

# Educational technology for bathing/hygiene of elders at home: contributions to career knowledge

*Tecnologia educacional para banho/higiene do idoso em domicílio: contribuição para o saber-fazer dos cuidadores*

*Tecnología educativa para bañar/higiene de los mayores en el hogar: contribuciones al conocimiento profesional*

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## ABSTRACT

**Objective:** to build and validate an educational booklet for bathing and hygiene of elders at home. **Methods:** a methodological study, developed through data collection in literature and situational diagnosis, booklet construction, material qualification through validation by expert judges (11 nurses) and target audience (30 caregivers). Data were analyzed descriptively. The minimum content validity index of 0.80 was considered. **Results:** in content and appearance validation, experts assigned Content Validity Index global of 0.92, while for assessment of the material's suitability, the booklet was classified as "superior", with an average of 90%. In the validation of caregivers, the overall Content Validity Index was 1.0. **Conclusion:** the booklet was successfully validated and can be considered in the context of health education and collaborate with an adequate and safe practice of bathing and hygiene of elders at home. **Descriptors:** Educational Technology; Baths; Hygiene; Aged; Nursing.

## RESUMO

**Objetivo:** construir e validar uma cartilha educativa para banho e higiene do idoso em domicílio. **Métodos:** estudo metodológico, desenvolvido mediante levantamento de dados na literatura e diagnóstico situacional, construção da cartilha, qualificação do material por meio de validação por juízes especialistas (11 enfermeiros) e público-alvo (30 cuidadores). Os dados foram analisados de forma descritiva. Considerou-se o Índice de Validade de Conteúdo mínimo de 0,80. **Resultados:** na validação de conteúdo e aparência, os especialistas atribuíram Índice de Validade de Conteúdo global de 0,92. Já para avaliação da adequação do material, a cartilha foi classificada como "superior", com média de 90%. Na validação dos cuidadores, o Índice de Validade de Conteúdo global foi de 1,0. **Conclusão:** a cartilha foi validada com êxito, podendo ser considerada no contexto da educação em saúde, colaborando com uma prática adequada e segura do banho e higiene de idosos em domicílio. **Descritores:** Tecnologia Educacional; Banhos; Higiene; Idoso; Enfermagem.

## RESUMEN

**Objetivo:** construir y validar un folleto educativo para el baño y la higiene de las personas mayores en el hogar. **Métodos:** estudio metodológico, desarrollado mediante recolección de datos en la literatura y diagnóstico situacional, construcción del cuadernillo, calificación del material mediante validación por jueces expertos (11 enfermeros) y público objetivo (30 cuidadores). Los datos se analizaron de forma descriptiva. Se consideró un índice de validez de contenido mínimo de 0,80. **Resultados:** en la validación de contenido y apariencia, los expertos asignaron un Índice de Validez de Contenido global de 0,92. Para evaluar la adecuación del material, el cuadernillo se clasificó como "superior", con una media del 90%. En la validación de los cuidadores, el índice de validez de contenido global fue de 1,0. **Conclusión:** el folleto ha sido validado con éxito y puede ser considerado en el contexto de la educación para la salud, colaborando con una práctica adecuada y segura de baño e higiene para las personas mayores en el hogar.

**Descriptor:** Tecnología Educacional; Baños; Higiene; Anciano; Enfermería.

## INTRODUCTION

Elders who live longer are more likely to develop chronic non-communicable diseases that can cause functional and, consequently, economic and family dependence<sup>(1)</sup>. Disability encompasses the impairments and limitations of activity or restrictions in a person's life, so as to involve a dynamic interaction between health conditions and contextual factors, including personal and environmental factors that represent the history and lifestyle of an individual. Therefore, it is not an individual attribute, but a complex set of conditions that requires interaction of several factors and family support<sup>(2)</sup>.

National and international researchers have identified that in home care for dependent elders, bathing is generally the activity of daily living that most causes problems in elders' and their caregivers'/ family members' lives<sup>(3-4)</sup>. In Western culture, personal hygiene is one of the most sensitive and intimate subjects and is commonly carried out in privacy. Therefore, having the support of relatives or home care services can generate feelings of shame and helplessness<sup>(5)</sup>.

