



## DEVELOPMENT AND VALIDATION OF AN EDUCATIONAL BOOKLET FOR HEALTH EATING PROMOTION AMONG DIABETIC PATIENTS

*Construção e validação de cartilha educativa para promoção da alimentação saudável entre pacientes diabéticos*

*Construcción y validación de cartilla educativa para la promoción de la alimentación saludable de pacientes diabéticos*

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### ABSTRACT

**Objective:** To describe the process of construction and validation of the content of an educational booklet aimed at teaching about healthy eating for patients with diabetes mellitus. **Methods:** This is a methodological research with a bibliographical study that carried out the development and validation of the material by experts. The seven experts were specialized in diabetes and/or had at least two years of experience in the field: two nurses, one physiotherapist and four nutritionists. The booklet items evaluated were objective, content, language, relevance, illustrations, layout, and motivation and culture. Each item was analyzed separately using a Likert scale. The analysis of the validation of the educational technology was carried out using the Content Validity Index (CVI) with a recommended cutoff point higher than 0.78. **Results:** The educational booklet presented an overall CVI of 0.96. Only two items presented CVI values below the adopted limit. The experts recommended changes in the appearance and content for the refinement of the booklet that were included in the final version. **Conclusion:** The educational booklet for nutritional guidance of patients with diabetes mellitus was constructed and validated in terms of appearance and content by experts and should, therefore, be considered to improve adherence to nutritional therapy. Thus, the material will support professionals and patients with diabetes in overcoming the difficulties that permeate nutrition-related self-care for disease control.

**Descriptors:** Health Promotion; Educational Technology; Validation Studies; Feeding.



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## RESUMO

**Objetivo:** Descrever o processo de construção e validação de conteúdo de uma cartilha educativa voltada para a orientação sobre alimentação saudável de pacientes com diabetes mellitus. **Métodos:** Trata-se de uma pesquisa metodológica com levantamento bibliográfico, elaboração e validação do material por especialistas no assunto. Os sete juízes possuíam especialização em diabetes e/ou com, no mínimo, dois anos de experiência na área, sendo duas enfermeiras, uma fisioterapeuta e quatro nutricionistas. Os itens avaliativos da cartilha consistiam em: objetivo, conteúdo, linguagem, relevância, ilustrações, layout, motivação e cultura, sendo cada item analisado separadamente através de escala tipo Likert. A análise da validação da tecnologia educativa foi realizada por meio da utilização do Índice de Validade de Conteúdo (IVC), com recomendação do ponto de corte superior a 0,78. **Resultados:** A cartilha educativa apresentou IVC global de 0,96. Apenas dois itens apresentaram valores de IVC abaixo do limite adotado. Os juízes realizaram observações referentes à aparência e ao conteúdo para o aperfeiçoamento da cartilha, as quais foram acatadas para a versão final. **Conclusão:** A cartilha educativa para orientação nutricional de pacientes com diabetes mellitus foi construída e validada em termos de aparência e conteúdo por juízes, devendo, assim, ser considerada para aperfeiçoar a adesão à terapia nutricional. Dessa forma, o material servirá de suporte aos profissionais e aos portadores de diabetes, para que superem as dificuldades que permeiam o autocuidado referente à alimentação para o controle da doença.

**Descritores:** Promoção da Saúde; Tecnologia Educacional; Estudos de Validação; Alimentação.

## RESUMEN

**Objetivo:** Describir el proceso de construcción y validación de contenido de una cartilla educativa de orientación sobre la alimentación saludable de pacientes con diabetes mellitus. **Métodos:** Se trata de una investigación metodológica de búsqueda bibliográfica, elaboración y validación del material por especialistas en el tema. Los siete jueces tenían especialización en diabetes y/o con un mínimo de dos años de experiencia en el área: dos enfermeras, una fisioterapeuta y cuatro nutricionistas. Los ítems evaluativos de la cartilla eran: objetivo, contenido, lenguaje, relevancia, ilustraciones, layout, motivación y cultura y cada ítem ha sido analizado en separado a través de una escala tipo Likert. El análisis de la validación de la tecnología educativa ha sido realizada con la utilización del Índice de Validad de Contenido (IVC) con recomendación del punto de corte mayor que 0,78. **Resultados:** La cartilla educativa presentó IVC global de 0,96. Solamente dos ítems presentaron valores de IVC abajo del límite adoptado. Los jueces realizaron observaciones sobre la apariencia y el contenido para la mejoría de la cartilla las cuales fueron corregidas en la versión final. **Conclusión:** La cartilla educativa para la orientación nutricional de pacientes con diabetes mellitus ha sido construida y validada a través de la apariencia y el contenido por jueces y debe ser considerada para mejorar la adhesión de la terapia nutricional. De esa forma, el material va a servir de apoyo para los profesionales y los portadores de diabetes para que superen las dificultades que permean el autocuidado sobre la alimentación para el control de la enfermedad.

