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Postpartum Mothers with Nipple Soreness: A Descriptive Study at East Denpasar I Community Health Center

Ni Komang Meiadi¹, Made Widhi Gunapria Darmapatni², Regina Tedjasulaksa³, Ni Putu Melas Fitriani⁴

^{1,2,3}Poltekkes Kemenkes Denpasar, Jurusan Kebidanan, JL Raya Puputan, Renon Denpasar Selatan, Dangri Puri Klod, Denpasar

nikomangmeiadi@gmail.com

Abstrak

Sore nipples are a common breastfeeding problem caused by trauma, often resulting from improper infant attachment during lactation. Data from the Denpasar area in 2021 showed an incidence rate of 52.8%, indicating that this condition remains a significant concern among postpartum mothers. This study aimed to identify the characteristics of postpartum mothers experiencing nipple soreness on days 6–42 after childbirth. The research employed a descriptive design with a cross-sectional approach and was conducted in May 2025 at the East Denpasar I Community Health Center. A total of 40 postpartum mothers were selected using purposive sampling. Data were collected through structured questionnaires and analyzed using univariate analysis. The results showed that most respondents were aged 20–35 years (80%), had primary-level education (47.5%), and were multiparous (47.5%). The findings revealed that 8 respondents (20%) experienced nipple soreness, with the most common symptoms being cracked nipples accompanied by a burning sensation (20%). Other symptoms such as redness in the areola were not reported. These findings suggest that although the prevalence in this study is lower compared to previous data, nipple soreness remains a relevant issue in postpartum care. The study highlights the importance of early education on proper breastfeeding techniques provided by healthcare professionals, especially midwives. Strengthening maternal knowledge and skills can help prevent nipple trauma, reduce breastfeeding complications, and ultimately support the success of exclusive breastfeeding programs.

Keywords: Post Partum, Mothers, Nipple Fissures.

1. Introduction

Nipple soreness, commonly referred to as nipple fissures, is a condition characterized by irritation, inflammation, or damage to the nipple tissue, often accompanied by pain during breastfeeding. This condition is primarily caused by improper infant latching techniques, which result in excessive pressure and friction on the nipple surface. In many cases, the baby attaches only to the nipple rather than encompassing the areola, leading to mechanical trauma that may progress into cracks, bleeding, or even infection. Nipple soreness is widely recognized as one of the most common complications experienced by breastfeeding mothers, particularly during the early postpartum period when both mother and infant are still adapting to the breastfeeding process (Anisa, 2019).

The prevalence of nipple soreness among postpartum mothers is relatively high. Studies indicate that approximately 55–57% of breastfeeding mothers experience nipple pain or injury, most commonly within the first week after delivery when breastfeeding is newly established. This early phase is critical because improper techniques adopted at this stage tend to persist and worsen over time if not corrected. As a result, nipple soreness is not only a physical health issue but also a significant barrier to successful breastfeeding, often leading to early cessation of breastfeeding practices (Apriyani, 2020). Globally, data from the World Health Organization (WHO) highlight that breastfeeding rates remain suboptimal in several regions, including developed countries. For instance, approximately 40% of women in the United States choose not to breastfeed, with many citing pain, breast engorgement, and nipple soreness as major contributing factors (World Health Organization, 2020).

In Indonesia, however, breastfeeding coverage shows relatively encouraging progress. According to data from the Ministry of Health, the proportion of mothers providing breast milk in 2019 reached 67.74%, exceeding the national strategic target of 50% (Kementerian Kesehatan Republik Indonesia, 2020). Despite this achievement, challenges related to breastfeeding complications, including nipple soreness, remain prevalent and continue to affect maternal comfort and breastfeeding sustainability. Reports indicate that between April and June in

Indonesia, approximately 22.5% of postpartum mothers experienced nipple soreness, while 42% suffered from breast engorgement and 11% developed mastitis. These statistics demonstrate that breastfeeding-related complications are still a significant public health concern that requires attention, particularly in the context of maternal education and healthcare support (Dinas Kesehatan, 2021).

