

# Validation of educational picture for diabetic foot care

Validação de cartilha educativa para os cuidados com o pé diabético

Validación de cuadro educativo para el cuidado del pie diabético

## RESUMO

Objetivo: validar uma cartilha educativa para os cuidados com o pé diabético. Método: Trata-se de um estudo metodológico com abordagem qualitativa, realizado no segundo semestre de 2020, onde participaram nove juízes. O estudo seguiu os preceitos éticos estabelecidos nacionalmente. Resultado: Dentre os juízes, teve-se o material avaliado por profissionais de regiões distintas do país. No tocante ao IVC total da análise de conteúdo, esta vertente foi considerada válida com pontuação, aproximada de 0,96. Conclusão: A cartilha educativa atingiu um IVC global de 0,97, sendo assim considerada válida para circulação.

**DESCRIPTORIOS:** Diabetes Mellitus; Neuropatias Diabéticas; Tecnologia em saúde; Estomaterapia.

## ABSTRACT

Objetivo: validar un folleto educativo para el cuidado del pie diabético. Método: Trata-se de um estudo metodológico com abordagem qualitativa, realizado no segundo semestre de 2020, onde participaron nove juízes. O estudo seguiu os preceitos éticos estabelecidos a nível nacional. Resultados: Entre os juízes, o material foi avaliado por profissionais de diferentes regiões do país. Quanto ao IVC total do análise de conteúdo, este aspecto foi considerado válido com uma nota aproximada de 0,96. Conclusión: La cartilla educativa alcanzó un IVC global de 0,97, siendo considerada válida para circulación.

**DESCRIPTORS:** Diabetes Mellitus; Neuropatías Diabéticas; Tecnología Sanitaria; Terapia Estomal.

## RESUMEN

Objective: to validate an educational booklet for diabetic foot care. Method: This is a methodological study with a qualitative approach, carried out in the second half of 2020, with nine judges participating. The study followed nationally established ethical precepts. Result: Among the judges, the material was evaluated by professionals from different regions of the country. Regarding the total CVI of the content analysis, this aspect was considered valid with a score of approximately 0.96. Conclusion: The educational booklet reached a global CVI of 0.97, thus being considered valid for circulation.

**DESCRIPTORIOS:** Diabetes Mellitus; Diabetic Neuropathies; Health technology; Stomatherapy.

RECEBIDO EM: 25\04\2023 APROVADO EM: 17\05\2023

### Deivid dos Santos Dias

Master nurse. faculdade rodolfo teófilo/ instituto do câncer do ceará. Master in oncology. nursing.  
ORCID: 0000-0001-6412-3382.

### Bruna Negreiros De Sá

Postgraduate nurse. universidade estadual do ceará. Postgraduate student in stomatherapy. Nursing.  
ORCID: 0000-0001-8387-3031.

### Luciana Catunda Gomes De Menezes

teaching nurse of the nursing course. centro universitário fametro-unifametro.  
Doctor in clinical care. nurse stomatherapist (tisobest). nursing.  
ORCID: 0000-0002-7828-9065.

### Marley Gomes De Freitas

Nurse. centro universitário fametro-unifametro. Nurse by unifametro. Nursing.  
ORCID: 0000-0002-1567-8952.

# Artigo Original EN

Deivid S. Dias, Bruna N. de Sá, Luciana C. G. de Menezes, Marley G. de Freitas, Gabriele S. Botelho, Areta J. P. N. Souza  
Validation of educational picture for diabetic foot care

## Gabriele Da Silva Botelho

post graduate. universidade estadual do ceará (uece). Specialist in urgency and emergency and postgraduate student in stomatherapy. Nursing  
ORCID: 0000-0002-5712-0789.

## Areta Jeovane Perote Do Nascimento Souza

Nursing academic. centro universitário fametro – unifametro. Nursing.  
ORCID: 0009-0000-2204-5400.

## INTRODUCTION

**D**iabetes mellitus (DM) is a chronic metabolic disease, caused by inadequate insulin action or secretion<sup>1,2,3</sup>. Data show that in 2021, 10.5% of the world's population aged 20 to 79 years will live with DM, if current trends persist, the number of people with diabetes is projected to be greater than 783.2 million in the year 2045<sup>4</sup>. Furthermore, in 2018, studies show that there was a 1.2% drop in people with diabetes in the adult population compared with 2016, with 8.9% falling to 7.7%; also points out, in this same population that the percentage of individuals diagnosed with diabetes is inversely proportional with regard to education<sup>5</sup>.

