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Educational technology on home care with low-risk newborns

Tecnologia educativa sobre cuidados domiciliares com o recém-nascido de baixo risco

Tecnología educativa para el cuidado del hogar con recién nacidos de bajo riesgo

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ABSTRACT

Objective: to identify puerperal and family members' questions about home care with low-risk newborns and to analyze the conversation circle, mediated by a realistic low fidelity simulator, as an educational technology for the preparation of families in the maternity discharge process. **Method:** qualitative research conducted with nineteen relatives of low-risk newborns in the municipal hospital in Rio das Ostras, Rio de Janeiro, Brazil, from May to October 2018, through semi-structured interview. Data submitted to thematic analysis. **Results:** the family members' doubts were about care with hygiene, food, environment, affection, health, sleep and diseases. The conversation wheel with low fidelity simulator was considered a positive strategy to mediate learning. **Conclusion:** the educational technology proved to be useful in the instrumentalization of families in the maternity discharge process, as the caregiver strengthens their potential, removes doubts and exchanges information and experiences in the group.

Descriptors: Infant, newborn; family; patient discharge; educational technology.

RESUMO

Objetivo: identificar dúvidas de puérperas e familiares sobre cuidados domiciliares com o recém-nascido de baixo risco e analisar a roda de conversa, mediada por simulador realístico de baixa fidelidade, como uma tecnologia educativa para o preparo de famílias no processo de alta da maternidade. **Método:** pesquisa qualitativa, incluindo dezenove familiares de recém-nascidos de baixo risco em um hospital municipal de Rio das Ostras, Rio de Janeiro, de maio a outubro de 2018, por entrevista semiestruturada. Dados submetidos à Análise Temática. **Resultados:** as dúvidas dos familiares versaram sobre cuidados com higiene, alimentação, ambiente, afeto, saúde, sono e doenças. A roda de conversa com simulador de baixa fidelidade foi considerada uma estratégia positiva para mediar o aprendizado. **Conclusão:** a tecnologia educativa revelou-se útil na instrumentalização de famílias no processo de alta da maternidade, visto que o cuidador fortalece suas potencialidades, retira dúvidas e troca informações e experiências no grupo.

Descritores: Recém-nascido; família; alta do paciente; tecnologia educacional.

RESUMEN

Objetivo: identificar dudas puerperales y familiares sobre atención domiciliaria con recién nacidos de bajo riesgo y analizar el círculo de conversación, mediado por simulador realista de baja fidelidad, como una tecnología educativa de preparación de familias en el proceso de alta de la maternidad. **Método:** investigación cualitativa, con diecinueve familiares de recién nacidos de bajo riesgo en un hospital municipal en Río das Ostras, Río de Janeiro, de mayo a octubre de 2018, a través de entrevistas semiestructuradas. Se utilizó a Análisis temático. **Resultados:** las dudas fueron sobre higiene, alimentación, medio ambiente, afecto, salud, sueño y enfermedades. El círculo de conversación con simulador se consideró una estrategia positiva para mediar en el aprendizaje. **Conclusión:** la tecnología educativa demostró ser útil en la instrumentalización de familias en el proceso de alta de la maternidad, porque el cuidador fortalece su potencial, elimina dudas e intercambia información y experiencias en el grupo.

Descriptores: Recién nacido; familia; alta del paciente; tecnología educacional.

INTRODUCTION

The discharge process from the maternity hospital, which includes preparing families for home care with low-risk newborns, must be initiated when admitting the binomial in the Joint Accommodation and include guidance on hygiene, nutrition, handling, behavior, interaction, and sleep, among others[1]. It seeks to reduce the levels of anxiety and stress of the family members and to reduce the levels of pathologies and readmissions of babies, in addition to the development of skills and the identification of community resources for follow-up after hospital discharge[2,3].

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Low-risk newborns also demand special attention due to their vulnerability and total dependence on care[4]. The health professional, including the nurse, must develop educational actions that articulate knowledge and practices, aiming to minimize the difficulties of the neonatal period, thus contributing to family reorganization and better child development[4,5].

The discharge preparation needs to be built on a problematizing perspective, based on the concrete reality of the people. It is essential to break with the verticality of relationships and with the mere transmission of information, in order to establish a transversal and dialogical[6] relationship between nurses and families.

