

Evaluation of a primer giving guidance on Diabetes Mellitus self-care

Avaliação da cartilha para orientação da prática do autocuidado em Diabetes Mellitus

Evaluación del manual para orientación de la práctica del autocuidado en Diabetes Mellitus

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ABSTRACT

Objective: to investigate the appropriateness of the booklet's content to complement diabetes self-care guidelines. **Method:** the participants in this qualitative, descriptive exploratory study were fifteen users of two primary health care facilities in Belo Horizonte. Data were collected in focus groups, during discussions of the suitability of the booklet's content, and were treated by the content analysis method. **Results:** the data were organized and analyzed into the following categories: the clarity and sufficiency of the information in the booklet; the appearance of the drawings and appropriateness of font sizes; and the usefulness of the guidance for self-care. **Conclusion:** users' evaluation of the booklet was of prime importance for this material to be used in primary care and attain the objectives of education for self-care.

Descriptors: Diabetes mellitus; health education; educational and promotional materials; program evaluation.

RESUMO

Objetivo: investigar a adequação do conteúdo da cartilha quanto ao seu uso para subsidiar as orientações da prática do autocuidado em diabetes. **Método:** estudo descritivo, exploratório, com abordagem qualitativa. Participaram 15 usuários de duas unidades básicas de saúde situadas em Belo Horizonte. Os dados foram coletados por meio de grupos focais, a partir da discussão para a adequação do conteúdo da cartilha, e tratados pelo método da análise de conteúdo. **Resultados:** organizados e analisados nas seguintes categorias: clareza e suficiência das informações contidas na cartilha; aparência dos desenhos e adequação do tamanho das letras; ajuda das orientações para o autocuidado. **Conclusão:** a avaliação da cartilha junto aos usuários foi primordial para que esse material seja utilizado na atenção primária, alcançando os objetivos de educação para o autocuidado.

Descritores: Diabetes mellitus; educação em saúde; material de ensino; avaliação de programas e projetos de saúde.

RESUMEN

Objective: investigar la adecuación del contenido del manual acerca de su uso para subsidiar las orientaciones de la práctica del autocuidado en diabetes. **Método:** estudio descriptivo, exploratorio, con enfoque cualitativo. Han participado 15 usuarios de dos unidades básicas de salud ubicadas en Belo Horizonte. Los datos han sido recolectados por medio de grupos focales, partiendo de la discusión para la adecuación del contenido del manual, y tratados por el método del análisis de contenido.

Resultados: organizados y analizados en las categorías a continuación: claridad y suficiencia de la información contenida en el manual; apariencia de los dibujos y adecuación del tamaño de las letras; ayuda de las orientaciones para el autocuidado.

Conclusión: la evaluación del manual junto a los usuarios fue de primordial importancia para que se utilice ese material en la atención primaria, alcanzando los objetivos de educación respecto al autocuidado.

Descriptores: Diabetes mellitus; educación en salud; materiales educativos y de divulgación; evaluación de programas y proyectos de salud.

INTRODUCTION

Considering the concepts of healthcare education as the theoretical and methodological foundation for the implementation of educational actions, we sought to value the knowledge of patients to assess the use of a booklet addressing *Diabetes Mellitus* (DM), as a teaching tool to support instructions concerning self-care practices. Educational material, such as booklets, serve as guides to provide instructions to patients in regard to a healthy lifestyle, clarifying doubts and helping patients to make decisions when facing problems. Additionally, booklets can encourage habits that prevent complications, making knowledge more uniform across individuals and more easily accessible, enhancing the teaching-learning process¹⁻⁴.

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^{III}Acknowledgment: this study was financially supported by the National Council of Scientific and Technological Development.



The assessment of educational materials addressing DM is relevant because there is a lack of materials directed to patients. The goal is to promote the autonomy of these individuals by encouraging them to practice active, critical and democratic participation, allowing them to construct new meanings and acquire a greater understanding of their experiences, highlighting cognitive aspects and self-care in DM³. The objective of this educational booklet is for it to be used by patients at home and during educational actions, encouraging their participation in intervention programs.

