

# Participatory development of educational technology in seeking patient safety in maternity hospitals

*Desenvolvimento participativo de tecnologia educacional em busca da segurança do paciente na maternidade*  
*Desarrollo participativo de tecnología educativa en busca de la seguridad del paciente en la maternidad*

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## ABSTRACT

**Objectives:** to develop a booklet as an educational technology, together with health professionals, patients and companions, aiming at their involvement in patient safety in maternity hospitals. **Methods:** a qualitative convergent care study, carried out in three stages at a maternity hospital in Belo Horizonte. The booklet construction took place between February and April 2021, with 13 professionals, 06 companions and 11 patients. **Results:** data content analysis was performed, creating three categories: Knowledge and experiences about patient and newborn safety in maternity hospitals; Challenges for involving patient and companion in safety actions; Assessment of patients, companions and professionals on the booklet construction process. The booklet construction involved the participation of health professionals, users and companions in all stages of the process. **Final considerations:** the participatory process enabled the creation of educational technology for the involvement of patients and companions in patient safety actions.

**Descriptors:** Patient Safety; Patient Participation; Hospitals, Maternity; Maternal-Child Nursing; Educational Technology.

## RESUMO

**Objetivos:** desenvolver uma cartilha como tecnologia educacional, juntamente com profissionais de saúde, pacientes e acompanhantes, visando ao envolvimento destes na segurança do paciente na maternidade. **Métodos:** estudo qualitativo convergente-assistencial, realizado em três etapas em uma maternidade de Belo Horizonte. A construção da cartilha ocorreu entre fevereiro e abril de 2021, com 13 profissionais, 06 acompanhantes e 11 pacientes. **Resultados:** realizou-se análise de conteúdo dos dados, criando-se três categorias: *Saberes e experiências sobre a segurança da paciente e do recém-nascido na maternidade; Desafios para o envolvimento da paciente e acompanhante nas ações de segurança; Avaliação das pacientes, acompanhantes e profissionais sobre o processo de construção da cartilha.* A construção da cartilha envolveu a participação profissional de saúde, usuários e acompanhantes em todas as etapas do processo. **Considerações finais:** o processo participativo possibilitou a criação da tecnologia educacional para o envolvimento das pacientes e acompanhantes nas ações de segurança do paciente.

**Descritores:** Segurança do Paciente; Participação do Paciente; Maternidades; Enfermagem Materno-Infantil; Tecnologia Educacional.

## RESUMEN

**Objetivos:** desarrollar una cartilla como tecnología educativa, junto a profesionales de la salud, pacientes y acompañantes, con el objetivo de involucrarlos en la seguridad del paciente en la sala de maternidad. **Métodos:** estudio cualitativo convergente-asistencial, realizado en tres etapas en una maternidad de Belo Horizonte. La construcción de la cartilla ocurrió entre febrero y abril de 2021, con 13 profesionales, 06 acompañantes y 11 pacientes. **Resultados:** se realizó un análisis de contenido de los datos, creando tres categorías: Conocimientos y experiencias sobre la seguridad del paciente y del recién nacido en la sala de maternidad; Desafíos para involucrar al paciente y acompañante en acciones de seguridad; Evaluación de pacientes, acompañantes y profesionales sobre el proceso de construcción del cuadernillo. La construcción de la cartilla implicó la participación de profesionales de la salud, usuarios y acompañantes en todas las etapas del proceso. **Consideraciones finales:** el proceso participativo permitió la creación de tecnología educativa para el involucramiento de pacientes y acompañantes en acciones de seguridad del paciente.

**Descriptorios:** Seguridad del Paciente; Participación del Paciente; Maternidades; Enfermería Materno-infantil; Tecnología Educacional.

## INTRODUCTION

The theme of patient safety (PS) has gained prominence on the world stage in view of its relevance<sup>(1)</sup>, being defined by the World Health Organization (WHO) as the reduction, to an acceptable minimum, of risk or exposure to unnecessary danger in health care scenarios<sup>(2)</sup>. In maternity hospitals, this theme should be considered as an area of care, due to the peculiarities present in the care of pregnant women, puerperal women and newborns (NB), the diversity of professionals who participate in care, the available technologies and the interventions used<sup>(1,3)</sup>.

The occurrence of adverse events (AE) may result in harm to women and NB, prolong hospitalization, increase the number of additional interventions and treatments, increase mortality rates, require additional procedures or treatment replacement and even culminate in death of a patient or NB<sup>(1,4)</sup>.