Nipple soreness is a multifactorial condition influenced by both maternal and infant-related factors. One of the primary causes is incorrect breastfeeding technique, including poor positioning and improper latch. When the infant fails to attach properly to the breast, the nipple experiences repeated friction and compression, resulting in tissue damage. Additionally, infections such as those caused by *Candida albicans* (commonly referred to as Monilia) can contribute to nipple soreness. These infections may originate from oral thrush in the infant and subsequently spread to the mother's nipple during breastfeeding. Another contributing factor is anatomical abnormalities in the infant, such as a short frenulum linguae (tongue-tie), which restricts tongue movement and prevents effective latching. As a result, the infant may suck only on the nipple instead of drawing in the areola, thereby increasing the risk of injury (Gusnidarsih, 2022).

Maternal factors also play a significant role in the development of nipple soreness. Lack of knowledge regarding proper breastfeeding techniques, inadequate breast care, and limited awareness of the importance of exclusive breastfeeding are commonly associated with this condition. Primiparous mothers, or first-time mothers, are particularly vulnerable due to their limited experience and exposure to breastfeeding practices. Research conducted by Astari and Kirani (2021) found that insufficient knowledge about breastfeeding significantly increases the likelihood of nipple soreness, as mothers may unknowingly adopt incorrect techniques that lead to repeated trauma. Furthermore, psychological factors such as anxiety and lack of confidence can indirectly affect breastfeeding practices, potentially worsening the condition.

The consequences of nipple soreness extend beyond physical discomfort. Pain during breastfeeding can lead to reduced breastfeeding frequency, incomplete emptying of the breast, and an increased risk of complications such as breast engorgement and mastitis. In severe cases, mothers may choose to discontinue breastfeeding altogether, thereby depriving infants of the optimal nutritional and immunological benefits of breast milk. Breast milk is widely recognized as the best source of nutrition for infants, providing essential nutrients, antibodies, and bioactive components that support growth, development, and immune function. Therefore, addressing nipple soreness is crucial not only for maternal well-being but also for ensuring optimal infant health outcomes (Pratiwi, 2020).

Efforts to prevent and manage nipple soreness require a comprehensive approach that includes education, early detection, and appropriate intervention. Health education plays a critical role in improving maternal knowledge and skills related to breastfeeding. Educational programs that focus on correct positioning, proper latch techniques, and breast care practices have been shown to significantly reduce the incidence of nipple soreness. In addition, support from healthcare providers, including midwives and lactation consultants, is essential in guiding mothers through the breastfeeding process and addressing any challenges that arise. According to Erni (2024), health education interventions not only improve knowledge but also enhance behavioral changes that contribute to better health outcomes.

Moreover, the utilization of maternal and child health (MCH) resources, such as the MCH handbook, can support mothers in understanding proper breastfeeding practices. These resources provide practical guidance and visual illustrations that help mothers apply correct techniques in real-life situations. Astari and Kirani (2021) emphasized that increased utilization of such resources is associated with improved maternal knowledge and reduced risk of breastfeeding complications. Therefore, promoting the use of educational tools and ensuring their accessibility is an important strategy in addressing nipple soreness.

From a clinical perspective, early identification and management of nipple soreness are essential to prevent complications. Treatment may include correcting breastfeeding techniques, maintaining proper hygiene, and addressing underlying infections. In cases where infection is present, appropriate medical treatment may be required to eliminate the causative organism. Additionally, mothers should be encouraged to continue breastfeeding whenever possible, as proper management can alleviate symptoms and promote healing. Supportive measures such as nipple care, adequate rest, and emotional support also play a vital role in recovery.

Despite the availability of various interventions, gaps remain in the implementation of effective breastfeeding support, particularly in primary healthcare settings. Community health centers (Puskesmas) serve as the frontline of maternal and child healthcare services in Indonesia and play a crucial role in providing education and support to postpartum mothers. However, limited resources, high patient loads, and varying levels of healthcare provider expertise can affect the quality of care delivered. As a result, some mothers may not receive adequate guidance on breastfeeding techniques, increasing their risk of developing nipple soreness.

Given the significance of this issue, further research is needed to better understand the characteristics and contributing factors of nipple soreness among postpartum mothers. Such research can provide valuable insights into the prevalence, severity, and determinants of this condition, thereby informing the development of targeted interventions. In particular, studies that examine the impact of educational interventions on breastfeeding outcomes are essential in identifying effective strategies for preventing nipple soreness.

