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Biological Nurturing and Baby-Led Feeding Techniques for Pain Reduction in Post-Caesarean Mothers

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ABSTRACT

Introduction: Post-cesarean section pain can impede maternal recovery, affect mother-infant bonding, and delay breastfeeding. Non-pharmacological interventions, such as biologic nurturing baby-led feeding, offer a safe, side-effect-free method of pain management.
Objective: This case study aims to evaluate the effectiveness of biologic nurturing baby-led feeding techniques in reducing the pain scale of post-cesarean section mothers.
Method: A descriptive case study was conducted at RSUD Labuang Baji, Makassar, involving two postpartum mothers who met specific inclusion criteria. The intervention was carried out over three consecutive days, and pain levels were assessed before and after each implementation using an observation scale.
Result: Both respondents showed a progressive decrease in pain scores. Mrs. D experienced a reduction from a pain scale of 6 (moderate) to 3 (mild), while Mrs. M showed a decrease from 6 (moderate) to 2 (mild). Consistent application of the technique enhanced pain tolerance and reduced discomfort.
Conclusion: Biologic nurturing baby-led feeding is an effective complementary therapy for reducing post-cesarean section pain. This technique promotes maternal comfort through distraction, increased oxytocin levels, and enhanced bonding with the infant.

Keywords: biological infant rearing techniques, pain, sectio caesarea

Introduction

There are two recognized methods of childbirth: vaginal delivery, commonly referred to as "normal delivery," and caesarean section, also known as "cesarean delivery" or sectio caesarea. Caesarean section is a surgical procedure employed when the health condition of the mother or fetus does not permit vaginal delivery. According to Dumilah (2018), this procedure involves the surgical removal of the fetus from the uterus through incisions in the abdominal wall, uterine wall, vagina, or via hysterotomy. The incision disrupts skin integrity, leading to postoperative discomfort. The intensity and nature of pain experienced postoperatively are influenced by individual pain thresholds, physiological responses, and psychological factors. During surgical trauma, chemical mediators such as bradykinin, histamine, and prostaglandins are released, which transmit pain signals from nociceptor afferent fibers to the substantia gelatinosa in the spinal cord. These signals are then processed by the thalamus and ultimately perceived as pain in the cerebral cortex (Reilly & Williams, 2020).

According to the World Health Organization (WHO), approximately 5–15% of childbirth cases necessitate a caesarean section. However, WHO's 2011 Global Survey of Maternal and Perinatal Health reported that caesarean sections accounted for 46.1% of total deliveries worldwide (World Health Organization, 2019). In Indonesia, the Basic Health Research (Riskesdas) data from 2018 indicates that caesarean sections constitute 17% of all births, with 18% occurring in private hospitals and 15% in public hospitals. Medical indications for cesarean deliveries include premature rupture of membranes (18.8%), abnormal fetal positions, preeclampsia/eclampsia, and a history of previous cesarean sections (Sutejo & Tane, 2022).

Post-caesarean pain is a significant issue, with studies categorizing pain intensity as follows: mild (15%), moderate (35%), and severe (30–50%) (Rasyida, 2019). Furthermore, postoperative pain often delays the initiation of breastfeeding. Hillan’s study found that 32% of mothers experienced persistent incision pain on the first and second postoperative days, and nearly half continued to experience discomfort at home. Effective pain management is essential for facilitating maternal recovery and resumption of daily activities, as unmanaged pain may result in impaired mobility, disrupted sleep, and reduced breastfeeding effectiveness (Susilawati et al., 2023).

The consequences of untreated post-cesarean pain extend to impaired maternal-infant bonding, interference with daily activities, and difficulties in fulfilling both maternal and infant basic needs. Pain experienced after cesarean delivery is often described as sharp and persistent, with severity increasing upon movement near the surgical site (Lutfianti & Unalisa, 2022).

Management of post-cesarean pain can be achieved through pharmacological and non-pharmacological interventions. Pharmacological management, which includes the use of analgesics, provides rapid pain relief but may result in long-term side effects such as renal impairment (Agustina, 2020; Yanti & Kristiana, 2019). Non-pharmacological strategies aim to reduce pain perception without chemical agents. These include guided imagery, autogenic therapy, music therapy, aromatherapy, acupressure, progressive muscle relaxation, meditation, and biologic nurturing baby-led feeding (Rini & Susanti, 2018).

