the clarity of the terms used in the items of the instrument (Semantic Analysis) and another to verify if the items of the instrument refer to what they are supposed to (Content Analysis) according to the models of Menegasso¹³. The Semantic Analysis was performed by two populations with different qualifications: lower and more sophisticated strata of the potential users of the instrument¹⁴. The lower stratum was two physiotherapy students, one of the Undergraduate Research Mentorship Program and one intern from a Child Health Unit and two professionals (Occupational and Speech therapists) working with Child Health, who had no contact with the academic milieu. This group represents the population with less ability to use the instrument. The most sophisticated stratum was represented by two PhD Professors and two doctoral students, both categories of judges worked in Childs Development and Neurology. This group represents the population with greater ability to use the instrument with technical judges of high level of education. After the analysis from these two Strata, a coefficient of raw agreement was applied (formula: (concordant items / total number of items) x 100) and the terms suggested as more appropriate by most experts, or 50 % plus 1 were considered.

The Content Analysis was performed by the same experts selected for the semantic analysis. After the analysis, a coefficient of raw agreement was also applied, with expected agreement of 80% so that each item of the instrument could be considered as pertinent. In case this ideal agreement was not reached, the terms have been modified and a Version 3 was obtained and underwent cultural adaptation.

This study was approved by the Research Ethics Committee of *Universidade Federal de São Carlos, São Carlos, SP, Brazil* (CAAE: 11655312.4.0000.5504).

Step 2 – Cultural adaptation of LIFE-H

Participated in this phase thirty professionals (physiotherapists, occupational and speech therapists, psychologist and case-worker) with work experience in the area of Child Neurology Care as well as undergraduate research mentorship program, master's and doctoral students from Neuropediatrics, professors and undergraduate students in physiotherapy who have enhanced their neuropsychiatric training.

The professionals who agreed to participate received three files by e-mail: 1) General instructions related to the purpose of their participation, instructions on how to complete the questionnaire and the application of the instrument; 2) The Cultural Adaptation Checking Questionnaire (to check if the items were applicable, partially applicable, or not applicable to the reality of Brazil as well as to verify whether the content of the instrument was related to the Brazilian culture; 3) Version 3 of the translated instrument. The professionals were encouraged to use the tool in their clinical practice.

Based on the feedback received from these professionals, a database was prepared to perform a review of Version 3 and prepare a Version 4, making sure not to modify the instrument's original structure. As recommended by the organization that develops and distributes the instrument, this version was tested in 8 children with special needs, and after being considered as appropriate, underwent RIPPH/INDCP. The Final Version used for the evaluation of the Brazilian population was called LIFE-H_BR (*Avaliação dos Hábitos de Vida, para crianças do nascimento aos 4 anos de idade*).

Data analysis

Data were analyzed using SPSS software IBM version 20.0 and Portal Action®. A coefficient of raw agreement was applied to the Semantic and Content analysis, which corresponds to the proportion of agreements found in relation to the total of possible agreements. In addition, a Distance Correlation analysis was applied among the judges to measure the similarity among them (similarity matrix), by using the binary method of simple correspondence. The elements of a similarity matrix measure the similarity between pairs and the higher the similarity between two objects, the larger the measurement value. The similarity values observed in the matrix was divided into three groups and 0.6 was used as a cutting point^{15,16} with more similar

from 0.81 to 1.0; intermediate from 0.61 to 0.80 and less similar: from 0 to 0.60.

RESULTS

Step 1 - Translation of LIFE-H

On average, a 94% overall concordance among the judges on the semantic analysis was found. Therefore, these were considered comprehensible.

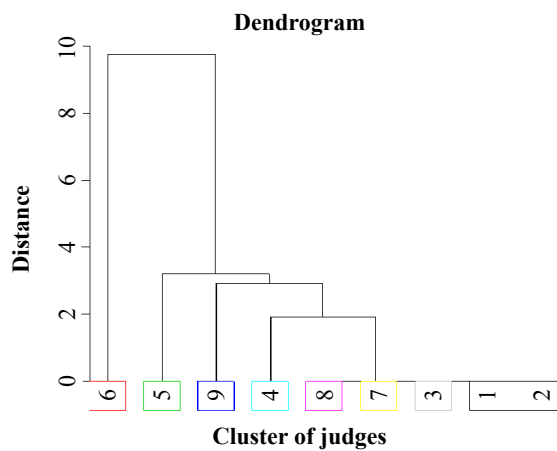
Semantic differences were identified in only 7 items related to five areas: Fitness, Mobility, Responsibilities, Interpersonal Relations and Recreation and for which adjustments and appropriate adaptations were made,

according to the terms suggested as the most suitable by the majority of the judges. Intermediate similarity for judge number 6 ($0.62 < r < 0.8$) and greater similarity for other judges ($r > 0.85$) were observed in Table 1. Judges 1-5 represent the lowest stratum and judges 6-9 represent the most sophisticated stratum.