Moreover, all activities required during bathing and hygiene of elders at home care can have a greater impact and/or wear on caregivers<sup>(3)</sup>. Studies have shown that elders' bathing and hygiene activities require information and guidance from a nursing professional, as caregivers need knowledge to perform them, in addition to requiring support and emotional ability to deal with subjective situations inherent in the process caring, such as sexuality and intimacy<sup>(6-7)</sup>.

In this perspective, a way to facilitate and support family members and caregivers in the correct bathing and hygiene of elders, is through health education that, when associated with using printed educational technologies, favor guideline understanding<sup>(8)</sup>. An international study carried out in Japan showed the effectiveness of an educational intervention using printed materials to significantly reduce suffering among caregivers of elders<sup>(9)</sup>.

Educational technologies are considered tools for learning purposes, and, when used by nursing, involve a nurse-patient relationship, mainly in the health education process. They serve to facilitate nurses' work and improve the quality of care they provide<sup>(10)</sup>. Thus, nurses should use health education to guide them about the correct hygiene measures that are fundamental in caring for elders, promoting cleanliness and providing comfort, which is fundamental for human well-being<sup>(11)</sup>.

In this context, it is emphasized that caregivers of elders family members who take care of the sick or dependent elders with or without remuneration in the exercise of their activities of daily living<sup>(12)</sup>. Family caregivers are the most prevalent in monitoring elders by primary or home care services, and, despite their little preparation or specific training, they play a very important role when performing complex care, including symptom assessment and management, hygiene, food, medication administration and still, many times, govern domestic chores<sup>(13)</sup>. Therefore, the importance of nurses in the development of technologies that can enable and support them in decision-making stands out, in order to guarantee elders safe, reliable care that promotes longevity with quality of life.

Using printed educational technologies is a viable alternative for health information, and may open new paths for health promotion through the participation of the population in a shared construction of knowledge. Furthermore, educational

technologies allow patients and their family members to read later, which reinforces verbal guidelines, serving as a guide in cases of doubts and assistance in making daily decisions<sup>(14)</sup>.

Nurses are constantly challenged to seek options that offer them support to work with people, groups and communities, with educational technologies as strong allies in this process. However, for these professionals to use this tool effectively, they need to be validated<sup>(14)</sup>.

Thus, it is believed that a booklet constructed and validated by scientific method is configured as an important support tool for caregivers about bathing and hygiene of elders, as it favors clarification of the main recommendations related to the execution of this activity of daily living, and can be widely used by health professionals for their qualification and in health education actions. It is noteworthy that there is a shortage of educational technologies related to bathing and hygiene of elders at home.

## OBJECTIVE

To build and validate an educational booklet for bathing and hygiene of elders at home.

## METHODS

### Ethical aspects

The project was approved by the Research Ethics Committee of *Universidade Estadual Vale do Acaraú*, in compliance with Resolution 466/12 of the Brazilian National Health Council (*Conselho Nacional de Saúde*).

### Study design, place and period

This is a methodological and quantitative study, described according to the framework of quality improvement studies-SQUIRE of the EQUATOR network. The educational technology was built based on the steps suggested by Echer<sup>(15)</sup>, with adaptations: 1) project elaboration; 2) bibliographic survey and situational diagnosis; 3) educational booklet development; 4) technology validation by expert judges in the health field and assessment by the target audience. It was carried out in the municipality of Sobral, Ceará State, Brazil, which is a national reference for the Primary Health Care (PHC) model. Sobral assists 27,059 elders, 227 of whom are bedridden and 925 bedbound, and has implemented a home care service *Programa Melhor em Casa* that works in conjunction with PHC<sup>(16)</sup>.

The first phases of the study that corresponded to the booklet construction were developed between March 2018 to February 2019, and validation occurred between June 2019 and February 2020.

### Population and sample; inclusion and exclusion criteria

Twenty elders participated in the situational diagnosis phase. They were selected out of convenience for having had a family or professional caregiver for at least six months and receiving home care from primary or secondary health services.

