



## Adaptation of an instrument to measure health literacy of older people\*

*Adaptação de um instrumento que avalia alfabetização em saúde das pessoas idosas*

*Adaptación de un instrumento que evalúa la alfabetización en salud de las personas ancianas*

**Lisiane Manganeli Girardi Paskulin<sup>1</sup>, Marinês Aires<sup>2</sup>, Daiany Borghetti Valer<sup>3</sup>, Eliane Pinheiro de Moraes<sup>4</sup>, Ivani Bueno de Almeida Freitas<sup>5</sup>**

### ABSTRACT

**Objective:** To describe the process of adaptation of an instrument that analyzes the health literacy of older people. **Methods:** The adaptation consisted of steps to determine conceptual equivalence of items, operationally and semantically. **Results:** The stages of conceptual and item equivalence showed that the items and concepts of this Canadian instrument was suitable for use in Brazil. The steps of initial translation, back translation, expert committee review and pre-test performed during evaluation of semantic equivalence have resulted in alterations to some items and rewording of some questions. Regarding operational equivalence, the interview was appropriate to local realities. **Conclusion:** The steps of transcultural adaptation, generally adopted for validation of measurement tools, were used and allowed researchers to adequately conduct this research study.

**Keywords:** Validation study; Health education; Health of the elderly

### RESUMO

**Objetivo:** Descrever o processo de adaptação transcultural de instrumento que analisa a alfabetização em saúde das pessoas idosas. **Métodos:** A adaptação compreendeu as etapas de equivalência conceitual e de itens, semântica e operacional. **Resultados:** As etapas de equivalências conceituais e de itens mostraram que os itens e conceitos do instrumento canadense são adequados para uso no Brasil. As etapas de tradução inicial, retrotradução, avaliação por comitê de especialistas e pré-teste realizadas durante avaliação da equivalência semântica resultaram em alterações de alguns itens e reformulação de algumas questões. Na equivalência operacional, a entrevista mostrou-se adequada à realidade local. **Conclusão:** Apesar das etapas de adaptação transcultural, geralmente, serem adotadas para validação de instrumentos de aferição, elas foram utilizadas e permitiram aos pesquisadores adequá-las ao tipo de estudo.

**Descritores:** Estudos de validação; Educação em saúde; Saúde do idoso

### RESUMEN

**Objetivo:** Describir el proceso de adaptación transcultural de un instrumento que analiza la alfabetización en salud de las personas ancianas. **Métodos:** La adaptación comprendió las etapas de equivalencia conceptual y de items, semántico y operacional. **Resultados:** Las etapas de equivalencias conceptuales y de items mostraron que los items y conceptos del instrumento canadiense son adecuados para el uso en el Brasil. Las etapas de traducción inicial, retrotraducción, evaluación por un comité de especialistas y pre test realizados durante la evaluación de la equivalencia semántica resultaron en alteraciones de algunos items y reformulación de algunas preguntas. En la equivalencia operacional, la entrevista se mostró adecuada a la realidad local. **Conclusión:** A pesar de que las etapas de adaptación transcultural, generalmente, sean adoptadas para validación de instrumentos de comprobación, ellas fueron utilizadas y permitieron a los investigadores adecuarlas al tipo de estudio.

**Descriptores:** Estudios de validación; Educación en salud; Salud del anciano

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<sup>1</sup> Ph.D. in Health Sciences. Adjunct Professor in Community Health, School of Nursing, Universidade Federal do Rio Grande do Sul - UFRGS - Porto Alegre (RS), Brazil.

<sup>2</sup> M.Sc. in Nursing, Graduate Program in Nursing, Universidade Federal do Rio Grande do Sul - UFRGS - Porto Alegre (RS), Brazil.

<sup>3</sup> Master's Student in Nursing, Graduate Program in Nursing, Universidade Federal do Rio Grande do Sul - UFRGS - Porto Alegre (RS), Brazil; Capes Grantee. Rio Grande do Sul, Brazil.

