







CONSTRUCTION AND VALIDATION OF THE CONTENT OF THE CHILDREN'S BOOKLET "IT'S TIME TO GET MY VEIN: WHAT DO I DO?"

CONSTRUÇÃO E VALIDAÇÃO DO CONTEÚDO DA CARTILHA PARA CRIANÇAS "É HORA DE PEGAR MINHA VEIA: O QUE EU FAÇO?"

CONSTRUCCIÓN Y VALIDACIÓN DEL CONTENIDO DEL FOLLETO INFANTIL "ES HORA DE TOMARME LAS VENAS: ¿QUÉ HAGO?"

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ABSTRACT

Objective: to build and validate the contents of the booklet "It is time to get my vein: what do I do?". Together with expert judges in the field of Pediatrics, for the preparation of children in need of peripheral intravenous catheterization. **Method:** this is a methodological study of the content validation type, developed according to the COSMIM checklist, carried out from February 2015 to February 2017, in four stages: situational diagnosis, bibliographic survey, selection and summarization of the content, preparation of the booklet and its validation. Eleven judges specialized in Pediatrics participated in the study. For the validation process, the Delphi technique was used. Values equal to or greater than 0.80 were considered as a content validation index. **Results:** the booklet obtained satisfactory indexes in the categories content, language, illustration, layout, motivation, culture, and applicability, being validated in the second round with a global content validation index of 0.93. **Conclusion:** the objective of the study was achieved, with the booklet being constructed and validated by the expert judges, therefore, it can be a technological resource for the promotion of care for children in need of peripheral intravenous catheterization, configuring itself as a patient safety measure.

Keywords: Education; Nursing; Educational Technology; Child; Validation Study; Catheterization; Teaching Materials; Patient Education Handout; Health Education.

RESUMO

Objetivo: construir e validar o conteúdo da cartilha "É hora de pegar a minha veia: o que eu faço?", juntamente com juízes especialistas na área da Pediatria, para o preparo de crianças com necessidade de cateterização intravenosa periférica. **Método:** trata-se de um estudo metodológico do tipo validação de conteúdo, desenvolvido conforme o checklist COSMIM, realizado no período de fevereiro de 2015 a fevereiro de 2017, em quatro etapas: diagnóstico situacional, levantamento bibliográfico, seleção e sumarização do conteúdo, elaboração da cartilha e sua validação. Participaram do estudo 11 juízes especialistas na área de Pediatria. Para o processo de validação utilizou-se a técnica Delphi. Consideraram-se como índice de validação de conteúdo desejável os valores iguais ou superiores a 0,80. **Resultados:** a cartilha obteve índices satisfatórios nas categorias conteúdo, linguagem, ilustração, layout, motivação, cultura e aplicabilidade, sendo validada na segunda rodada com índice de validação de conteúdo global de 0,93. **Conclusão:** o objetivo do estudo foi alcançado, sendo a cartilha construída e validada pelos juízes especialistas, portanto, pode ser um recurso tecnológico de promoção do cuidado para crianças com necessidade de cateterização intravenosa periférica, configurando-se em uma medida de segurança do paciente.

Palavras-chave: Educação em Enfermagem; Tecnologia Educacional; Criança; Estudo de Validação; Cateterismo; Materiais de Ensino; Prospecto para Educação de Pacientes; Educação em Saúde.

RESUMEN

Objetivo: construir y validar el contenido del folleto "Es hora de tomarme la vena: ¿qué hago?", Junto a jueces expertos en el área de Pediatría, para la preparación de niños con necesidad de cateterismo intravenoso periférico. **Método:** se trata de un estudio metodológico del tipo de validación de contenido, desarrollado según la lista de verificación COSMIM, realizado de febrero de 2015 a febrero de 2017, en cuatro etapas: diagnóstico situacional, relevamiento bibliográfico, selección y resumen del contenido, elaboración del folleto y su validación. En el estudio participaron once jueces especializados en Pediatría. Para el proceso de validación se utilizó la técnica Delphi. Se consideraron como índice de validación de contenido los valores iguales o superiores a 0,80. **Resultados:** el folleto obtuvo índices satisfactorios en las categorías contenido, lenguaje, ilustración, maquetación, motivación, cultura y aplicabilidad, siendo validado en la segunda ronda con un índice de validación de contenido global de 0,93. **Conclusión:** se logró el objetivo del estudio, y el folleto fue construido y validado por los jueces expertos, por lo tanto, puede ser un recurso tecnológico para promover el cuidado de niños con necesidad de cateterismo intravenoso periférico, configurándose como una medida de seguridad del paciente.