In validation, 11 expert judges participated, as suggested by authors experienced in methodological studies<sup>(17-18)</sup>. Searching for judges occurred using a technique known as snowball sampling<sup>(19)</sup>.

However, to confirm the data, the Lattes Platform, from the Brazilian National Council for Scientific and Technological Development (CNPq - *Conselho Nacional de Desenvolvimento Científico e Tecnológico*), was used. According to Jasper<sup>(20)</sup>, professionals with knowledge/skill in the subject (guidance of dissertations and theses related to geriatrics and/or gerontology or educational technologies), knowledge/skill through professional experience (having teaching experience in the elder health field or having assistance experience in home care), expertise in a particular type of study (experience in the development of printed educational technologies, participation in assessing boards related to the theme and having published articles on elder health or educational technologies) were included.

Thus, 30 caregivers of elders participated in validation by target audience. Older caregivers, with experience of at least six months in elder care, who are literate and have the self-declared ability to answer the questionnaire were included. The recruitment of participants in the situational diagnosis and validation of the target audience occurred by identifying the territories of the research site that concentrated the greatest number of caregivers of elders followed up by *Programa Melhor em Casa* and/or family health teams, having been contacted by the respective Community Health Workers, who assisted in attracting participants.

### Study protocol

The booklet construction process was based on a narrative review of literature guided by the following question: what scientific evidence about bathing and hygiene care for elders is presented by literature specializing in geriatrics and gerontology? Article search took place in the Scientific Electronic Library Online (SCIELO), Latin American and Caribbean Literature in Health Sciences (LILACS) and the Specific Nursing Database (BDENF) databases. It is noteworthy that manuals and guides available on the Internet published by official health agencies, as well as gray literature, were consulted. Also, 17 scientific productions were included, seven articles, five manuals and five books that addressed the theme.

The situational diagnosis carried out by the cross-sectional study method, according to the reference of observational studies in epidemiology-STROBE of the EQUATOR network, revealed the need for knowledge about bathing and hygiene, considering that an inadequate practice of body hygiene, intimate and oral, in addition to the use of products not recommended, frequency of inappropriate bathing and little care in hydrating the skin of elders.

Booklet preparation was subsidized by the Guide of a Creating and Evaluating Patient Materials which establishes recommendations for the following aspects: language, illustration, layout and design and cultural adaptation<sup>(21)</sup>. After selecting the booklet's contents, a script was elaborated with information, settings and texts, which was sent to a graphic designer with expertise in production of illustrations and diagramming of educational health materials. The Adobe Illustrator CS3 program was used to create images, the Adobe Photoshop program, to color the figures, and the Adobe InDesign CS6 program, for the layout. The booklet was entitled "*Cartilha educativa para banho e higiene de idosos em domicílio*".

In validation, expert judges and the target audience participated. For validation with experts, an invitation card, an Informed Consent Form (ICF), the educational booklet in PDF format and

the instruments for assessment were sent via e-mail. The 15-day deadline for filling in the instruments was established; however, the judges were unable to meet this deadline and upon request, the period was extended for another 15 days.

The experts assessed the booklet using a adapted questionnaire<sup>(22)</sup> that covered Scientific accuracy, content, literary presentation, illustration, material readability, sufficiently specific and comprehensive material and quality of information. This instrument assesses the degree of agreement of all judges using a Likert-type scale, consisting of: (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Totally agree. The Suitability Assessment of Materials (SAM) instrument translated and validated into Brazilian Portuguese was also applied, which includes assessment of objectives, organization, language, appearance and motivation of the printed material. This uses the standard of the Likert scale (0 = inadequate, 1 = partially adequate, 2 = adequate)<sup>(23)</sup>. It is noteworthy that both instruments used by the judges included spaces designed for suggestions.

After making the necessary adjustments to the booklet, validation with the target audience was carried out. For data collection, a previously scheduled home visit was carried out to explain the purpose of the study, to read and sign the informed consent form and to deliver the booklet and data collection instrument. Caregivers were instructed to read the booklet, analyze the text and images and then respond to the form. Each visit lasted an average of one hour.

For assessment by the target audience, an adapted instrument<sup>(18)</sup> was used, which collected socio-demographic information from caregivers and assessed aspects related to organization, objectives, language, appearance, motivation and cultural adequacy of the booklet.