With regard to DM complications, diabetic neuropathy (DN) stands out as the most prevalent, affecting 40% of patients, reaching 60% when considering individuals over 60 years of age. DN affects different parts of the nervous system, with a higher occurrence in the lower limbs<sup>2,6</sup>.

As soon as self-care is essential when thinking about the prevention of complications resulting from diabetes, for this, the nurse can use educational technologies as a health education instrument, which, at this stage, the know-how rises above and how to use the knowledge and equipment prevail, which, in this context of application of educational technology, it is necessary to consider its content valid a global CVI  $\geq 0.78$ , its maximum possible value being 1.02,<sup>7,8</sup>. Thus, knowing the importance of validating educational technologies, this research asks: does an educational booklet, used interactively in self-care activities for people

with diabetes mellitus, contribute to the prevention and treatment of diabetic foot? Therefore, it is justified when one observes that 85% of lower extremity amputations (IEA) are consequences of diabetic foot ulcers (UPD), in our current reality, 1 million people with DM suffer an amputation worldwide, which means 3 per minute<sup>6</sup>. Thus, the present study aims to validate an educational booklet for diabetic foot care.

## METHOD

This is a methodological study, as it refers to the validation of an educational booklet for diabetic foot care<sup>9</sup>. The study was carried out in the second half of 2020, where nine judges participated. After acceptance by the judges, the booklet evaluation form was sent. In the form, they should evaluate the educational technology and record their suggestions to improve the material. This form was based on the Likert Scale, which consists of five points: when a score of 5 is assigned, it is classified as totally adequate, grade 4 as partially adequate, grade 3 as partially inadequate, grade 2 as inadequate and grade 1 when not applicable. To maintain the anonymity of the interviewees and ensure compliance with ethical and legal precepts, they were identified by pseudonyms. This study was approved by the Research Ethics Committee (CEP) of the higher education institution Centro Universitário Fametro – Unifametro under opinion number 3,164,340.

## RESULTS

Among the judges, the material was evaluated by professionals from different regions of Brazil, mostly from the Northeast and three from different regions.

Depending on the professional information of the content judges, eight were stomal therapy nurses, while one technical judge was a journalist. As for the training time, seven have 10 years or more; one between 6 and 9 years and one between 3 and 5 years. Among the content and appearance judges, four of them have a master's degree, three are specialists and two are doctors. Therefore, after analyzing the construct, the opinions of the judges were analyzed qualitatively, through the answers given to the items of the assessment instrument, which addressed six pre-established categories, three of which were linked to content validity, such as: objectives, structure and presentation, and relevance; and three linked to appearance validity, such as: language, graphic illustrations and motivation. At the end of each category, the judges could justify their answers and/or give suggestions about the construct. Unaccepted suggestions were justified by the researchers, as shown in tables 1 and 2.

Based on the scores attributed in each topic by the judges, it was possible to calculate the CVI of the educational technology, which is shown in figures 1 and 2 below.

Finally, the global CVI was calculated, shown in figure 3, in order to confirm the validity of the material.

**DISCUSSION**

When the elaboration of the technology was idealized, something complete was sought, which would bring to the public the perspective of treatment seeking to optimize it, in terms of preventing relapses, breaking it down into two materials could help to escape this focus.

The fact that the patient is instructed

on page nine of the booklet to touch his feet refers to sensory perception, in such a way that he may notice areas of decreased sensitivity, tingling, numbness, pain, thus contributing to that individual being more cautious and attentive regarding the following of other guidelines<sup>10</sup>.

In short, if the authors chose to change the term touching the feet to inspecting the feet, it might not be clear what

is wanted with that orientation, generating doubts or even a misunderstanding of the message that was wanted to be conveyed. The same applies to the term “drying” mentioned on page 12, an attempt was made in the material to adapt the language in order to convey information clearly to the target audience<sup>11</sup>.

It is essential to adapt the information found in the literature so that it becomes

