REFACS

Original Article
Rev. Fam., Ciclos Vida Saúde Contexto Soc.
http://seer.uftm.edu.br/revistaeletronica/index.php/refacs/index
ISSN: 2318-8413 DOI: 10.18554/refacs.v12i4.7561

Puerperal mastitis: knowledge and practices of nurses in Primary Health Care

Mastite puerperal: saberes e práticas de enfermeiros da Atenção Primária à Saúde

Mastitis puerperal: conocimientos y prácticas de enfermeros de Atención Primaria de Salud

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Received: 02/05/2024 **Accepted:** 27/09/2024 **Published:** 06/12/2024

Abstract:
Objective: to identify the knowledge and practices of Primary Health Care nurses regarding puerperal mastitis. **Methods:** qualitative study, conducted between June and October of 2021. Individual semi-structured interviews and thematic content analysis were used. **Results:** 11 nurses participated. Two categories were identified: "*Knowledge of Primary Health Care nurses regarding puerperal mastitis*" and "*Practices of Primary Health Care nurses regarding puerperal mastitis*". The participants exhibited technical and scientific knowledge about the concept, symptoms, etiology, and management of mastitis cases, as well as the need for guidance regarding positioning and correct latch during breastfeeding. **Conclusion:** nurses have knowledge regarding mastitis, but revealed challenges related to multidisciplinary work and maintaining breastfeeding in the event of mastitis, due to cultural beliefs regarding human breast milk and the difficulty of users in adhering to guidelines and treatment.
Keywords: Women's Health; Postpartum period; Breast feeding; Mastitis; Nursing.

Resumo
Objetivo: identificar os saberes e as práticas de enfermeiros da Atenção Primária à Saúde sobre mastite puerperal. **Método:** estudo qualitativo, realizado entre os meses de junho a outubro de 2021. Utilizou-se entrevista semiestruturada individual e análise de conteúdo temática. **Resultados**: participaram 11 enfermeiras. Foram identificadas duas categorias: "*Saberes de enfermeiras da Atenção Primária à Saúde sobre mastite puerperal*" e "*Práticas de enfermeiras da Atenção Primária à Saúde sobre mastite puerperal*". As participantes demonstraram conhecimento técnico e científico sobre o conceito, sintomatologia, etiologia e manejo dos casos de mastite, bem como, a necessidade de orientações quanto ao posicionamento e a pega correta durante a amamentação. **Conclusão:** as enfermeiras possuem conhecimentos em relação à mastite, mas indicam desafios ligados ao trabalho multidisciplinar e à manutenção da amamentação na ocorrência de mastite, devido às crenças culturais ligadas ao leite humano e a dificuldade de adesão das usuárias às orientações e ao tratamento.
Palavras-chave: Saúde da mulher; Período pós-parto; Aleitamento materno; Mastite; Enfermagem.

Resumen:
Objetivo: Identificar los conocimientos y prácticas de enfermeros de Atención Primaria de Salud sobre la mastitis puerperal. **Método**: estudio cualitativo realizado entre junio y octubre de 2021. Se utilizaron entrevistas individuales semiestructuradas y análisis de contenido temático. **Resultados**: participaron 11 enfermeras. Se identificaron dos categorías: "*Conocimientos de enfermeras de Atención Primaria de Salud sobre la mastitis puerperal*" y "*Prácticas de enfermeras de Atención Primaria de Salud sobre la mastitis puerperal*". Las participantes demostraron tener conocimientos técnicos y científicos sobre el concepto, los síntomas, la etiología y el tratamiento de los casos de mastitis, así como sobre la necesidad de orientación sobre la posición y el agarre correctos durante la lactancia. **Conclusión**: las enfermeras tienen conocimientos sobre la mastitis, pero señalan los retos relacionados con el trabajo multidisciplinar y el mantenimiento de la lactancia materna en caso de mastitis, debido a las creencias culturales relacionadas con la leche humana y a la dificultad de las usuarias para seguir las orientaciones y el tratamiento.
Palabras clave: Salud de la mujer; Periodo posparto; Lactancia materna; Mastitis; Enfermería.

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INTRODUCTION

There are several undeniable benefits of breastfeeding (BF) for a child's health. This practice is a fundamental pillar in promoting and protecting child health, as children who are breastfed have a lower risk of illness and require less medical care, fewer hospitalizations, and less medication[1].

The Brazilian Ministry of Health recommends that breastfeeding begin within the first hour of life. It should continue as the child's sole source of nutrition for the first six months. It also emphasizes that BF can be maintained after this period, with the introduction of other foods in a complementary and timely manner[2].