Palabras clave: Educación en Enfermería; Tecnología Educacional; Niño; Estudio de Validación; Cateterismo; Materiales de Enseñanza; Folleto Informativo para Pacientes; Educación en Salud.

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INTRODUCTION

Peripheral intravenous catheterization (PIC) is an invasive procedure commonly necessary during the child's hospitalization. Systematic review reveals that children have cognitive sequelae, such as fear, and sensory sequelae, such as pain on physical stimulation, during the performance of the PIC.¹

In this sense, the Nursing team needs to prepare the child for the PIC through resources appropriate to the child's age range and development, such as distraction, which can contribute to making the experience of venipuncture less traumatic for the child. It is noteworthy that a systematic review reported that distraction, hypnosis, combined cognitive-behavioral therapy and respiratory interventions during invasive and painful procedures in children, such as PIC, reduce pain, despite the low and very low level of quality of the analyzed evidence.²

However, it was verified the development of a randomized clinical trial that evaluated the impact of using a visual technology associated with the provision of information through a story or interactive game, not only on children's anguish and pain, but also on achieving success of the PIC in the first attempt, duration of the procedure, professional satisfaction, and cost-effectiveness of the procedure.³

This leads to the reflection that the use of educational technologies can benefit hospitalized children with regard to reducing the suffering associated with PIC, in addition to raising concerns about its effects on the success of this intervention, given that the child can reduce restlessness during the procedure, in addition to physiological reactions, such as vasoconstriction, which prevent the visualization of the venous network, resulting in increased professional satisfaction and reduced material expenditure.

However, results of international research have shown low use of distraction techniques based on scientific evidence during the performance of invasive procedures in children hospitalized by health professionals,⁴ which demands the construction, validation, and encouragement for the use of this type of material in practice daily clinic.

It is noteworthy the incipient publication of knowledge about the effect of preparing the child and the provision of information during invasive procedures by means of a needle to reduce pain and distress, which requires further research with high methodological robustness.²

It is thought that such incipience is due to the little publication of printed educational and instructional resources for use in daily clinical practice by the Nursing team in pediatric units, with emphasis on those aimed at preparing children with need for PIC and with validated content, as well as assessing the practical applicability of these materials. This was observed in the search for studies on this theme in national and international databases, which evidenced the low scientific production.

Thus, it is necessary to transform the knowledge generated through scientific research into printed teaching and instructional material resources that are easily accessible to the pediatric population during the hospitalization period, promoting its translation to clinical practice so that they can contribute to better results health care. Thus, the present study proposed the construction and validation of a didactic and instructional booklet, called "It is time to get my vein: what do I do?", in order to prepare children in need of PIC.

As relevant to the development of this research, the use of teaching and instructional material validated by expert judges stands out, as a clinical resource that can reduce the fear and tensions that precede the PIC, in addition, in the theoretical area, to strengthening the scientific knowledge on the theme, promoting the use of technologies in clinical practices with the translation of knowledge.

Therefore, this study aimed to build and validate the content of the booklet "It's time to get my vein: what do I do?", together with expert judges in the field of Pediatrics, for the preparation of children in need of PIC.

The research was approved by the Research Ethics Committee (CEP) of the *Universidade Estadual de Feira de Santana*, according to the requirements of Resolution No. 466/12 of the *Conselho Nacional de Saúde* (BR).