<sup>4</sup> Ph.D. in Fundamental Nursing. Adjunct Professor in Community Health, Universidade Federal do Rio Grande do Sul - UFRGS - Porto Alegre (RS), Brazil.

## INTRODUCTION

Health literacy is a relatively new concept in health promotion and has not been investigated yet in Brazil. In the international context, health literacy has been studied in different developed countries, including Canada, Israel, Australia and the United States<sup>(1-4)</sup>, and also more specifically involving elderly people<sup>(5-7)</sup>.

Population aging is a global phenomenon that does not happen similarly in different countries. In developed countries, the elderly population gradually increased, when its citizens had already reached other basic aspects of life. In developing countries, on the other hand, the demographic transition occurred fast and progressively, in a context of social and economic inequalities<sup>(8)</sup>. Thus, it should be highlighted that some population groups can be considered marginalized in terms of health literacy, such as elderly people and people with low education and income levels<sup>(9)</sup>. In Brazil, the challenge is greater in comparison with other countries. Despite the increased life expectancy, most elderly people live in unfavorable conditions, with low socioeconomic, high education and high prevalence levels of chronic illnesses<sup>(8,10)</sup>. The phenomenon affects and generates new demands for health services, entailing the need to (re)organize care models to attend to this population group's health needs.

Health literacy of elderly people is the research problem in one of the projects that is part of the baseline research "Healthy aging in the South of Brazil: facing challenges and developing opportunities for health professionals and elderly people". The aim is to face the challenges of elderly people's access and care in primary health care services and to develop opportunities for health professionals, in order to prepare them to enhance active aging. This is a partnership between the School of Nursing at Universidade Federal do Rio Grande do Sul and the IAPI Health Center in Porto Alegre, Rio Grande do Sul, Brazil.

In this study, health literacy is conceived as the extent to which people are able to seek, understand and share health information, with a view to health maintenance and promotion across the lifetime in different contexts<sup>(11)</sup>. In this health literacy perspective, people are not passive health information receivers, but serve as their protagonists in all social interaction spheres<sup>(9,11)</sup>.

The term health literacy is sometimes used as a synonym of health education. These are two distinct but related concepts though. In a broader conception, health education involves the strategies used to empower people to make decisions about their health, with health literacy as one of the results<sup>(11)</sup>. Thus, health education and, consequently, health literacy help people to make decisions about their lives<sup>(12)</sup>.

Different reference frameworks on health literacy have been proposed. Among these, the functional, interactive and critical approaches stand out. In the functional approach, health literacy refers to the mastery of information on health risks and health service use. The interactive approach involves personal skills that permit broadening people and communities' capacity to act independently. Critical health literacy refers to people and communities' empowerment and involves the assessment of information-based actions on social and economic determinants of health and opportunities to promote political and organizational changes<sup>(3)</sup>.

The study of health literacy rests on a research by Canadian researchers and uses an instrument with open and closed questions that analyzes, based on a recently experienced health/disease situation, how elderly people seek, understand and share health information to make decisions about their health and their life<sup>(11)</sup>.

As this instrument was elaborated in another language, with a view to its effective use in a different context, the researchers decided to accomplish a cross-cultural adaptation process, so as to go beyond a literal translation of words and phrases, covering the target population's different contexts and lifestyles<sup>(13)</sup>. This study used the conceptual, item, semantic and operational equivalence phases<sup>(14-15)</sup>.

The use of a health literacy assessment instrument in Brazil can offer support for care planning to the elderly population, as it is important to identify aspects of its health literacy, so that professionals are apt to enhance health education for this population group, according to its characteristics. For nursing, obtaining this kind of instrument aims to contribute to the elaboration and development of health education actions that involve elderly people.

The goal of this paper is to describe the cross-cultural adaptation process of the health literacy instrument, which analyzes health literacy among elderly people.