The round of talks is an educational technology that enables dialogic encounters, mediated by the production and reframing of meanings and knowledge, arising from the participants' concrete experiences. It intends to build new possibilities of perception, reflection, action, and modification, in which people can recognize themselves as leading their own choices[7,8].

Clinical simulation of high, medium, or low fidelity has been used in the health field with professionals, academics, and patients[9-13]. It is an experience in which the singularities of a real situation are safely imitated, aiming to practice, learn, evaluate, test or develop the understanding of human systems or actions[11,14,15].

No scientific research studies on the simulated round of talks with this target audience were found; therefore, the study objectives were to identify doubts of puerperal women and family members about home care with low-risk newborns and to analyze the round of talks, mediated by a realistic low-fidelity simulator, as an educational technology for preparing families in the discharge process from the maternity.

THEORETICAL REFERENCE

The theoretical support is Paulo Freire's, for whom group work enables the empowerment of individuals, through the exchange of knowledge that goes beyond the concept of training. Due to the constant critical questioning of reality, knowledge is built, experienced ,and articulated collectively and interactively[6,16]. Possibilities are created so that people have more autonomy and power, favoring the bond among professionals and users of the health services[17].

METHOD

A qualitative research[18] developed in the Joint Accommodation of a municipal hospital in Rio das Ostras, Rio de Janeiro. The participants of the research were puerperal women and their relatives aged 18 years old and older, with newborns in good health and hospitalized in the research scenario, these being the inclusion criteria. The following were excluded: puerperal women and family members with cognitive and mental limitations; and/or high-risk newborns; and/or puerperal women with clinical complications on the day of data production. The number of participants was delimited by data saturation[19].

Data production took place between May and October 2018 in three stages. In the first stage, before the rounds of talks, semi-structured interviews were conducted, recorded by digital media, with closed questions regarding the characterization of the participants and the following open questions: 1) Talk about the care actions you will perform with the baby at home; 2) Do you have any doubts about the care actions you will perform with the baby at home?

In the second stage, the rounds of talks were conducted using a script based on the doubts identified in the previous stage, in addition to a realistic low-fidelity simulator, a static vinyl mannequin with dimensions similar to a newborn's body, adapted with a fictitious umbilical stump made of plastic with a clamp attached to it. The simulator was handled by the participants to demonstrate the alleged care for the newborn at home and its uncertainties, and by the researchers for simulation and guidance on emerging doubts.

In the third stage, after each round of talks, new interviews were carried out to analyze the educational technology, given the following question: talk about what you thought of the round of talks with the use of the doll to guide the care actions you will perform at home.

The testimonies, before and after the rounds of talks, were fully transcribed and submitted to Thematic Analysis in its stages (pre-analysis, exploration of the material, and treatment of the data obtained and interpretations)[18] by means of the frequency of the recording units (RUs)[20].

The research protocol was approved by the Research Ethics Committee (CAAE: 73671517.5.0000.5243; Opinion Number: 2,297,853) and data was produced after signing the Free and Informed Consent Form. Alphanumeric codes (F for Family members and P for Puerperal women) were used by order of participation.

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RESULTS AND DISCUSSION

In the first stage, nineteen family members (100%) participated, of these, thirteen were mothers (68.4%), three were grandparents (15.8%), two were aunts (10.5%), and one was a father (5.3%). Most were between 20 and 24 years old (36.8%) and had completed high school (42.1%). Nine rounds of talks were held with a mean participation of three to four family members, counting those who were not composing the sample. The second and third stages were carried out with seventeen (89.47%) family members, excluding two puerperal women who did not complete their participation.

The majority presence of women (94.7%) refers to the perpetuation of the female legacy of care, a socioculturally determined ideology, according to research with caregivers of dependent populations (children and elderly)[21-23]. The mother is culturally demanded on knowledge about basic baby care, especially in relation to hygiene, food, and safety[22].

From the analysis of the textual corpus, 290 (100%) RUs were identified, which were aggregated into three analytical categories.

Home care for the newborn from the perspective of puerperal women and family members

This category gathers the participants' reflection on the reality to be experienced by them in the post-discharge period from the maternity in relation to the care actions for the newborn, before they exposed their doubts. Of the record units, 121 (41.7%) belong to this category and included references related to hygiene (13.1% of the RUs), food (6.6% of the RUs), environment (6.6% of the RUs), affection (6.2% of the RUs), health (5.9% of the RUs), sleep (2.1% of the RUs), and diseases (1.4% of the RUs).