METHOD

This is a methodological study of content validation type, developed according to the COSMIM⁵ checklist, carried out from February 2015 to February 2017, in four stages: situational diagnosis; bibliographic survey; selection and summarization of the content; preparation of the booklet and its validation.⁶

Due to the incipient production of knowledge about the production and validation of educational materials of this nature, the situational diagnostic phase was carried out through a qualitative research in order to understand the feelings of 15 children before, during and

after the PIC in a hospital in *Bahia* and what coping strategies they adopt. Also, a bibliographic survey of the type Scoping review was carried out in national and international databases, using scientific literature that addressed the concept step by step of the PIC and strategies for coping with the child.

Therefore, a booklet with the information extracted in the two previous phases was prepared. For the diagramming of the material, the program CorelDraw 15.0 was used for a graphic design. Then, content validation was started using the Delphi technique.

The sample was of a non-probabilistic and intentional type, with the probable judges being selected by evaluating the *Lattes Curriculum* and investigating the practice of professionals working directly in health care. The inclusion criteria were to be a professional involved in the management of pediatric care services, in assistance, teaching, research and extension related to the contents of hospitalized children, families, intravenous therapy, preparation and validation of teaching materials; have a minimum experience of two years in the pediatric area; have experience in the insertion of peripheral venous catheters in hospitalized children. The following were excluded: participants who, after inclusion in the study, had to leave for personal reasons; those who did not participate in all stages of the evaluation of the didactic and instructional manual; and those who did not return the content validation instrument.

According to the data collection protocol, the participants were initially invited by the selection criteria,⁷ based on the evaluation of a national platform called the *Lattes curriculum*, by electronic mail, and an invitation letter with the origin and objectives of the booklet was sent. and the study. Twenty-one expert judges were invited, of whom 14 agreed to participate and 11 completed all validation steps. According to a national study, the number of participants depends on the purpose of the research, when using the Delphi technique.⁸

For the judges who agreed to participate, the Free and Informed Consent Term (ICF), the characterization questionnaire, the booklet and the validation instrument were sent with the following categories for evaluation: content, language, illustrations, organization, layout, relevance, and clinical applicability, being described as the alternatives "strongly disagree", "disagree", "agree", "strongly agree" and "I don't know", in addition to a space for suggestions.

The information obtained from the forms was tabulated in the Statistical Package for the Social Scienc-

es (SPSS) version 22.0. For data analysis, a quantitative and qualitative evaluation was carried out. In the quantitative evaluation, the Content Validation Index (CVI) was calculated,⁷ which corresponds to the following formula: "agree" and "strongly agree" responses for each item divided by the total number of participating judges. The CVI of the categories is the arithmetic mean of their corresponding items and the overall CVI is the average of all items.^{6,8} The indexes with values equal to or greater than 0.8 were adopted as a desirable level.⁹

The qualitative assessment was applied to the judges' suggestions,⁷ which were grouped according to their similarities in each category judged by the experts and analyzed according to convergence and divergence. The suggestions were accepted according to their relevance.

RESULTS

The committee of expert judges was composed of 11 professionals, all of whom were female - nurses, doctors (45.5%) - working in the area of research, teaching and extension (36.4%) and inhabitants in the state of *Bahia* (45.5%). The other locations were *São Paulo*, *Rio Grande do Norte*, *Rio de Janeiro* and *Rio Grande do Sul*, in Brazil. The judges were 38.9 years old (± 11.1), with an average age, 13.6 years old (± 6.9) of professional training and 12.6 years (± 7.1) of experience in the pediatric area.

The first version of the booklet evaluated by the judges contained 19 pages, in which a playful plot of the narrative of five characters was created by the authors exclusively for the proposed booklet: the child, the relative, the illustrative character of the PIC (PIP), denominating also how to take the vein or puncture, represented by an arm using a peripheral intravenous device, the catheter and nurse *Júlia*.

The booklet was entitled "It's time to get my vein: what do I do?" and its first version was composed of the following parts: cover; presentation of the booklet; message to the child; narrative of the story with dialogue between the characters, strategies to minimize the stress resulting from the PIC and a space for the child to draw or write how they felt during their intravenous catheterization. Table 1 describes the information contained in each of these.

