Proceedings
The International Conference of Advancements in Nursing Care (ADNURS)
Volume 1 Issue 2 (2025)
E-ISSN: 3110-0120

Section: Paediatric Nursing

Pain reduction in post operative caesarean section with biologic nurturing baby led feeding techniques

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Abstract
Caesarean section is a surgical method of childbirth in which the baby is delivered through an incision in the abdominal wall and uterus. According to the Indonesian Basic Health Research (RISKESDAS) in 2018, the prevalence of caesarean deliveries was 17.6%, which increased significantly to 25.9% in 2023. One of the most common complications following caesarean section is postoperative pain, which must be managed effectively, as prolonged pain can elevate health risks and delay recovery. One complementary pain management technique is the biological nurturing baby-led feeding approach. This study aimed to analyse the case management of a post-caesarean section patient using the biological nurturing baby-led feeding technique to reduce pain in the Bougenville Room of Tidar Regional General Hospital, Magelang City. A case study design was employed, focusing on the application of biological nurturing baby-led feeding as a complementary therapy for postoperative pain management. The subject was one post-caesarean section patient. The intervention demonstrated a positive effect, with a reduction in the patient's pain scale from 6 to 3 following the application of the biological nurturing baby-led feeding technique. The biological nurturing baby-led feeding technique can effectively reduce pain in post-caesarean section patients. This approach offers a non-pharmacological option that supports maternal comfort and recovery. Further research with larger sample sizes is recommended to validate these findings and explore the broader applicability of this technique in clinical practice.

Keywords: Feeding technique, nursing care, paediatric nursing, pain management, section caesarean

Introduction
A caesarean section is a method of childbirth in which the baby is delivered through surgical incisions made in the abdominal wall (laparotomy) and the uterine wall (hysterotomy) (Kan, 2020). This procedure is typically performed when vaginal delivery poses risks to the mother or baby, such as in cases of prolonged or failed spontaneous labour (Mylonas & Friese, 2015). In Indonesia, caesarean delivery is a well-established practice, as reflected in the rising number of procedures over the past five years. According to the 2018 Indonesian Basic Health Research (RISKESDAS), the prevalence of caesarean sections was 17.6%. By 2023, this figure had increased significantly to 25.9%, with Bali reporting the highest rate at 53.2% and Papua the lowest at 2%. In Central Java, the prevalence reached 24.9%. An initial survey of medical records at Tidar Hospital in Magelang City revealed that between January and April 2025, caesarean deliveries accounted for 52% of births, totaling 230 cases.

The risks and complications associated with caesarean section are generally higher than those of vaginal delivery. Patients undergoing caesarean section may experience a range of complications, including incision pain, reduced flexibility of the abdominal and pelvic floor muscles, bleeding, bladder injury, infection, swelling of the lower extremities, and lactation difficulties (Reni et al., 2020). One of the most common postoperative complications is pain, which results from disruption of tissue continuity due to surgical incisions (Javed et al., 2023). This pain can lead to discomfort, fear, anxiety, disturbed sleep patterns, and interference with daily activities. Moreover, it affects not only the mother but also the newborn, as maternal discomfort may delay the initiation of breastfeeding. Effective pain management is essential, as prolonged pain can increase health risks and hinder the recovery process (Mills et al., 2019). If acute pain is not properly managed, it may progress to chronic pain and contribute to postpartum depression. Nursing interventions for acute pain include both pharmacological and non-pharmacological approaches. One non-pharmacological technique that has shown promise is the biological nurturing baby-led feeding method (Rosin, 2019). The technique functions as a distraction strategy, redirecting the mother's attention to the breastfeeding position and thereby reducing her perception of pain (Limbong et al., 2025). The pain reduction is closely linked to the direct skin-to-skin contact between mother and baby, which fosters comfort and bonding. The effectiveness of biological nurturing baby-led feeding in reducing postoperative pain has been supported by several studies above. These findings suggest that biological nurturing baby-led feeding is a practical, non-invasive, and beneficial approach to pain management in post-caesarean section patients.

