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Breast Care Interventions to Enhance Breast Milk Production in Post-Caesarean Mothers: A Study at Ir. Soekarno Hospital, Sukoharjo

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ABSTRACT

Background: Cesarean section is a surgical procedure involving incisions in the abdomen and uterus to deliver a baby. Breastfeeding obstacles that occur in post-section cesarean mothers are caused by surgical pain that affects the mother's comfort and can inhibit the pituitary glandula nerves that produce the hormone oxytocin, which plays a role in the breastfeeding process. Breast care refers to interventions aimed at facilitating breast milk production. These interventions can be beneficial both prenatally and postnatally. **Objective:** This study aims to describe the impact of breast care on breast milk flow in mothers who have undergone cesarean section at Ir. Soekarno Hospital, Sukoharjo District. **Method:** A descriptive case study approach was employed, involving two respondents. Pre-test and post-test assessments were conducted using an observation sheet to evaluate breast milk flow based on 10 specific indicators. **Results:** Both respondents exhibited suboptimal breast milk flow before breast care interventions. Following the interventions, both respondents demonstrated significant improvements, achieving optimal breast milk flow. **Conclusion:** The findings indicate a notable enhancement in breast milk flow among the respondents after receiving breast care, suggesting the efficacy of such interventions in supporting lactation.

Keywords: Cesarean Section, Breast Milk, Breast Care

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1. INTRODUCTION

Cesarean section is a surgical procedure performed to deliver a fetus by making incisions through the abdominal and uterine walls. This method is conducted due to certain conditions that make vaginal delivery unsafe or impossible, such as previous cesarean history, fetal distress, breech presentation, and labor dystocia (Nunes et al., 2023; Islami et al.,

2024). According to the World Health Organization (WHO), the cesarean section rate in every country ranges from 10% to 15%. A high cesarean section rate can increase the risk of maternal and neonatal mortality and morbidity. Data from 2019 indicated that approximately 85 million cesarean procedures were performed globally, while data from 2020 reported a significantly higher number of 373 million cesarean procedures (WHO, 2020).

Based on the 2018 Basic Health Research (Riskesdas) data, the rate of cesarean births in Indonesia was 17.6%. The indications for performing cesarean deliveries are caused by various complications, with the following percentages: transverse or breech fetal position (3.1%), bleeding (2.4%), eclampsia (0.2%), premature rupture of membranes (5.6%), prolonged labor (4.3%), nuchal cord (2.9%), placenta previa (0.7%), retained placenta (0.8%), hypertension (2.7%), and others (4.6%).

Postpartum nursing problems related to cesarean birth include delayed onset of colostrum production due to several factors. Breastfeeding difficulties experienced by mothers after cesarean delivery are primarily caused by post-surgical pain, which affects maternal comfort and may interfere with the function of the posterior pituitary gland responsible for producing oxytocin, a hormone crucial for lactation (Destiana, 2024). Breast milk is an essential component that infants require for nutritional needs and immune system development. Reduced oxytocin levels post-cesarean can lead to decreased breast milk production and inadequate infant nutrition (Ramadhani et al., 2024).

Providing specialized care, such as Breast Care, is a proactive measure to increase breast milk production by stimulating breast muscles. By implementing regular breast care, potential breastfeeding issues can be prevented. Breast Care is a technique used during pregnancy and postpartum aimed at facilitating breast milk flow, maintaining breast hygiene, and correcting flat or inverted nipples (Rohmah et al., 2024).

A study conducted by Putry and Hermawati (2024) found that before implementing Breast Care techniques, milk production was limited in post-cesarean patients. However, milk production was significantly increased on the second day after implementing Breast Care. This promising result indicates that Breast Care techniques positively improve breast milk flow, offering hope for post-cesarean mothers and healthcare providers.

Volume 4 Issue 2, August 2025, pp 152-162
https://ebsina.or.id/journals/index.php/jkmi
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Another study by Kasmawati et al. (2025) showed that out of 17 respondents, prior to receiving Breast Care, most mothers experienced insufficient milk production-11 mothers (65%) had poor milk flow, while only 6 mothers (35%) had sufficient milk production. This supports the conclusion that Breast Care significantly influences breast milk flow in post-cesarean mothers. The research findings by Astuti et al. (2023) also revealed that two days after implementing Breast Care, it had a positive impact on breast milk production among postpartum women and helped improve lactation.