In the first evaluation round, the booklet obtained a global CVI equal to 0.86. Although the level of agreement proved to be desirable, it was found that in the individual assessment of the categories and items, there were CVIs below the estimated.

Table 1 - Content covered in each part of the first version of the booklet entitled "It's time to get my vein: what do I do?" *Feira de Santana, BA, Brazil, 2016*

Part of the booklet	Content presented
Cover	Image of the nurse Júlia and the fearful child regarding the completion of the PIC
Presentation of the booklet	Project, objectives, purposes, institution, and authors who developed the booklet
Message to the child	Motivation for the development of the booklet
Conversation between the child and its mother (pages 4 and 5)	Dialogue between the child and their mother regarding questions related to PIC in a hospital environment
Conversation between the PIP character and the child (pages 6 to 11)	The mother invites the PIP character to explain to the child the concept of vein and the purpose of the PIC
Conversation between the characters catheter, PIP, nurse, and child (pages 12 to 14)	PIP invites the catheter character to describe the peripheral intravenous device used to perform the PIC
Explanation of the PIC technique by the nurse (page 15)	Nurse Júlia explaining the PIC step-by-step to the child, with the steps in sequenced comics that address the garroting of the member chosen for the procedure, selection of the appropriate blood vessel, antisepsis of the insertion site, introduction of the catheter, verification of the PIC success and coverage utilization
Strategies to minimize PIC stress (pages 16 to 18)	Illustrative coloring table with strategies to alleviate the feelings experienced by children before, during and after the PIC, these being suggested by children in the diagnostic phase of the study and literature review. The subtitle of this section was: "What can you do when someone is going to get your vein?", consisting of a child, a Nursing professional, and a family member. The child dialogues with the target audience of the booklet about the strategies that can be adopted, such as: drinking water, clarifying doubts with the professionals, being close and asking for support from their family member, taking a deep breath, etc
Space for drawing or writing the feelings experienced by children during PIC	Interactive space for children to draw or write their experiences during the procedure, which can be used as a means of obtaining information for pediatric nurse care

In the content category, the item "the content is appropriate for the target audience" obtained CVI equal to 0.73 for the "conversation between PV and the child" (Table 2). In terms of language, the dialogues between the characters (pages 4 to 14) were evaluated by the judges as incompatible with the target audience (CVI of 0.55; 0.73; 0.73), the writing was not attractive and there was no clarity and objectivity in the language of the "conversation between the child and his mother" (CVI=0.64 in both) and in the "conversation between the PIP character and the child" (CVI=0.55). The category CVI was 0.61 for the "conversation between the child and the mother" and 0.7 for the "conversation between the PIP character and the child" (Table 2).

As for the illustration, the judges stated that the booklet did not have graphic quality in the representative images of the conversation between the "child and his mother" and "the character PIP and child" (CVI=0.64; CVI=0.73). The judges considered this same assessment in the "explanation of the IPC technique by the nurse" (CVI=0.73). Regarding "strategies to minimize the stress resulting from the puncture", the number of illustrations was assessed as inadequate

for the content of the proposed educational material (Table 2).

In assessing the layout, the judges considered that the visual composition was not attractive and well organized (CVI=0.55) and the font size of the titles, subtitles and text was not adequate (CVI=0.64). The items related to motivation, culture and applicability were validated in the first round (Table 3).

The suggestions proposed by the judges were organized according to similarity in each category. In the content and language categories, the main suggestions were: changing technical terms; use of simple, direct and short phrases; adjustments in linguistic agreement and punctuation; substitution of words in the diminutive degree for normal; change in the order of the dialogues; adaptations of passages that have other meanings; review of the PIC concept; avoid the use of the expression "get the vein" and replace some phrases with others considered more understandable and appropriate to the target audience.