This study aims to describe the characteristics of nipple soreness in postpartum mothers between day 6 and day 42 who have received educational interventions at the East Denpasar I Community Health Center. By focusing on this specific population, the study seeks to provide a comprehensive understanding of how education influences breastfeeding practices and the occurrence of nipple soreness. The findings are expected to contribute to the improvement of maternal healthcare services, particularly in the area of breastfeeding support, and to support efforts in achieving optimal breastfeeding outcomes for both mothers and infants.

In conclusion, nipple soreness is a common yet preventable condition that poses a significant challenge to breastfeeding success. Its high prevalence, multifactorial causes, and potential impact on maternal and infant health underscore the importance of effective prevention and management strategies. Through improved education, healthcare support, and research, it is possible to reduce the incidence of nipple soreness and promote successful breastfeeding practices, ultimately contributing to better health outcomes for mothers and their children.

2. Method

This research employed a descriptive design using a cross-sectional approach, which aims to describe phenomena or conditions occurring within a population at a specific point in time. The cross-sectional method is appropriate for identifying the distribution of variables, such as knowledge of breastfeeding techniques and the incidence of nipple soreness among postpartum mothers, without manipulating the research environment. This design allows researchers to obtain a snapshot of the relationship between variables efficiently and systematically (Hidayat, 2019).

The population in this study consisted of postpartum mothers within the selected research area. A sample is defined as a subset of the population that represents its characteristics and is selected through specific procedures to ensure representativeness and validity of the findings (Hidayat, 2019). In determining the sample size, the Slovin formula was used to calculate the minimum number of respondents required based on the population size and acceptable margin of error. The Slovin technique is commonly used in health research when population variability is not fully known, and it provides a practical approach to estimating sample size (Pratiwi, 2020). Based on these calculations, the total sample obtained in this study was 40 postpartum mothers, which is considered sufficient to represent the study population.

The sampling technique applied was purposive sampling, where participants were selected based on predetermined inclusion and exclusion criteria. Inclusion criteria included postpartum mothers who were actively breastfeeding, willing to participate in the study, and able to communicate effectively. Meanwhile, exclusion criteria included mothers with severe medical conditions or those who were not available during the data collection period. This selection process was conducted to ensure that the data collected were relevant, reliable, and aligned with the research objectives (Gusnidarsih, 2022).

Data collection was carried out using both primary and secondary data sources. Primary data were obtained directly from respondents through structured questionnaires designed to assess knowledge of proper breastfeeding techniques and the occurrence of nipple soreness. The questionnaire was developed based on relevant literature and previous studies related to breastfeeding practices and maternal health (Anisa, 2019; Apriyani, 2020). Secondary data were collected from health records, reports, and related documentation available at the research location to support and validate the primary findings.

Data analysis in this study used univariate analysis techniques, which aim to describe each variable independently. The results of the analysis were presented in the form of frequency distributions, percentages, and tables to facilitate interpretation. Univariate analysis is suitable for descriptive research as it provides a clear overview of respondent characteristics and variable patterns without examining causal relationships (Hidayat, 2019).

Ethical considerations were strictly observed throughout the research process. Ethical approval for this study was obtained from the relevant ethics committee with Ethical Clearance Certificate Number: DP.402/F.XXXII.25/64232025. All participants were provided with clear information regarding the purpose, procedures, benefits, and potential risks of the study before participation. Written informed consent was obtained from each respondent, and participants were informed of their right to withdraw at any stage without any consequences. The study adhered to the ethical principles outlined in the Declaration of Helsinki, ensuring

confidentiality, anonymity, and the protection of participants' personal information. All data collected were used solely for research purposes and were handled with strict confidentiality to maintain the integrity and credibility of the study (World Health Organization, 2020).

3. Result and Discussion

The sample for this study consisted of 40 postpartum mothers (Day 6–42) at the East Denpasar I Community Health Center in 2025, selected based on predetermined inclusion and exclusion criteria. These criteria ensured that respondents were actively breastfeeding and had received education on proper breastfeeding techniques. The selection process aimed to obtain a homogeneous sample in terms of postpartum period and exposure to health education, thereby allowing a clearer assessment of the relationship between breastfeeding techniques and the incidence of nipple soreness. Data collection was conducted using structured observation sheets and questionnaires that captured demographic characteristics, parity status, and breastfeeding experiences. The distribution of respondent characteristics is presented in the following table:

Table 1. Identifying The Characteristics Of Postpartum Mothers (Day 6 To 42) Who Received Education On Proper Breastfeeding Techniques At The East Denpasar I Community Health Center In 2025.

