Development of a booklet as an educational technology for birth pain relief

Desenvolvimento de cartilha como tecnologia educacional para alívio da dor do parto

Elaboración de cartilla como tecnología educativa para el alivio del dolor de parto

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Abstract

Objective: To describe the construction and validity of an educational booklet on non-pharmacological methods for labor and birth pain relief.

Methods: This is a methodological study, carried out in three stages. In the first, a bibliographic survey was carried out to select the contents related to the theme. In the second stage, validity was carried out with 24 content judges and three technical judges. In the third stage, there was validity by the target audience, with 30 pregnant women. The study took place from September to November 2018. The Office spreadsheet editor was used for data analysis.

Results: The level of agreement attributed by the content and technical judges was between 97.2% and 98.9% and between 83.3% and 100%, respectively. The overall Content Validity Index was 0.92 and 0.97, respectively. In the assessment carried out with the Suitability Assessment of Materials, the content judges classified the booklet as "superior", with an average of 85.2%, and the technicians, with an average of 77.5%. The target audience validated the booklet with an overall Content Validity Index of 0.98 and an agreement level of 99.7%.

Conclusion: The educational booklet proved to be valid for use with pregnant women, being considered innovative and relevant educational technology for use in prenatal consultation.

Resumo

Objetivo: Descrever os processos de construção e validação de cartilha educativa sobre métodos não farmacológicos para alívio da dor no trabalho de parto e parto.

Métodos: Estudo metodológico, realizado em três etapas. Na primeira, foi realizado levantamento bibliográfico para seleção dos conteúdos referentes à temática. Na segunda etapa, realizou-se validação com 24 juízes de conteúdo e três juízes técnicos. Na terceira etapa, ocorreu validação pelo público-alvo, com 30 gestantes. O período do estudo foi de setembro a novembro de 2018. Foi utilizado o editor de planilhas do Office para análise dos dados.

Resultados: O nível de concordância atribuído pelos juízes de conteúdo e técnicos esteve entre 97,2% e 98,9% e entre 83,3% e 100%, respectivamente; o Índice de Validade de Conteúdo global foi de 0,92 e 0,97, respectivamente. Na avaliação realizada com o *Suitability Assesment of Materials*, os juízes de conteúdo classificaram a cartilha como "superior", com média de 85,2% e os técnicos com média de 77,5%. O público-alvo validou a cartilha com Índice de Validade de Conteúdo global de 0,98 e nível de concordância de 99,7%.

Conclusão: A cartilha educativa mostrou-se válida para ser utilizada junto às gestantes, sendo considerada tecnologia educativa inovadora e relevante na utilização em consulta pré-natal.

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Conflicts of interest: nothing to declare.

Resumen

Objetivo: Describir el proceso de elaboración y validación de cartilla educativa sobre métodos no farmacológicos para aliviar el dolor en el trabajo de parto y en el parto.

Métodos: Estudio metodológico, realizado en tres etapas. En la primera, se realizó el análisis bibliográfico para seleccionar contenidos relacionados con la temática. En la segunda etapa, se realizó la validación con 24 jueces de contenido y tres jueces técnicos. En la tercera etapa, se llevó a cabo la validación por parte del público destinatario, con 30 mujeres embarazadas. El período de estudio fue de septiembre a noviembre de 2018. Se utilizó el editor de planillas de Office para el análisis de datos.

Resultados: El nivel de concordancia atribuido por los jueces de contenido fue entre 97,2 % y 98,9 % y de los técnicos entre 83,3 % y 100 %. El Índice de Validez de Contenido global fue de 0,92 y 0,97, respectivamente. En la evaluación realizada con *Suitability Assesment of Materials*, los jueces de contenido clasificaron la cartilla como "superior", con promedio de 85,2 % y los técnicos con promedio de 77,5 %. El público destinatario validó la cartilla con Índice de Validez de Contenido global de 0,98 y nivel de concordancia de 99,7 %.

Conclusión: La cartilla educativa demostró ser válida para ser utilizada con mujeres embarazadas y fue considerada una tecnología educativa innovadora y relevante para utilizar en consultas de control prenatal.