Although BF is a biological process, is not a natural practice, as it must be learned and supported. In this process, some complications may arise, impairing BF and leading to early weaning[3]. Early weaning is understood as the introduction of any type of food into the child's diet associated with the interruption of BF before six months of age, regardless of whether the mother decides to do so or not, and regardless of the reason for the interruption[4-5].

Among the complications that may arise during this phase, puerperal mastitis is a serious problem that consists of an inflammatory process in the breasts, which may or may not be accompanied by infection. When it occurs in the non-infectious form, it may originate from milk stasis in the mammary ducts. In its infectious form, nipple trauma can provide a pathway for bacteria to enter the mammary glands[6-7].

The prevalence of puerperal mastitis is estimated to range from 2% to 33%, and it is a significant health issue during the postpartum period[8]. The World Health Organization estimates that 74% to 95% of mastitis cases occur in the first 12 weeks postpartum[9].

As a result, many women choose to wean their babies early. A retrospective, descriptive study involving 114 women found that only 21% of them maintained BF while undergoing treatment for mastitis[6]. Therefore, by recognizing mastitis as a complication that can lead to early weaning, it is seen as a public health problem[10], given that the interruption of the supply of BF can directly affect maternal and child health and protection[11].

To manage cases of mastitis and prevent early weaning, Primary Health Care (PHC) is the place where primary care is provided to pregnant women, postpartum women, newborns and families. In this perspective, nurses are the main responsible for caring for them. In the puerperium, care needs to be immediate, establishing a bond of trust, providing individual and holistic assistance, aiming at promoting health and preventing harm, with pertinent and appropriate guidance[12-13]. Thus, this study aims to identify the knowledge and practices of Primary Health Care nurses on puerperal mastitis.

METHODS

This is a qualitative, descriptive-exploratory study conducted with nurses working in the PHC in a municipality located on the western border of the state of Rio Grande do Sul, Brazil. The inclusion criteria for participants were that they work in the Family Health Strategy (FHS), regardless of their length of service in this job. Those who were on vacation and/or on leave for any reason during data collection were excluded.

The criterion of data saturation was applied[15]. As a result, recruitment of new participants ceased once the data became redundant and repetitive. The following research question was established: *What are the knowledge and practices of nurses in Primary Health Care regarding puerperal mastitis?*

Nurses were individually invited to participate in the study by nursing students, who had been trained to conduct the data collection. At that time, the participants were provided with the Free and Informed Consent Form. Then, data collection was scheduled according to the nurse's availability.

Data collection took place in the FHS where the nurses worked, in rooms selected by them to ensure privacy. Individual interviews were conducted, with audio recordings and a semi-structured interview guide containing the following questions: *What do you understand by mastitis?*; *What are its main symptoms?*; *What are its cause?*; *Have you ever treated a patient with mastitis?*; *What advises do you usually give in cases of mastitis?*; *What are your main challenges in managing mastitis?*; and *Would you have any further comments on the research topic?*.

The interviews lasted between five and 10 minutes. Data collection began in June of 2021 and was completed in October of the same year. The statements were transcribed and submitted to thematic content analysis[15].

The research project was approved by the Research Ethics Committee of the local educational institution on March 3, 2021, under CAAE 43204720.10000.5323 and was registered under number 4,570,083. The anonymity of participants was ensured, and they were identified by the letter "E," followed by a number representing their order of participation in the study.

RESULTS

Eleven nurses participated in the study, with ages ranging from 31 to 57 years. They graduated between 2006 and 2015. After their graduation, eight participants completed specialization courses, one obtained a master's degree, one earned a PhD, and one did not pursue any further formal education. Additionally, four nurses undertook specialization

courses related to breastfeeding.

The participants' work experience in the FHS ranged from two to 11 years. Of the 11 participants, only one worked in another health service besides the FHS. In this case, she worked at the city's Emergency Care Unit.

Two categories were identified: "*Knowledge of Primary Health Care nurses on puerperal mastitis*" and "*Practices of Primary Health Care nurses on puerperal mastitis*".