As such, the objective of this study was to verify how appropriate the content provided was to support instructions for practicing self-care in DM. The assessment of an educational booklet takes into account the information that is provided, aspects related to font size and type, language used, illustrations, as well as its relevance to supporting instructions regarding the practice of self-care and disseminating knowledge about how to manage the disease.

LITERATURE REVIEW

An educational booklet is an instrument intended to access learning content, as a resource always available to patients and families when it is necessary to clarify doubts⁵. This strategy enables patients and their families to expand knowledge about the disease and develop attitudes and skills that facilitate autonomy, promoting greater adherence to treatment and improved understanding of how one's actions influence one's health condition⁶.

Written language is supposed to complement messages conveyed by illustrations, but writing needs to be brief, objective, and comprehensible. In this process, written material reinforces verbal information previously provided and produces meanings for patients, supporting behavioral changes⁷. It is supposed to be used dialogically in the relationship between health worker and patient for communication to be effective; workers are able to identify the needs and difficulties faced by patients with DM, helping them find solutions^{2,3,8}. Health workers should bear in mind that teaching is not merely transferring knowledge, but rather is promoting situations that enable patients to produce or construct knowledge³.

Brazil is among the ten countries with the highest prevalence of diabetes^{9,10}, which shows the need to invest in healthcare promotion programs, especially in the communication process, to provide patients knowledge regarding self-care for DM by providing educational materials such as booklets, handbooks and leaflets¹¹. The active participation of patients in the development and assessment of educational materials can improve the material's efficacy and help to achieve the objectives proposed, so one should not disregard the knowledge accruing from patients' experiences¹²⁻¹⁴.

METHODOLOGY

This is a descriptive-exploratory study with a quantitative approach. This qualitative focus is based on the premise that the knowledge of patients is only accessible through the description of human experience, as such is experienced and defined by the patients themselves¹⁰. This study was conducted in two primary healthcare (PHC) units located in the eastern region of Belo Horizonte, Minas Gerais, Brazil. The participants were 15 patients with DM, in follow-up and attending an educational group addressing diabetes.

The educational group included two-hour meetings held with diabetic patients and conducted by a nurse. Health workers presented a theme every meeting using interactive and playful dynamics based on educational games and theoretical and practical knowledge. The meetings were held with the same multidisciplinary team, seeking to vary teaching and learning methodologies to solidify knowledge. The topics addressed were: DM physiopathology; prevention of acute and chronic complications; and the importance of diet, exercise and foot care.

Data were collected using focal groups and an identification form addressing the participants' sex, age and educational level.

The focal group included 15 patients with DM, selected according to their ages – between 40 and 69 years old – who took part in an educational intervention focused on DM. The focal group technique allows information to be collected that originates in discussions and reflections proposed through dialogue, interaction and group discussions

on a specific topic proposed by researchers¹⁵. The purpose of the focal group was to discuss how appropriate the educational booklet was for supporting self-care practices.

Two focal groups composed of 15 patients each were gathered in each PHC unit and meetings lasted one hour each. The booklet *Getting to Know Diabetes* was presented to the participants, the instrument was read, and the participants were asked to take the booklet home to work with it and read it with their families. Afterwards, the patients were informed they would be invited to participate in a new meeting two weeks later to examine the material.

The following criteria guided the researcher in the second meeting, the objective of which was to discuss and assess the booklet for: *content* – clarity of information and sufficiency of information addressing DM (i.e., insulin therapy, exercises, diet, and foot care); *appearance* – clarity of drawings and how appropriate the font size was, and *acceptance* – specifying how information provided was helpful to self-care practice.

To ensure the confidentiality of respondents, the participants were identified as P1, P2, P3, ..., P15. The material was recorded, systematized and categorized to compose a database, considering frequent and recurrent opinions, disagreements and consensuses.

Data were interpreted using thematic analysis adapted by Bardin, from exhaustively reading the reports in three stages: pre-analysis, pre-analytical categories, and treating information using inferences and interpretation¹⁶.