Introduction

Pregnancy is a period characterized by transformations, both physical, physiological and emotional, which can generate anxiety, doubts, uncertainties, fears and concerns.[1] Fear of labor pain and anxiety can impair healthy parturition, bringing negative psychological consequences. These are important factors to be considered for the growth of the number of elective cesarean sections, which is beyond the values acceptable by the World Health Organization (WHO), corresponding to 10% to 15%.

A study conducted in Brazil with 23,940 puerperal women showed that normal birth was the most accepted by women, but few were supported in their choice. One third of women who opted for a cesarean section from the beginning of pregnancy reported fear of labor pain as the main reason for choosing.[2] A study showed that most mothers who had normal birth (67.5%) reported labor and birth as quite painful and associated with fear, stating that they had felt little or no feeling of pleasure or satisfaction.[3]

In 2018, the WHO, aiming to reduce unnecessary medical interventions, released new recommendations to ensure that healthy pregnant women have a positive experience at the time of normal birth. These shares fall into four categories. In the recommended category, there are several techniques for pain relief during labor, such as muscle relaxation, ambient music, breathing techniques, massage and hot bags.[4]

Still, with the advent of scientific techniques, the various techniques of pain management during labor have become dynamic and acceptable in the health universe. Thus, new studies have shown its use as a pain relief strategy.[5] A study conducted with 586 puerperal women revealed that 77.9% of them used some non-pharmacological method, and only 9.1% did not know any method.[6] In contrast, a study conducted in São Paulo revealed that 76.7% of women were unaware of these methods, but, despite this, when encouraged, 61.5% reported that applying the techniques helped a lot in reducing pain.[7]

Non-pharmacological methods for pain relief during normal birth, such as continuous support, maternal mobility, walking, breathing exercises, massage therapy, obstetric ball, obstetric bench, shower with warm water, perineal exercises, among others, are not widely used, but they promote benefits for both parturient women and their babies, helping the woman to exercise her protagonist power throughout the parturition process.[8]

Educational technologies become tools capable of mediating care between health team and pregnant woman. Thus, educational activities that use technologies and aim at behavior change are inserted in the health education process. However, a study showed that women (79.4%) reported not having received guidance on non-pharmacological methods during prenatal care in Basic Health Units, which contributes to the lack of knowledge and preparation of these women when they go into labor.[7]

In addition, a study carried out with obstetric nurses showed that only a small portion of professionals use methods that benefit parturient women, due to workload or lack of structure.[5] Thus, it is

noticed that educational activities, still carried out in prenatal care on non-pharmacological methods for birth pain relief, can contribute to empowering women in prenatal care, favoring their role in the parturition process, aiming at a smooth birth and making them aware and safe from the parturition process, in order to avoid routine and unnecessary interventions .

Given the importance of comprehensive care provided to pregnant women, it is imperative to develop educational technologies that can be used with this target audience during prenatal care. Moreover, the health team, in this way, will contribute to improving the support provided to parturient women, favoring the process of humanization of birth.

Therefore, we aimed to describe the construction and validity of an educational booklet on non-pharmacological methods for pain relief in labor and birth.

Methods

This is a methodological study, carried out from February 2017 to November 2018, divided into three stages: booklet preparation; booklet validity by judges; and validity by the target audience.

In the first stage, there was an intense search for studies on non-pharmacological methods for pain relief during birth, which were used to construct the booklet theoretical content. To this end, consultations with obstetrics books, manuals, Non-Governmental Organization websites, protocols and scientific articles were carried out. To consult the articles, an integrative review was carried out in the Cumulative Index to Nursing and Allied Health Literature (CINAHL), MEDLINE®/PubMed®, Latin American and Caribbean Literature in Health Sciences (LILACS), Scientific Electronic Library Online (SciELO), Scopus and Cochrane Library databases. The descriptors of each non-pharmacological method, associated with the descriptor "labor, obstetric", integrated by the connector AND in all indexes were searched.