A study conducted in Brazil identified 114 incidents related to obstetric care, of which 48.3% were related to health care procedures, and 20.1% to healthcare-associated infections. Among the outcomes, 8.8% died, and 50% of these were related to reported incidents<sup>(5)</sup>. A survey conducted in Norway identified severe AE in the obstetric units investigated and revealed that more than half (56.2%) of the cases investigated occurred due to lack of adequate training<sup>(6)</sup>.

Considering these findings, in recent years, much has been discussed about AE prevention strategies and PS promotion, especially involving the participation of patients and companions<sup>(7-8)</sup>. In this sense, in 2017, WHO instituted the "Patient for Patient Safety Program", which predicts health care improvement through co-responsibility and active participation of patients and their families in incident care and control<sup>(8)</sup>.

The effective participation of patient and companion in maternity hospitals has been considered as protective for the occurrence of AEs<sup>(9)</sup>. When patients and their families are heard and instructed by professionals, they leave the position of passivity in health care and become co-participants in failure and damage prevention, contributing to safer care<sup>(7-9)</sup>. In this sense, educational technologies (ET) have been used to encourage patients and their companions in care actions and, consequently, in PS<sup>(7,10-11)</sup>.

ET is understood as materials and products capable of promoting thought, reflection and action to the subject involved in the teaching-learning process, in addition to serving as mediators in the health education area<sup>(12)</sup>. Among the educational strategies, the booklet is the resource considered of greater financial viability and effectiveness in knowledge convey<sup>(13-14)</sup>. Despite the contribution of ET to the teaching-learning process in health education, no studies were found involving the ET construction including the participation of patients and their respective companions in maternity hospitals. Thus, we highlight the relevance of this study to fill this gap of scientific knowledge, aiming at safe care.

## OBJECTIVE

To develop a booklet as an educational technology, together with health professionals, patients and companions, aiming at their involvement in PS in maternity hospitals.

## METHODS

### Ethical aspects

This study came from a master's dissertation entitled "*Desenvolvimento de uma tecnologia educativa para promoção do envolvimento da paciente e acompanhante nas ações de segurança do paciente na maternidade*". The research was based on Resolution 466/12 of the Brazilian National Health Council, submitted for assessment and approval by the Research Ethics Committee of the *Universidade Federal de Minas Gerais* and the study hospital.

### Theoretical-methodological framework

This is a study that followed the convergent care research (CCR) methodological framework, whose articulation with practice is intentional and indispensable, in order to introduce innovations in nursing and health care practice<sup>(15)</sup> and the PS theoretical framework<sup>(2)</sup>. The CCR is focused on the transformation of care practices, aiming at the development of a critical and reflective attitude of professionals towards the qualification of health care; therefore, it considers emerging health care issues and seeks solutions for those who produce and experience it<sup>(15)</sup>. Thus, CCR has the potential to generate care commitments, by enabling the reconstruction of perspectives and knowledge<sup>(15)</sup>. Thus, this study was developed following the four phases proposed by CCR: conception, instrumentation, scrying, analysis and interpretation<sup>(15)</sup>.

### Study design

This is a qualitative CCR study, which followed the steps suggested by the COREQ checklist (Consolidated criteria for REporting Qualitative research)<sup>(16)</sup> in its conduct, aiming to establish the criteria of a qualitative study.

### Study setting

This study was developed at a maternity hospital of a hospital in Belo Horizonte, a reference in high-risk pregnancies. In this institution, an average of 219 births/month are performed, with an average occupancy rate of maternity hospitals of 90%.

### Sample

Patients and companions over 18 years of age and literate, in addition to the multidisciplinary team of maternity hospitals, who were selected for convenience, were included. Patients and companions with visual or hearing impairment were excluded.

In the first stage, 13 health professionals, 06 companions and 11 patients participated in the research, after signing the Informed Consent Form (ICF). Among the patients, 04 were pregnant women and 07 were puerperal women. At the end of the third stage, 08 patients and 05 companions agreed to continue participating in the research, with the loss of two patients, who were not located, as the number they made available for telephone contact was non-existent, and of a patient and a companion, who refused to continue participating. No health professional refused or gave up

participating throughout the interviews. Thus, the 13 professionals who participated in the initial stage also participated in this stage.