## METHODS

The health literacy instrument comprises open and closed questions that address: the meaning of healthy aging for elderly people; elderly people's self-perceived health and the information sources they use for health-related issues; satisfaction and confidence in the collected information; information utility and understanding by the elderly; coherence of the received information; people with whom the elderly divided what they learned and the impact of health information in their lives<sup>(11)</sup>.

### Phases of the adaptation process

This study was based on the cross-cultural adaptation framework, particularly the conceptual, item, semantic

and operating equivalence phases<sup>(14-15)</sup>.

**Phase I: Conceptual and item equivalence:** Conceptual equivalence involves exploring whether the different terms and concepts used in the original instrument have the same meaning in different cultures. Item equivalence investigates the adequacy of each item addressed in the original instrument to represent these dimensions in the population for whom the instrument is intended<sup>(14)</sup>. Thus, in this phase, the pertinence of the concept and instrument questions for the study's local reality was assessed. This phase involved an expert committee and included the bibliographic review on the theme and the analysis of the theoretical framework on health literacy the Canadian authors proposed.

**Phase II: Semantic Equivalence:** Semantic equivalence is based on grammatical and vocabulary analysis with a view to verifying whether the words used in the original instrument express the same concept in the local context and if the items' translation is adequate to the local reality<sup>(14)</sup>.

Semantic equivalence analysis involved initial translation, back-translation, assessment by the expert committee and pre-test, described next.

In the initial translation, two nurse translators who mastered English independently translated the instrument into Brazilian Portuguese. Next, the expert committee compared both translations, reaching a final consensus version in Portuguese.

In the back-translation phase, the final version in Portuguese was back-translated to the original language (English), also independently, by two other Brazilian linguists with fluency in the original instrument language. The researchers met with the translators to analyze and compare both versions and elaborated a final back-translated consensus version. Next, one member of the expert committee who mastered English and knew the study area performed a semantic analysis between the back-translated consensus version and the original instrument.

As for the expert committee, its role is to assess the conceptual equivalence of items and the semantic equivalence between the original instrument and the initial translation. Through this comparison, expressions or concepts inadequate to the local reality can be identified, in the attempt to adapt or replace them by others that do not compromise the research aims<sup>(13,16)</sup>. The committee can comprise researchers with expertise in health, methodology, linguistics, in the research concepts and in the instrument purpose. Clinical professionals active in care delivery to the study population can also be part of the committee<sup>(14-15)</sup>. In this study, the Expert Committee comprised professionals working in research, teaching and care delivery in elderly health and collective health.

The final semantic equivalence phase involved the application of the final Portuguese version through the pretest, applied to six elderly people affiliated with the Primary Health Care Unit of the Health Center IAPI, in the Northwestern district of Porto Alegre, Rio Grande do Sul, Brazil. The inclusion criteria were: being 60 years old or older and living in the abovementioned unit's coverage area.

The Northwestern district includes the second largest proportion of elderly people in Porto Alegre<sup>(17)</sup>. Among regional characteristics, the heterogeneous socioeconomic and infrastructural conditions stand out.

The expert committee assessed content validity of all instrument items in a sample of the study population, so as to verify the items' understand and the instrument's applicability to the local reality. At the start of the interview, the researcher advised the participants to present their doubts on the questions and present suggestions related to the contents.

**Phase III: Operational Equivalence:** Operating equivalence refers to a comparison between the practical aspects of using an instrument in the original culture and in the new population where the study will be developed<sup>(14)</sup>. In the present study, the researchers discussed and trained the way the instrument would be applied. Moreover, it was determined that interviews would take place at a private room inside the Health Center, where participants could feel more comfortable.

Before the accomplishment of the study, the researchers requested and obtained permission from the main author to use the instrument. Approval for the baseline study was obtained from the Institutional Review Board at UFRGS (No 2007819) and from the Porto Alegre Municipal Health Secretary/RS (No 001.029435.08.0). The elderly people who participated in the pretest signed an Informed Consent Term.

## RESULTS

Data in Picture 1 show the results of the cross-cultural adaptation phases.