As for hygiene, seventeen participants mentioned care actions with the bath, but there were also mentions regarding the management of the umbilical stump, diaper change, prevention of diaper rash, nail cutting, oral hygiene, cleaning of clothes and utensils, and hand washing before contact with the baby.

> *Bathing, [...] cleaning the tongue, gum, [...] navel, ointment to avoid rashing, cutting the nail. (P11)*
>
> *70% alcohol in the navel. (F4)*

Actions related to breastfeeding were identified in nine statements as home care practices, especially by the puerperal women, considering textual fragments that addressed care before, during, and after breastfeeding.

> *Breastfeeding [...], I'm learning so that at home she doesn't get hungry, [...] and I don't need to give those formula milks. (P7)*

Regarding the care measures with the environment, nine participants expressed their concerns about preventing the newborn from remaining in the cold and the need for a clean and airy environment.

> *Always keep the baby warm, don't leave the baby in the cold, don't leave clothes hanging outside the house. (P2)*

The quality of care offered to the newborn in the community and family context is crucial for their healthy growth and development and even for their survival. The evidence points out that basic care such as adequate hygiene, including of the umbilical stump, exclusive breastfeeding and heat supply, also evident in the participants' statements, are simple preventive practices capable of significantly reducing neonatal morbidity and mortality[24]. Thus, care practices arising from the concrete reality of people, such as those found in the research, need to be recognized and valued by the health professionals during the discharge process from the maternity hospital, with contextualized guidelines, aiming at safe and quality care.

Acts of love, affection, protection, and education were recognized by seven participants as care practices after discharge from the maternity. The same was indicated by general health care measures, which included consultations with pediatricians, vaccination, protecting from the cold, and sunbathing. Only two participants mentioned the prevention of specific pathologies, such as influenza.

> *Taking care [...], giving love and affection to my daughter. (P9)*
>
> *Being very careful because of the influenza. (F5)*

Three participants indicated care actions for the newborn's sleep, with references to the baby's resting place. A family member expressed concern about the danger of the child sleeping next to the mother, due to the risk of suffocation. However, two participants mistakenly indicated that the lateralized position is adequate for the baby to sleep.

> *Get used to where the baby is going to sleep, to stay in the stroller, [...] put the baby in the stroller in a side position. (F1)*

This finding is worrying, as the current guidelines indicate the dorsal (supine) position for babies in order to prevent sudden infant death, revealing a gap in the health education process with families, also found in another study that verified mistaken recommendations by professionals about this care[25].

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The findings on home care are similar to another study carried out in a family foster group, in which issues about hygiene, umbilical stump, colic, sunbathing, breastfeeding, child's handbook, physiological eliminations, and warning signs of pathologies were also discussed[23].

Therefore, the importance is emphasized of paying greater attention related to the basic needs of the newborn at home, whereas this stage of life involves numerous physical, emotional, and social challenges to the mother and the baby, which directly affects their survival and quality of life[25].

Doubts of puerperal women and family members about home care with the newborn

The family members recognized the care actions to be performed at home with the newborn; however, when reflecting on them, they signaled doubts for their implementation in their life context. This category obtained 30.3% of the RUs, in which the textual fragments about doubts were related to hygiene (9.7% of the RUs), food (4.8% of the RUs), insecurity (4.1% of the RUs), fear (2.1% of the RUs), diseases (1.7% of the RUs), care for the environment (1% of the RUs), and sleep (0.3% of the RUs).

Nine interviewees highlighted uncertainties regarding the bath, how to perform it and the daily number of baths, in addition to the care with the umbilical stump and the removal of the rash prevention ointment before hygiene.

> *Doubts on how many baths for newborns. (P5)*
>
> *Regarding the ointment, when we are bathing the baby, there's still ointment there [...]. Do we remove only the excess? (F1)*

Concerning hygiene, doubts regarding the cleaning of the newborn's oral cavity and ear were also reported, in addition to care with cutting the nails.