**TABLE 1 - CONTENT JUDGES' SUGGESTIONS. FORTALEZA-CE, 2020.**

TOPICS	SUGGESTIONS	ACCEPT YES, NO OR IN PART	JUSTIFICATION
1. Objectives	There were no contributions	Yes	-
	It could be broken down into two booklets, one on prevention and the other on treatment.	No	The purpose of the booklet is to bring information to patients who, even having already developed lesions, can prevent recurrences.
	Check spelling.	Yes	-
	Search for images closer to the general public of SUS.	Yes	-
	Be more objective.	No	It is important to emphasize the information for the target audience.
	Page 9 touch the feet, review whether the daily inspection of the feet by the patient would not be enough.	No	When guiding the patient to touch the feet, the self-assessment of sensitivity was thought of, just inspecting might not be so clear to patients.
	Page 12. The term Drying	No	It is believed to be an easy-to-understand term, and it is not necessary to change it.
2. Structure and presentation	Página 13. Foot hydration, how to use cream and not moisturize between the toes? Something more suitable for diabetics could also be suggested, such as urea-based lotions and moisturizing the feet at night to avoid accidents such as slipping.	In part	When it is advised not to moisturize between the fingers, one thinks of the moisture provided by the cream in the area, promoting fungal proliferation, a specific lotion is not indicated due to the socioeconomic level of most patients. We accept the suggestion to recommend moisturizing at night to avoid falls.
	Page 19. Appropriate footwear. It should be noted that the dimensions of the shoes must be larger than the feet to accommodate and allow movement of the toes.	No	Placing in the material that the shoe should be larger than the feet can make the client wear a shoe that is too big, increasing the risk of falling.
	Page 26 and 27. Subtract some information that may cause the patient concern and frighten him, such as details of debridement procedures.	Yes	-
	Page 29. Home dressing. These guidelines are very important and must be in capital letters.	Yes	-
	Page 29. Wrap the basin in the plastic bag. It would be better to explain how to wrap the basin or an image and/or design that depicts the lining.	Yes	-

# Artigo Original EN

Deivid S. Dias, Bruna N. de Sá, Luciana C. G. de Menezes, Marley G. de Freitas, Gabriele S. Botelho, Areta J. P. N. Souza  
Validation of educational picture for diabetic foot care

Page 31. Dry with gauze, explain not to dry the wound and also change the dressing can be different according to the types could be under the guidance of the stoma therapist nurse.	No	When mentioning the change of dressing, it is reinforced to follow the guidance of the stoma therapist nurse.
Better clarify what enzymatic soaps are.	Yes	-
Pages 29, 30 and 31. Organize the sequence of information arranged in the booklet on the curative topic at home.	No	The information is arranged in the material in logical order.
Page 34. Sausages Explain better what sausages are.	Yes	-
Page 32 to 35. Talk to a nutritionist to have information about food.	No	The material provides very general information, as it is believed that nurses have the scientific ability to approach them on this topic.
Pages 32 to 35. Emphasize the intake of organic, natural foods, avoiding processed foods, and excess fats and sugars.	No	Emphasizing the intake of organic foods may not be convenient due to their high cost, the other points are addressed during the topic of food.
Pages 36 and 37. Talk to other professionals in the field to help them have reliable information on the topic of physical activity.	No	The material provides very general information, as it is believed that nurses have the scientific ability to approach them on this topic.
Page 38. Talk to other professionals in the field to help them have reliable information on the topic of medication.	No	The material provides very general information, as it is believed that nurses have the scientific ability to approach them on this topic.
Page 38. Medicines Review information on home remedies.	In part	Adding: "Avoid taking homemade recipes without guidance from a health professional".
Page 39. Tips for Living Well. Add blood pressure control, avoid artificial juices and soft drinks in the topic.	In part	Adding: "blood pressure control" in that topic.
3. Relevance	There were no contributions	Yes

Source: authors' data, 2020.

TOPICS	SUGGESTIONS	ACCEPT YES, NO OR IN PART	JUSTIFICATION
1. Language	Spell check all text.	Yes	-
	Define a graphic pattern so that the booklet is lighter about the illustrations.	Yes	-
2. Graphic Illustrations	The work has many illustrations in a somewhat childish tone, which can hinder reading.	No	More playful images contribute to customers' understanding.
	Also pay attention to the margins of the pages.	Yes	-
	Respect the bleed of graphic edition.	Yes	-
3. Motivação	There were no contributions	Yes	-

Source: authors' data, 2020.



# Artigo Original EN

Deivid S. Dias, Bruna N. de Sá, Luciana C. G. de Menezes, Marley G. de Freitas, Gabriele S. Botelho, Areta J. P. N. Souza  
Validation of educational picture for diabetic foot care

In turn, regarding the structure and presentation of the material (topic 2, figure 1), its subtopics 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7 and 2.11 were considered valid with a maximum score of CVI (one), in addition to two subareas (2.8 and 2.9) of this topic were considered valid with a CVI score = 0.87. With regard to subtopic 2.10, which refers to the adequacy of the number of pages in the booklet, it reached a score of 0.75.

With regard to it, there were some suggestions by the judges in topic 2, these were discussed earlier in the study, as well as illustrated in table 3 in addition to their respective acceptance, rejection or in part.

However, regarding the relevance of technology (topic 3, figure 1), its subtopics 3.1, 3.2 and 3.3 were considered valid with the maximum score

of the IVC, but 3.4, which addresses the suitability of the booklet to be used by any professional of health, reached a score of 0.75. In that topic, there were no suggestions by the judges.