**Descriptores:** Promoción de la Salud; Tecnología Educacional; Estudios de Validación; Alimentación.

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## INTRODUCTION

Diabetes mellitus (DM) is defined as a metabolic disease characterized by persistent hyperglycemia due to deficiency in insulin production or its action or in both mechanisms. It is a major public health problem due to its chronic nature and the complications strongly associated with the duration of exposure to hyperglycemia<sup>(1,2)</sup>.

DM stands out among chronic diseases because of its high prevalence. The International Diabetes Federation (IDF) estimated that 425 million adults worldwide were living with diabetes in 2017. In the same year, DM was responsible for 4 million deaths of individuals aged 20-79 worldwide. According to current projections, the number of people with diabetes in the world can exceed the mark of 628.6 million by 2045<sup>(2)</sup>. Thus, because of this increase, greater attention should be given to the provision of care focused on the prevention of harms and complications caused by DM. Therefore, it is essential that the person with diabetes maintain adequate glycemic control, which requires changes in lifestyle and improvements in care<sup>(3)</sup>.

The growth of diabetes is associated with several factors, such as inadequate eating patterns and sedentary lifestyle<sup>(2)</sup>. These risk factors are common for noncommunicable diseases (NCDs) and are priority themes in the National Health Promotion Policy (*Política Nacional de Promoção da Saúde – PNPS*)<sup>(4)</sup>.

Taking into consideration that the successful treatment of NCDs strongly depends on the participation and involvement of the users of the health care service as active subjects in their treatment, the PNPS has as one of its objectives the promotion of the empowerment and autonomy of subjects and the community through the development of personal skills and competencies for the promotion and protection of health and life<sup>(4,5)</sup>.

One of the main mechanisms to promote health care is health education, which is more comprehensive and assists not only in the prevention of diseases but also in the development of individual responsibility. Moreover, it is

widely used for the transformation of individual practices and behaviors and for the development of the autonomy and quality of life of the individual<sup>(6)</sup>.

In combination with the use of health education, nutritional education associated with the diet plan provides the individual with diabetes with a better understanding of the influence of food on glycemic homeostasis and prevention of diseases<sup>(1)</sup>. The proposed guidelines can influence the success of the treatment of the disease through a partnership between the health professional and the patient with the aim of developing awareness for self-care and healthy eating attitudes, habits and practices<sup>(7)</sup>.

The use of effective strategies for better understanding and motivation in health care services can help to tackle patients' and caregivers' lack of knowledge about the disease<sup>(8)</sup>. The use of printed educational materials, such as manuals, leaflets, folders, brochures, booklets and books are viable alternatives for information and public awareness<sup>(9)</sup>. These resources are very useful in the control of DM since they facilitate communication in health care services, improve adherence to treatment and knowledge, and assist patients in making decisions<sup>(10)</sup>.

The idea of creating an educational material is based on the intention to develop routine actions to promote healthy eating in the health care service and to provide professionals with support material to promote food and nutritional guidance activities for diabetic patients<sup>(11)</sup>. However, to maximize the effectiveness of the use of new written materials on health education, it is necessary to know the procedures of the approaches used to validate the content, thus seeking the development of reliable and appropriate instruments for a given population<sup>(12)</sup>. Considering the importance of these aspects, the present study aimed to describe the process of construction and validation of the content of an educational booklet aimed at teaching about healthy eating for patients with diabetes mellitus.

## METHODS

This is a methodological study in which existing knowledge was used systematically to promote the elaboration, validation and evaluation of methodological tools and strategies<sup>(13)</sup>.

The study was carried out in three phases: bibliographic study; elaboration of illustrations, layout, design and texts, and the validation of the appearance and content of the educational material by experts<sup>(14)</sup>. To define relevant subjects to be addressed in the educational technology during the process of developing the booklet we carried out a bibliographic study of the Dietary Guidelines for the Brazilian Population: Promoting Healthy Eating<sup>(15)</sup>, the Nutrition Manual of the Brazilian Diabetes Society (*Sociedade Brasileira de Diabetes – SBD*)<sup>(16)</sup>, the 2017-2018 SBD Guidelines<sup>(1)</sup>, and the American Diabetes Association (ADA) Standards of Medical Care in Diabetes<sup>(17)</sup>.