All the judges' suggestions regarding the simplification of the sentences and the changes suggested in some parts of the booklet's content were accepted. However,

Table 2 - Distribution of content validation indexes according to the judges' evaluation of the content, language, and illustration criteria of the first round. *Feira de Santana, BA, Brazil, 2016*

Variables	Pages 4 e 5	Pages 6 a 11	Pages 12 a 14	Page 15	Pages 16 a 18
Content	CVI*	CVI*	CVI*	CVI*	CVI*
The content is scientifically correct	1	0.82	1	0.91	0.91
The content is appropriate for the target audience	0.91	0.73	1	1	0.91
The content is enough to meet the needs of the target audience	0.91	0.91	1	1	1
The text sequence is logical	0.91	1	1	1	1
Content presentation favors learning the subject	0.91	0.91	0.91	1	0.82
CVI* of the content category	0.93	0.87	0.98	0.98	0.93
Language					
The writing style is compatible with the target audience	0.55	0.73	0.73	0.82	0.82
The writing used is attractive	0.64	0.82	0.91	0.91	0.82
The language of the text is clear and objective	0.64	0.55	0.82	0.91	0.82
CVI* of the language category	0.61	0.7	0.82	0.88	0.82
Illustration					
The illustrations are relevant to the content of the material and elucidate the content	1	0.82	1	0.91	0.91
The illustrations are clear and easy to understand	1	0.91	0.91	0.82	0.91
The illustrations have graphic quality	0.64	0.73	0.82	0.73	0.82
The number of illustrations is adequate to the content of the educational material	0.82	0.91	0.91	0.82	0.72
The presence of each of the figures in the booklet is relevant	1	1	1	0.91	1
CVI* of the illustration category	0.89	0.87	0.93	0.84	0.87

*CVI = content validation index.

the term “puncture” was kept, as it is a popular word in common sense, and also the word “procedure”, because there is no other word to replace it. The beginning of the dialogue was modified, and the plot started with the child having to have his vein punctured for the first-time during hospitalization.

The character “PIP” came to be called “PV” to suit the expression “venipuncture” or “catch the vein”. As for the illustrations, the judges suggested altering the character with abstract characteristics for another that approached reality and the adequacy of their expressions for more childish ones. Modifications were made, according to suggestions, regarding the color of the catheter character, characteristics of the hand that represents the PV and the expressions of the characters, according to the story's narrative.

Adjustments were also made to the image and position of the mother in the scenario for sitting in an arm-chair next to the child, change in the color of the cath-

eter, inclusion of the lab coat by the nurse and presentation of her with her hair tied and inclusion of the child's identification bracelet.

As for the suggestion on the use of the character that represents something abstract, a text box with the following information “Attention, children! The PV character is an arm that has a stuck vein”, to facilitate the understanding that it is not the procedure itself, but an arm using the peripheral intravenous device.

In the layout, they suggested a change in the color of the booklet to make it more attractive, with the characters' tonality and the color of the hospital environment being modified, increasing the size of the images in the strategy board and the font of the letters. Regarding the motivation of the booklet, it was suggested to change the skin color of nurse Júlia to get closer to the various characteristics of the target audience, being changed from light to dark.

Table 3 - Distribution of content validation indexes according to the judges' evaluation of the layout, motivation, culture, and applicability criteria of the first round. *Feira de Santana*, BA, Brazil, 2016

Variables	CVI*
Layout	
The font used makes reading easier	0.82
The visual composition is attractive and well organized	0.55
The format (size) of the educational material and the number of pages are suitable for the pediatric age group	1
The text layout is adequate	0.91
The font size of the titles, subtitles and text is adequate	0.64
CVI* of the layout category	0.78
Motivation	
The content is motivating and encourages further reading	1
The content aroused the interest of the child reader	1
The content can answer questions, clarify, and educate the child about venipuncture and strategies to minimize the stress resulting from the procedure	0.82
CVI* of the motivation category	0.94
Culture	
The text is compatible with the target audience, given the different user profiles	1
The booklet is indicated for use as a resource in the preparation of hospitalized children for peripheral venipuncture	1
IVC* da categoria da cultura	1
Applicability	
The booklet has practical applicability	0.82
CVI* of the applicability category	0.82

*CVI = content validation index.