In the conceptual and item equivalence phase, the Canadian theoretical framework on health literacy was analyzed and a bibliographic review was accomplished, in which 76 international papers on the theme were selected. Next, a discussion took place with the expert committee, which considered the health literacy concept the Canadian researchers proposed adequate to the local reality. This expert committee included five health professionals from Health Center IAPI who work with the elderly population and two Nursing Ph.D.'s active in teaching, research and community services in the field of aging. Other members were a researcher with a Ph.D. in Education at the start of the adaptation process and

one of the initial translators.

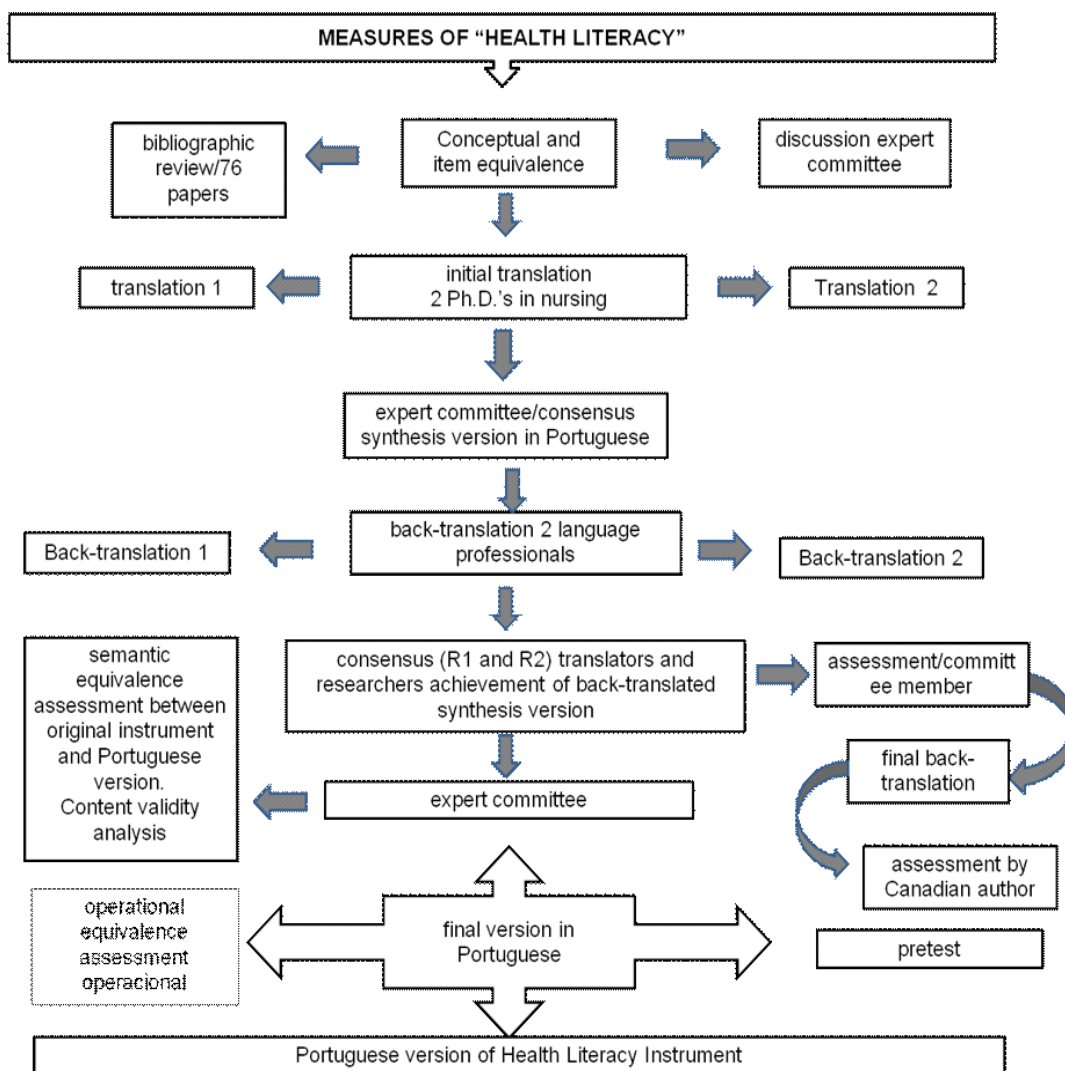
In the initial translation of the instrument to Portuguese, two distinct translations were obtained, which the expert committee compared, after which one single version was constructed through consensus.