### Analysis of results and statistics

Descriptive data analysis was carried out regarding characterization of judges and caregivers. To check content validity, Content Validity Index (CVI) was used: The I-CVI (Item-level Content Validity Index) for each item of the instrument was calculated; the S-CVI/UA (Scale-level Content Validity Index, Universal Agreement) for each category; the S-CVI/AVE (Scale-level Content Validity Index, Average Calculation Method), which corresponds to the global average of the booklet. The booklet was considered valid when an item obtained CVI equal to or greater than 0.8. Moreover, the binomial test unilateral in software R was used to compare the proportion of judges and the target audience who agreed, i.e., answers with scores 4 and 5 for each item, with the reference ratio (80%)<sup>(24)</sup>.

Concerning the Suitability Assessment of Materials (SAM), for the material to be considered adequate, the result of calculating the percentage of scores obtained must be equal to or greater than 40%<sup>(23)</sup>.

### RESULTS

The educational technology was entitled "*Educational booklet for bathing and hygiene of elders at home*", containing 19 pages including cover, back cover, presentation page, summary and the following topics: "Benefits related to bathing and hygiene of elders"; "Essential products to perform bathing and hygiene of elders"; "Preparations for bathing in the bathroom"; "Bath time in

the bathroom"; "Post-bath care"; "Preparations for bathing in bed"; "Bath time in bed"; "After bathing in bed"; "Tips for bathing and hygiene of elders" and "General care for cleaning elders". The information was expressed through dialogues between characters in which a nurse named Marília interacts with elders and caregivers, presenting guidelines for bathing and hygiene at home. Aiming to make the booklet didactic and understandable, the approach to the theme occurred in a clear and objective way, with highlighted titles and colorful images, simple language, logical sequence of information, in addition to balloons to attract the reader's attention. Figure 1 shows some pages of the final version of the booklet.

Eleven experts participated in validation, all nurses and females, aged between 24 and 45 years, with a predominance of the age group of 20 to 29 years old (45.45%), working in teaching (45.45%), with experience in home care (63.63%), holding a master's degrees (54.54%), followed by PhD holders (36.36%). All had experience with construction and validation of educational technologies. The assessed items and the respective CVI values are detailed in Table 1.