> *I don't know how to perform it with the tongue and gum. [...] I know it's with a wet bath towel, but I don't know when. Cleaning the ears, if it is necessary to do it now. (P11)*

The newborn's body hygiene needs to be based on the best evidence to avoid harms to the baby's health, especially the bath, which aims to remove residues and reduce skin colonization and which, despite being a routine practice of cultural tradition[26], it is not free from risks, reinforcing the importance of specific guidelines on this care.

Doubts about feeding arose as to eructation after breastfeeding, correct latching, and whether breast milk will be able to sufficiently nourish the baby.

> *Breastfeeding, the baby's latching. (P1)*

The concern and insecurity regarding care for the baby at home were mentioned by five participants. The uncertainty as to whether the practices performed with the baby would be correct, or whether they would be able to perform them, afflicted these family members.

> *Bathing, if I'm going to be able to do it. [...] To let him choke at dawn, or something to happen. Fear of not having milk. (P3)*

Fear was reported by four participants, concerning the time of bathing and reflux, in order to avoid bronchoaspiration; and with skin care, aiming to avoid complications in the newborn, according to a family member's previous experience.

> *I'm afraid of these reflux things, [...] not knowing how to cope if he chokes. (P12)*

The aforementioned concern, insecurity, and fear come especially from the difficulty in knowing how to deal with unexpected situations like bronchoaspiration. Such fears are also linked to possible problems that the child may develop. In addition, doubts regarding colic, reflux, cold, and other respiratory problems emerged in four interviews.

> *How I can really protect him from a cold? (P2)*

It is noteworthy that families face a series of obstacles, doubts, and fears. Similarly, in another study conducted with 88 parents, there were reports of difficulties with nipple latching, baby eructation, handling the umbilical stump, and acting on the child's choking[27].

Two participants also reported concerns about the possibility of the baby being able to leave the house for other environments.

> *If I'm going to be able to go out with him, with the weather like this, not in the evening, but going out in the afternoon. (P2)*

As for sleep, despite the professional recommendation of the supine position to sleep, one participant was opposed to it, placing her child in the lateral position, due to fear of bronchoaspiration.

> *Now they're recommending putting the baby in supine position, but it looks like the child is going to choke, so I put him sideways. I don't obey. (P6)*

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Learning demands about care practices with the newborn can arise from pregnancy to the puerperium. Therefore, it is essential to prepare families in a transversal way, that is, throughout the prenatal period, during the stay in the maternity, and during puerperium consultations and home visits in primary care, in order to cease emerging doubts for the provision of safe care[28].

Despite this recommendation, several not answered learning demands were present in the statements, which evidences gaps in the discharge process, since they were immersed in doubts, even with the babies under their care and with the authorized discharge in some cases.

On the other hand, some participants reported the existence of situations that minimize such challenges and doubts, such as family support (3.8% of the RUs), mainly from grandmothers who mediate the teaching-learning process, and previous experience with motherhood (2.8% of the RUs), given that these women already have an established care culture.

> *We always have (doubts), but we were lucky because the two grandmothers came here to guide us. [...] Then, what we haven't gotten yet, we go to the grandmothers who teach us. (F1)*

It is noted that the family is configured as the main support network in this transitional process including assistance in baby care, in addition to participation in clarifying demands and sharing experiences according to the findings. This family support is mostly represented by the female figure, as the primary learning process in families is permeated by the historical-cultural heritage, in which the gender division for domestic-family care is strengthened by the presence of women[21], which was also found in this analysis.

A number of studies indicate that, followed by the family, the nurse is the greatest source of support that parents use to clear doubts about the care of the newborn, having an important role as a mediator in the process of building maternal autonomy to care[1,27,29]; however, this performance was not evident in this study.

Facing doubts about home care with the newborn, health education actions inspired by problematizing education are fundamental, aiming to promote emancipatory care. This same principle, which should anchor actions aimed at mothers of premature newborns, as indicated in the literature[30], may be applied to families of low-risk newborns.

Round of talks with low fidelity simulation as an educational technology in the transition from the maternity to home

The round of talks with the use of low-fidelity simulation proved to be a significant educational technology in health to meet the family's learning needs in the transition from maternity to home, obtaining representativeness of 27.9% of the RUs. After its completion, the educational action obtained a positive feedback among the 17 (100%) participants. All reported having enjoyed participating, considering it interesting, important, productive, efficient, useful, and valid in understanding care with the baby.