Preliminary observations conducted in the Bougenville Room at Ir. Soekarno Regional Hospital in Sukoharjo identified common nursing problems among three post-cesarean mothers, including pain and ineffective breastfeeding. All three mothers reported not having sufficient milk flow and were unaware of Breast Care techniques to help stimulate milk production. Education regarding Breast Care was provided verbally and through leaflets. However, the lack of professional guidance and limited family knowledge could hinder the effective implementation of Breast Care. It is crucial for healthcare providers, including nurses and midwives, to involve the family in educating and guiding post-cesarean mothers in implementing Breast Care. Family support is essential in providing the necessary motivation and supervision for increasing milk production, thereby reducing the risk of delayed lactation.

2. METHODS

This study employed a descriptive case study method to examine the effectiveness of breast care interventions in improving lactation among post-cesarean mothers. The effectiveness of the intervention was evaluated using pre-test and post-test measurements to assess improvements in breast milk flow. The study subjects were two post-cesarean mothers in the Bougainville Room of Ir. Soekarno Regional Hospital in Sukoharjo who met the following inclusion criteria: mothers on their first day post-cesarean section, those experiencing insufficient breast milk production, and those willing to participate as respondents. Mothers who required further medical monitoring were excluded from the study.

Two respondents met the inclusion criteria and agreed to participate in this study (Mrs. T and Mrs. I). Mrs. T was a 24-year-old primiparous woman (G1P0A0) admitted to the Bougainville Room of Ir. Soekarno Regional Hospital in Sukoharjo on February 17, 2025, following a cesarean section due to a term pregnancy

complicated by a prolonged second stage of labor. During the assessment on the same day at 03:00 PM, she reported that her breast milk had not yet come in, and her newborn was still under observation in the neonatal unit. The baby was born weighing 3,245 grams. Her vital signs were stable: blood pressure 128/86 mmHg, pulse rate 87 bpm, body temperature 36.6°C, respiratory rate 20 breaths per minute, and SpO_2 98%. She reported experiencing postoperative pain but showed no signs of infection or wound discharge. Additionally, she admitted to having limited knowledge regarding proper breast care techniques to stimulate milk production and expressed willingness to receive breast care intervention.

The research was conducted in the Bougenville Room of Ir. Soekarno Regional Hospital in Sukoharjo from February 19 to 21, 2025, with the timing adjusted according to the patients' availability. Data was collected through interviews with post-cesarean mothers to obtain both subjective and objective information from the patients, their families, and medical records, as well as by completing observation sheets with the consent of the respondents who agreed to participate in the study through an informed consent form. The data analysis process involved comparing the results before and after the Breast Care intervention to determine whether there was an improvement in breast milk supply, supported by both subjective reports and objective observations made by the researcher.

Ethical considerations were strictly followed throughout the study, including respect for autonomy by ensuring that participants had complete freedom to make decisions, providing informed consent before data collection, allowing participants to withdraw at any time, and avoiding any form of coercion. Fairness and justice were maintained by ensuring equal opportunity for participation and fair treatment of all respondents while balancing the risks and benefits associated with the research. The study aimed to ensure usefulness by providing direct and indirect benefits to the participants, collecting data, and contributing positively to their postpartum care. The principle of non-maleficence was applied by preventing any physical or psychological harm to the participants, minimizing potential risks, and maximizing possible benefits. Risk assessments were conducted during the planning phase to prevent unintended incidents, anonymity and confidentiality were implemented to protect participants' personal information and maintain privacy throughout the research process.

Jurnal Kegawatdaruratan Medis Indonesia (JKMI)
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3. RESULTS

The case study was conducted on two respondents in the Bougenville Room of Ir. Soekarno Hospital Sukoharjo, who had received information about breast care, agreed to participate by signing the informed consent form. The Breast Care intervention was implemented from the first day to the second day of the patients' hospital stay, with the researcher accompanying each patient for 15 minutes during the procedure. After the intervention, observations were carried out using a questionnaire sheet to assess milk flow, aiming to identify any improvement in milk production.