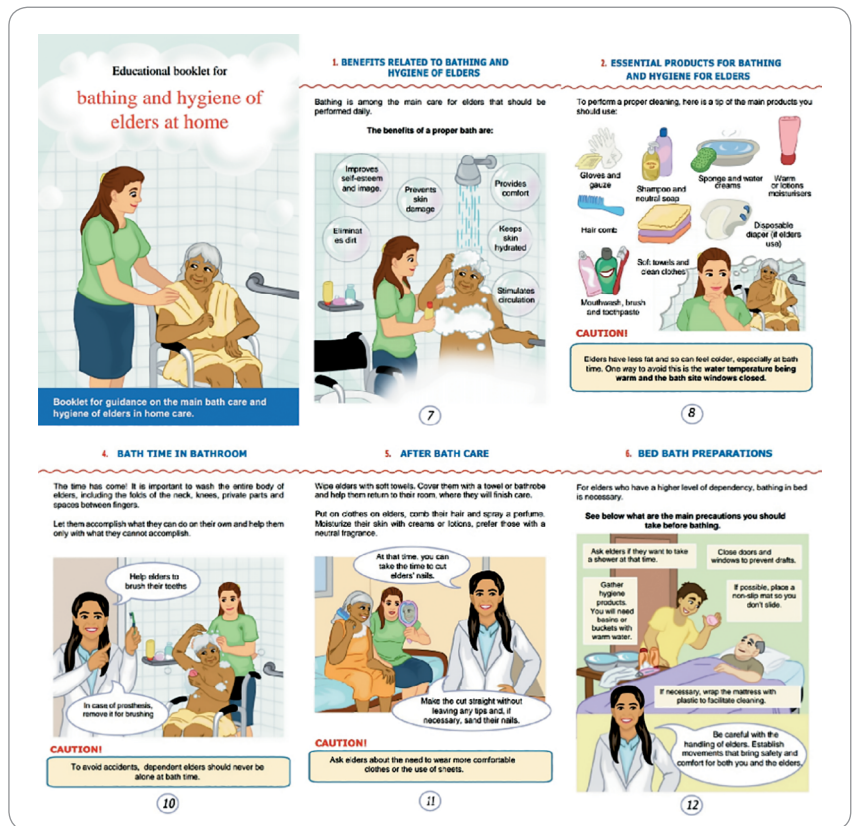


Figure 1 - Pages of the educational booklet for bathing and hygiene of elders at home, Sobral, Ceará, Brazil, 2019

Table 1 - Judges' agreement on the items in the booklet, Sobral, Ceará, Brazil, 2019

Variables	n (%)	I-CVI	p value <sup>†</sup>
1. Science accuracy			
1.1 Contents are in accordance with current knowledge	10 (91)	0.91	0.9141
1.2 Guidelines are necessary and have been addressed correctly	09 (82)	0.82	0.6779
1.3 Technical terms are properly defined	08 (73)	0.73	0.3826
2. Content			
2.1 Information objectives are evident	10 (91)	0.91	0.9141
2.2 Information is satisfactory regarding the desired behavior	10 (91)	0.91	0.9141
2.3 There is no unnecessary information	09 (82)	0.82	0.6779
2.4 There is a review of the most important points	09 (82)	0.82	0.6779
2.5 Information is updated	09 (82)	0.82	0.6779
3. Literary presentation			
3.1 Language is neutral (without comparative adjectives, without being promotional and without untrue appeals)	09 (82)	0.82	0.6779
3.2 Language is explanatory	10 (91)	0.91	0.9141
3.3 Language is conversational and written, in most of the material in the active voice	09 (82)	0.82	0.6779
3.4 Material encourages adherence to prevention	10 (91)	0.91	0.9141
3.5 Vocabulary is mostly composed of common words	10 (91)	0.91	0.9141
3.6 Each report's content is informed before new knowledge	09 (82)	0.82	0.6779
3.7 Signaling through titles and subtitles helps in learning	11 (100)	1	1
3.8 Vocabulary consists of simple words	09 (82)	0.82	0.6779
3.9 Language is suitable for the target audience	09 (82)	0.82	0.6779
3.10 Ideas are expressed concisely	10 (91)	0.91	0.9141
3.11 Text allows interaction with guidance between professional and target audience	10 (91)	0.91	0.9141
3.12 Text allows interaction with the logical chain of actions for bathing and hygiene of the elders	11 (100)	1	1
3.13 Panning and sequence of information is consistent, making it easier for the target audience to predict the flow of action follow-up	10 (91)	0.91	0.9141
3.14 Material is pleasant to read	10 (91)	0.91	0.9141
3.15 Material is of adequate size	09 (82)	0.82	0.6779
4. Illustrations			
4.1 Illustrations are simple, appropriate and dashed and easy to understand	11 (100)	1	1
4.2 Are familiar to readers	11 (100)	1	1
4.3 Are related to the text	11 (100)	1	1
4.4 Are integrated into the text (well located)	11 (100)	1	1

To be continued

Table 1 (concluded)