Regarding applicability, it was suggested to reduce the number of pages and improve the booklet, for a more recreational presentation. Changes were made to the text and images to draw attention. However, it was not possible to decrease the number of pages, given that all the information in the booklet was deemed by the researchers to be pertinent.

After the adjustments, the last version of the booklet (Figure 1) was submitted to the second round of evaluation by the judges, and a letter was elaborated with the changes accepted and with the justifications for those that were refused with the justifications. The overall CVI was 0.93. All categories reached $CVI \geq 0.82$, considering the didactic and instructional technology validated in terms of content and appearance (Tables 4 and 5).

DISCUSSION

The items content, language, illustration, layout, motivation, culture, and applicability referring to the booklet "It's time to get my vein: what I do" were considered valid by the analysis of expert judges on the

subject, and it is essential to discuss the importance of these elements in the construction of teaching and instructional materials.

The validated booklet has scientifically correct content, with safe information for the child about the objectives of the PIC, reasons for its completion and step by step of the procedure, which can help him/her to reduce the fear, stress and anxiety associated with catheterization.

Some printed educational and instructional materials have already been validated for scientific content with a specialist in their respective areas, such as the "Guidance manual for patients with juvenile systemic lupus erythematosus"¹⁰ and the booklet "Peripheral venipuncture for family"¹¹. This last material was considered by the expert judges as suitable for the use of the target audience, as it fulfills the requirements of scientific content for family members of children with need for IVT by peripheral intravenous device.¹¹

This demonstrates that offering appropriate content, sufficient to meet the needs of the target audience, combined with the use of understandable text, written in an attractive, clear, objective, and logical sequence,



Figure 1 - Images from the latest version of the booklet "It's time to get my vein: what do I do?"

can contribute to the child's learning, and may influence the way in which she will deal with the feelings arising from the PIC.

Thus, a 12-page illustrative book called "Sick Rui-Rui Bear" stands out, which was designed with the aim of supporting children in pre-school during the PIC, and its effectiveness in the public's anguish was verified. before, during and after performing this procedure. It was observed that, in the intervention group, the levels of distress were significantly lower than in the control group.¹²

Clinical, randomized, and controlled study on the effect of distraction measures (cartoon and illustrative book) on the anguish of children submitted to PIC found that the case group had less distress when compared to the group of children who were instructed with routine information.¹³

In an innovative way, the booklet of this study presents strategies for reducing child stress, such as drinking water, asking questions with professionals, being close, asking for support from your family and taking a deep breath. In this way, these resources, differentials of the validated booklet in relation to other educa-

tional materials, can contribute to the strengthening of the child's experience during the PIC, as they are easily available in a material that can be printed and used in health services, as well as for having easy access.

Literature review referred that the use of educational technological resources influence the alteration of health behavior in children.¹⁴ In addition, educational materials improve the child's adherence to treatment and increase their safety during the provision of care.¹⁵

Thus, content and language are configured as one of the requirements that must be adopted by professionals and researchers who wish to develop printed educational and instructional materials for the pediatric population, considering their developmental characteristics. The detection of these elements in these resources will facilitate the child's understanding of the proposed content, strengthening it during the PIC experience.

Illustrations, too, are fundamental elements in the organization and dissemination of these materials, because in addition to enabling the understanding of the content presented, they can portray a reality close to that experienced by the child during his hospitalization, especially during the performance of stressful and

Table 4 - Distribution of content validation indexes according to the judges' evaluation of the content, language, and illustration criteria of the second round. *Feira de Santana*, BA, Brazil, 2016