Based on a preliminary study conducted through interviews with the head nurse and nursing staff in the Bougenville Ward of Tidar Regional General Hospital, Magelang City, current pain management practices for post-caesarean section patients primarily involve the administration of analgesic medications and the instruction of deep breathing relaxation techniques. While these methods are standard and widely accepted in clinical settings, they may not fully address the multidimensional nature of postoperative pain, which includes physical discomfort, emotional distress, and delayed maternal-infant bonding. Notably, the biological nurturing baby-led feeding technique—a non-pharmacological intervention that promotes skin-to-skin contact and instinctive breastfeeding positions—has not yet been implemented in this ward. This technique has been shown to offer therapeutic benefits by redirecting the mother's focus from pain to the breastfeeding experience, thereby reducing pain perception through distraction and emotional comfort. It also facilitates early initiation of breastfeeding, enhances maternal confidence, and strengthens the mother-infant bond, which are critical components of postpartum recovery. Given the absence of this approach in current practice and its potential to complement existing pain management strategies, the author is motivated to conduct a case study exploring the application of biological nurturing baby-led feeding in post-caesarean section patients. This study aims to evaluate its effectiveness in reducing pain intensity, improving maternal comfort, and promoting holistic recovery. By documenting the outcomes of this intervention, the research seeks to provide evidence-based insights that may inform future nursing protocols and encourage the integration of complementary therapies into routine postoperative care for mothers undergoing caesarean delivery.

Case Description

This final scientific paper adopts a case study approach focused on complementary therapy using the biological nurturing baby-led feeding technique to reduce postoperative pain following a caesarean section. The subject of the study was one post-caesarean section patient who met the inclusion criteria: experiencing acute postoperative pain and being admitted to the hospital alongside her newborn. The exclusion criteria included patients who experienced postoperative complications, were transferred to the intensive care unit, were not accompanied by their babies, or had a history of illnesses such as HIV/AIDS. The case study was conducted in the Bougenville Room of Tidar Regional General Hospital, Magelang City, from May 19 to 21, 2025. The biological nurturing baby-led feeding intervention was implemented over three consecutive days, with each session lasting 15–20 minutes. Pain intensity was measured using the Numeric Rating Scale (NRS) before and after each intervention session. Data collection was carried out systematically through several stages, including obtaining informed consent, conducting a comprehensive assessment, implementing the intervention, and evaluating its effectiveness. The respondent, referred to as Mrs. E, was a 26-year-old woman with a high school education, gravida 1 para 1 abortus 0 (G1P1A0), residing in Magelang and of Javanese ethnicity. On the first day of assessment, May 19, 2025, at 07:00, The patient reported experiencing pain at the site of her surgical incision. The pain characteristics were documented as follows: P (provocation) – pain caused by surgical stitches on the first postoperative day; Q (quality) – described as sharp and sore; R (region) – localized in the lower abdomen; S (severity) – rated at 6 on the NRS; and T (timing) – continuous and exacerbated by movement. Objective findings included visible grimacing, a tense facial expression, blood pressure of 115/81 mmHg, and a pulse rate of 86 beats per minute.

Nursing care for the patient focused on managing acute pain related to physical injury from surgical procedures. The primary therapeutic intervention was the application of the biological nurturing baby-led feeding technique, taught and facilitated by the author in a laid-back breastfeeding position for three consecutive days. The final evaluation, conducted on May 21, 2025, at 13:00, indicated that the acute pain had resolved. According to the expected outcome criteria, the patient demonstrated the ability to control pain and effectively utilize non-pharmacological techniques to manage discomfort. The patient reported a reduction in pain intensity and a decrease in pain-related complaints. Over the course of the intervention, her pain level decreased from an initial score of 6 to a final score of 3 on the NRS. These findings suggest that the biological nurturing baby-led feeding technique is a viable and effective non-pharmacological strategy for reducing postoperative pain in caesarean section patients, supporting both physical recovery and maternal-infant bonding.

Discussion

The patient, a 26-year-old woman, was at a healthy reproductive age. At 20-30 years old, individuals typically have better emotional control, including pain responses. However, her parity history of G1P1A0 indicated that she had no prior experience with caesarean sections, which can contribute to increased anxiety and pain due to uncertainty about what to expect. As a Javanese individual, she may have been influenced by the cultural values of gentle emotional expression, potentially affecting her pain perception. The patient's high school education level likely shaped her knowledge and attitudes towards pain management. According to the assessment conducted on May 19, 2025, at 07:00 AM, the patient reported pain at the surgical site, describing it as a sharp, sore sensation in the lower abdomen, with a pain scale of 6 out of 10 that worsened with movement. Objective data revealed grimacing, facial tension, blood pressure of 115/81 mmHg, and a pulse rate of 86 beats per minute. The assessment followed the PQRST approach, which evaluates provoking factors, quality, region, severity, and time. The patient's pain score was classified as

moderate based on the Numeric Rating Scale (NRS). This comprehensive assessment highlights the importance of considering individual factors, such as parity, cultural background, and education level, in pain management.