### Data collection and organization

Data collection took place in three stages, with the participation of three researchers and teachers previously trained through simulation, among them, two specialists and one doctor, between February and April 2021. The first step aimed to identify the sociodemographic characteristics of companions, patients and professionals and collect information on how participants perceived the involvement of patient and companion in PS. For data production, the individual interview technique was used with the study participants, in a reserved place, through semi-structured scripts that addressed questions related to PS actions and how participants could contribute to PS. The sample saturation criterion was used to interrupt the collection<sup>(17)</sup>. All interviews were recorded with the help of a mobile phone recorder and lasted an average of 15 to 20 minutes and there was no need to repeat interviews. Prior to data collection, a pilot test was conducted with six participants, including patient, companion and professional. No adjustments to the script were required. Linked to the interview, a field diary was used in which information was collected on how patients and companions participated in care regarding the opportunities to contribute to PS. It is noteworthy that participants did not know the researchers. These were presented by the service coordinator, who also gave a brief explanation of the research before data collection began.

The second stage comprised the ET construction, in the form of a booklet, considering the PS international goals (safe patient identification, safe medication, fall prevention, safe communication, hand hygiene and safe surgery)<sup>(2)</sup> and the first stage information. This step was carried out with the presence of all participants and with the help of a graphic designer to elaborate the images.

Regarding the third stage, an invitation via WhatsApp was sent to the first stage companions and patients, so that they could continue to participate in the research. The booklet was sent in virtual format to facilitate its reading. After the initial contact, a time of 10 to 15 minutes was agreed for the participant's reading, and then a telephone contact was made. The interview was guided by a semi-structured script with questions related to image understanding, language, objectivity, content and appearance in the booklet, contributions from participants in relation to PS and on the development of collective work to build the booklet. Interviews with health professionals were face-to-face, individual during working hours, and used the same instrument applied to patients and companions. It should be noted that there were no losses.

As a way to ensure anonymity, participants received encodings in the order in which they were allocated to the database, with "P" referring to the full transcripts of the speeches of patients and companions (P1, P2, P3...) and "H" when the full transcripts refer to health professionals (H1, H2, H3...).

### Data analysis

This phase was characterized by the gathering process, which begins with data collection, and organizes the information, and through the processes of synthesis, theorization and transfer,

moments that articulate the theoretical framework with the data collected, in order to contextualize them<sup>(15)</sup>.

A full transcription of the interviews of patients, companions and health professionals was carried out, and a database was created in Microsoft Excel<sup>®</sup>. For the observations, which occurred during data collection and were included in a field diary, a database was created in Microsoft Word. Transcripts were sent to all participants to validate the content.

Then, synthesis was carried out, in which the material contained in the many collages underwent a new reading and reorganization, so that it was rearranged into categories<sup>(15)</sup>. Analysis was only completed when the researchers had the domain of the subject investigated and were able to synthesize all the work done<sup>(17)</sup>. For coding, it was necessary to recognize the phrases and persistent themes in participants' reports and identify expressions with reliable characteristics, separating them into paragraphs and identifying them with six codes, according to the central idea. Subsequently, all paragraphs with the same codification were gathered, and the most significant codes enabled constructing the categories, which were based on the objective proposed in the research<sup>(15)</sup>. No software was used to manage the data, but triple-checking of the data generated by the researchers involved in the collection was performed to avoid bias.

After the synthesis, the findings were interpreted in the field. This moment resulted in the construction of new concepts, culminating in the conclusion of this study<sup>(15)</sup>. Finally, transfer was carried out, in which the whole process ended with the interpretation of data that allowed the theorization conclusions to be applied in the professional practice scenario<sup>(15)</sup>.

## RESULTS

Thirteen health professionals, 06 companions and 11 patients participated in the interview. Among the patients, four (04) were pregnant women and seven (07) were puerperal women. All health professionals interviewed were women, with different backgrounds: nursing technician (7); physiotherapist specializing in women's health (1); obstetric nurse (2); pediatric physician (1); generalist nurse (1); and psychologist (1). The age range ranged from 30 to 39 years, and the experience of health professionals ranged from 01 to 09 years.

From the analysis of the data produced, three axes of discussion emerged: *Knowledge and experiences about patient and newborn safety in maternity hospitals*; *Booklet construction as educational technology*; *Booklet assessment by participants*. These are described as follows:

### Knowledge and experience about patient and newborn safety in maternity hospitals

It was found that patients and companions outlined different understandings of the term PS, and most had limited understanding and no concrete definition of the concept, focusing mainly on controlling the flow of patients in the hospital, cleaning the environment and quality of care.