Knowledge of Primary Health Care nurses on puerperal mastitis

According to the nurses, mastitis is an inflammation of the breasts. According to them, this condition is characterized by the presence of fissures, redness, swelling, hardening, sensitivity and blockage of ducts in the mammary gland, as well as pain and fever. They also point out that mastitis can occur in the first months of breastfeeding:

Puerperal mastitis is when the breast becomes more regurgitated and ends up causing inflammation [...] *it is usually nothing more than a fissure, it rarely becomes an inflammatory process.* (E1)

Mastitis is when there is a little inflammation in the breast, which presents redness, and edema. (E2)

Mastitis is an inflammation of the breast [...] *it turns red, bleeds even, there is edema* [...] *it gets inflamed and has fissures* [...] *there may be a fever, but the symptoms in the breast are redness, edema, hardening of the breast.* (E3)

It is an inflammation in the breast, which causes the blockage of some ducts. (E4)

The symptoms of mastitis are fever, redness in the area and a lot of pain. There is also very sensitive breasts. (E6)

Mastitis is the inflammation of the mammary glands, characterized by redness and pain. (E7)

It is the inflammation of the breasts during breastfeeding. They get painful [...] *they feel hot and sometimes there's fever.* (E8)

Most of them have warm breasts, local redness, pain, sometimes fever, which may not appear at first. (E9)

It is an inflammation, an infection in the breast. The symptoms are warms breasts, hardening of the area, pain. (E10)

Mastitis is the inflammation of those mammary ducts [...] *it usually occurs in the first three months of breastfeeding, when the mother is starting to breastfeed, adapting, especially in that first week, first month* [...] *she has inflammatory symptons, pain, warm and red breasts, a lot of regurgitation, even hardened breasts.* (E11)

Next, the nurses detail the etiology of mastitis, attributing it to the accumulation of milk in the breast. They explain that when the breast is not completely emptied, residual milk can lead to this complication. Other factors mentioned by the participants were incorrect latching of the baby to the mother's breast, fissures, bacteria and the lack of guidance on emptying the mammary gland:

I think it could be due to the accumulation of milk. The baby is not able to cope with all the milk that the mother is producing, either because she is producing more than the baby needs or because the baby does not latch on correctly and is unable to drain it completely, reducing the size of that breast, and then mastitis occurs. (E2)

This is due to the accumulation of milk [...] *what we believe is a bad latch and not breastfeeding properly, starts to accumulate and harden.* (E3)

Mastitis is caused by an incorrect latch, lack of guidance on emptying the breasts. (E4)

The baby does not nurse all that is available, or mothers are not instructed to wait for the three types of milk. Water, fat and proteins, which must be sucked out completely before switching breasts. (E5)

Mastitis is an inflammation caused by the accumulation of milk in the breasts and when the baby regurgitates. (E6)

The cause of mastitis is excess milk. (E7)

It happens that because they [women] *do not empty the breast properly, the milk becomes "clogged".* (E8)

Mastitis is caused by a large accumulation of breast milk that has not been drained [...] *it depends a lot on how it was expressed in the first days of the baby's life and the correct way.* (E9)

Sometimes, it can be caused by the baby's poor latch, when the mother does not empty the breast properly, or even a fissure that can cause something. (E10)

It can be caused by bacteria, or even clogged milk. (E11)

Practices of Primary Health Care nurses on puerperal mastitis

The nurses also reported their experiences in caring for patients with mastitis. In general, they mentioned having worked in different situations involving this lactation complication.

I have seen several patients with these complaints, with a lot of pain and warm breasts. (E5)

I have seen many patients with mastitis. (E7)

I have already seen several patients with mastitis. (E8)

Then, for the treatment of mastitis, nurses recommend the use of medications, such as antibiotics, and indicate the use of other strategies that could reverse this complication, such as flexible protectors (silicone nipples), the breastfeeding shell and human milk itself. Others mention manual or electric pumpinhg of the mammary gland, discarding residual milk, alternating breasts during breastfeeding, uninterrupted breastfeeding and providing guidance on correct latch as alternatives to treat or even prevent mastitis:

When it's mastitis, she needs medical attention, to be put on medication to help [...] *there is a silicone nipple that helps, because the milk itself helps to treat it, the fat in the milk helps to treat it, what happens is that when the mother doesn't have the silicone nipple or those little shells that seem like they're not very accepted, but they help a lot, the nipple stays submerged there and when she goes to nurse, she doesn't feel pain, it doesn't dry out and that provides*

natural healing. (E1)

I advise them to drain it correctly in the bath, because sometimes they drain it just by squeezing the areola and nothing comes out, do everything manually and I'll tell the doctor. (E2)

We've already had guidance about when it's at this hardened stage, to discard that milk [...] *This is because of the accumulation of milk* [...] *it's really hard to deal with, you have to have guidance from the health care provider, often take medication.* (E3)