The booklet was entitled "*What Do You Know about Using Non-Pharmacological Methods for Birth Pain Relief? Let's learn!*" presented non-pharmacological methods to relieve labor pain as well as information on labor, obstetric violence and pregnant women's rights. Then, the Flesch Reading Ease Index was applied, in order to ensure the suitability for reading the booklet by the target audience, which assesses the readability and assigns ratings ranging from "very easy" to "very difficult". To assess the Flesch Reading Ease Index, the automatic Portuguese grammar proofer ReGra was used, which classifies the material according to the following criteria: 100 to 75, if very easy; 74 to 50, if easy; 49 to 25, if difficult; and 24 to zero, if very difficult.[10] The paragraphs/phrases, classified as "difficult" or "very difficult", were reassessed and rewritten for a better understanding by the target population, applying again the Flesch Reading Ease Index. Thus, when analyzing the complete booklet, the test revealed Flesch Reading Ease Index of 90%, classifying the material as "very easy". [10] Subsequentially, an attractive booklet illustration and diagramming were carried out by a designer, aiming at the easy understanding by the target audience.

In the second stage, 95 potential judges from different Brazilian states were invited by snowball sampling. The booklet and the Informed Consent Form were simultaneously sent to the judges who agreed to participate in the study, through Google Forms®, for validity by three groups of judges, 12 of which were content judges (researchers and professors in the area of women's health, obstetrics, prenatal care and birth, educational technologies and/or validity of educational material); 12 content care judges (experience in women's health with a focus on normal birth care); and three technical judges with professional experience in the area of graphic design, totaling a final sample of 27 judges.[11]

For validity by the target audience, comprising the third stage, 30 pregnant women were selected for convenience in a natural birth center, located in Fortaleza (CE).[12,13] The inclusion criteria at this stage were to be pregnant at the time of the research, at any gestational age, to be undergoing prenatal care and being over 18 years old. Pregnant women who were illiterate were excluded, since they could not read the booklet alone.

For data collection, three instruments were used, two directed to judges and one aimed at the target audience. As for the judges, the first instrument[14] was an adapted questionnaire, divided into two parts: the first contained data identifying the judges; and the second contained instructions for filling in and the booklet's assessment items, totaling 52 items distributed in seven assessment aspects, being two of content and five of appearance, answered in the form of a Likert-type scale, in which one corresponded to totally disagree, two to partially agree, three to agree and four to totally agree. For options one and two, the judges justified the choice in the space allocated. The items that received a score of one or two were reviewed.[15] The second instrument used was the Suitability Assessment of Materials (SAM) form. For each item of the six categories assessed, the classification was "superior", "suitable" or "not suitable".

Regarding the target audience, the adapted instrument used[16] was a questionnaire covering five domains, in addition to sociodemographic and obstetric data. Subsequently, there was a checklist regarding page clarity, relevance and degree of relevance. The answers to the questions regarding the target audience's degree of relevance were presented in the form of a Likert-type scale, with the following response levels: one for irrelevant; two for little relevant; three for really relevant; and four for very relevant. A space was allocated next to the questions to record the pregnant women's suggestions.

The data obtained were organized and analyzed by the Office spreadsheet editor, and the descriptive analysis was performed, with calculation of absolute and relative frequencies. The Shapiro-Wilk normality test was performed. For variables that follow a normal distribution, average and standard deviation were calculated and, for those that do not follow a normal distribution, median and interquartile range were calculated. The booklet validity process by judges, in terms of content and appearance, and aspects related to scientific accuracy and content were validated by calculating the Content Validity Index (CVI), following three approaches: content validity of individual items; average content validity of individual scale items; and proportion of items assessed as agree and totally agree,[17] with the overall CVI with a value greater than 0.80 being adopted for booklet validity.[18] The other aspects were assessed according to the booklet's appearance validity, based on the level of agreement among judges, obtained by calculating the number of judges who agreed with the item divided by the total number of judges. A level of agreement greater than 80% was adopted for booklet validity.[18] The SAM scores[19] were assessed by a Likert-type scale, with two points indicating superior, one suitable and zero not suitable, according to objective criteria included in the instrument, which allow both calculation of value average and percentage analysis, being considered superior (70% to 100%), suitable (40% to 69%) or not suitable (10% to 39%).

The study was approved by the Research Ethics Committee of the *Universidade Federal do Ceará*, with opinion approved under Opinion 2,698,895 and CAAE (*Certificado de Apresentação para Apreciação Ética* - Certificate of Presentation for Ethical Consideration) 90495318.6.0000.5054. The ethical precepts referring to Resolution 466/2012 of the Brazilian National Health Council were respected.