> *I found it very interesting, it was very useful. The explanation, everything was clear, I liked it a lot. (P2)*
>
> *I hope people take it home and perform it (baby care). (P3)*

The round of talks became a learning strategy for 15 (88.2%) of the interviewees, as it is an enlightening instrument, which resolved doubts by reflecting on the situation they were experiencing, favoring the construction of their own knowledge about certain care with the newborn through the expansion of previous knowledge. The participants were willing to engage in other circles on the theme.

> *It clarified a lot of doubts that I had. Some guidelines that I had on one side, on the other, but I ended up having my own idea of how to perform things. (F1)*
>
> *I cleared all my doubts, I think it would be good if there were more, so we could have a better knowledge. (P5)*

Qualified listening to family members, with the appreciation of their knowledge and care practices with the baby, in addition to their perceptions about the situation experienced, is an important interaction tool, allowing for a relation of trust and respect among health professionals and caregivers[31]. The use of creative strategies in communication among professional-family-patient facilitates the expression of feelings, knowledge and important experiences, enabling nurses to raise awareness about the best care practices[32].

It is necessary to combine scientific and popular knowledge, so that the learners may expand their previous knowledge, through critical reflection of their reality. Thus, it will become possible to build a safe and healthy care practice, with family autonomy to decide and perform what is most appropriate in the care of their baby[31].

Two puerperal women with previous maternity experiences described the educational activity as an opportunity to exchange experiences, as they recognized that they had previous knowledge and, thus, were able to learn and teach. Therefore, the educational technology proved to be important for both primiparous and

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multiparous mothers.

> *We clear doubts, both ours and yours, you learn too. [...] There are a lot of first-time girls who are learning and you teach them, or even to myself. (P8)*
>
> *We think we have more experience [...] and we end up learning too. (P9)*

The round of talks proved to be able to promote the transition from naive awareness to criticism, by facilitating the learning of new knowledge and skills, based on the valorization of previous knowledge and on the exchange of experiences[33]. Furthermore, there was a claim to multiply knowledge learned with other puerperal women and to put it into practice in the post-discharge period. Similar results emerged from a study that used the same technology with the families of children with special needs. They positively evaluated the resources used, dialog among the participants, and the promotion of safety during care[34].

> *I've learned and you also learned. [...] Sharing examples. (F2)*
>
> *With this learning I can even pass on to them (puerperal women who did not participate in the round). (F4)*

The participants considered that the use of the low-fidelity simulator to represent care is a very interesting and useful teaching tool, since it is close to the size of a real baby.

> *Especially the size of the doll. I think it facilitates people's understanding, how to perform things. (F1)*

The use of this technology facilitates the demonstration of care and the understanding of how to perform it, favoring the reflection of the situation to be experienced at home, from the visualization of a concrete care environment.

> *It helped a lot [...] cleared her doubts (another puerperal woman). The presentation with the doll is good, because there's no other way. For them, for a first-time mother, it's good because they understand better [...], it's easier. (F3)*

The low-fidelity simulation creates a safe learning environment; therefore, it is an important educational tool for baby caregivers while preparing for home care[15], which was confirmed in the findings. The handling of the doll by family members has the potential to motivate discussion, practical demonstrations, and exchanges of experiences that minimize doubts and fears[34].

The use of simulators with patients and caregivers, as in this study, is a practice that assists people in developing skills to care for themselves and for the other. A Brazilian study that built and validated a low-cost simulator for training patients with Diabetes Mellitus and their caregivers, revealed that this educational strategy favors the identification of critical points related to the technique of insulin administration, allowing for the planning of more directive and effective educational actions[11].

The limitation of the study refers to the only geographical context, requiring further studies in different social realities, in addition to research studies that validate this educational technology in a representative sample of the target population.

CONCLUSION

The findings point to several home care actions to be performed by families with low-risk newborns. However, many doubts arose for their implementation in their life context.

The round of talks with low fidelity simulation proved to be a useful educational technology in instrumentalizing families in the process of discharge from the maternity, as the caregivers strengthen their potentialities, clear doubts, and exchange experiences in the group.

As an implication for nursing, there is the proposition of an innovative health educational technology capable of raising doubts and facilitating the development of contextualized and dialogical guidelines on home care with the newborn.

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