The findings were organized in the following analytical categories: clarity and sufficiency of information provided in the booklet; appearance of drawings and appropriateness of font size; instructions for support self-care.

The study project was approved by the Institutional Review Board at the Health Department of Belo Horizonte, MG, Brazil, opinion report No. 0024.0.410.203-09. The study is in agreement with all the requirements established at the time by Resolution 196/96, National Council of Health.

RESULTS

The results indicated a predominance of female patients with a low educational level, aged 55 years, on average.

The participants' sociodemographic profile is similar to profiles reported in the literature^{17,18,19}. One study addressing more than 5,000 patients with DM in the PHC network located in Cuiabá, MT, reports that the sample was mainly composed of women with a low educational level¹⁹.

The categories that emerged in this study are presented below:

Clarity and sufficiency of information

This category is concerned with content. In order to make this aspect concerning clarity of information on DM more consistent, we asked the participants to explain what they had understood of the content provided:

The material talks about eating at regular intervals and exercising. The information is easy to understand and is really complete. (P1)

After reading the booklet, I started eating less, especially less rice, and now I eat salad for lunch and dinner. I've learned that I shouldn't keep insulin in the fridge's door, as I used to, and also what hyperglycemia and hypoglycemia is; I used to always confuse them. (P7)

Additionally, information and instructions provided in the educational booklet were considered to be sufficient, as the participants' reports show:

I like João. He reminds us to doing everything correctly, eat at the right times, eating fruits, vegetables, taking medications, exercising, so we'll have a good life. The part talking about exercise is interesting because it says exercising helps you enjoy life more. (P2)

The booklet is complete, very comprehensive; it helps everyone and is very objective. (P5)

Appearance of drawings and how appropriate font size is

In the category concerning appearance, the participants found the quality of the drawings and font size to be appropriate, as the following excerpts show:

The language is easy to understand; the drawings are good; the figures help to understand the disease and the colors draw your attention. The illustrations are great and complement the written information and help you understand; draws your attention to the reading and makes you want to read. (P6)

I identify myself with João. One day I was eating cookies at the front of the TV, which reminded me of him and I stopped eating right away. One characteristic of João that I also exaggerate on Sunday meals: it's difficult to control yourself when the family is all gathered. (P9)

Some of the individuals invited to assess the booklet directed to patients with DM became interested in the instrument's illustrations, saying they helped them to clarify doubts. Additionally, individuals considered the material accessible even for those who are not very familiar with written language, showing that the objective of the material of using simple language was achieved.

How helpful self-care guidelines were

In this category, the participants were supposed to assess whether the booklet was helpful in self-care, regarding which participants reported total agreement, as the following excerpt shows:

It is going to be good for me, because we always forget something over time; you get the booklet, take a look at it, and recall things; we should read it twice a week to remember what we need to do to care for diabetes. (P4)

The participants' comments confirm the importance of the content addressed in the booklet and the need to clearly convey information, to facilitate the target-population's understanding of information, leaving no room for misinterpretations concerning self-care. The fact that patients have a booklet to consult at home facilitates the clarification of potential doubts that may arise in their daily routines⁶.

DISCUSSION

As the participants' reports show, the information we intended to communicate through the booklet was properly conveyed and the reports highlight the details of instructions contained in the material. It is known that a low educational level restricts understanding of information, as the participants' reports show; however, despite their low educational level, they understood the content presented in the booklet^{20,21}. Health workers should be able to choose methods that facilitate the communication process.

Language should be similar to that used in popular speech to avoid limiting understanding to people with higher educational levels only, or those with a reading habit. One study addressing an educational booklet concluded that formal language is not the best choice, and texts more frequently adopting narratives were suggested²².

Illustrative figures are important elements in educational materials because they facilitate comprehension and motivate people to manipulate the material^{23,24}. This is seen in the report of one of the interviewees assessing the booklet, in which illustrations were related to a better understanding of the disease. Drawings enable patients to visualize the importance of exercise and of having a non-linear and flexible eating plan structure. Additionally, the possibility of patients effectively implementing self-care in their daily lives increase interest in the subject and facilitates learning²⁵.