Results

In the first stage, the search totaled 1,114 articles. After selection, the articles were read, and the final sample consisted of 43 articles. Text elaboration began, followed by illustration preparation, ending with diagramming. In the text construction, we sought to elaborate a content rich in information, but objective, with language accessible to all social strata and levels of education. We chose to present the educational booklet in 12 topics: learning labor and birth; pregnant women's rights; and non-pharmacological methods – walking, birth ball, music therapy, massage, position changes, aromatherapy, acupuncture, hydrotherapy and breathing exercises. In order to ensure interactivity, two games were developed at the end of the booklet. The complete booklet analysis revealed a Flesch Reading Ease Index of 90%, being within the range of 75% to 100%, classifying the material as "very easy" (Figure 1).

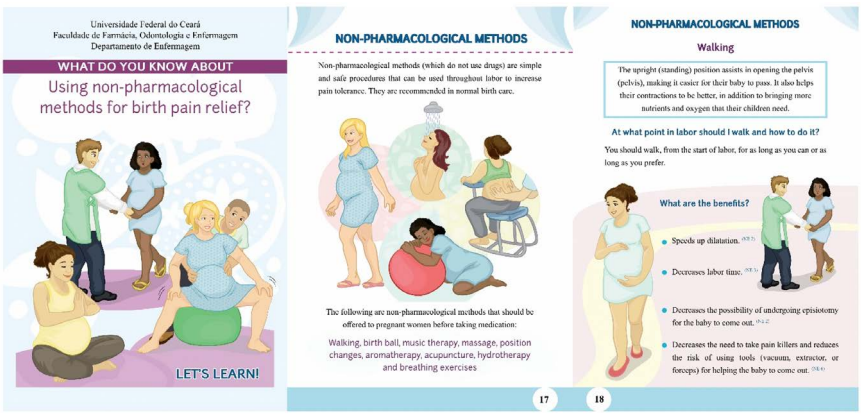

Figure 1. "*What Do You Know about Using Non-Pharmacological Methods for Birth Pain Relief? Let's learn!*" cover and pages

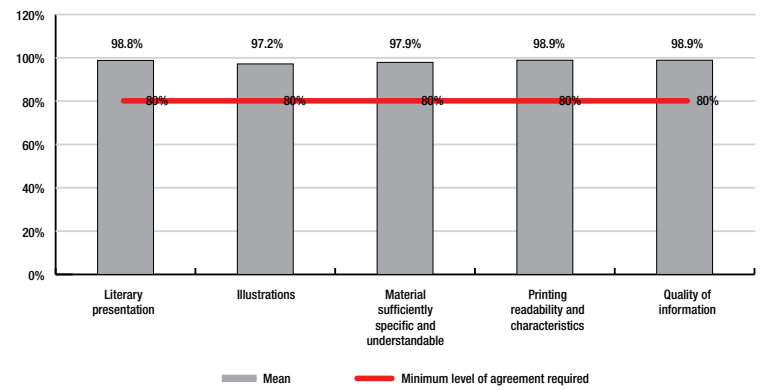

Figure 2. Five assessment aspects' level of agreement to validate booklet appearance, according to the content judges' analysis

Subsequently, in the booklet content validity stage, 24 judges participated, being 12 teaching judges and 12 care judges. All content judges (100%) were nurses, with an average age of 40.4 years, exclusively female (100%). They had an area of expertise in teaching and were in the area of women's health, obstetrics, prenatal care and birth, with an average of 15.5 years of experience. All (100%) care judges were nurses, with an average age of 35.5 years, predominantly female (100%), working in an obstetric center, obstetric emergency, surgical center and teaching, with an average of 7.1 years of experience.

To validate the booklet content, the CVI (I-CVI - item content validity index; S-CVI/AVE - I-CVI average of all items) was calculated for the instrument's two assessment aspects. As for scientific accuracy, an I-CVI of 0.92 was obtained, and, as for content, an I-CVI of 0.93. The overall average CVI of all items was 0.92, considering the validated booklet for content.