Phase 2 consisted of the elaboration of an outline of the content that should be addressed in a logical sequence with suggestions of illustrations that best represented the content on a screen. Illustrations were sent to an illustration and design professional who was responsible for the graphic designs and their formatting and layout development. Preliminary content and illustrations were submitted to the editing and layout process considering the assumptions for the construction and effectiveness of educational materials, which are related to content, language, illustration, layout and design<sup>(18)</sup>.

Phase 3 consisted of the process of validation of the material constructed by experts, including 2 nurses, 1 physical therapist and 4 nutritionists. Snowball sampling<sup>(13)</sup> was used to select experts in the field of interest according to criteria adapted from the literature<sup>(19,20)</sup>.

For the validation of the educational technology developed we used data collected from an instrument adapted from the literature<sup>(21)</sup>. The instrument consisted of two sections: the first section investigated aspects related to the identification of the expert and the second section contained instructions on how to complete the instrument and the 41 items that should be rated, which corresponded to the objective, content, language, relevance, illustrations, layout, motivation and culture. At the end of the instrument, the experts were asked to make general comments on the booklet.

The validation of the educational technology was analyzed using the Content Validity Index (CVI), which measures the proportion of agreement on a given subject in an instrument. Each item was analyzed separately using a Likert scale with scores of 1 to 5, where: 1) totally disagree; 2) disagree; 3) Neither agree nor disagree; 4) agree; 5) totally agree. Scores 4 and 5 were considered concordant. More than six experts evaluated the booklet and, therefore, the literature recommends a cutoff point above 0.78<sup>(22,23)</sup>. Thus, for the complete evaluation of the educational book, we used the sum of all the CVIs calculated separately and divided it by the number of items in the instrument<sup>(13)</sup>.

The present study was submitted to the Research Ethics Committee of the Federal University of Ceará, which approved it under Approval No. 2.357.269.

## RESULTS

The final version of the educational booklet titled “Diabetes Mellitus: nutrition booklet” comprised a cover and 39 pages that addressed the following themes: Presentation; DM (definition, classification and complications); Nutritional Classification according to the Body Mass Index (BMI); Knowing the Nutrients (carbohydrates, fibers, proteins and fats); Food choices (natural or minimally processed foods, processed and ultraprocessed foods); Reading food labels and nutrition facts; Serving size; Fruits, vegetables and legumes hygiene; Types of Sweeteners; Hypoglycemia (concept, symptoms and treatment); Bowel functioning; Use of alcoholic beverages; Healthy life; Afterword about the educational booklet.

The written material included topics with explanatory content. The illustrations made by a graphic designer were in accordance with the idea of each topic covered in the technology. They were arranged on each page according to the theme presented.

After the creation of the educational booklet the validation of appearance and content was carried out by seven experts: two nurses, one physical therapist and four nutritionists. Six experts specialized in Diabetes in the Multi-professional Health Care Residency program and one met the criterion related to clinical experience in the field. The highest degree of education presented by the experts was the master’s degree, which was held by 28% (n = 2) of the experts.

The educational technology was validated by calculating the CVI, as described in Table I. Most of the items presented a CVI of at least 0.86. It should be noted that only two items, 3.5 and 4.5, related to the writing and the suitability of the material for use by any health professional presented CVI values below the minimum agreement adopted. However, after calculating the mean CVI for each of the aspects of the booklet evaluated, we found a CVI above 0.90. The mean CVI value was 0.96, thus confirming the validation of appearance and content by the experts (Table II).

Table I - Content validity index for each item of the educational material. Fortaleza, 2018.