The following section presents the results of the Breast Care implementation in both respondents who underwent the intervention after cesarean delivery in the Bougenville Room of Ir. Soekarno Hospital Sukoharjo.

Table 1. Frequency Distribution of Respondent Characteristics

Respondents	Age	Education	Occupation	History of Cesarean Section	Breast Milk Flow
Mrs. T	24 years	High School	Housewife	Never had cesarean	Not flowing yet
Mrs. I	29 years	High School	Housewife	Never had cesarean	Not flowing yet

Based on Table 1, these are the characteristics of post-cesarean mothers in the Bougenville Room of Ir. Soekarno Regional Hospital in Sukoharjo. Both respondents are within the reproductive age range of 20–35 years and have completed high school education. Both are currently unemployed and work as housewives. Neither has a history of previous cesarean section. Both also report that their breast milk has not come out yet.

Table 2. Frequency Distribution of Breast Milk Flow Before Breast Care

Respondents	Date	Indicator of Breast Milk Flow	Note
Mrs. T	17/02/25	0	Not flowing yet
Mrs. I	19/02/25	0	Not flowing yet

Based on Table 2, the observation results show that before receiving breast care, both post-cesarean patients had no breast milk flow, with a score of 0 for milk production.

Table 3. Frequency Distribution of Breast Milk Flow After Breast Care

Respondents	Date	Indicator of Breast Milk Flow	Note
Mrs. T	18/02/25	3	Not flowing yet
	19/02/25	7	Flowing well
Mrs. I	20/02/25	3	Not flowing yet
	21/02/25	8	Flowing well

Based on Table 3, after implementing breast care from day 1 to day 2, both post-cesarean patients showed improvement in breast milk flow. Mrs. T achieved a score of 7 and Mrs. I scored 8, indicating good milk production.

Table 4. Comparison Results of Blood Pressure Measurements Before and After Guided Imagery Therapy

Name	Date	Daily Progress	Note
Mrs. T	17/02/25	0	Not flowing yet
	18/02/25	3	Not flowing yet
	19/02/25	7	Flowing well
Mrs. I	19/02/25	0	Not flowing yet
	20/02/25	3	Not flowing yet
	21/02/25	8	Flowing well

Based on Table 4, the observation results indicate that on Day 1, the patients' breast milk was not flowing yet. However, after breast care was implemented on Day 2, there was an improvement in breast milk flow, with both patients experiencing smooth milk production.

4. DISCUSSION

Assessment Results of Breast Milk Flow Before Breast Care

Based on Table 2, interviews, and observations, both respondents reported that this was their first experience with cesarean section delivery. Before the implementation of breast care, both experienced difficulty in breast milk production.

This is consistent with the study by Putrianingsih (2022), which found that mothers who underwent cesarean section often experience difficulties with breast milk flow. Her research showed that 82% of mothers delivering via cesarean section faced issues with milk production. The decrease in milk production during the first few days after childbirth can be caused by insufficient stimulation of prolactin and oxytocin hormones, which are crucial for lactation. If the baby does not begin suckling within half an hour after birth, prolactin levels may drop and become harder to stimulate.

Difficulty in milk flow is one factor that prevents successful breastfeeding, thus delaying the nursing process. This aligns with the findings of Nasution and Oktamianti (2023), which state that post-cesarean breastfeeding challenges are often caused by postoperative pain affecting maternal comfort, thereby inhibiting the function of the posterior pituitary gland responsible for releasing oxytocin, a hormone essential for lactation.

According to Table 1, both respondents shared similar characteristics:

Volume 4 Issue 2, August 2025, pp 152-162
https://ebsina.or.id/journals/index.php/jkmi
EISSN 2502-2717

they were both undergoing cesarean delivery for the first time. Mothers commonly face challenges with early breastfeeding due to insufficient milk production. Both mothers reported no milk output on the first day after delivery. According to Rohmah et al. (2024), several factors influence breast milk flow, including prolactin and oxytocin levels, as well as the use of medications during cesarean surgery.