*Safety is related to entry, exit, numbers of people staying with you inside. (P1)*

*Being well treated. You treat us very nice and this involves safety. Confidence issue! (P11)*

Regarding patient and NB identification in maternity hospitals, some participants recognized the importance of using the identification wristband, in order to avoid patient exchanges within the institution. However, most health professionals expressed that it is not usual to see patient or companion attentive to the identification process and that this action needs to be encouraged.

*The wristband is to identify the baby, so there is no case of theft, just like there used to be, right? But I confess that I don't always check. (P7)*

*Sometimes they lose the wristband and they do not have this concern to communicate to professionals that this was lost. We need to guide you further on this. (H10)*

Regarding fall risk, testimonies showed that professionals pay attention to this problem and guide patient and companion about the possibility of patients and NB falling, as well as about preventive actions, such as raising the bed rails and not leaving the NB alone in bed.

*Do not leave the baby on the bed, because they can roll. (H12)*

*We should be aware of the bathroom issue as well, because when the floor gets wet, it is a very big risk of falling. (H11)*

*Patient is safe [signaling the high bars], because she may get dizzy, she may fall, I don't know, have some lapse, right? And then bar is important to her. And sometimes bed height also influences. (P14)*

With regard to safety in medication administration, professionals recognized the importance of some actions that must be performed by them, with the help of patient and companion for AE prevention, such as asking about the medications in use and checking the wristband identification.

*Every professional has to say what is being administered. First, to know if patient is allergic to that medication and to guide what will be done and what it is used for. You don't just take this medication and that's it. (H11)*

*Checking the medication is even good not to say, "oh, I took the wrong medication!". So patients, knowing the medication they take, going after it, seeking to know, having this concern to understand what is happening to them helps the professionals and helps them. (P14)*

Regarding the reduction of infection risk associated with health care, hand hygiene was the measure most explored by participants. Both professionals, patients and companions emphasized the importance of hand hygiene for patient and NB safety in maternity hospitals.

*I always have to wash my hands. If I go to the bathroom and touch certain things, I may be transferring bacteria even to my son. If I wash my hands, I will not transmit bacteria. (P6)*

*It is necessary to know the need for hygiene always, right? Whenever you go to the bathroom, clean your hands. The companion must always sanitize their hands before holding the baby. (H2)*

Professional's discontent and concern were clear when hand hygiene measures were not performed by companions or patients.

*Patients touch the cell phone and then pick up the newborn, they do not have this knowledge that they are transmitting something to the baby. (H1)*

Effective communication throughout the care process was presented as one of the relevant actions for PS in maternity hospitals.

*If you communicate with a person from the beginning, from the office, they create a bond with you, so that they feel closer [...] and you can do your proper work with them, they really be your gaze there. (H1)*

Also, regarding the "safe procedure" item, one of the testimonies evidenced the lack of information about the consent form for surgery and how they could participate in PS.

*I didn't know what I should ask about the surgery. They hand in a paper for the agent to sign, but I didn't quite understand what that was. I think it was about the risks, I was afraid to read everything. (P4)*

### **Booklet construction as an educational technology**

Considering the knowledge and experiences about PS, exposed in the first moment, and the demands brought by participants, we proceeded to the elaboration of an ET proposal, in order to encourage the participation of patients and companions in PS actions in maternity hospitals. Essential information was chosen to be included in the ET, considering that health professionals must provide additional explanations according to the needs presented by patients and companions at the time of interaction and dialogue with health professionals. All information was summarized (Chart 1).

The booklet entitled "Como você pode participar da segurança da paciente e do bebê na maternidade?" (How Can You Participate in Patient and Baby Safety in Maternity Hospitals?) is shown in Figure 1.

### **Booklet assessment by participants**

The last phase of data production aimed at booklet assessment by participants. This moment allowed reflection and assessment of the entire research process, in addition to guiding the necessary adjustments, so that it meets the CCR's proposed practice objective.

Participants positively assessed the booklet, emphasizing that the information and guidelines contained in ET were considered sufficient and with clear language for the proposed objective. Moreover, they mentioned that the figures allowed to highlight the booklet content.