Items of the Educational Material	n	CVI
<b>Objetives</b>		<b>1.0</b>
1.1 The objectives are coherent with the health education needs of patients with diabetes mellitus (DM).	7	1.0
1.2 This educational technology is a tool that can be used in health education for patients with DM.	7	1.0
1.3 The educational technology can promote reflection about self-care in diabetic patients.	7	1.0
1.4 The information contained in the educational technology promote behavior and attitude changes.	7	1.0
<b>Content</b>		<b>0.95</b>
2.1 The educational technology is appropriate for patients with DM.	7	1.0
2.2 The educational technology provides information on how to perform self-care in diabetic patients	7	1.0
2.3 The educational technology emphasizes the importance of care to prevent the onset or worsening of complications.	7	1.0
2.4 The text is presented in a clear and objective way.	6	0.86
2.5 The information presented is scientifically correct.	7	1.0
2.6 The contents are varied and enough to achieve the objectives of the educational technology.	7	1.0
2.7 The content is presented in a logical sequence.	6	0.86
2.8 The division of headings and subheadings in the material is relevant.	6	0.86
2.9 Key ideas are important points and deserve to be highlighted.	7	1.0
<b>Language</b>		<b>0.90</b>
3.1 The information presented is clear and understandable.	7	1.0
3.2 The writing style corresponds to the level of knowledge of the target audience.	6	0.86
3.3 The information is well structured.	7	1.0
3.4 The information is in agreement with spelling.	6	0.86
3.5 The writing style used is appealing.	5	0.71
3.6 The title of educational technology is interesting and appropriate.	7	1.0
<b>Relevance</b>		<b>0.95</b>
4.1 The themes outline key points that should be reinforced during consultations.	7	1.0

4.2 The material allows the transfer and generalizations of learning to different contexts.	7	1.0
4.3 The educational technology encourages learners to acquire knowledge to perform self-care.	7	1.0
4.4 The educational technology addresses the issues necessary for the patient with DM.	7	1.0
4.5 The educational technology is suitable for use by any health care professional.	5	0.71
4.6 The theme is current and relevant.	7	1.0
<b>Illustrations</b>		<b>0.94</b>
5.1 The illustrations used are relevant to the content of the material.	7	1.0
5.2 The illustrations express the information that should be transmitted.	6	0.86
5.3 The number of illustrations is sufficient.	7	1.0
5.4 The illustration captions are adequate and help the reader understand the image.	6	0.86
5.5 The characters are charismatic.	7	1.0
<b>Layout</b>		<b>0.98</b>
6.1 The presentation of the educational technology is appealing.	7	1.0
6.2 The presentation of the educational technology is organized in a logical way.	7	1.0
6.3 The font and the font size used to present the content is suitable for reading.	7	1.0
6.4 The font used facilitates the reading of the material.	6	0.86
6.5 The contrast with different colors was done properly.	7	1.0
6.6 The text layout is adequate.	7	1.0
6.7 The number of pages is adequate.	7	1.0
<b>Motivation</b>		<b>1.0</b>
7.1 The title is appealing and arouses interest in reading.	7	1.0
7.2 The content arouses interest in reading.	7	1.0
7.3 The content is motivational and encourages the reader to continue reading.	7	1.0
<b>Culture</b>		<b>1.0</b>
8.1 The material is adequate to the sociocultural level of the proposed target audience.	7	1.0
<b>Overall mean of the educational technology</b>		<b>0.96</b>

Table II - Mean CVI for each item of the educational technology. Fortaleza, 2018.

Theme	Mean
1- Objectives	1.0
2- Content	0.95
3- Language	0.90
4- Relevance	0.95
5- Illustrations	0.94
6- Layout	0.98
7- Motivation	1.0
8- Culture	1.0
Overall mean of the educational technology	0.96

We analyzed the suggestions made by each professional regarding the improvement of the booklet and accepted them. The suggestions were: reformulation of illustrations; replacement or exclusion of technical terms; reformulation of text formatting; and simplification and reformulation of sentences, as shown in Chart I.

Chart I - Experts' suggestions regarding the appearance and content of the educational booklet. Fortaleza, 2018.

Experts' suggestions	Changes made
Reformulation of illustrations	The figure on the cover of the educational booklet was reformulated. An image that refers to the idea of food and nutrition was added to the figure on the cover.
Reformulation of text formatting	The headings were capitalized, centered and bold. The font size was increased.
Substitution/exclusion of technical terms	"Nerve injury" was replaced with "injury in the nerves".
Sentence simplification and reformulation	"Difficulty in healing" was replaced with "difficult healing". "Compromising the irrigation of the extremities" was replaced with "hindering blood flow". "Do you know the symptoms of hypoglycemia?" was replaced with "Are you aware of the symptoms of hypoglycemia?"