Non-pharmacological approaches are advantageous due to their minimal risk and gradual reduction of pain. Biologic nurturing baby-led feeding—also referred to as the reclining breastfeeding position—serves as a distraction technique that strengthens the

emotional bond between mother and infant while simultaneously alleviating pain (Winarti et al., 2022). Based on the gate control theory, this method helps regulate pain signals by blocking their transmission to the sensory cortex, thereby enhancing the mother's pain threshold and enabling better pain tolerance during and after breastfeeding (Evi, 2016).

Empirical evidence supports the efficacy of this method. Faatihah et al. (2023) reported a reduction in post-cesarean maternal pain from moderate (scale 4–6) to mild (scale 0–3) following biologic nurturing baby-led feeding intervention. These findings are consistent with those of Reilly & Williams (2020a), who also observed a significant decline in pain intensity when this technique was employed.

Objective

A descriptive case study was conducted at RSUD Labuang Baji, Makassar, involving two postpartum mothers who met specific inclusion criteria. The intervention was carried out over three consecutive days, and pain levels were assessed before and after each implementation using an observation scale.

Method

This study employed a descriptive case study design and was conducted in the Baji Gau ward of Labuang Baji Hospital from July 8 to July 10, 2024. The study sample consisted of two postpartum mothers who had undergone cesarean section (sectio caesarea) and met the inclusion criteria, which included postpartum mothers on the second day after delivery, actively breastfeeding, experiencing moderate pain (pain scale 4–6), having primiparous labor, and being within the age range of 16 to 35 years. Exclusion criteria comprised postpartum mothers requiring additional medical treatment due to complications, those who had taken analgesic medication within one hour prior to the intervention, and individuals with a history of chronic illnesses such as HIV/AIDS.

The research instruments utilized in this study included pain observation scale sheets, standard operating procedures (SOPs), medical record data, and breast milk production observation sheets. Data collection was carried out through structured interviews and direct observation. Data analysis was conducted descriptively and presented in narrative form and tables.

Result

The results of the case study are presented below:

1. Responden I (Ny.D)
   Age : 20 years old
   Gender : Female
   Last Education : High School
   Occupation : Housewife

Table 1 Observation of the Implementation of Biologic Nurturing Baby Leed Feeding Techniques to Lower the Pain Scale in Respondent I (Mrs. D)

Day/Date	Implementation	Time	Pain Scale	
			pre	post
Monday, July 8, 2024	Teaching biologic nurturing baby leed feeding technique, - Right breast - Left breast	11:00-11:10 11:10-11-20	Moderate pain (6)	Moderate pain (5)
Tuesday, July 9, 2024	Teaching biologic nurturing baby leed feeding technique, - Right breast - Left breast	10:00-10:10 10:10-10:20	Moderate pain(5)	Moderate pain (4)
Wednesday, July 10, 2024	Teaching biologic nurturing baby leed feeding technique, - Right breast - Left breast	10:30-10:40 10:40-10:50	Moderate pain (4)	Mild pain (3)

Table 1 illustrates that on the first day, respondent Mrs. D reported moderate pain with a score of 6 prior to the implementation of the Biologic Nurturing Baby-Led Feeding Technique. Following the intervention, her pain level decreased to 5, still within the moderate category. On the second day, the pre-intervention pain level remained at 5, which subsequently declined to 4 post-interventions. On the third day, her pain level was recorded at 4 before the intervention and further decreased to 3 afterward, indicating a transition from moderate to mild pain.

2. Responden II (Ny. M)
   Age : 25 years old
   Gender : Female
   Last Education : High School
   Occupation : Housewife

Table 2 Observation of the Implementation of Biologic Nurturing Baby Leed Feeding Techniques to Lower the Pain Scale in Respondent II (Mrs.M)

Day/Date	Implementation	Time	Pain Scale	
			Pre	***Post***
Monday, July 8, 2024	Teaching biologic nurturing baby leed feeding technique,	11:30-11:45 11:45-12:00	Moderate pain (6)	Moderate pain (5)

	- Right breast - Left breast			
Tuesday, July 9, 2024	Teaching biologic nurturing baby leed feeding technique, - Right breast - Left breast	10:30-10:45 10:45-11:00	Moderate pain (5)	Moderate pain (4)
Wednesday, July 10, 2024	Teaching biologic nurturing baby leed feeding technique, - Right breast - Left breast	11:00-11:15 11:15-11:30	Moderate pain (4)	Mild pain (2)

Table 2 indicates that on the first day, respondent Mrs. M reported a pain level of 6 prior to the implementation of the Biologic Nurturing Baby-Led Feeding Technique. Following the intervention, her pain decreased to a score of 5, classified as moderate pain. On the second day, the pre-intervention pain level remained at 5 and decreased to 4 after the intervention. On the third day, her pain level before the intervention was recorded at 4 and declined to 2 post-intervention, indicating a reduction from moderate to mild pain.