*The written part, I found the message very simple and easy to understand, and the illustrations, I thought it was good, because they were very colorful, drawing attention and are self-explanatory too, because when we see the image, we identify very well the message you want to convey. (P8)*

**Chart 1** - Important aspects found in the statements about the involvement of patient and companion in patient safety and information to be considered in the booklet

Item	Fragility pointed out in participants' statements	Items considered in the booklet
Concept about PS	- Limited understanding of patient and companion about PS; - Lack of knowledge about how patient and companion could participate in PS.	- Make clear the concept of PS and how patient and companion can participate in safety actions in maternity hospitals.
Patient and NB identification	- Lack of knowledge about what needs to be verified on the identification wristband and when it should be verified; - Lack of understanding about the participation of patient and companion in the identification process.	- Emphasize that patients' and NBS' wristband must be checked by all professionals; - Clarify that patients and companions should signal professionals if any item is wrong or ineligible on the wristband or if it has been lost.
Safe medication	- Lack of understanding about the participation of patient and companion in medication administration so that it occurs safely.	- Present the important information that must be communicated by patients and companions before and after medication administration; - Expose the importance of questions and clarification of doubts about the medications in use.
Hand hygiene	- Frailty in the practice of hand hygiene; - Lack of knowledge of how to properly wash hands.	- Reinforce that hands should be washed whenever anyone touches a patient or NB and before any procedure; - Present the recommended step by step for correct hand hygiene.
Safe performance of procedures	- Lack of understanding about the participation of patient and companion during this moment; - Fragility about the importance of the Informed Consent Form.	- Clarify that patients and companions should ask about the procedure to be performed and clarify doubts; - Reinforce the importance of the Informed Consent Form and its reading.
Fall prevention	- Fragility of the participation of companion in this process; - Little knowledge about NB fall risk.	- Expose the importance of companion and how they should act to prevent fall risk; - Signal the actions that must be taken to prevent NB and patient from falling.
Effective communication	- Lack of knowledge about the importance of dialogue for patient and NB safety; - Fear of patients and companions in talking, questioning behaviors and solving doubts related to diagnoses, treatments and other care given to patient and NB.	- Expose the importance of patients and companions communicating with professionals - Encourage patients and companions to clarify any doubts.



**Figure 1** – Final version of the booklet, Belo Horizonte, Minas Gerais, Brazil, 2021

Furthermore, patients and companions highlighted the importance of the booklet, especially with regard to guidelines on how they can contribute to health professionals to increase their participation in patient and NB safety in maternity hospitals.

*The booklet helps, because you read and know that you have to ask nurses the medication you are going to take, you have to warn when you have an allergy of some medication not suffer any change, not to give any problem to the sector". (P3)*

According to health professionals, the booklet can be considered an important resource in seeking PS, as it presents itself as a pedagogical support material that helps in the teaching-learning process of patients and companions and in the co-production of care. The suggestions and observations suggested by participants were summarized in Chart 2.

## DISCUSSION

This study enabled a booklet construction through participatory development, in search of greater involvement of patients and companions in PS.

The findings showed that patients and companions outlined different understandings of PS, most of which presented superficial understanding of the theme, without a concrete definition of the meaning. This aspect is in line with other studies, which warn that patients and companions who present scarcity or limitation of information on the subject may have difficulties to engage in safety actions in the context of health<sup>(9,18)</sup>. These findings can be justified by the fragility in the information offered to patients and family members and the lack of strategies and preparation of professionals in seeking this objective. However, a study conducted in England showed the importance of patient involvement in promoting their safety and, for this, cites educational technologies as a strategy to achieve it<sup>(19)</sup>. Therefore, there is a need to seek effective ET in the transfer and sharing of knowledge, so that these actors can be included in the care and encouraged to contribute to PS.

**Chart 2** - Suggestions and observations in the booklet made by participants

Suggestions and/or observations	Change or justification for not changing
Shorten title	"Como você pode participar da segurança do paciente e do bebê na maternidade?" (How Can You Participate in Patient and Baby Safety in Maternity Hospitals?)
Start the booklet with handwashing action	The order of the booklet was changed following the WHO's presentation of international PS goals, with the exception of the goal related to effective communication, because the researcher considered this goal essential for all the others to be carried out successfully and also for the outcome of the booklet to be carried out, encouraging patients and companions to dialogue with professionals.

Patient and NB identification in maternity hospitals is an essential step in care practice, providing professionals with safe and quality treatment or procedure, reducing incident risk<sup>(20-21)</sup>. However, the findings of this study revealed the lack of attention of patient and companion in relation to patient identification, in line with another study carried out in a Brazilian maternity hospital, which revealed that 15.4% of NBs were without identification wristbands and 76.8% of mothers or companions were not instructed about the wristband use<sup>(1)</sup>.