When referring to appearance validation (figure 2), three topics were evaluated, the first about language, another about graphic illustrations and the last related to motivation, these together with their subtopics received the maximum CVI score, without exception.

In addition, some suggestions were made by the judge, discussed earlier in the study. With a global CVI of 0.97, the educational technology submitted to the validation process reaches a satisfactory score considering the base literature used by the authors, which considers a minimum score of 0.788.

## CONCLUSION

In summary, in practice, only verbal communication between nurse and user becomes insufficient for the complete transfer of relevant information, hence the importance of developing and validating educational resources, a process that reaffirms Nursing as a science.

Thus, the material becomes valid, reaching a global CVI of 0.97. Technology, in turn, is of great esteem for patients living with DM, impacting on the prevention and treatment of diabetic plantar ulcers.

Still, it is believed that the present study contributes to the practice of health education of the multidisciplinary team, helps in the management of the user with diabetes and develops habits and practices that favor their self-care.

## REFERENCES

- 1 BRASIL. Ministério da Saúde. (2013). Estratégias para o cuidado da pessoa com doença crônica: Diabetes Mellitus. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Brasília, DF.
- 2 Menezes LGC., Guedes MVC, Oliveira SKP, Rocha RM, Pinheiro AKB, Silva LF, Moura DJM, Coelho, MMF. (2022). Produção e validação do curta-metragem Pés que te quero®: tecnologia educacional para pessoas com diabetes. *Revista Brasileira De Enfermagem*. 2022; 75 (5).
- 3 Sociedade Brasileira De Diabetes. Diretrizes da Sociedade Brasileira de Diabetes 2019-2020. São Paulo: Editora Clannad, 2020.
- 4 International Diabetes Federation. IDF diabetes atlas. 10ª edição, 2021.
- 5 Brasil. Ministério da Saúde. Vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico – VIGITEL. 2018.
- 6 International Working Group On The Diabetic Foot. IWGDF Guidelines on the prevention and management of diabetic foot disease. [Internet]. IWGDF; 2019.
- 7 Araújo, C. C. D., Marrero, L., Antunes, T. F., Vidal, A. P., Araújo, B. G. D., & Menezes, E. G. (2022). Validação de vídeo instrucional sobre banho de ofurô em recém-nascido pré-termo para enfermeiros. *Escola Anna Nery*, 26.
- 8 Gonçalves, M. de S., Celedônio, R. F., Targino, M. B., Albuquerque, T. de O., Flauzino, P. A., Bezerra, A. N., Albuquerque, N. V., & Lopes, S. C. (2019). Construção e validação de cartilha educativa para promoção da alimentação saudável entre pacientes diabéticos. *Revista Brasileira Em Promoção Da Saúde*, 32.
- 9 Pacheco CR, Caniçali Primo C, Fioresi M, Sequeira CA, Nascimento LC, Lopes AB, et al. Infusão endovenosa domiciliar: tecnologias educativas para o cuidado à pessoa com hemofilia. *Acta Paul Enferm*. 2022;35:eAPE02902.
- 10 Arrigotti T, Silva JJA da, Fraige FF, Cavicchioli MGS, Rosa AS, Jorgetto JV, et al.. Rastreamento de risco de ulceração nos pés em participantes de campanhas de prevenção e detecção do diabetes mellitus. *Acta paul enferm [Internet]*. 2022;35(Acta paul enferm., 2022 35).
- 11 Silva, E. L., Mendez, S. P., Baptista, A. F., & Sá, K. N. (2019). Métodos de elaboração de materiais de educação em saúde para adultos: revisão integrativa. *Saúde & Tecnologia*, (21), 60-67.
- 12 Faria CC, Horta TG, Reis JS, Soares AN, Moreira AD. Elaboração e validação de um e-book com as leis sobre o diabetes nas escolas. *RevBrasEnferm [Internet]*. 2022;75(Rev. Bras. Enferm., 2022 75(3)).
- 13 Batista IB, Pascoal LM, Gontijo PVC, Brito PS, Sousa MA, Santos Neto M, Sousa MS. Associação entre conhecimento e adesão às práticas de autocuidado com os pés realizadas por diabéticos. *RevBrasEnferm*. 2020; 73(5):e20190430.
- 14 Gomes LC, Moraes NM, Souza GFP, Brito FI, J MEA, Cipriano AE, Rezende TM, Júnior AJS. Contribuições de um programa educativo na prevenção de lesões nos pés de pessoas com diabetes mellitus. *J. Health NPEPS*. 1º de junho de 2021