To validate the booklet appearance, the judges' level of agreement was calculated for the instrument's five assessment aspects, according to figure 2, showing a high level above the established minimum of 80%, ranging from 97.2% to 98.9%, considering the booklet also validated in terms of appearance.

Through the SAM analysis, it was found that all items were assessed separately as superior. The overall booklet assessment by the sum of the average scores between the items revealed that the material was considered superior, with a percentage of 85.2%. At the end of assessment, the content judges also assigned a final grade of recommendation for the booklet, which ranged from eight to ten, with an average of 9.7. Thus, the booklet, according to the judges' assessment by SAM, was considered a

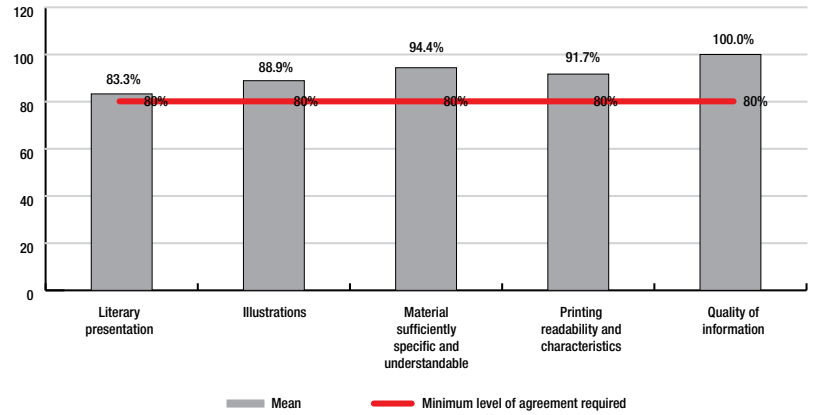

Figure 3. Judges' level of agreement of the five assessment aspects to validate the booklet appearance, according to the technical judges' analysis

superior educational material, which could contribute to empowering women and favoring the leading role in the parturition process. Three technical judges also participated in the validity of the first version of the booklet. They had an average age of 33.67 years, with training in web design, design and visual communication, with an average of 8.33 years of experience and 6.67 years in educational booklet. For validating the booklet content by technical judges, the CVI (I-CVI; and S-CVI/AVE) was also calculated for the two instrument's assessment aspects. Regarding scientific accuracy, an I-CVI of 1.00 was reached, and the I-CVI, related to content was 0.93. Therefore, an overall CVI of 0.97 was obtained, noting that assessment by this group of judges also reached excellent rates. The level of agreement among technical judges was also high, ranging from 83.3% to 100.0%, above the established minimum of 80%. Thus, the booklet was also considered validated for appearance, as shown in figure 3.

The overall booklet assessment by the sum of the average scores between the items revealed that the material was considered superior, with a percentage of 77.5%. At the end of assessment, the technical judges also assigned a final grade of recommendation for the booklet, which ranged from eight to ten, with an average of 8.7.

Finally, 30 pregnant women participated in appearance validity. Most participants (40%) were between 25 and 30 years old, with an average age of 26.9 years (standard deviation of ± 5,9 years) and gestational age between 13 and 39 weeks, median of 34 weeks and 2 days (12-week interquartile range); most (53%) had attended high school and reported stable union (53.3%). Regarding occupation, most pregnant women (60%) were not economically active and had an income of up to two minimum wages (56.6%). Regarding obstetric data, it was observed that the minority of pregnant women (46.7%) had seven or more prenatal consultations, with a median of 6.0 consultations (interquartile range of five consultations), which is justified by the gestational age of women in prenatal follow-up.

The booklet was assessed by pregnant women with regard to clarity, relevance and degree of relevance. Regarding clarity, of the 24 pages assessed, 22 obtained 100% agreement. Thus, the booklet clarity was satisfactorily assessed by 99.7% of pregnant women. The material relevance obtained a maximum score of 100.0% in 22 of the 24 pages assessed. Of the 24 pages assessed, 16 obtained a CVI of 1.00 and only eight did not obtain a maximum assessment, reaching an overall CVI of 0.98, characterizing an excellent level of agreement among pregnant women. Regarding the dissertation instrument assessment related to material understanding, attractiveness, self-efficacy, cultural acceptance and persuasion, there were excellent results from the analysis of pregnant women's responses, shown in table 1.