In the back-translation phase, two translators graduated in languages independently back-translated the synthesis version in Portuguese to the original instrument language. With these two versions, the researchers met with the translators to discuss and analyze discrepancies between the versions of the back-translation process and, through a consensus, elaborated a back-translated synthesis version. Next, a member of the expert committee reviewed this synthesis version, resulting in the adaptation of some technical terms and the final back-translated version. The back-translated version was sent to the Canadian author for comparison with the original instrument and clarifications about the adequacy of some issues to the local reality. The author

gave a favorable opinion on the version she received.

The expert committee suggested changing the presentation order of some questions and the reformulation of others. The committee also decided to remove the introductions to the questions, related to seeking, understanding and sharing health information, as these were repetitive and tiresome, which would hamper elderly people's understanding. These changes are described next:

- The term "biggest health concern" was changed to the expression "what you thought about your health". When analyzing this term, the committee considered that the former would express a negative connotation, merely focused on disease situations. A question was added that analyze what this thought about health is (what it means) for the interviewee;
- Questions on socioeconomic data were adapted to the study context. A question was included about the duration of participation in the health education group



Picture 1 – Summary of Health Literacy instrument adaptation process, adapted from Weissheimer (2007).

the elderly was affiliated with at the unit, if that was the case;

- The original question 4 “When you tried to find information on [health concern], which source did you go to first?” was changed to “What is the first place where you found information on the doubts you had about [...]?”.

- The original question 7 was a closed question that asked about the difficulties to find health information, was suppressed. In line with the expert committee, only the preceding open question was maintained;

- Question 9 about the coherence among the information received, originally structured in the closed form, was modified to an open question, considered more comprehensive for application in the local context;

- Question 11a, about possible difficulties the interviewee might face when sharing his/her thoughts about health with another person, was excluded. According to the committee, this question was complex and contained different nuances, which could hamper elderly people’s understanding;

- Questions 13, 14, 15 and 16, about how health information affected the interviewees’ lives, were considered hard to understand for elderly people in the local reality due to their subtle nuances. Thus, these questions were suppressed and one single question was elaborated, in the attempt to objectively analyze whether the information the elderly people obtained made any difference in their lives and what these differences would be.

- A final question was added, in which the participant was asked about the importance of participating in group activities, which (s)he was included in for health maintenance purposes.

Other alterations related to terms or expressions in which small adaptations were made, with a view to the local population’s better understanding.

The committee elaborated the final version of the instrument in Portuguese, was applied to a sample of six elderly people through the pretest. During the interview, the researcher asked the participant about his/her understanding of each question, asking him/her to confirm the answer. If necessary, the expert committee adapted the items and questions. The pretest participants lived in the coverage area of the Primary Health Care Unit at the Health Center IAPI. Pretest participants were six elderly people, five of whom were women. The mean age was 72.6 years and the mean education 7.1 years.

Regarding operational equivalence, as the instrument contained open and closed questions, its application through the interview showed to be adequate to the local reality. Besides, it allowed the researcher to ask the participants about their understanding of the questions

addressed in the instrument. The mean duration of the interviews was 30 minutes.

## DISCUSSION

The use of the instrument represents a first experience on the theme in Brazil. It was chosen due to its qualitative nature, which would grant the researchers knowledge on elderly people’s perceptions of their ability to seek, understand and share health information.