Variables	n (%)	I-CVI	p value <sup>†</sup>
4.5 Figures are self-explanatory	11 (100)	1	1
4.6 Titles and subtitles of the booklet are appropriate and in accordance with figures	11 (100)	1	1
5. Material readability			
5.1 Font size is adequate	10 (91)	0.91	0.9141
5.2 Letter style is adequate	11 (100)	1	1
5.3 Letter spacing is adequate	11 (100)	1	1
5.4 Line length is adequate	10 (91)	0.91	0.9141
5.5 Line spacing is adequate	10 (91)	0.91	0.9141
5.6 Using bold and text markers draws attention to specific points or key content	11 (100)	1	1
5.7 There is adequate use of white space to reduce the appearance of crowded text	09 (82)	0.82	0.6779
5.8 Subtitles or entries make reading and memorizing easier	11 (100)	1	1
5.9 Spacing between paragraphs is adequate	11 (100)	1	1
5.10 The material format is suitable	11 (100)	1	1
6. Sufficiently specific and comprehensive material			
6.1 Material promotes awareness of bathing and hygiene of elders correctly	11 (100)	1	1
6.2 Provides maximum benefit for bathing and hygiene of elders	11 (100)	1	1
6.3 Instructions for bathing and hygiene of elders are clear and understandable	10 (91)	0.91	0.9141
6.4 Titles and subtitles are clear and informative	10 (91)	0.91	0.9141
6.5 Using dubious meaning does not occur in the text	11 (100)	1	1
6.6 Content is written in style that has the target audience as the center, i.e. the patient is the most important	09 (82)	0.82	0.6779
7. Information quality			
7.1 It is embedded in local culture	11 (100)	1	1
7.2 It is included in current culture	11 (100)	1	1
7.3 Material enables the target audience to perform the desired actions	11 (100)	1	1
7.4 Material helps prevent possible problems	11 (100)	1	1

Note: <sup>\*</sup>Percentage of agreement in item; I-CVI=Item-Level Content Validity Index; <sup>†</sup>Binomial test.

As observed in Table 1, of the 49 items assessed, only one obtained CVI less than 0.80, which is item 1.3 (Technical terms are adequately defined) referring to "Scientific accuracy". The same had CVI of 0.73; therefore, some terms were replaced by simpler expressions common to the target audience's vocabulary. It is worth mentioning that considering this result, "Scientific accuracy" presented S-CVI/UA equal to 0.81.

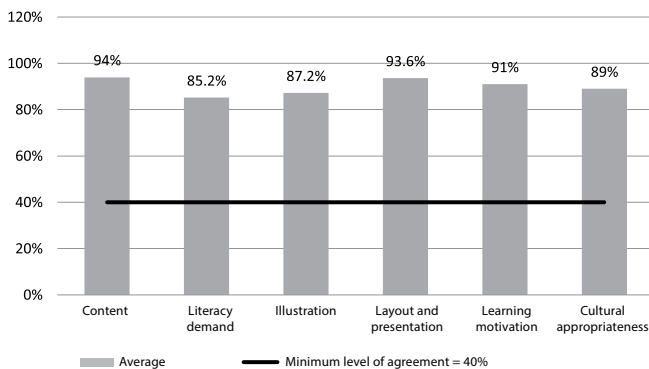


Figure 2 - Suitability Assessment of Materials (SAM) score percentage value, referring to the judges' assessment, Sobral, Ceará, Brazil, 2019

Concerning the items that indicated 100% agreement, 21 had CVI equal to 1.0, which were distributed in the following domains:

"Content", "Material readability", "Illustration", "Sufficiently specific and comprehensive material", "Quality of information". Aspects related to "Illustration" and "Quality of information" had the best results, presenting S-CVI/UA equal to 1. The overall CVI of the booklet in validation with expert judges was 0.92.

Among the suggestions described by all judges, the main ones stand out: replace some technical terms used, reduce the size of long sentences, replace adjectives that infantilize elders, make more evident the image of the safety bar in the bathroom, make the title more accurate as to the purpose of the booklet, rewrite the sentences and sentences in the imperative, update some recommendations. All these modifications were accepted and requested that the designer make such changes.

Figure 2 shows SAM score values, with a high level of agreement among experts, ranging from 85.2% to 94% and with an average of 90%.

Validation by the target audience was composed of 30 caregivers, mostly female (90%), aged between 30 and 74 years, predominantly the age group greater than 40 years (83.3%), married (53.3%), unemployed (63.3%), daughters (53.3) who lived with elders (86.6%) and who did not receive remuneration for care (83.33%). It is noteworthy that 23.31% of family caregivers were elders. Table 2 presents the target audience agreement in the booklet assessment.