With regard to the domains assessed, it was found that all pregnant women were able to report on the subjects contained in the booklet, the main

Table 1. Distribution of responses obtained by pregnant women, according to the material assessment domains

Domains	n(%)
Understanding	
Comment on what the booklet says in general	
Yes	30(100.0)
No	0(0)
Can you cite the non-pharmacological methods?	
Yes	28(83.3)
No	2(6.7)
Can you explain the benefits of non-pharmacological methods?	
Yes	28(83.3)
No	2(6.7)
Can you tell when you should use these methods?	
Yes	29(96.7)
No	1(3.3)
Attractiveness	
Do you feel like reading this booklet to the end?	
Yes	30(100.0)
No	0(0)
Do you believe you can follow what the booklet shows?	
Yes	30 (100.0)
No	0(0)
Self-efficacy	
Do you need to know anything else to follow the booklet's guidance?	
Yes	1(3.3)
No	29(96.7)
Would you like there to be any other information that has not been exposed?	
Yes	5(16.7)
No	25(83.3)
Cultural acceptance	
Is there anything about this booklet that you find aggressive, bad, or that bothers you?	
Yes	3(10.0)
No	27(90.0)
Persuasion	
Do you intend to follow the booklet information to assist you in labor?	
Yes	29(96.7)
No	1(3.3)
Do you think that if you had to inform another woman about non-pharmacological methods, you would inform them as shown in the booklet?	
Yes	29(96.7)
No	1(3.3)

theme and its objective. Almost all (83.3%) both identified the non-pharmacological methods and described their benefits such as: "Increases dilation, massage for pain relief, bath to relax"; "Improves dilation, decreases the need to take pain killers"; "Accelerates labor, relieves pain more"; "Speeds up dilatation"; "Relieves pain and anxiety, helps with dilation". Therefore, this demonstrates ease in reading and interpreting the booklet. Pregnant women (96.7%) were able to identify that such methods should be used when going into labor. It was also observed that all pregnant women (100%) reported interest in reading the booklet, as well as said to be able to follow the guidelines. The majority (96.7%) stated that they intended to follow the booklet, as well as thought they could guide others about the booklet content. After the pregnant women's assessment, the final version of the booklet consisted of 36 pages, 20 of which were intended for content, four pre-textual and 11 post-textual pages.

Discussion

As a study limitation, we can mention validity, which occurred only with pregnant women over 18 years of age, of low sociodemographic level, which makes it impossible to generalize the findings to all Brazilian women, considering that adolescent pregnant women and women who attend private services were not included in the present study. Finally, another limitation is the scarcity of validity studies on the subject, which makes it difficult to discuss the findings of this research.

In this study, the booklet "*What Do You Know about Using Non-Pharmacological Methods for Birth Pain Relief? Let's learn!*" was validated by judges with extensive experience in the area of educational technologies and/or obstetrics. This educational material represents a technological innovation in Brazil, considering that, although the theme of natural birth is increasing, there was a shortage of technologies that addressed non-pharmacological methods. An extensive literature search, in 2017, showed the absence of teaching materials aimed at pregnant women addressing non-pharmacological methods, highlighting information gaps regarding these methods that can be presented still in prenatal care, which can help in the preparation of women for normal birth. It is also noteworthy that the booklet is an easily accessible technology, mainly because it is printed, besides being able to be used by health professionals in consultations.

In general, there was agreement among judges' responses, showing an overall CVI of 0.925. Supporting the present finding, a methodological study that aimed to describe the validity process of an educational booklet for healthy eating with regional foods during pregnancy obtained

an I-CVI average of 0.93, showing an excellent booklet CVI.[20]

Similarly, the level of agreement among judges was high, ranging from 97.2% to 98.9%. With a slightly lower rate, a study carried out in Fortaleza, in which an educational technology for the self-care of postpartum women was constructed and validated, obtained a level of agreement between 88.4% and 100%.[9]

The booklet has the ability to bring scientific evidence closer to the lay public, through various strategies, to the point that users/readers, even with low education or even reading difficulties, is able to understand what is contained in the educational material.[10]

In health care and in the context of health professional care, technologies are planned and developed according to the need to transform the technical-scientific knowledge into a tool capable of disseminating information to improve quality of care. Thus, educational technologies become tools capable of mediating care between nurses and pregnant women.[9] Thus, educational activities, which use technologies and aim to change behavior, are inserted in the health education process.