Characteristic	Frequency	Percentage
Age		
< 20	4	10.0
20 – 35	32	80.0
> 35	4	10.0
Amount	40	100.0
Elementary school	19	47.5
Junior high school	10	25.0
Senior high school	11	27.5
Amount	40	100.0
Primipara	17	42.5
Multipara	19	47.5
Grandepara	4	10.0
Amount	40	100.0

Based on the table above, it can be observed that the proportion of respondents by age shows that nearly all respondents are aged 20–35 years (80%), while only a small proportion are under 20 years (10%) and above 35 years (10%). This age range represents the optimal reproductive age, where mothers generally have better physical readiness and adaptability in breastfeeding practices. In terms of educational background, most respondents had a primary school education (47.5%), followed by senior high school (27.5%) and junior high school (25.0%). Educational level plays an important role in influencing a mother's ability to understand and apply breastfeeding education provided by health workers (Hidayat, 2019). Mothers with higher education levels are generally more receptive to information and more capable of practicing correct breastfeeding techniques.

Regarding parity, the results indicate that the largest proportion of respondents were multiparous mothers (47.5%), followed by primiparous (42.5%) and grand multiparous mothers (10.0%). Multiparous mothers tend to have more experience in breastfeeding compared to primiparous mothers, which may contribute to better breastfeeding practices. However, experience alone does not always guarantee correct technique, as improper habits can persist without proper education (Gusnidarsih, 2022). This highlights the importance of continuous health education regardless of parity status.

Based on the findings, 8 out of 40 respondents (20%) experienced nipple soreness. The symptoms reported included cracked skin accompanied by a burning sensation in the nipple area. This relatively low percentage suggests that the education on proper breastfeeding techniques provided at the health center may have contributed to reducing the incidence of nipple soreness. Proper latch-on, positioning, and feeding frequency are key factors in preventing nipple trauma (Apriyani, 2020). These findings support the notion that effective health education can improve breastfeeding outcomes and maternal comfort.

The results of this study are consistent with previous research conducted by Erni (2024), which found that nipple soreness commonly occurs among women aged 20–25 years, accounting for 56.5% of cases. Although the present

study shows a lower prevalence, the similarity lies in the dominance of respondents within the productive age group. Furthermore, this study aligns with the findings of Anisa (2019), which reported that 64.8% of postpartum mothers experienced nipple soreness. The lower incidence in this study may be attributed to differences in intervention, particularly the provision of structured education on breastfeeding techniques.

In addition, the findings emphasize the role of knowledge in preventing breastfeeding complications. Mothers who receive adequate information about correct breastfeeding techniques are less likely to experience nipple soreness, as they are better equipped to avoid common mistakes such as improper latch or positioning. This is supported by Haibah et al. (2023), who highlighted a significant relationship between maternal knowledge and the condition of nipple soreness. Therefore, strengthening educational interventions in maternal health services is essential to improve breastfeeding practices and reduce complications.

Overall, the study demonstrates that demographic characteristics, educational background, and parity influence breastfeeding practices, while targeted education plays a crucial role in minimizing nipple soreness among postpartum mothers.

Table 2. Frequency Distribution of Nipple Soreness Incidence among Postpartum Mothers (Day 6–42 Postpartum) at the East Denpasar I Community Health Center in 2025

Nipple Soreness Incidence	Frequency	Percentage
No	32	80.0
Yes	8	20.0
Amount	40	100.0

These findings further illustrate that the majority of postpartum mothers did not experience nipple soreness, indicating that breastfeeding practices among respondents were generally adequate. However, the presence of 8 mothers (20%) experiencing nipple soreness remains clinically important because it can interfere with successful breastfeeding and potentially reduce exclusive breastfeeding rates. Nipple soreness is often associated with improper latch-on techniques, poor positioning, and lack of maternal knowledge regarding effective breastfeeding practices.