The dendrogram (Figure 1A) generated after the distance correlation analysis, judges 1, 2, 3, 7 and 8 belong to the same group show that they analyzed the same way. These were more similar to judge number 4, followed by numbers 9 and 5, which is observed by the height of the arc being quite small. Judge number 6 showed intermediate similarity to the others, there is a greater height of the arc.

Table 1 – Similarity matrix among the technical judges for semantic analysis and content analysis

Judge	Semantic Analysis									Content Analysis								
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
1	1.000	1.000	1.000	.951	.918	.639	1.000	1.000	.934	1.000	1.000	.967	1.000	.918	.951	1.000	1.000	.885
2		1.000	1.000	.951	.918	.639	1.000	1.000	.934		1.000	.967	1.000	.918	.951	1.000	1.000	.885
3			1.000	.951	.918	.639	1.000	1.000	.934			1.000	.967	.885	.918	.967	.967	.852
4				1.000	.869	.623	.951	.951	.885				1.000	.918	.951	1.000	1.000	.885
5					1.000	.689	.918	.918	.852					1.000	.934	.918	.918	.902
6						1.000	.639	.639	.639						1.000	.951	.951	.902
7							1.000	1.000	.934							1.000	1.000	.885
8								1.000	.934								1.000	.885
9									1.000									1.000



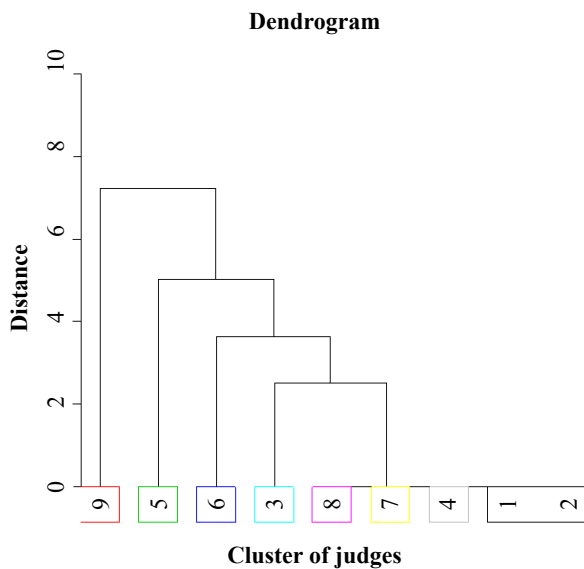
Legend: N= number of judge; N: 1-5= judges with lower stratum; N: 6-9= judges with more sophisticated stratum.

Figure 1 – Dendrogram

On average, a 97% concordance among the judges on the Content analysis was found, thus considering each item of the instrument as pertinent.

Content differences were identified in 3 items, for which adjustments and appropriate adaptations were made, according to the terms suggested as the most suitable by the majority of the experts.

It is observed in Table 1 high similarity among all judges ($r > 0.88$). According to the dendrogram (Figure 1B) generated after the distances correlation analysis, judges 1, 2, 4, 7 and 8 belong to the same group and therefore analyzed the same way. These were more similar to judge number 3, followed by numbers 6 and 5, it was observed that the height of the arcs is small. Judge number 9 showed the lowest similarity to others, it is observed that the height of the arc is a little higher, that is, he identified more items as irrelevant.



Legend: N= number of judge; N: 1-5= judges with lower stratum; N: 6-9= judges with more sophisticated stratum.

Figure 2 – Illustrative dendrogram of similarities among judges in Content Analysis

Step 2 - Cultural adaptation of LIFE-H

Based on the suggestions of the participating professionals, modifications were accepted in the registration sheet: the inclusion of a field to fill out with the child age; a field to select the child-interviewee relationship other than a parent and professional; and an item to mark the clinical child’s condition.