Variables	Pages 4 e 5	Pages 6 a 11	Pages 12 a 14	Page 15	Pages 16 a 18
Content	CVI	CVI	CVI	CVI	CVI
The content is scientifically correct	1	0.90	0.90	1	1
The content is appropriate for the target audience	1	1	1	1	1
The content is enough to meet the needs of the target audience	0.80	0.90	0.80	1	0.90
The text sequence is logical	1	1	1	1	1
Content presentation favors learning the subject	1	0,90	0,90	0,90	0,90
CVI* of the content category	0.96	0.94	0.92	0.98	0.96
Language					
The writing style is compatible with the target audience	1	1	1	1	0.90
The writing used is attractive	0.90	0.90	0.90	1	1
The language of the text is clear and objective	1	0.80	1	1	0.90
CVI* of the language category	0.97	0.90	0.97	1	0.93
Illustration					
The illustrations are relevant to the content of the material and elucidate the content	0.80	0.80	0.80	0.80	0.80
The illustrations are clear and easy to understand	0.90	0.90	0.90	1	1
The illustrations have graphic quality	0.70	0.80	0.80	0.80	0.80
The number of illustrations is adequate to the content of the educational material	1	1	1	1	1
The presence of each of the figures in the booklet is relevant	1	0.80	1	1	1
CVI* from the illustration category	0.88	0.86	0.90	0.92	0.92

*CVI = content validation index.

potentially painful procedures such as PIC, which can strengthen the child to face these moments.

A study that used visual elements, such as cartoons, found the difference between this intervention and the use of analgesia through cryotherapy and vibration using the Buzzy® device, with a greater difference being identified for the reduction of pain perception in the group that used the cartoon.¹⁶

Also, prospective, randomized, and controlled research found that the use of distraction cards by a group of children during invasive procedures such as phlebotomy, PIC and intramuscular injection showed relief from anxiety and pain, despite not showing a statistical difference when compared to the group of children who received routine information and were close to the relative.¹⁷

Another study that compared the use of cartoons and standard technique when performing invasive procedures with needles highlighted a statistical difference

for the reduction of distress in children who used the distraction technique.¹⁸

When thinking about the visual composition of an educational material, it also refers to the attractiveness for use, given that the colors and animation of the characters allude to the playful and animated world of the child, drawing their attention to the use.

In the booklet "It's time to get my vein: what do I do", when applying this resource, animation was given to inanimate objects such as the catheter and the PV, producing a playful character. When observing the suggestions of the judges, they highlighted the importance of attributing more colors and expressiveness to the characters, according to the plot of the story.

In a survey conducted with nurses who performed recreational activities for children with cancer, the companions realized that 100% of the children who participated in this moment were happier, and the impact of the visit produced animation for 77% of the children,

Table 5 - Distribution of content validation indexes according to the judges' evaluation of the layout, motivation, culture, and applicability criteria of the second round. *Feira de Santana*, BA, Brazil, 2016

Variables	CVI*
Layout	
The font used makes reading easier	0.80
The visual composition is attractive and well organized	0.70
The format (size) of the educational material and the number of pages are suitable for the pediatric age group	0.80
The text layout is adequate	0.80
The font size of the titles, subtitles and text is adequate	0.90
CVI * of the layout category	0.82
Motivation	
The content is motivating and encourages you to continue reading	0.90
The content aroused the interest of the child reader	0.90
The content can answer questions, clarify, and educate the child about venipuncture and strategies to minimize the stress resulting from the procedure	1
CVI* of the motivation category	0.93
Culture	
The text is compatible with the target audience, given the different user profiles	1
The booklet is indicated for use as a resource in the preparation of hospitalized children for peripheral venipuncture	1
CVI* of the culture category	1
Applicability	
The booklet has practical applicability	0.90
CVI* of the applicability category	0.90

*CVI = content validation index.

and 100% of the companions considered that interventions had positive effects.¹⁹

Experience report on the construction of a children's book entitled "Lola had something" on cystic fibrosis for children aged five highlighted the use of playful creativity, when the child Lola associates the disease with an animal that she needed to keep in the closet, but for that it had to stay strong. But, after the nurse explained about the disease, she understood what it meant and that it was strong to reduce it and put it in her pocket, and her coping with the disease was understood when she understood it.²⁰

Another essential element regarding the organization of didactic and instructional materials, aiming at understanding and sustaining the content covered, is the layout, with emphasis on the type and size of the letters used and the material itself and its visual composition, which enhances the attraction the child's attention to the continuity of his reading, facilitating this process.