Another important element to be observed in educational materials intended to motivate readers is font size. In this material, we used a font size that would not require great effort to read. Note that the reports mention this element, and one of the patients manifested satisfaction for not having to expend much effort to read. We chose illustrations that facilitated patients becoming identified with characters and with the story context.

The physiopathology of the disease was explained in a playful manner, using metaphors that were intended to facilitate understanding of a difficult topic. The reports show this was a useful strategy, reinforcing the view that the use of playful strategies in printed educational material may facilitate understanding and motivate reading. One study conducted in Fortaleza, CE, Brazil, reports that use of the *cordel* literature to produce a booklet addressing dengue was a good strategy to promote change of attitudes and behaviors²⁶.

Note there is a need to adopt didactic instruments in educational processes to promote the acquisition of knowledge, while decision-making is facilitated with the use of printed material. Studies highlight the use of printed



material directed to critical patients and their families; the use of printed material was important, as well, at the time of choosing the best treatments and also helped families to deal emotionally with the treatments' adversities. Printed material is also a relatively low-cost strategy^{25,27}.

Another important issue is the fact that patients related self-care to a healthy diet, exercise, and properly taking medication to improve quality of life, which is the objective intended for this educational material.

In addition to the benefits of educational instruments to aid in self-care, these resources play an important role in promoting the health of patients with DM and that of their families, by preventing complications, promoting the confidence and autonomy of individuals²⁷. If well-designed and properly used, printed materials can positively impact metabolic control, as reported by international studies conducted with patients with DM, in which patients received printed material and a DVD addressing the same content. Satisfactory results were reported, such as decreased postprandial glucose and increased frequency of glucose monitoring^{26,27}.

Education is the cornerstone of the empowerment process, which enables patients to manage their disease. For that, knowledge and skills concerning diet, exercise, medication, monitoring and personal motivation are important aspects to enjoying a longer life with improve quality^{28,29}.

CONCLUSION

Asking patients with DM to assess this booklet was essential for it to be used in primary health care, to achieve the objectives concerning self-care education, and to be adopted by healthcare workers to support their roles as educators.

The educational booklet is an important resource in health education, a low-cost instrument able to support instructions concerning self-care, encouraging patients to develop skills and achieve autonomy and prevent diseases.

The booklet was not randomly distributed; it was handed to the patients attending a Diabetes Educational Program, which enabled discussing the material in depth and assessing it. Because it is written material, it requires constant updating to keep current with scientific innovations.

The conclusion is that the use of this booklet in educational practice was satisfactory and appropriate for this study's participants, generating the expected results.

This study's limitations include its small sample size and the fact that only two different settings were addressed, which impedes the generalization of results. Nonetheless, the study is relevant, because it portrays a certain context, which can support future studies.