Table 2 - Target audience agreement regarding items in the booklet, Sobral, Ceará, Brazil, 2019

Variables	n (%)	I-CVI	p value <sup>†</sup>
1. Objectives			
1.1 Meets the goals of elder caregivers	30 (100)	1	1
1.2 The booklet can help take care of elders' hygiene	30 (100)	1	1
1.3 It is able to promote reflection on hygiene care that elders need	30 (100)	1	1
2. Organization			
2.1 The educational booklet cover is attractive	30 (100)	1	1
2.2 The size of the title and topics is adequate	30 (100)	1	1

To be continued

Table 2 (concluded)

Variables	n (%)	I-CVI	p value <sup>†</sup>
2.3 Topics have a logical sequence	30 (100)	1	1
2.4 There is consistency between cover information, presentation, summary and booklet content	30 (100)	1	1
2.5 The material paper is suitable	30 (100)	1	1
2.6 The number of pages is adequate	30 (100)	1	1
2.7 Themes portray important key aspects	30 (100)	1	1
3. Language			
3.1 Writing is in a proper style	30 (100)	1	1
3.2 Text is interesting. The tone is friendly	30 (100)	1	1
3.3 Vocabulary is accessible	30 (100)	1	1
3.4 Concepts are clearly addressed	30 (100)	1	1
3.5 There is an association between the theme of each session and the corresponding text	30 (100)	1	1
3.6 Text is clear.	30 (100)	1	1
4. Appearance			
4.1 Illustrations are simple	30 (100)	1	1
4.2 Pages or sessions seem organized	30 (100)	1	1
4.3 The number of figures is sufficient.	30 (100)	1	1
4.4 Figures correspond to the contents illustrated	30 (100)	1	1
4.5 Figures are self-explanatory	30 (100)	1	1
4.6 Figures are provocative of questions	30 (100)	1	1
5. Motivation			
5.1 The booklet is suitable for its age, sex and culture	30 (100)	1	1
5.2 The booklet presents logic	30 (100)	1	1
5.3 The booklet arouses interest and curiosity	30 (100)	1	1
5.4 The booklet addresses the issues needed for caregivers	30 (100)	1	1
5.5 The information contained in the booklet is important	30 (100)	1	1
5.6 The booklet proposes to acquire knowledge to carry out care for elders	30 (100)	1	1
5.7 The interaction is invited by the text	30 (100)	1	1
6. Cultural suitability			
6.1 After reading the booklet, you would refer it to other caregivers of elders, considering the population's socioeconomic and cultural contexts	30 (100)	1	1

Note: \*Percentage of agreement in item; I-CVI=Item-Level Content Validity Index; †Binomial test.

The agreement about material content and appearance was unanimous among the target audience. The overall CVI in validation with judges was equal to 1.0, which is considered a gold standard. There were no suggestions for change.

## DISCUSSION

The educational technology developed in this study contributes to meet the learning needs of caregivers of elders and their daily routine<sup>(25)</sup>. Using printed educational materials is effective in health promotion actions, as it can make caregivers of elders more confident and competent to carry out care<sup>(9,26)</sup>. It is then necessary to develop and validate educational technologies in gerontological nursing, as well as in Primary Health Care and Home Care, so that they can be made available to the population.

According to the Brazilian National Health Policy for Elders (*Política Nacional de Saúde da Pessoa Idosa*), it is necessary to establish qualified and constant support to those responsible for care, and interventions must be developed with a view to promoting elders' autonomy and independence, encouraging them to self-care<sup>(27)</sup>. Therefore, the educational booklet for bathing and hygiene of elders in home care followed these recommendations and subsidizes caregivers for practice bathing and hygiene of elders taking into account the principles of autonomy and independence.

Validation showed that the educational booklet consists of material of relevant content as to the construct that was desired to be assessed, in addition to an attractive and motivating appearance for reading. Considering the items assessed by the expert judges, the booklet was successfully validated. Nursing has excelled in

conducting methodological studies on the production of educational material similar to this study, with satisfactory statistical indexes, such as an investigation that validated a booklet on care for children with gastrostomy with a global CVI of 0.93 by the judges<sup>(14)</sup> and a booklet for HIV/AIDS prevention in elders, which was validated with an agreement level ranging from 0.78 to 1.0 among the items assessed, presenting an overall CVI of 0.90<sup>(28)</sup>.