Regarding fall risks, the data from this research showed, through the field diary, that only some professionals from maternity hospitals are concerned with raising the rails of patients' beds and guiding patients and their companions about the importance of this practice, similar to another study<sup>(7)</sup>. This finding raises the need to create more effective actions in relation to the provision of information on the prevention of falls in maternity hospitals.

Regarding medication therapy at maternity hospitals, the results revealed that maternity hospital professionals inform patients about the medications to be administered and understood the importance of their participation and that of their companions as barriers to error occurrence during this moment, data similar to those found in other studies<sup>(7,22)</sup>. In this regard, studies warn that the more teams are trained with updated protocols and implemented in relation to risk factors associated with medication safety and how to guide patients, the safer will be the care<sup>(7,22)</sup>.

Regarding the international goal of reducing infection risk associated with health care, hand hygiene was the measure most explored by the participants of this study, in line with another survey that showed that 83.3% of health professionals considered the participation of patients to be important to collaborate in improving compliance with this practice, and 52.2% claimed that patients could participate reminding professionals to perform hygiene<sup>(23)</sup>.

As a result of this research, the communication process also emerged in the context of PS, which is a finding of other studies<sup>(9,19,24)</sup>. Effective communication is the PS goal that provides the establishment of humanized care to patient and NB, through the sharing of information among professionals, patients and companions<sup>(9,19,24)</sup>. In maternity hospitals, for communication to be effective, it must be centered on patient, on their needs and demands, in addition to promoting the exchange of knowledge among participants<sup>(24)</sup>.

Regarding the safe procedure item, the findings evidenced the scarcity of information offered to patients and companions about the procedure to be performed and the consent form, which can have an impact on PS. Authors mention the importance of the term "health literacy", which consists of the ability to obtain, process and interpret basic health information to make appropriate

decisions, such as understanding the procedure risks<sup>(24)</sup>. Despite efforts to develop and arouse the population's interest in searching for knowledge about health/procedures and improving the ways of conveying information, there are still many problems in the communication process, as presented in this research.

As for the booklet construction, this can be considered an educational ET of great relevance in the health area, mainly because it is an innovative study in the maternity area. Studies warn that in order to produce ET, both scientific evidence and evidence from practice must be considered and, in this way, involve the target audience in the process for whom ET is intended<sup>(25)</sup>, aspects that were considered and met in the research in question.

It is recommended that this ET should be considered as an additional resource for health professionals - when advising on the participation of patients and companions in PS in maternity hospitals. It is also expected to serve as an informational material for users. However, we warn that the booklet is not only intended to patient and companion, but is used as a dialogued educational strategy, with opportunity for interaction, dialogue and learning. In this sense, a study warns that health professionals should consider the experiences and knowledge of those they interact with, after all, to educate and educate oneself is to maintain a dialogue with the aim of transforming their attitudes and generating knowledge<sup>(7)</sup>.

During the ET production process, we sought to interpret the knowledge identified and involve the target audience in this production process, providing the opportunity to strengthen scientific production, as recommended by studies<sup>(25-27)</sup>. In line with the findings of this study, research highlights that when patients or their families are proactive and knowledgeable, it is found that they feel more comfortable participating in PS, when asking about the medications they were receiving and checking the identification labeled on the medication<sup>(22)</sup>. In addition to this, a multicenter study concluded that patients provide information that portrays the care experienced and, therefore, can contribute to what needs to be changed to improve patient safety and experience<sup>(26)</sup>.

In the booklet assessment process by participants, it is concluded that the booklet content was considered easy to understand and followed the recommendations of other studies that guide the presence of accurate information, words with short sentences and a language accessible to all layers of society, regardless of people's level of education<sup>(28)</sup>. Additionally, the illustrations have an attractive form, which facilitated the understanding of the content, making it lighter and easier to understand.

From the reports of our research, it was possible to identify that patients and companions felt valued when they realized the importance of their experiences, demands and perceptions

about PS for the collective development process of the booklet. This was possible through a dialogical relationship established between researchers and participants, overcoming the hegemony created automatically under the figure of professionals, thus allowing interaction, exchange of knowledge and awareness among all involved<sup>(28)</sup>.

It is stated, therefore, that the booklet met the recommendations of a ET, as it provided the dissemination of information about PS and contributed to patients and companions developing a critical thinking about the reality experienced during hospitalization in maternity hospitals<sup>(25)</sup>. In addition, this study may have assisted in the preparation of professionals for the involvement of patients and companions.

### Study limitations

The limitation of this study is the lack of clinical validity of the booklet. However, it understands that this study was extremely relevant to support the clinical validity stage.