Assessment Results of Breast Milk Flow After Breast Care Implementation

Table 3 shows a noticeable improvement in breast milk flow after two days of breast care intervention. Mrs. T reported that her milk flowed well and she could start breastfeeding. Mrs. I said her milk flowed so well that it began to leak.

Breast care was implemented for two consecutive days for Mrs. T and Mrs. I. Based on the researcher's observation, there was a gradual improvement each day. During the implementation, family members, either the mother or husband, were present, allowing the researcher to educate the families about breast care. Mrs. T and her family were more enthusiastic, cooperative, and actively asked questions among the two respondents.

The study conducted by Rohmah et al. (2024) stated that there was an improvement in milk flow after breast care compared to before, based on indicators from both mother and infant assessments.

This is also supported by Astuti et al. (2023), who explained that breast care is an effective method to increase milk production. It facilitates easier infant feeding, helps remove milk duct blockages, maintains breast hygiene, and improves nipple elasticity.

The findings from Putry and Hermawati (2024) also support this, stating that milk flow was limited in post-cesarean mothers before breast care, but significantly improved by the second day after breast care implementation. These results align with the research by Izzah (2022), which investigated the effects of breast care on milk production in post-cesarean mothers. After receiving breast care, only 3 respondents (25%) still experienced poor milk flow, while 12 (66.7%) had smooth milk production.

Daily Progress Notes

Based on Table 4, the observation showed that on the first day postpartum, both mothers still experienced poor milk flow. At the initial observation on Day 0, no milk had come out yet. This is related to several factors influencing milk production, such as breast care practices, emotional calmness, and physical comfort.

Volume 4 Issue 2, August 2025, pp 152-162
https://ebsina.or.id/journals/index.php/jkmi
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Emotional stability and comfort played a significant role in facilitating milk release for both respondents.

On the first day of breast care, both mothers still experienced poor milk flow. However, based on the milk flow indicators, there was an improvement from a score of 0 to 2. Each respondent produced approximately 8–12 drops of milk. One way to increase milk production is through special care, including stimulating breast muscles and preventing potential breastfeeding problems.

By the second day of breast care, it was evident that most respondents experienced poor milk flow before the intervention, but afterward, both showed improvement, and their milk flow became smoother. Based on observations made on the third day, the mothers' milk flowed sufficiently to the point of leaking.

The limitations of this study include the short duration of Breast Care implementation, which was only conducted over 2 days due to the limited hospital stay of post-cesarean patients, typically only 2 days. This may have affected the effectiveness of the intervention, as stimulating the pituitary gland to produce oxytocin optimally requires at least 3 days post-surgery for better results. Additionally, the level of family involvement and cooperation in supporting the implementation of Breast Care was relatively low, which could influence the consistency and success of the intervention in improving breast milk production.

5. CONCLUSION

Based on the implementation of Breast Care to increase breast milk production in both respondents, it can be concluded that before the intervention, both post-cesarean mothers experienced poor milk flow, with an assessment score of 0 for both. After the Breast Care intervention was carried out from the first to the second day, there was a noticeable improvement in milk flow. Mrs. T achieved a score of 7, and Mrs. I reached a score of 8, indicating smooth milk production. The daily progress notes also showed improvement, with Mrs. T's score increasing from 3 on the first day to 7 on the second day, while Mrs. I's increased from 3 to 8. This indicates that both respondents experienced a significant improvement in breast milk flow, reaching the category of smooth lactation.

For the community, it is recommended that mothers experiencing breastfeeding difficulties apply Breast Care independently to help stimulate and improve breast milk production. For hospitals, nursing services are suggested to

implement and guide post-cesarean patients in performing Breast Care as early as possible. With proper assistance, mothers can perform Breast Care techniques correctly and effectively, helping to resolve ineffective breastfeeding and preventing further complications in post-cesarean mothers who experience breastfeeding difficulties.

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AUTHOR CONTRIBUTIONS

The author contributes in conceptualization, data collection and analysis: Diah Ayu Damayanti, Amalia Arifatul Diktina, Yohana Ika Prastiwi, and Ardhini Mauritania. Writing and manuscript revisions: Diah Ayu Damayanti, and Amalia Arifatul Diktina.

CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available upon reasonable request from the corresponding author.

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