Six professionals presented questions about the feasibility of the instrument in the self-applied condition and five as the viability of the application in children under 1 year.

Regarding the items, all of them were considered suitable to the Brazilian reality; item number 17 (participate in the personal health care and follow instructions for treatment) and item 38 (take care of herself, defend what is yours, express her desires and needs) were questioned as to the applicability to the Brazilian children from 0-4 years; and in 52 items some comments and changes were suggested by the professionals.

As a result, the RIPPH/INDCP was asked to answer the questions, and 29 items have undergone cultural adaptation. The adjustments are shown in Table 2.

Table 2 – Cultural adaptation of the items of the LIFE-H_BR

Items	Item description	Adjustments carried out
3	Using a refrigerator.	Inserting an example.
5	Drinking with a bottle, glass or cup.	Replacement of “bottle” for “baby bottle” and increase the “mug”.
7	Eating out at a restaurant.	Replacing “à la carte and self-service” by “by menu, per kilo or food rotation”.
10	Engaging in quiet activities that are relaxing or require attention or concentration.	Increase in examples of “watching TV”.
14	Participating in toileting activities.	Inserting an example.
17	Participating in personal health care and following treatment instructions.	Inserting an example.
20	Receiving and understanding oral instructions or information from a familiar adult.	Replacing “oral” with “verbal”.
21	Receiving and understanding oral instructions or information in a small group of children.	Replacing “oral” with “verbal”.
22	Participating in a conversation with a familiar adult.	Replacement “Participate in a conversation” with “Communicate with”
23	Participating in a conversation with a child or small group of children.	Replacement “Participate in a conversation” with “Communicate with”
24	Participating in a conversation with an unfamiliar adult.	Replacement “Participate in a conversation” with “Communicate with” and inserting an example.
30	Moving around on one floor of the home, including using furniture.	Replacement of “use” to “support”.

Continues...

Table 2 – Cultural adaptation of the items of the LIFE-H_BR

Items	Item description	Adjustments carried out
33	Using equipment outside the home (pool, play equipment).	Replacement “play equipment” by “swing, hammock.”
34	Moving around in the neighbourhood.	Addition, at the end of the sentence, the condition of being “accompanied”.
35	Moving around on the street and sidewalk.	Addition, at the end of the sentence, the condition of being “accompanied”.
36	Being a passenger in a vehicle (auto, bus, taxi).	Replacing “taxi” to “train and subway”.
37	Respecting rules of conduct, regulations, safety rules, his/her own property and that of others.	Replacing “regulations” for “determinations”.
38	Taking charge of him/herself, standing up for rights, expressing his/her wishes and needs.	Replacement of “standing up for rights” by “defend what is yours”
45	Participating in activities related to sexual awakening (questions, exploring the body).	Replacement “Participate in activities related to” by “Start”. Inserting the example: “know the difference between boys and girls.”
46	Participating in social activities with family or extended family.	Inserting an example.
47	Participating in religious activities.	Alternative insertion “or religious center” and “etc.”
48	Getting to, entering, and moving around an early childhood education centre or daycare centre (including the play yard).	Replacement “play yard” for “playground”.
50	Using the facilities at an early childhood education centre or day care centre.	Inserting an example.
51	Participating in special activities organized by an early childhood education centre or day care centre.	Inserting an example.
52	Playing individual games indoors or outdoors (rattle, doll play, sandbox).	Replacing “individual games” for “alone”.
53	Playing group games indoors or outdoors (card games, ball games).	Replacement “group games” with “other children” and substituting “card games” with “memory games”.
54	Practicing individual physical activities or sports indoors or outdoors (swimming, biking).	Replacement “biking” by “riding a tricycle” and inserting the sample “running”.
56	Participating in outdoor activities (camping, zoo).	Insertion of examples “in hacienda or farms, fishing”.
57	Using local sports and recreation facilities (pool, gym, arena, playground, etc.)	Replacement “gym” for “Fish & Pay” and “playground” for “park”.

DISCUSSION

The present study showed the process of translation and cultural adaptation to the Brazilian reality (LIFE H_BR) of the Assessment of Life Habits (LIFE-H) for children aged 0 to 4. This process of translation demonstrated high concordance among technical judges and 29 items needed to be modified in the process of cultural adaptation.