## DISCUSSION

In the present study, an educational material was created and validated for the promotion of healthy eating among patients with DM. The Ministry of Health warns of modifiable risk factors, such as healthy eating, in addressing noncommunicable diseases in the country. In addition, it recommends the production and distribution of educational strategies that should guide and sensitize the population<sup>(4,24)</sup>. Given that, materials addressing the aforementioned subject, like the one created and validated in the present study, are in line with national public health priorities<sup>(4)</sup>.

Following the worldwide trend, NCDs are also growing in Brazil and stand out as a new challenge for health managers due to their strong impact on the morbidity and mortality and on the quality of life of affected individuals<sup>(25)</sup>. The implementation of policies, including the National Diabetes Prevention Policy and the Diabetic Person's Comprehensive Health Care Policy (PLC 133/2017), which are still bills, are necessary to expand prevention activities and promote greater knowledge about DM as it is a disease that can be controlled through a combination of treatment, nutrition and active lifestyle<sup>(26)</sup>.

In this context, educational technologies are effective in promoting health as they improve patients' knowledge and coping skills, thus allowing them to understand how their actions influence their health status<sup>(27)</sup>.

The educational booklet is a working tool intended to promote nutrition education among people with diabetes and it is also a tool that can awake the readers' interest in enhancing their potential for self-care<sup>(28)</sup>. Its dissemination to users and professionals in health care centers would be part of the strategies for coping and controlling diabetes, the problems related to the disease, and its determinants<sup>(28)</sup>.

In the present study, the validation process was characterized by the multidisciplinary of the experts, which represented a very favorable aspect as it was possible to gather different types of specialized knowledge about the subject addressed in the material with pertinent and complementary observations<sup>(29)</sup>. Other studies also agree that the work performed by different professionals values the multi-professional team and leads to different conceptions about and approaches to the same subject<sup>(29-31)</sup>.

In general, there was agreement between the experts' responses, as described in the results presented herein. In agreement with the data presented in our study, other methodological studies on the development of educational technologies also validated their materials with high statistical indexes: the booklet on healthy eating during pregnancy was validated with 0.91<sup>(11)</sup> and the development of material for the prevention of metabolic syndrome in adolescents was completed with an overall CVI of 0.98<sup>(29)</sup>.

Although the overall CVI was satisfactory (0.96), the experts in the present study suggested changes that were relevant to the improvement of the educational booklet. In addition, the experts agreed on the applicability of the educational material. Other studies that validated printed educational technologies also used the CVI for content validation and underwent adjustments until the construction of the validated final version, thus emphasizing the importance of this step for the development of a quality material<sup>(32,33)</sup>.

A limitation of the present study was the non-validation of the material by the target audience. Therefore, it was not possible to assess the understanding and the effectiveness of the content in the educational technology. The next phases are expected to evaluate its applicability to the target audience, especially in health education actions, so as to favor the optimization of care by patients and professionals and to encourage the promotion of healthy eating habits, thus preventing diseases and improving the quality of life.

The booklet resulting from this study is fully and freely available at the following link: <http://www2.ebserh.gov.br/documents/214604/0/Cartilha+Nutric%CC%A7a%CC%83o+e+Diabetes+compactado.pdf/c27a6bb7-7bd0-419f-8cd1-5156255cf518>

## CONCLUSION

The educational booklet with nutritional guidelines for diabetic people constructed and validated in terms of appearance and content by specialized experts should be considered in the context of educational activities in order to improve adherence to nutritional therapy. Thus, the material will support professionals and those with diabetes to overcome doubts and difficulties that permeate self-care related to nutrition for the disease control.

## CONFLICTS OF INTEREST

There are no conflicts of interest to declare.

## CONTRIBUTIONS

All the authors contributed to the conception and design of the study; the acquisition, analysis and interpretation of data; and writing and/or revising the manuscript.