REFERENCES

1. Sociedade Brasileira de Diabetes. Diretrizes da Sociedade Brasileira de Diabetes: 2014-2015. Rio de Janeiro: SBD; 2015.
2. Torres HC, Chaves FF, Bosco AA, Dutra D, Gabriel BD, Rodrigues J, Reis IA, Pagano A. Translation, adaptation and validation the contents of the Diabetes Medical Management Plan for the Brazilian context. *Rev. latinoam. enferm.* (Online). 2016 [cited 2018 Jun 6]; 25(2):187-202. DOI: <http://dx.doi.org/10.1590/1518-8345.1138.2740>
3. Freire P. *Pedagogia da autonomia: Saberes necessários à prática educativa*. São Paulo: Editora EGA; 1996.
4. Fonseca LMM. Educational guideline for the maternal orientation concerning the care with preterm infants. *Rev. latinoam. enferm.* (Online). 2004 [cited 2018 Jun 6]; 12(1):65-75. DOI: <http://dx.doi.org/10.1590/S0104-11692004000100010>
5. Grippo MLVS, Fracolli LA. Evaluation of an educational booklet about childcare promotion from the family's perception regarding health and citizenship. *Esc. Enferm. USP.* [Internet]. 2008 [cited 2018 Jun 6]; 42(3); 430-6. DOI: <http://dx.doi.org/10.1590/S0080-62342008000300003>
6. Selli L, Papaleo LK, Meneghel SN, Torneros JZ. Educational techniques in diabetes treatment. *Cad. Saúde Pública* (Online). 2005 [cited 2018 Jun 6]; 21(5): 1366-72. DOI: <http://dx.doi.org/10.1590/S0102-311X2005000500008>
7. Freitas AAS, Cabral IE. Caring patient with tracheotomy: analyze of an educative leaflet. *Esc. Anna Nery Rev. enferm.* [Internet]. 2008 [cited 2018 Jun 6]; 12(1):84-9. DOI: <http://dx.doi.org/10.1590/S1414-81452008000100013>
8. Luz ZMP, Pimenta DN, Rabello A, Schall V. Evaluation of informative materials on leishmaniasis distributed in Brazil: criteria and basis for the production and improvement of health education materials. *Cad. Saude Publica* (Online). 2003; 19(2):561-9. DOI: <http://dx.doi.org/10.1590/S0102-311X2003000200023>