I tell them to use the pump, empty the breast well, alternate breasts, and even if it hurts a little, not to stop breastfeeding, and I show them how to latch on correctly. (E4)

A warm compress or standing under the shower helps the milk come out. If you have a fever, go back to the unit. (E5)

I advise them to express all the milk, to take care of the baby's suction. (E6)

I advise them to express milk manually when there is excessive milk production, take a warm bath, use a warm compress and observe the baby's latch. (E7)

I teach them how to express correctly, how they should do it. If they have pain, I tell them to put a compress on, take a warm bath and massage. If it doesn't go away in 24 hours, I tell them to go back and refer them to the doctor who will prescribe antibiotics. (E8)

I advise them to massage and use a cold compress to empty the entire breast and, in some cases, they have to take medication. (E10)

Treatment is done with antibiotics to relieve discomfort and also drain the milk. (E11)

With these actions, the nurses indicated the main difficulties they faced in managing the cases. Six of them mentioned the difficulty in users adhering to the guidelines and treatment of mastitis. Two also mentioned situations that went beyond their professional attributions, requiring referral to a medical professional. One participant mentioned the difficulty in carrying out multidisciplinary work in providing guidance and preventive and therapeutic actions, as well as the challenge of reversing the desire for early weaning due to mastitis:

When it is a more serious case of mastitis that requires medication, I refer the patient to the doctor. If it is a fissure, we can manage it properly. (E1)

My biggest difficulty is getting patients to follow the care instructions exactly as I advise them. (E4)

It is cultural. They do not accept the instructions. They believe more in what their mother or neighbor says, that when they had a baby, they did it differently. And if we prescribe medication, because the case is more advanced, they do not take it properly. (E6)

My biggest difficulty is related to them following the instructions and continuing to breastfeed even with pain. (E7)

The main thing is to make them understand. Sometimes they get lost either because they are teenagers and have no experience, they do not know or because they have multiple pregnancies. (E8)

They already want to wean the baby, because they think that it will infect the baby, will pass an infection on to the baby. For me, this is one of the biggest difficulties. (E9)

The issue of awareness and guidance, talking to patients so that they do not wean the baby, so that they have patience. (E10)

My difficulty is assigning the team, complementing during that action, preventive action, educational action. (E11)

DISCUSSION

Nurses' knowledge about the concept and characteristic symptoms of mastitis is consistent with the available evidence[6-7]. Mastitis typically affects one breast, causing the affected area becomes tender, painful, red, and swollen. A breastfeeding mother may experience symptoms such as malaise, fever, and chills, with increased levels of sodium and chloride in the milk and decreased levels of lactose, making the milk saltier, which may lead to rejection by the child[16] or interruption of breastfeeding by the woman due to discomfort[17].

A study carried out with nurses demonstrated that they were knowledgeable about the clinical management of mastitis and acted in sharing guidance and providing care, avoiding more serious situations[18], as verified in the present study. These findings may demonstrate the application of scientific knowledge to clinical practice and the possibility of nurses acting as protectors and encouragers of BF, acting in intercurrences, such as mastitis.

The theoretical and scientific knowledge of professionals is important to assist during the lactation period, identifying and managing complications that occur during this phase[19]. In this way, nurses can act as an integral part of the BF support network, positively strengthening this experience through their technical care[20].

Health professionals, especially nurses, play a fundamental role in promoting, protecting and assisting in BF, implementing individual and collective educational strategies, but also providing emotional and verbal support to the puerperal woman and her family. In the absence of this support, complications can occur, leading to early weaning[21].

A study involving 27 nurses and 35 doctors from a PHC in the state of Paraná revealed gaps in their knowledge of BF and highlighted the need for better training. Such improvements could enhance professionals' ability to reduce infant morbidity and mortality rates[22].

Another study, conducted with 69 postpartum women in the state of Minas Gerais, showed that professionals did not provide guidance to users about BF during prenatal care. Therefore, during hospital admission, they demonstrated a lack of knowledge about aspects such as the appropriate positioning for breastfeeding and the correct latch of the baby, in addition to doubts about the duration of this practice exclusively and the presence of myths,

among them the belief that there is weak milk[23]. These findings reinforce that the professional needs to acquire the necessary skills and abilities in favor of BF.