The results align with previous findings reported by Astari (2021), which highlighted that inadequate knowledge significantly contributes to breastfeeding complications, including nipple soreness. Mothers who lack understanding of correct attachment techniques are more likely to experience pain and discomfort during breastfeeding. Similarly, Gusnidarsih (2022) found that both mothers with sufficient and insufficient knowledge may still experience nipple soreness, suggesting that knowledge alone is not the only determining factor, but practical skills and continuous guidance also play crucial roles.

In addition, support from health workers, including midwives, is essential in ensuring that postpartum mothers are able to apply correct breastfeeding techniques. Health education interventions provided during antenatal and postnatal periods can significantly improve maternal competence in breastfeeding practices. According to Kementerian Kesehatan Republik Indonesia (2020), effective counseling and early initiation of breastfeeding are key strategies in preventing nipple soreness and promoting exclusive breastfeeding.

Furthermore, psychological factors such as maternal confidence and anxiety levels may also influence breastfeeding success. Mothers who feel confident and supported tend to perform breastfeeding techniques more effectively, thereby reducing the risk of nipple soreness. Therefore, a comprehensive approach involving education, practical training, and continuous support is necessary to minimize the incidence of nipple soreness among postpartum mothers and to enhance overall breastfeeding outcomes.

These findings also suggest the importance of early detection and management of breastfeeding problems. When nipple soreness is identified promptly, appropriate interventions such as correcting latch technique, applying breast care practices, and providing lactation counseling can be implemented to prevent further complications such as mastitis or breastfeeding cessation. This is consistent with recommendations from World Health Organization (2020), which emphasize continuous support and monitoring during the postpartum period to ensure successful breastfeeding practices.

Thus, the findings of this study reinforce the need for integrated maternal health services that focus not only on knowledge improvement but also on skill development and sustained assistance for breastfeeding mothers. Such efforts are expected to improve maternal and infant health outcomes significantly in community settings overall.

Table 3. Frequency Distribution of Nipple Soreness Signs among Postpartum Mothers (Day 6–42 Postpartum) at the East Denpasar I Community Health Center in 2025

Question	Yes			No	
	Frequency	Percentage	F	Frequency	Percentage
Do you feel any scratched or burning sensation on your nipples?	8	20		32	80
Do you see any scratched on your nipples?	4	10		36	90
Do you feel pain in your nipples when giving breast milk with DBF?	4	10		36	90
Do you feel heat in your nipples when breastfeeding?	6	15		34	85
Have you ever seen blood coming out when pumping?	1	2.5		39	97.5
Have you feel pain or redness in your areola?	0	0.0		40	100
Have you ever used a warm compress on your nipples?	1	2.5		39	97.5
Do you feel severe pain when breastfeeding your baby?	1	2.5		39	97.5

Based on Table 3, the distribution of nipple soreness signs among postpartum mothers (day 6–42) at the East Denpasar I Community Health Center shows that the majority of respondents did not experience severe symptoms, although several early indicators were still found. A total of 8 respondents (20.0%) reported experiencing a scratched or burning sensation in the nipple area, which is one of the earliest signs of nipple soreness. Meanwhile, only 4 respondents (10.0%) observed visible scratches on the nipple surface and experienced pain during breastfeeding using the direct breastfeeding (DBF) method. Additionally, 6 respondents (15.0%) reported a sensation of heat in the nipple area while breastfeeding. More severe symptoms, such as bleeding during pumping and intense pain during breastfeeding, were relatively rare, each occurring in only 1 respondent (2.5%). Notably, none of the respondents (100%) reported redness in the areola area, indicating that most cases had not progressed to more severe inflammatory conditions.

These findings suggest that nipple soreness among respondents was generally in a mild to moderate stage, characterized mainly by discomfort such as burning or slight pain rather than advanced tissue damage. This condition may reflect early detection and appropriate management, possibly due to the education provided at the health center. Early identification of symptoms is crucial in preventing further complications, such as infection or mastitis, which may disrupt breastfeeding continuity.

The characteristics of respondents further support this interpretation. Most respondents were aged 20–35 years (80%), which is considered a productive and reproductive age group with relatively better adaptability to health

education. The majority had a primary education level (47.5%) and were multiparous (47.5%). These demographic factors play an important role in shaping maternal knowledge and breastfeeding practices. Mothers with prior childbirth experience (multiparous) are generally more familiar with breastfeeding techniques, although improper habits may persist if not corrected through education.