## REFERENCES

1. Sociedade Brasileira de Diabetes. Diretrizes da Sociedade Brasileira de Diabetes 2017-2018. São Paulo: Editora Clannad; 2017.
2. International Diabetes Federation. IDF Diabetes Atlas [Internet]. 8ª ed. Brussels: International Diabetes Federation; 2017.
3. Rossaneis MA, Haddad MCFL, Mathias TAF, Marcon SS. Diferenças entre mulheres e homens diabéticos no autocuidado com os pés e estilo de vida. Rev Latinoam Enferm [Internet]. 2016 [accessed on 2018 Aug 30];24:e2761. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0104-11692016000100384&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692016000100384&lng=en)
4. Ministério da Saúde (BR). Secretaria de Vigilância à Saúde. Secretaria de Atenção à Saúde. Política Nacional de Promoção da Saúde: PNaPS: revisão da Portaria MS/GM nº 687, de 30 de março de 2006. Brasília: Ministério da Saúde; 2014.
5. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Diretrizes para o cuidado das pessoas com doenças crônicas nas redes de atenção à saúde e nas linhas de cuidado prioritárias. Brasília: Ministério da Saúde; 2013.
6. Janini JP, Bessler D, Vargas AB. Educação em saúde e promoção da saúde: impacto na qualidade de vida do idoso. Saúde Debate [Internet]. 2015 [accessed on 2019 Mar 02];39(105):480-90. Available from: <http://www.scielo.br/pdf/sdeb/v39n105/0103-1104-sdeb-39-105-00480.pdf>
7. Estrela KCA, Alves ACC, Gomes TT, Isosaki M. Adesão às orientações nutricionais: uma revisão de literatura. DEMETRA: Alimentação, Nutrição & Saúde [Internet]. 2017 [accessed on 2018 Aug 15];12(1):249-74. Available from: <https://www.e-publicacoes.uerj.br/index.php/demetra/article/view/22407/21344>
8. Costa JA, Balga RSM, Alfenas RCG, Cotta RMM. Promoção da saúde e diabetes: discutindo a adesão e a motivação de indivíduos diabéticos participantes de programas de saúde. Ciênc Saúde Colet [Internet]. 2011 [accessed on 2018 Aug 15];16(3):2001-9. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1413-81232011000300034&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232011000300034&lng=en)
9. Benevides JL, Coutinho JFV, Pascoal LC, Joventino ES, Martins MC, Gubert FA, et al. Construção e validação de tecnologia educativa sobre cuidados com úlcera venosa. Rev Esc Enferm USP [Internet]. 2016 [accessed on 2018 Aug 15];50(2):309-16. Available from: [http://www.scielo.br/pdf/reeusp/v50n2/pt\\_0080-6234-reeusp-50-02-0309.pdf](http://www.scielo.br/pdf/reeusp/v50n2/pt_0080-6234-reeusp-50-02-0309.pdf)
10. Franco RC. Avaliação do Manual de orientação nutricional para pessoas com diabetes *mellitus* tipo 2 [thesis]. São Paulo: Universidade de São Paulo; 2015.
11. Oliveira SC, Lopes MVO, Fernandes AFC. Construção e validação de cartilha educativa para alimentação saudável durante a gravidez. Rev Latinoam Enferm [Internet]. 2014 [accessed on 2018 Aug 16];22(4):611-20. Available from: [http://www.scielo.br/pdf/rlae/v22n4/pt\\_0104-1169-rlae-22-04-00611.pdf](http://www.scielo.br/pdf/rlae/v22n4/pt_0104-1169-rlae-22-04-00611.pdf)
12. Alexandre NMC, Coluci MZO. Validade de conteúdo nos processos de construção e adaptação de instrumentos de medidas. Ciênc Saúde Colet. 2011;16(7):3061-8.
13. Polit DF, Beck CT. Fundamentos da pesquisa em enfermagem: avaliação de evidências para a prática de enfermagem. 7ª ed. Porto Alegre: ArtMed; 2011.
14. Echer IC. The development of handbooks of health care guidelines. Rev Latinoam Enferm. 2005;13(5):754-7.
15. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Guia alimentar para a população brasileira. 2ª ed. Brasília: Ministério da Saúde; 2014.
16. Sociedade Brasileira de Diabetes. Departamento de Nutrição e Metabologia da SBD. Manual de Nutrição:

- pessoa com diabetes 2009. São Paulo: SBD; 2009.
17. American Diabetes Association. Standards of Medical Care in Diabetes - 2017. *Diabetes Care*. 2017;40(Suppl 1).
  18. Moreira MF, Nóbrega MML, Silva MIT. Comunicação escrita: contribuição para a elaboração de material educativo em saúde. *Rev Bras Enferm* [Internet]. 2003 [accessed on 2018 Sep 03];56(2):184-8. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0034-71672003000200015&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672003000200015&lng=en)
  19. Joventino ES. Desenvolvimento de escala para mensurar a autoeficácia materna na prevenção da diarreia infantil [dissertation]. Fortaleza: Universidade Federal do Ceará; 2010.
  20. Fehring RJ. The Fehring Model. In: Carrol-Johnson RM, Paquete M, editores. *Classification of nursing diagnoses: proceedings of the Tenth Conference*. Philadelphia: JB Lippincott; 1994. p. 55-62.
  21. Maniva SJCF. Elaboração e validação de tecnologia educativa sobre acidente vascular cerebral para prevenção da recorrência [tese]. Fortaleza: Universidade Federal do Ceará; 2016.
  22. Lynn MR. Determination and quantification of content validity. *Nurs Res*. 1986;35(9):382-5.
  23. Polit DF, Beck CT. The content validity index: are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health* [Internet]. 2006 [accessed on 2018 Sep 03];29(5):489-97. Available from: <https://pdfs.semanticscholar.org/537d/5a0f09968979b4cf4e8b0213a8f39257b393.pdf>
  24. Ministério da Saúde (BR). Plano de ações estratégicas para o enfrentamento das Doenças Crônicas Não Transmissíveis (DCNT) no Brasil 2011-2022. Brasília: Ministério da Saúde; 2011.
  25. Câmara C. Mapeamento político da saúde no Brasil com foco em diabetes e doenças cardiovasculares. São Paulo: Sociedade Brasileira de Diabetes; 2018.
  26. Brasil. Projeto de Lei da Câmara n.º 133, de 2017. Institui a Política Nacional de Prevenção do Diabetes e de Assistência Integral à Saúde da Pessoa Diabética [Internet]. 2019 [accessed on 2019 Jan 02]. Available from: <https://www25.senado.leg.br/web/atividade/materias/-/materia/131364>
  27. Silveira MS, Cogo ALP. Contribuições das tecnologias educacionais digitais no ensino de habilidades de enfermagem: revisão integrativa. *Rev Gaúcha Enferm* [Internet]. 2017 [accessed on 2019 Apr 19];38(2):e66204. Available from: [http://www.revenf.bvs.br/scielo.php?script=sci\\_arttext&pid=S1983-14472017000200501&lng=pt](http://www.revenf.bvs.br/scielo.php?script=sci_arttext&pid=S1983-14472017000200501&lng=pt)
  28. Ramos LMH, Araújo RFR. Uso de cartilha educacional sobre diabetes *mellitus* no processo de ensino e aprendizagem. *Ensino, Saúde e Ambiente* [Internet]. 2017 [accessed on 2019 Apr 02];10(3):94-105. Available from: [http://periodicos.uff.br/ensinosaudeambiente\\_backup/article/view/14771/9372](http://periodicos.uff.br/ensinosaudeambiente_backup/article/view/14771/9372)
  29. Moura IH, Silva AFR, Rocha AESH, Lima LHO, Moreira TMM, Silva ARV. Construção e validação de material educativo para prevenção de síndrome metabólica em adolescentes. *Rev Latinoam Enferm* [Internet]. 2017 [accessed on 2018 Sep 05];25:e2934. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0104-11692017000100383&lng=pt](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692017000100383&lng=pt)
  30. Cruz FOAM, Ferreira EB, Vasques CI, Mata LFR, Reis PED. Validação de manual educativo para pacientes com câncer de cabeça e pescoço submetidos à radioterapia. *Rev Latinoam Enferm* [Internet]. 2016 [accessed on 2018 Sep 04];24:e2706. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0104-11692016000100337&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692016000100337&lng=en)
  31. Mendonça SCB, Zanetti ML, Sawada NO, Barreto IDC, Andrade JS, Otero LM. Construção e validação do Instrumento Avaliação do Autocuidado para pacientes com diabetes mellitus tipo 2. *Rev Latinoam Enferm* [Internet]. 2017 [accessed on 2018 Sep 06];25:e2890. Available from: [http://www.scielo.br/pdf/rlae/v25/pt\\_0104-1169-rlae-25-e2890.pdf](http://www.scielo.br/pdf/rlae/v25/pt_0104-1169-rlae-25-e2890.pdf)
  32. Teles LMR, Oliveira AS, Campos FC, Lima TM, Costa CC, Gomes LFS, et al. Construção e validação de manual educativo para acompanhantes durante o trabalho de parto. *Rev Esc Enferm USP*. 2014;48(6):977-84.
  33. Lima ACMACC, Bezerra KC, Sousa DMN, Rocha JF, Oriá MOB. Construção e validação de cartilha para prevenção de transmissão vertical do HIV. *Acta Paul Enferm*. 2017;30(2):181-9.

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