### Contributions to nursing

The developed ET has the potential to increase the participation of patients and companions in PS and reduce AE in maternity

hospitals, in addition to serving as reference material in health education programs for patients and families. Therefore, the study brings as an implication for nursing research the booklet implementation assessment in care practice, in order to identify its weaknesses, strengths and contributions to PS. In care, it implies the permanent education of professionals so that they use the booklet appropriately, assisting in the process of information and participation of patients and companions in PS.

### FINAL CONSIDERATIONS

The results of this research demonstrate that an ET in the form of a booklet is relevant and presents content that helps patients and companions to participate in PS. It is an innovative educational technology, built with the objective of increasing the participation of patient and companions in PS in maternity hospitals, highlighting the importance and innovation of this material. Thus, this work can allow this educational technology to be used in the context of care practice, aiming at promoting safe care to patients and NBs in maternity hospitals and to help in the process of sharing information about PS with patients and companions, in addition to encouraging interaction between these actors and health professionals, improving the quality of care provided in maternity hospitals.

### REFERENCES

1. Silva RSS, Rocha SS, Gouveia MTO, Dantas ALB, Santos JDM, Carvalho NAR. Wearing identification wristbands: implications for newborn safety in maternity hospitals. *Esc Anna Nery*. 2019;23(2):e20180222. <https://doi.org/10.1590/2177-9465-EAN-2018-0222>
2. World Health Organization (WHO). The Conceptual Framework for the International Classification for Patient Safety v1.1. Final Technical Report and Technical Annexes. Geneva: WHO; 2009.
3. Strefling ISS, Soares MC, Barcellos CG, Ribeiro JP, Cecagno S, Rocha KS. Patient Safety in the Maternity Context: integrative review. *Rev Enferm Atual*. 2018;86(24):1-12. <https://doi.org/10.31011/reaid-2018-v.86-n.24-art.84>
4. Oliveira T, Silva J, Nagliate P, Santos Veríssimo R, Sales M, Lucena T. Eventos adversos e fatores associados em maternidades de alto risco. *Enferm Foco [Internet]*. 2021 [cited 2022 Jan 15];11(5). Available from: <http://revista.cofen.gov.br/index.php/enfermagem/article/view/3200>
5. Neiva LECP, Barros AF, Imoto AM, Gottens LBD. Incidentes notificados no cuidado obstétrico de um hospital público e fatores associados. *Vigil Sanit Debate*. 2019;7(4):54-60. <https://doi.org/10.22239/2317-269X.01324>
6. Johansen LT, Braut GS, Acharya G, Andresen JF, Oian P. How common is substandard obstetric care in adverse events of birth asphyxia, shoulder dystocia and postpartum hemorrhage? findings from an external inspection of Norwegian maternity units. *Acta Obstet Gynecol Scand*. 2020;100(1):139-46. <https://doi.org/10.1111/aogs.13959>
7. Costa DGD, Moura GMSS, Pasin SS, Costa FGD, Magalhães AMM. Patient experience in co-production of care: perceptions about patient safety protocols. *Rev Latino-Am Enfermagem*. 2020;28:e3272. <https://doi.org/10.1590/1518-8345.3352.3272>
8. Behrens R. Segurança do paciente e os direitos do usuário. *Rev Bioética*. 2019;27(2):253-60. <https://doi.org/10.1590/1983-80422019272307>
9. Peres MA, Wegner W, Cantarelli-Kantorski KJ, Gerhardt LM, Magalhães AMM. Perception of family members and caregivers regarding patient safety in pediatric inpatient units. *Rev Gaúcha Enferm*. 2018;9(e2017):0195. <https://doi.org/10.1590/1983-1447.2018.2017-0195>
10. Kim JM, Suarez-Cuervo C, Berger Z. Evaluation of patient and family engagement strategies to improve medication safety. *Patient*. 2018;11(2):193-206. <https://doi.org/10.1007/s40271-017-0270-8>
11. Costa CRB, Santos SS, Godoy S, Alves LMM, Silva IR, Mendes IAC. Strategies for reducing medication errors during hospitalization: integrative review. *Cogit Enferm*. 2021;26. <https://doi.org/10.5380/ce.v26i0.79446>
12. Barbosa EMG, Dantas SLC, Rodrigues DP, Moreira TMM, Queiroz MVO, Oriá MOB. Development and validation of an educational booklet for postpartum health and well-being. *Rev Rene*. 2020;21:e43824. <https://doi.org/10.15253/2175-6783.20202143824>
13. Wild CFW, Nietzsche E, Salbego C, Teixeira E, Favero NB. Validation of educational booklet: an educational technology in dengue prevention. *Rev Bras Enferm*. 2019;72(0):1318-25. <https://doi.org/10.1590/0034-7167-2018-0771>
14. Farias M, de-Azevedo-Ponte K, Gomes D, Pinto-Menezes R. Educational technology on gastric cancer. *Rev Enferm UFPE*. 2018;12(4):947-52. <https://doi.org/10.5205/1981-8963-v12i4a230434p947-952-2018>