Discussion

This case study explored the implementation of biologic nurturing baby-led feeding techniques to reduce postoperative pain in two cesarean section mothers, conducted over three consecutive days from July 8 to July 10, 2024.

On the first day, both respondents—Mrs. D and Mrs. M—reported a moderate pain score of 6 prior to the intervention. Following the implementation of the biologic nurturing baby-led feeding technique, their pain levels decreased to 5, still within the moderate category. The consistent decrease in pain for both respondents highlights the initial effectiveness of the intervention. Both mothers demonstrated cooperative behavior in applying the technique, contributing to a uniform response in pain reduction.

This observation aligns with the findings of Basir et al. (2022), who reported that biologic nurturing baby-led feeding therapy can effectively reduce post-cesarean pain from moderate to mild levels. Breastfeeding is thought to help mothers regulate their physiological response to pain, thereby increasing pain tolerance.

On the second day, the pre-intervention pain level for both respondents remained at 5, decreasing to 4 post-intervention. Again, both mothers followed the biologic nurturing technique as instructed, suggesting consistency in both implementation and outcomes. The structured application of this non-pharmacological method appeared to mitigate the pain stimulus and positively influence pain perception.

This supports previous studies indicating that mothers who breastfeed using biologic nurturing techniques tend to experience less postoperative pain, as they are better able to adapt to the sensation through natural mechanisms of relaxation and distraction (Basir et al., 2022).

By the third day, Mrs. D's pain decreased from a pre-intervention level of 4 to 3 post-intervention, while Mrs. M experienced a more significant reduction, from 4 to 2. The greater reduction observed in Mrs. M was attributed to the frequency of technique application—Mrs. M practiced the feeding technique more than twice a day, compared to twice daily for Mrs. D. Increased frequency may have enhanced the calming and analgesic effects of the technique, allowing Mrs. M to better divert her focus from postoperative pain to the breastfeeding interaction.

These findings reinforce the gate control theory of pain management, which posits that distraction—such as engaging in breastfeeding—can inhibit pain signals from reaching the brain by "closing the gate" in the central nervous system (Reilly & Williams, 2020b). This mechanism is further supported by Cahyanti et al. (2020), who found that biologic nurturing baby-led feeding reduces the intensity of post-cesarean pain by promoting emotional well-being and relaxation in mothers.

In conclusion, the results of this case study suggest that biologic nurturing baby-led feeding is an effective non-pharmacological intervention for reducing postpartum pain in mothers following cesarean delivery. The approach not only provides physical comfort but also strengthens the maternal-infant bond through breastfeeding-based distraction and emotional connection.

Conclusion

Complementary therapy biologic nurturing baby led feeding is one of the non-pharmacological therapies by means of distraction or diversion, where from the two respondents Mrs. D and Mrs. M who felt Post SC pain from the pain scale felt moderate pain, after the implementation to the two respondents decreased to a mild pain scale. From the explanation above, it can be concluded that the implementation of biologic nurturing baby led feeding techniques can reduce the pain scale in mothers post sectio caesarea surgery.

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Not applicable.

Authors' contribution

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The researchers stated that there is no conflict of interest related to the implementation and publication of the results of this research. The entire research process, from planning, data collection, analysis, to report preparation, was carried out independently without any influence or pressure from any third party. A commitment to research ethics is upheld throughout the research process, ensuring transparency, accuracy and honesty in reporting results. Respondents' participation was voluntary with informed consent, and their confidentiality and privacy were maintained in accordance with applicable research ethics standards. With this statement, researchers hope that the research results can be trusted and used as a valid reference for the development of science and health practices related to ethnomedicine and reproductive health.

Ethical consideration

Not applicable.

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