Breast engorgement is one of the main causes of mastitis. It originates from milk stasis generated by the retention of milk in the alveoli and obstruction of the mammary ducts, when there is no adequate emptying of the breast[24]. In these cases, guidance on emptying the breast at each feeding, as well as on the latch and correct positioning of the baby during breastfeeding, is essential. Information on measures related to the prevention of cracked nipples is necessary and can avoid complications[24].

Several of the practices reported by the PHC nurses align with established guidelines for mastitis prevention. Among them, the following stand out: instructions on proper latching, techniques for manual pumping when the breast is engorged; methods for milk expression; massages that help stimulate milk production; recommendations on clothing or bras that can block the passage of milk; draining the breast after each feeding; using warm water compresses on the breast; increasing water intake; and gently removing the infant from the breast. These guidelines are necessary to avoid, especially, milk stasis and the occurrence of cracked nipples, aspects that can cause or aggravate cases of mastitis[24-25].

Some breastfeeding accessories, such as silicone nipple shields and breast shells, were also mentioned for treatment. A nipple shield is a flexible protecting device worn over the nipple and areola before breastfeeding. Its use should be individualized, according to the size of the mother's nipple, for a limited period and with professional supervision. They can help protect the cracked nipple while the lactating woman learns about proper positioning and latch, and generate less suction pressure. However, they are not indicated for the treatment of nipple trauma and can also lead to decreased milk production[16].

The breast shell is a rigid plastic device, consisting of a flat disc-shaped base with a central spherical hole, covered by a rounded dome, which may have ventilation. It is used over the nipples, under the bra. Originally, it was created to prevent milk leakage and to protect the breast from contact with clothing, which can alleviate pain for women who have cracked nipples. In the case of mastitis, if the nipple is very painful, the use of breast shells may be indicated. However, the shell must have holes that allow air circulation and prevent it from sticking to clothing. Otherwise, moisture and heat may be retained, leading to cracks and ulcers in the nipple[16].

In relation to breast engorgement, breast shells can reduce areolar edema and allow milk to drip. However, if used for a long period of time, they can cause damage to the breast tissue. In addition, it is necessary to consider the risk of duct obstruction due to the pressure exerted

by the shell on the breast[16].

The participants also mentioned the use of warm and cold compresses, which can produce vasodilation and relieve local compression caused by breast engorgement. However, they have the potential to increase the substrate for milk production, producing an increase in breast volume[3,16]. In this sense, it is important to use them in conjunction with cold compresses, since this resource can generate temporary vasoconstriction and a reduction in blood flow due to hypothermia. This reduces edema, increases lymphatic drainage and reduces milk production. Compresses should be applied for no more than 15 to 20 minutes to avoid increasing blood flow, which can lead to increased milk production[2].

There was also mention of the use of medications to treat mastitis. When tissue damage caused by nipple lesions is observed, an infectious process may occur. These lesions serve as an entry point for some bacteria, such as *Staphylococcus* (aureus and albus), *Escherichia coli* and *Streptococcus*[7].

In these cases, antibiotic therapy is typically recommended, along with painkillers[7]. As a counterpoint to the use of antibiotics, a systematic review and meta-analysis explored an alternative approach to preventing mastitis during breastfeeding.. The study indicates that the intake of probiotics is capable of reducing the incidence, in addition to symptoms related to mastitis. However, further studies are indicated to confirm the effects of probiotics on breastfeeding[26].

However, when a puerperal breast abscess appears, resulting from mastitis, the surgical procedure is capable of reversing the condition, requiring general anesthesia and analysis of the extracted material. During this time, breastfeeding is temporarily halted on the affected side, but mothers can continue feeding by expressing milk or using the unaffected breast[7].

An alternative treatment for puerperal breast abscesses is ultrasound-guided puncture, often combined with antibiotic therapy. A descriptive and retrospective study found that surgical management with incision and drainage often leads to negative impacts, such as separation between mother and baby due to hospitalization and, in most cases, interruption of breastfeeding. Ultrasound-guided punctures, on the other hand, allow breastfeeding to continue because they are performed in an outpatient setting. This type of treatment also has better aesthetic results and lower costs, compared to surgery[27].

Sociocultural beliefs can hinder breastfeeding, particularly the notion that human milk is 'weak' or insufficient for a baby's needs. Beliefs can emerge as justifications for interrupting breastfeeding and starting the introduction of solid foods, constituting a challenge for the protection of breastfeeding[25]. The multidisciplinary team must work together to promote BF,

with coordinated actions capable of providing effective support, observing risk factors that may cause physical or psychological disorders to mother-baby, as well as carrying out necessary interventions at the appropriate time[28].