15. Trentini M, Paim L, Silva DMGV. The convergent care research method and its application in nursing practice. *Texto Contexto Enferm.* 2017;26(4):1-10. <https://doi.org/10.1590/0104-0702017001450017>
  16. Souza VRS, Marziale MHP, Silva GTR, Nascimento PL. Translation and validation into Brazilian Portuguese and assessment of the COREQ checklist. *Acta Paul Enferm.* 2021;34:eAPE02631. <https://doi.org/10.37689/acta-ape/2021AO02631>
  17. Patias ND, Von Hohendorff J. Critérios de qualidade para artigos de pesquisa qualitativa. *Psicoestud.* 2019;240. <https://doi.org/10.37689/acta-ape/2021AO02631>
  18. Villar VCFL, Duarte SCM, Martins M. Patient safety in hospital care: a review of the patient's perspective. *Cad Saúde Pública.* 2020;36(12):e00223019. <https://doi.org/10.1590/0102-311X00223019>
  19. Heavey E, Waring J, De Brún A, Dawson P, Scott J. Patients' conceptualizations of responsibility for healthcare: a typology for understanding differing attributions in the context of patient safety. *J Health Soc Behav.* 2019;60(2):188-203. <https://doi.org/10.1177/0022146519849027>
  20. Tase TH, Quadrado ERS, Tronchin DMR. Evaluation of the risk of misidentification of women in a public maternity hospital. *Rev Bras Enferm.* 2018;71(1):120-5. <https://doi.org/10.1590/0034-7167-2017-0134>
  21. Biasibetti C, Araújo F, Hoffmann LM, Vieira LB, Gerhardt LM, Wegner W. Patient safety in Pediatrics: perceptions of the multi-professional team. *Rev Min Enferm.* 2020;24:e-1337. <https://doi.org/10.5935/1415.2762.20200074>
  22. Oliveira AC, Pinto AS. Patient participation in hand hygiene among health professionals. *Rev Bras Enferm.* 2018;71(2):259-64. <https://doi.org/10.1590/0034-7167-2016-0124>
  23. Trindade DFS, Spinielli MAS, Moreira BD. Modelos da comunicação no processo de humanização do parto e nascimento em uma maternidade de Mato Grosso, Brasil. *Rev Bras Pesq Saúde [Internet].* 2018 [cited 2022 Jan 18];20(2):44-53. Available from: <https://periodicos.ufes.br/rbps/article/view/21231/14145>
  24. Teixeira E, Palmeira IP, Rodrigues ILA, Brasil GB, Carvalho DS, Machado TDP. Participative development of educational technology in the HIV/AIDS context. *Rev Min Enferm.* 2019;23:e-1236. <https://doi.org/10.5935/1415-2762.20190084>
  25. Fitzsimons B, Cornwell J. What can patients tell us about the quality and safety of hospital care? findings from a UK multicentre survey study. *BMJ Qual Saf.* 2018;27:673-82. <https://doi.org/10.1136/bmjqs-2018-008106>
  26. Brito MFP, Gabriel CS, Machado JP, Cândido MP, Oliveira VB. Evaluation process identification patient in health services. *BJRH.* 2021;4(2):4343-56. <https://doi.org/10.34119/bjhrv4n2-030>
  27. Martins RMG, Dias IKR, Sobreira CLS, Santana KFS, Rocha RMGS, Lopes MSV. Development of a booklet for self-care promotion in leprosy. *Rev Enferm UFPE.* 2019;13:e239873 <https://doi.org/10.5205/1981-8963.2019.239873>
  28. Silva IO, Aredes ND, Bicalho MB, Delácio NC, Mazzo LD, Fonseca LM. Booklet on premature infants as educational technology for the family: quasi-experimental study. *Acta Paul Enferm.* 2018;31(4):334-41. <https://doi.org/10.1590/1982-0194201800048>
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