Regarding the semantic analysis (94% concordance), this is necessary to evaluate the grammar and vocabulary equivalence, since many words of a language do not have an adequate translation to another¹⁷.

The present study identified semantic differences in 7 items of the instrument. So some terms have been

replaced to keep the original structure of the item. In most of cases, the judges agreed that the items LIFE-H_BR are understandable.

Furthermore, high similarity among the judges was obtained, except for judge number 6 which obtained similarity intermediate ($r > 0.6$). Since all the values were within the accepted, all its considerations were analyzed and when pertinent were modified. The relevance was defined by agreement between the authors of this study. Regarding the content analysis (97% concordance), which has shown that the items of LIFE-H_BR are applicable to the reality of Brazilian children aged 0-4. In only 3 items the adjustment was necessary: one in Housing areas (Moving away from home - it was necessary to adapt the term “all seasons”) and

two in Recreation (Practicing individual physical activities or indoors or outdoors sports - it was necessary to adapt the term “skiing” and Practicing physical group activities or indoors or outdoors sports - it was necessary to adapt the term “hockey”).

Regarding the similarity observed among the judges, judge number 9 showed the lowest similarity to the others and identified more items as irrelevant, but the similarity value was acceptable (above 0.88). In fact, the difficulties in comprehension and applicability evaluation presented were more related to cultural than literal aspects, confirming the need for a cultural adaptation of the items of LIFE-H_BR.

The changes suggested by the professionals in the registration sheet were accepted and consisted in the inclusion of: space to fill the child’s age, space to select the interviewee’s relationship with the child, besides parents and professionals and an item to mark the clinical condition of the child categories: typical, suspect and atypical.

Considering the age of the children the LIFE-H_BR is no possibility of being self-administered, that is, needs to be answered by a person who knows the life of the child, like parents or caregivers. Thus, it is necessary to be cautious about the respondent’s ability to read and understand what should be scored, not overestimating or underestimating the child’s capabilities. Regarding the application of the instrument with children under one year old, two aspects can be raised. The first is to clarify that all children perform activities related to their daily life and their social context, but independence in these activities is acquired over time and development, as well as by influence of cultural and environmental factors¹⁸. In order to measure the functional limitations of such young children, it is necessary to know what the essential daily activities for their survival are, such as food, personal care, clothing, excretion and motor activities; recognize that children with disabilities are heterogeneous and that the impact of the disability requires extra care in all areas of daily life; and consider particularities of each

family¹⁸. The second aspect is to emphasize that LIFE-H_BR takes into account the context of the child and that the items that do not apply to his/her reality, age or gender, may be filled in as Not Applicable, what will not compromise the final score of the child.

In the process of cultural adaptation, professionals also made suggestions for changes or comments in 52 items, 29 of these were accepted. Regarding the modifications made and presented in Table 2, RIPPH / INDCP recommended that no words or items should be excluded, and that, examples or other terms which would widen the possibility of comprehension should be added to the original text.

Therefore, the equivalences of LIFE-H_BR was possible to present, as to its (1) semantics - adequacy of the meaning of words, free from grammatical errors; (2) idiomatic - adaptation of the items to an equivalent expression in a new language; (3) experiential - adequacy of the instrument to be applicable to a new culture and (4) conceptual - adequacy of aspect of the original culture¹⁹. However, other psychometric properties still need to be presented in order to ensure that this is a valid and reliable instrument for assessing the life habits of Brazilian children. Whereas in spite of presenting a set of rigorous goals and instructions, the process of translation and cultural adaptation does not ensure the maintenance of the psychometric properties from the original instrument. So, additional studies are in progress in order to assess the validity and reliability of the Brazilian instrument as well as to provide normative data of the life habits of this population.

CONCLUSIONS

This work highlighted that LIFE-H_BR was translated and culturally adapted into Brazilian Portuguese and it can be used by clinicians and researchers as an important assessment instrument of daily living activities and social roles of children aged from 0 to 4.

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Participation of each authors: *Fernanda Pereira dos Santos Silva*: Project elaboration, conduction and finalization of the study and revision of the content; *Beatriz Helena Brugnaro*: Scientific article writing and content review; *Nelci Adriana Cicuto Ferreira Rocha*: Review of the project, review of the scientific article and approval of the final version of the article.

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