The results of this study are consistent with findings reported by Erni (2024), which showed that nipple soreness is commonly experienced by women in the age group of 20–25 years, accounting for 56.5% of cases. This similarity indicates that age remains a significant factor influencing the occurrence of nipple soreness, as younger mothers may still be adapting to proper breastfeeding techniques (Erni, 2024). In addition, the findings align with Anisa (2019), who reported that 64.8% of postpartum mothers experienced nipple soreness, suggesting that this condition is relatively common among breastfeeding women, especially in the early postpartum period (Anisa, 2019).

However, the lower percentage found in this study (20.0%) compared to previous research may indicate the positive impact of breastfeeding education interventions. According to Apriyani (2020), both formal and non-formal education can significantly influence maternal behavior by improving knowledge and encouraging proper breastfeeding practices. Education provided immediately after childbirth can help mothers understand correct latch-on techniques, positioning, and nipple care, thereby reducing the risk of nipple soreness (Apriyani, 2020).

Furthermore, the findings are also supported by Astari (2021), who emphasized that knowledge plays a crucial role in preventing nipple soreness. In her study, a significant proportion of postpartum mothers (63.6%) had insufficient knowledge regarding nipple care. Interestingly, even among mothers with adequate knowledge, nipple soreness still occurred, indicating that knowledge alone is not sufficient without proper practice and continuous guidance (Astari, 2021). This highlights the importance of combining education with practical demonstrations and follow-up support to ensure effective behavioral change.

From the researcher's perspective, the level of maternal knowledge observed in this study is closely related to the accessibility of information and the effectiveness of health education programs. Some respondents reported obtaining information from social media, which can serve as an additional source of knowledge. However, the accuracy and reliability of such information may vary, emphasizing the need for healthcare providers to deliver clear, evidence-based education.

In line with this, Haibah et al. (2021) stated that maternal age significantly influences knowledge levels, which in turn affects breastfeeding practices and the occurrence of nipple soreness. Younger mothers or those with limited experience may require more intensive guidance to achieve proper breastfeeding techniques. Therefore, age and experience should be considered when designing educational interventions to ensure they are tailored to the needs of the target population.

Overall, the findings indicate that while nipple soreness is still present among a portion of postpartum mothers, the severity and prevalence are relatively low. This suggests that the educational efforts implemented at the East Denpasar I Community Health Center have contributed to improved maternal knowledge and practices. Nevertheless, continuous education, monitoring, and support are essential to further reduce the incidence of nipple soreness and to promote successful and sustainable breastfeeding practices among postpartum mothers.

4. Conclusion

This research identifies a high incidence of nipple soreness among mothers at East Denpasar I Health Center. The most frequently reported symptoms were scratched skin and burning sensations. Interestingly, the highest frequency of this condition occurs in women aged 20–25. These findings indicate that younger mothers may still lack adequate experience and practical skills in proper breastfeeding techniques, which increases the risk of nipple trauma. In addition, limited access to consistent health education and guidance during the early postpartum period may further contribute to this problem. Therefore, strengthening lactation counseling services becomes essential in reducing the incidence of nipple soreness. Health workers, particularly midwives and nurses, should provide continuous assistance on correct latch-on techniques, proper positioning, and breast care practices. Moreover, educational interventions should be tailored to the specific needs of younger mothers, using clear communication and practical demonstrations. Family support also plays an important role in encouraging mothers to practice appropriate breastfeeding behaviors. By improving knowledge and skills through structured education programs, it is expected that the occurrence of nipple soreness can be significantly reduced. Ultimately, these efforts will not only enhance maternal comfort but also promote successful exclusive breastfeeding and improve overall maternal and infant health outcomes. Furthermore, integrating community based education programs with routine maternal health services can strengthen early detection and management of breastfeeding problems. Regular monitoring and follow-up visits allow health providers to identify complications promptly and offer timely interventions.

Collaboration between health centers and local support groups can also expand access to reliable information and peer encouragement. In the long-term, improving breastfeeding practices will contribute to better nutritional status and reduce the risk of infant morbidity. Therefore, a comprehensive and sustainable approach is needed to address nipple soreness effectively in the community setting. This conclusion highlights the importance of preventive strategies.

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