Health professionals who perform educational actions are the most challenged to seek technologies that support them to work with people, groups and communities. However, before these professionals use this tool, they must be developed and validated. [21] Thus, educational instruments play an important role as a support strategy for educational project activities in health, since they help individuals to better understand the information conveyed to them. Printed material can facilitate patient learning and knowledge diffusion, which contributes significantly to nurses' work.[22]

Validity by technical judges also reached excellent rates, with an overall CVI equal to 0.97 and agreement of responses considered high (83.3% to 100%). A methodological study[13] also reached a high CVI (between 0.96 and 1.00). Furthermore, it should be noted that educational materials assessed as superior have greater credibility to assist in the development of skills and favor the autonomy of individuals.[23] Thus, health education and communication use several strategies to inform and mobilize people, motivating them to participate in the process of collective health-related care, in the exercise of social responsibility, in the adoption of preventive practices and in the replacement of risky behaviors with safe behaviors.[24]

Finally, regarding the target audience's responses, there was a positive level of agreement regarding clarity (99.7%) and relevance (99.7%), as well as the overall CVI showed an excellent level of agreement among pregnant women (0.98). However, understanding is a fundamental factor for using educational material to have the best possible performance, and the information contained therein is understood. Understanding only occurs when one can reproduce the message with one's own words, i.e., when one is able to convert the message into verbal explanations.[25] Considering these results, it was observed that the educational booklet about non-pharmacological methods obtained excellent results, as participants demonstrated mastery over the subject, interest in reading and increased knowledge.

Despite the fear still present in women in the process of giving birth, the availability of non-pharmacological methods is associated with positive attitudes related to pain, culminating in another view of the normal birth process.[26] Furthermore, one of the premises for the reduction of cesarean sections in Brazil is the improvement of care during labor and normal birth, aiming to promote women's autonomy, leading role and well-being. In this sense, the reduction of unnecessary interventions, such as episiotomy, the Kristeller maneuver and the lithotomy position, and the appropriate use of beneficial technologies, such as the presence of companions, care provided by obstetric nurses and midwives, the possibility of walking and the offer of non-pharmacological and pharmacological methods for pain relief stand out as an expression of improvement.[27]

Patient satisfaction is a reflection of actions aimed at women's health. Therefore, it is important to combine methods that help implementing educational activities in health aimed at preparing for labor and quality prenatal care, thus giving a new meaning to women's respect and autonomy during labor and birth.

This instrument was developed and validated for a master's dissertation, since, currently, there is still a need for national studies that address non-pharmacological methods aimed at the parturition process. It is also noteworthy that the present booklet was the first one constructed in Brazil, which specifically contemplates the non-pharmacological methods aimed at normal birth.

Conclusion

The booklet "*What Do You Know about Using Non-Pharmacological Methods for Birth Pain Relief? Let's learn!*" was the first to be developed with a specific theme on non-pharmacological methods for birth pain relief and resulted in a material validated in terms of content and appearance by the content and technical judges. The target audience considered the booklet validated for appearance, demonstrating that the material constructed is reliable and valid for use with pregnant women. It is believed that using this educational technology will contribute to improving the support provided to parturient women, and can be used at any time/context in which pregnant women are inserted. Moreover, it can standardize the information provided by health professionals on the subject, as it contains the most up-to-date data and the best evidence available in the literature. It is hoped that the booklet will increasingly encourage the practice of humanized and co-participatory care among professionals, companions and parturient women, help pregnant women in decision-making regarding the choice of normal birth, understanding it as a safer and more natural way to be born, and encourage women's empowerment and leading role at birth time.

Collaborations

Balsells MMD, Silveira GEL, Aquino PS, Barbosa LP, Damasceno AKC and Lima TM declare that they contributed to the study design, data analysis and interpretation, article writing, relevant critical review of the intellectual content and approval of the final version to be published.

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