In view of the challenges that permeate the lactation period and that may involve the occurrence of mastitis, it is recognized that it is important for the professional to have theoretical and technical knowledge, in addition to communication skills, to guide the puerperal woman and her family in maintaining and continuing the practice of BF[24]. Thus, to support BF, obtain greater adherence of puerperal women and their families, and avoid early weaning, nurses must be equipped with knowledge and skills to manage common complications. Their guidance should be based on up-to-date evidence that reflects the realities of women's experiences and their families.

CONCLUSION

The concepts and symptoms associated with mastitis mentioned by the participating nurses are consistent with scientific evidence. These findings demonstrate that nurses are able to identify mastitis, differentiating it from other complications during the lactation period.

Participants were able to identify the primary causes of mastitis, most notably milk stasis. This occurs when the breast is not fully emptied after breastfeeding. They also mentioned other factors that can contribute to or worsen mastitis, such as incorrect latching of the baby to the mother's breast, fissures and bacteria.

The nurses in PHC also indicated that mastitis treatment primarily involves antibiotic therapy. They also suggest the use of silicone nipples, breastfeeding shells and human milk itself. To avoid milk stasis, they recommended manual or electric milk pumping of the mammary gland, discarding residual milk, alternating breasts during breastfeeding, and continuing breastfeeding in the event of mastitis. They also recommended providing guidance on latching and correct positioning of the baby, as well as on emptying the breast at each feeding.

It is possible to infer that nurses are able to manage mastitis situations, providing pertinent and necessary guidance in the face of this complication. However, it is considered that they need periodic and ongoing training to update themselves on the use of some resources that can help, but also hinder the lactation process, such as flexible shields, the breastfeeding shell and manual or electric milk pumping itself.

The challenges nurses face in managing mastitis were also discussed. Key obstacles include patient adherence to treatment, cultural beliefs that lead to early weaning, and

difficulties in coordinating care within a multidisciplinary team.

In PHC, nurses play a fundamental role in supporting, protecting and promoting breastfeeding, representing an ally in this practice. However, in order to act effectively, they need to be close to women and families during the lactation period, providing support and updated guidance, assessing risk factors and intervening early, when necessary.

It is crucial to emphasize the importance of monitoring women, infants, and families once they return home after birth and hospital discharge. In this context of care, the work of a multidisciplinary team is essential, with coordinated actions that are consistent with the reality of the users assisted.

Since this study was qualitative and conducted at a single institution, its findings may not allow for broad generalization. This underscores the need for further research using diverse methodologies. In turn, the response consistent with other published works highlights the importance of this research for the field of breastfeeding practice.

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Associated Publisher: Rafael Gomes Ditterich

Conflict of Interests: the authors declared there is no conflict of interests

Financing: none

CONTRIBUTIONS:
Concept – Auzani NZ, Prates LA
Investigation – Pereira EL
Writing – first draft – Auzani NZ, Pereira EL, Prates LA
Writing – revision and editing – Auzani NZ, Escobal APL, Lipinski JM, Pereira EL, Prates LA, Souza MB

How to cite this article (Vancouver)
Auzani NZ, Pereira EL, Lipinski JM, Escobal APL, Souza MB, Prates LA. Puerperal mastitis: knowledge and practices of nurses in Primary Health Care. Rev Fam, Ciclos Vida Saúde Contexto Soc. [Internet]. 2024 [cited in *insert day, month and year of access*]; 12(4):e7561. DOI: https://doi.org/10.18554/refacs.v12i4.7561

How to cite this article (ABNT)
AUZANI, N. Z.; PEREIRA, E. L.; LIPINSKI, J. M.; ESCOBAL, A. P. L.; SOUZA, M. B.; PRATES, L. A. Puerperal mastitis: knowledge and practices of nurses in Primary Health Care. **Revista Família, Ciclos de Vida e Saúde no Contexto Social**, Uberaba, MG, v. 12, n. 4, e7561, 2024. DOI: https://doi.org/10.18554/refacs.v12i4.7561. Access in: *insert day, month and year of access*.

How to cite this article (APA)
Auzani, N. Z., Pereira, E. L., Lipinski, J. M., Escobal, A. P. L., Souza, M. B., & Prates, L. A. (2024). Puerperal mastitis: knowledge and practices of nurses in Primary Health Care. Rev. Fam., Ciclos Vida Saúde Contexto Soc., 12(4), e7561. Retrieved in *insert day, month and year of access* from https://doi.org/10.18554/refacs.v12i4.7561.