9. Schimdt MI, Duncan BB, Silva GA, Menezes AM, Monteiro CA, Barreto SM, Chor D, Menezes PR. chronic noncommunicable diseases in Brazil: charge and current challenges. *The Lancet*. [Internet]. 2011 [cited 2018 Jun 6]; 377 (9781). Available from: <http://www.thelancet.com/series/health-in-brazil>
10. American Diabetes Association. *Standards of Medical Care in Diabetes - 2016*. USA: ADA; 2016.
11. Torres HC, Reis IA, Pace AE, Velasques G. Evaluation of the effects of a diabetes educational program: a randomized clinical trial. *Rev. saúde pública* (Online). 2018 [cited 2018 Jun 6]; 52(1):1-11. DOI: <http://dx.doi.org/10.11606/S1518-8787.2018052007132>
12. Torres HC, Candido NA, Alexandre LR, Pereira FL he process of creating guidebooks for orienting self-care in the Diabetes educational program. *Rev. bras. enferm.* (Online) 2009 [cited 2018 Jun 6]; 62(2): 312-6. DOI: <http://dx.doi.org/10.1590/S0034-71672009000200023>
13. Chaves FF, Carvalho TLA, Cabrera EP, Pagano A, Reis IA, Torres HC. Mobile applications for adolescents with type 1 diabetes mellitus: integrative literature review. *Acta Paul. enferm.* (Online). 2017 [cited 2018 Jun 6]; 30(5):565-72. DOI: <http://dx.doi.org/10.1590/1982-0194201700070>
14. Echer IC. The development of handbooks of health care guidelines. *Rev. latinoam enferm.* [Internet]. 2005 [cited 2018 Jun 6]; 13(5):754-7. DOI: <http://dx.doi.org/10.1590/S0104-11692005000500022>
15. Morgan DL. *Focus group as qualitative research*. London (UK): Sage; 1997.
16. Bardin L. *Análise de conteúdo*. 4ª ed. São Paulo: Edições 70; 2011.
17. Oliveira PB, Franco, LJ. Consumo de adoçantes e produtos dietéticos por indivíduos com diabetes melito tipo 2, atendidos pelo Sistema Único de Saúde em Ribeirão Preto, SP. *Arq. Bras. Endocrinol. Metabol.* [Internet]. 2010 [cited 2018 Jun 6]; 54(5):455-62. DOI: <http://dx.doi.org/10.1590/S0004-27302010000500005>
18. Nascimento AB, Chaves EC, Grossi SAA, Lottenberg AS. The relationship between polipharmacy, chronic complications and depression in individuals with Type 2 Diabetes Mellitus. *Esc. Enferm. USP.* [Internet]. 2010 [cited 2018 Jun 6]; 44(1):40-6. DOI: <http://dx.doi.org/10.1590/S0080-62342010000100006>
19. Cortez D, Torres HC, Souza DAS, Macedo MA, Reis I A. Complications and the time of diagnosis of diabetes mellitus in primary care. *Acta Paul. Enferm.* [Internet]. 2015 [cited 2018 Jun 6]; 28(3):250-5. DOI: <http://dx.doi.org/10.1590/1982-0194201500042>
20. Toral N, Conti MA, Slater B. A alimentação saudável na ótica dos adolescentes: percepções e barreiras à sua implementação e características esperadas em materiais educativos. *Cad. Saude Publica* (Online). 2009 [cited 2018 Jun 6]; 25(11):2386-94. DOI: <http://dx.doi.org/10.1590/S0102-311X2009001100009>
21. Moreira MF, Silva MIT. Readability of the educational material written for diabetic. *Online. Online braz. j. nurs.* (Online). 2005 [cited 2018 Jun 6]; 4(2): [aproximadamente 18p.]. Available from: <http://www.uff.br/nepae/siteantigo/objn402moreiraeta1.htm>
22. Lenz-de-Oliveira K, Santos MM, Garcia WI, Gomes R. The formulation of a brochure about the ambiguities of marital violence. *Psicol. Cienc. Prof.* [Internet]. 2010 [cited 2018 Jun 6]; 30(2):428-39. DOI: <http://dx.doi.org/10.1590/S1414-98932010000200016>
23. Fracolli LA, Chiesa AM. The perception of families about the guide “every time is time for caring”. *O Mundo da Saúde.* [Internet]. 2010 [cited 2018 Jun 6]; 34(1): 36-42. Available from: http://www.saocamillo-sp.br/pdf/mundo_saude/74/04_original_Percepcao.pdf
24. Tôrres LHN, Paula JS, Sousa MLR, Mialhe FL. Cartoons in the wartoons in the waiting room: an oral health educacion tool. *Odontol. Clín.-Cient.* [Internet]. 2011 [cited 2018 Jun 6]; 10(1) 69-72. Available from: https://w2.fop.unicamp.br/dos/educacao_saude/downloads/jogos_odontologia/historia_em_quadrinhos_sala_de_espera.pdf
25. Freitas AAS, Cabral IE. Caring patient with tracheotomy: analyze of an educative leaflet. *Esc. Anna Nery. Rev. Enferm.* [Internet]. 2008 [cited 2018 Jun 6]; 12(1):84-9. DOI: <http://dx.doi.org/10.1590/S1414-81452008000100013>
26. Carson SS, Vu M, Danis M, Camhi SL, Scheunemann LP, Cox CE, Hanson LC, Nelson JE. Development and validation of a printed information brochure for families of chronically critically ill patients. *Crit. Care Med.* [Internet]. 2012 [cited 2018 Jun 6]; 40(1):73-8. DOI: <http://dx.doi.org/10.1097/CCM.0b013e31822d7901>
27. King AB, Wolfe GS, Armstrong DU. Evaluation of a patient education booklet (SimpleStart™) effect on postprandial glucose control in Type 2 Diabetes. *Diabetes Technol. Ther.* [Internet]. 2007 [cited 2018 Jun 6]; 9(3):241-5. DOI: <http://dx.doi.org/10.1089/dia.2006.0014>
28. Sousa EL, Martins MM, Costa MS, Moreira MRC, Silva AO. Quality of life and factors associated with the health of elderly diabetics. *Rev. enferm. UERJ.* [Internet]. 2016 [cited 2018 Jun 6]; 25(5):e8456. DOI: <http://dx.doi.org/10.12957/reuerj.2016.8456>
29. Santos AL, Felipe GF, Anjos SSJB, Sousa LB, Marcon SS. Living with diabetes: difficulties experienced in coping with, and managing, the disease. *Rev. enferm. UERJ.* [Internet]. 2018 [cited 2018 Jun 6]; 26: e18221. DOI: <https://doi.org/10.12957/reuerj.2018.18221>