It should be emphasized that, in the study of elderly people’s health literacy, its relation with health levels needs to be considered, and also with health disparities, care access, information understanding and decision-making<sup>(18)</sup>. It should also be perceived that health literacy skills are distinct in different life contexts and situations<sup>(11)</sup>. Therefore, it should be acknowledged that health literacy can be a barrier as well as a way to improve people’s health, including the elderly population, when considering the expansion of health strategies for these people.

The Canadian authors emphasize that the health literacy concept they presented does not put the individual solely in charge of his/her health. Although proposed from a critical perspective, it should be taken into account that it addresses aspects of communication, information sharing and the information’s meaning in the subject’s life, even if from an individual perspective<sup>(11)</sup>.

The methodological cross-cultural adaptation procedures used in this study were effective. These procedures are generally used for verification instrument validation, but showed to be adequate as their flexibility permitted their application to the type of instrument used. The flexibility of this methodological process’ phases is also highlighted in other studies that used the same framework to adapt verification instruments<sup>(19-20)</sup>.

Like other studies, content validity was analyzed through an expert committee and the Portuguese version was applied to a sample of the study population through the pretest<sup>(15,21)</sup>. In those studies, the authors used an assessment instrument at the end of the interview. In this study, on the other hand, for each question, the researcher asked the participant about his/her understanding and, if necessary, the expert committee adapted the items and questions. The initial translation process, performed by Brazilians who mastered the original instrument language, was very important to adapt the instrument terms, an aspect already highlighted in other studies that underline the importance of taking into account the translators’ profile to achieve good conceptual, item and semantic equivalence between the original and translated versions<sup>(19-20,22)</sup>.

In the back-translation phase, another aspect that

stood out is that, besides the fact that the translators were bilingual and had graduated in languages or linguistics, the translators were blind to the initial translation phase. Another study also emphasizes the importance of respecting these criteria<sup>(19)</sup>. In the present study, besides obtaining the back-translated and consensus versions between both, a third translator's assessment was needed, who also mastered both languages and was familiar with the instrument's study area, an aspect that was also highlighted in other studies<sup>(19,23)</sup>. As evidenced in another research<sup>(21)</sup>, the instrument's back-translation phase is considered a content validity assessment process, as it analyzes whether the translated version precisely reflects the contents of the original instrument, which underlines the importance of accomplishing that phase in the present study.

Like other adaptation studies, the multidisciplinary composition of the expert committee, which involved clinical professionals, researchers on aging, one of the initial translators and a foreign and bilingual member at the start of the study, was fundamental for the cross-cultural adaptation process<sup>(14-15,19)</sup>.

The pretest, understood as the Portuguese version's final equivalence with a view to verifying the target-population's understanding and the instrument's applicability to the local reality, is recurrent in other studies<sup>(22,24)</sup>. This phase was also considered an analysis of the instrument's content validity, as it allowed the researchers to confirm whether the instrument was applicable to another reality.

It is highlighted that, during the interviews, some elderly presented greater difficulties to understand the questions than others. This factor may be related with their instruction level, as well as comprehension difficulties due to age. Therefore, the researchers consider that, in other Brazilian contexts, these questions need to be readapted.

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## CONCLUSIONS

In this study, the methodological procedures used showed their efficacy to the extent that they permitted the assessment of different types of equivalence during the cross-cultural adaptation process. In general, this process is used to validate measurement instruments, but was adopted in this study due to its broad phases, which allowed the researchers to adapt them to the research type. Most of the changes made were based on cultural differences between both countries, health system characteristics, health service access possibilities and differences in elderly people's social and economic conditions in the two realities.

This study managed to reach its initial objective and also permitted offering an instrument to the local population to assess health literacy in elderly people. This theme is still absent in Brazilian gerontology research, but it important for nursing professionals and other members of the primary care team.

For nursing, the availability of a health literacy assessment instrument for use among elderly people allows these professionals to improve their health education activities in this population, to the extent that it permits analyzing questions related to their search, understanding and sharing of health information. At the same time, it allows nursing to analyze how health education affects this population.

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