It is necessary that, in addition to correct and valid information regarding content, educational materials in health are understandable by the target audience. Thus, changes were suggested regarding using technical terms, aiming to facilitate reading. This situation is similar to Brazilian methodological studies on booklet validation for fall prevention in hospital and booklet to care for people with intestinal ostomy that also evidenced the need for language modification in order to make content clearer to readers<sup>(8,29)</sup>.

This process of adapting the educational material to judges' suggestions is an essential step to make the technology more complete, of greater scientific rigor and effective during the health education activity<sup>(28)</sup>. This stage is also referred by other studies as of great relevance for improving the material to be validated, in which, in the same way, information adequacy, term replacement, in addition to sentence and illustration reformulation were suggested<sup>(30-31)</sup>.

With regard to the level of agreement of the expert judges obtained in the SAM, data ranged from 85.2% to 94%, these values being considered high. Similar results were found in a study that validated educational material for childhood diarrhea prevention with a minimum value of 71.7% and a maximum value of 96.7%, obtaining an average score of 88.7% and showing high reliability and agreement<sup>(32)</sup>.

Concerning validation by the target audience, CVI was equal to 1.0 in all items analyzed. This finding was similar to that of studies conducted in Brazil that obtained excellent results in content and appearance validation, such as a booklet on first aid for teachers, which obtained a CVI equal to 1.0 in all assessed items and a booklet for elders about sleep hygiene in elders that presented an agreement concordance index equal to 1.0 for almost all items, with the exception of one referring to font size and font, which obtained 0.95<sup>(33-34)</sup>.

The booklet assessment relevance by the target audience is highlighted, since they are the main beneficiaries with the information from the educational material. A survey conducted in the United States showed the need for tools aimed at caregivers to assist in bathing and hygiene of elders. Few home caregivers had access to information resources, and the knowledge to perform these activities is incipient<sup>(35)</sup>. Moreover, it is highlighted that the profile of caregivers of the target audience demonstrates the possibility of elder family members caring for elders, who should receive such guidelines for their self-care.

This fact converges with a study carried out in Brazil that evidenced the need for caregivers regarding knowledge, practice and appropriate attitudes regarding bathing and hygiene of elders. With regard to knowledge, there should be guidance received on frequency of bathing, oral hygiene, risk of falling and care for feet. With regard to attitude, it is important to guarantee privacy for elders and encourage them to wear their own clothes and allow them to choose their hygiene products and clothes. In practice, there must be a preparation of a warm and safe environment, adopting safety procedures, in addition to observing changes in the skin, performing oral hygiene, cleaning the intimate region and taking care of the feet<sup>(3)</sup>.

Thus, it is observed that national and international literature point to the need to disseminate information about hygiene of elders. The printed educational materials are a strategy capable of contributing to this health education process.

Thus, the booklet is characterized as a facilitating tool for promoting humanized care, potentiating care education and guidance, supporting caregivers to perform bathing and hygiene safely and respecting elders' autonomy and independence.

## Study limitations

As a limitation of this study, it is possible to mention non-validation by an expert in the design field, as well as validation by caregivers of elders of only one municipality, thus adopting the point of view of the local culture.

## Contributions to nursing, health, and public policies

It is believed that the study may contribute to elder care, with regard to bathing and hygiene at home, assisting caregivers and health professionals. Therefore, it is expected that the constructed booklet will be used by nurses in home visits scheduled to elders in PH, in post-discharge hospital programs and in home care programs.

## CONCLUSION

The constructed material entitled "*Cartilha educativa para banho e higiene de idosos em domicílio*", after undergoing a rigorous process through assessment by expert judges and representatives of the target audience, was successfully validated. It reached agreement and satisfactory global CVI values, which guarantees the accuracy and reliability of the booklet, and should therefore be considered in the context of health education as an instrument capable of collaborating with bathing and hygiene of elders at home.

In this way, the knowledge acquired through the booklet can benefit the daily lives of those involved, avoiding failures in care for elders due to lack of adequate and reliable information. Thus, this material contributes to improving quality of care for elders and in health education carried out by nursing. Subsequently, it is intended to develop a clinical trial to verify the effectiveness of the booklet in knowledge, attitude and practice of caregivers in bathing and hygiene of elders at home.

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