When validating a booklet called "Psycho, what are the consequences of being overweight? Know how to prevent yourself!" for teenagers, along with expert de-

sign and marketing judges, 100% of them considered the font size and typeface entirely appropriate.²¹

Thinking about the layout, the didactic and instructional material should promote emotional impact on your target audience to awaken them regarding the interest in your reading.²² Thus, the desire to continue reading part of the understanding of the text, in addition to the factors that surround it, like the encouragement of people around the child.²³

British researchers²⁴ used a digital therapeutic platform to provide health information through gamification, serious games, chatbot and an augmented reality avatar with 80 children between eight and 14 years old and their parents and observed that this technology significantly reduced the anxiety levels of the child. child, increased the feeling of involvement and knowledge about the procedure performed, compared to the group that received standard hospital information.²⁴

Children with unmet information needs when they go to the hospital may experience anxiety and uncertainty.²⁵ However, preparing them properly and with instructional resources containing information about what will happen during a procedure improves their

experience. Therefore, it is important to find out what children want to know before performing procedures.²⁵

It is noteworthy that the validity booklet came from the experiences of children who participated in a qualitative research, which contributed with information such as the need to elaborate this educational resource and strategies used by them to alleviate the discomfort caused by the PIC, which enabled the organization of a material that will contribute to the clarification of doubts of other children and the effectiveness of the use of these tools in pediatric care.

All the elements previously discussed, when associated with the capacity of printed didactic and instructional materials to motivate reading, arouse the interest of the target audience and clarify their doubts about the procedure that will be performed, especially in the PIC, add value in the clinical practice of pediatric nurse, as they will be able to collaborate for an increasingly traumatic experience for the child, promoting qualified, safe and respectful care for this population in hospital environments.

This shows the interpretation of the acceptability of educational material by children and their interest in using it. In an international survey that conducted a pilot test on the usability and acceptability of a digital game on psychological support and treatment of children with chronic illness, it was found that 100% of them approved the game and stated that they had beneficial information and reliable interventions, 100% considered it easy to use and 78% used the game again.²⁶

Finally, the booklet of this research was considered by the judges to be applicable to clinical practice, considering the possibility of promoting health education through the sharing of knowledge²⁷ contained in this didactic resource, which was also observed in national qualitative research, which used the book "The discovery of Pedro and Júlia: talking about health and illness" to permeate the discussion with children about their HIV treatment.²⁸

That said, it is ratified that the use of printed didactic and instructional materials, when properly guided as to the elements content, language, illustration, layout, motivation, culture, and applicability, can influence the behavior of children during the PIC, given that the process of learning and reproducing this behavior in practice demands the understanding of its meaning by the individual and the convincing effect for its applicability in everyday action. In addition, this type of material can be read by the child without the need for a professional by their side or even family members, when able.

CONCLUSION

The booklet was constructed and validated in terms of content and appearance, according to the evaluation of the committee of expert judges. The limitations of the study are related to the methodology in relation to the subjectivity of the qualitative validation issued by the judges, not allowing the generalization of the information. Also, the sample calculation was not performed. And the method used for data collection made it difficult to obtain feedback from participants.

Other limitations can be considered: participation only by nurses, non-inclusion of professionals directly linked to assistance in pediatric health services and in the area of advertising and marketing, in addition to the incipient production of national and international knowledge on the subject.

The booklet presents itself as a didactic and instructional technology with easy clinical applicability in pediatric health services, being used by the pediatric nurse as an instrument of health education for the production of safe care for children with need for IVT by means of devices peripheral intravenous.

The validated booklet can assist in clarifying doubts related to the PIC and in the development of strategies that strengthen the child to face this moment. For managers, it demonstrates how low-cost technology can be widely acceptable and stimulated for use in daily clinical practice.

Therefore, this study reveals the need for further research on the validation of appearance with the target audience, verification of practical applicability and development of a quasi-experimental study that assesses the effects of technology on children's behavior before and after its use.

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