Post-operative caesarean section patients often experience pain, an unpleasant sensory and emotional experience resulting from actual or potential tissue damage (Bimrew et al., 2022; Bekele et al., 2023). The intensity of pain typically increases after the aesthetic effect wears off, usually 6-8 hours after surgery, and peaks around 12 hours post-operatively. This pain can persist for several days, with the most significant discomfort often felt on the first day after surgery (Pilewska-Kozak et al., 2024). Based on the data analysis, a nursing diagnosis of acute pain related to physical injury agents: surgical procedures (D.0077) were established. The patient's symptoms, including complaints of pain, grimacing, and increased pain with movement, were consistent with the major signs and symptoms of acute pain. The diagnosis was validated by the presence of key indicators, meeting around 80% of the major signs of acute pain. The underlying cause of the pain was attributed to the surgical procedure, which resulted in tissue damage and disruption of skin and underlying tissue continuity (Chhabra et al., 2017). This diagnosis aligns with the IDHS guidelines and reflects the patient's experience of pain after a caesarean section operation.

To address the nursing diagnosis of acute pain, a comprehensive plan was developed, focusing on pain management through complementary therapy. The goal was to achieve pain control within 3x24 hours, with outcome criteria including the patient's ability to control pain, utilize non-pharmacological techniques, report reduced pain, and exhibit decreased pain complaints. The nursing intervention, Biological Nurturing Baby-Led Feeding, involved skin-to-skin contact between the mother and baby, with the baby lying on the mother's chest for 15-20 minutes or until the baby was full. This technique is based on the principle of cutaneous stimulus therapy, which releases endorphins, blocking pain transmission. According to the gate control theory, cutaneous stimulation activates larger and faster A-Beta sensory nerve fibers, reducing pain transmission through small-diameter A-delta nerve fibers. The implementation of this intervention, conducted over three consecutive days (May 19-21, 2025), involved the patient's family, providing emotional support and motivation. Family support played a crucial role in helping the patient develop coping strategies to manage pain. By involving the family, the patient's pain management was enhanced, and the patient was empowered to take control of their pain (Chi et al., 2020; Cagle et al., 2015; Chi et al., 2018). The Biological Nurturing Baby-Led Feeding technique effectively reduced pain in the post-caesarean section patient, demonstrating the value of non-pharmacological interventions in pain management.

Evaluation of results conducted on May 21, 2025 at 01.00 PM acute pain problem related to physical injury agents: surgical procedures. The patient’s pain was resolved. From the first to the third day of applying the biological nurturing baby-led feeding technique, the patient experienced a decrease in pain scale, from an initial pain scale of 6 to 3. Complementary therapy biologic nurturing baby-led feeding has been proven to reduce the pain scale of post-op caesarean section which state that the pain scale of post-op caesarean section surgery is very effectively reduced by biologic nurturing baby-led feeding therapy. After three days of 15–20-minute sessions of biological nurturing baby-led feeding, the patient experienced a decrease in pain from 6 to 3. This decrease was due to the physical and psychological benefits of the biological nurturing baby-led feeding technique. Physically, the breastfeeding process causes cutaneous stimulation therapy, which causes the release of endorphins, thus blocking the transmission of pain stimulation. Psychologically, this biological position can distract the mother from the pain she is feeling, allowing her to pay more attention to the breastfeeding process and ignore the pain.

The biological nurturing baby-led feeding technique is a non-pharmacological method that utilizes distraction to divert the mother's attention from pain to the breastfeeding process, thereby reducing pain perception. This technique aligns with the gate control theory, which posits that pain impulses are transmitted when the "gate" (sensory nerve endings) is open and blocked when the gate is closed. With applying the biological nurturing baby-led feeding technique, the abdominal area with post-caesarean section suture wounds becomes more relaxed, particularly with a 15°-64° position. During breastfeeding, the biological nurturing baby-led feeding technique stimulates the release of oxytocin, a hormone that promotes relaxation and milk production (Modak et al., 2023; Mislu et al., 2024). Oxytocin, often referred to as the "love hormone," is released in response to nipple stimulation through the baby's suckling. This hormone plays a crucial role in promoting relaxation and reducing stress, which can contribute to pain relief. With understanding the benefits of oxytocin and the distraction provided by breastfeeding, the biological nurturing baby-led feeding technique offers a valuable approach to managing pain in post-caesarean section patients.

Conclusion

The case study demonstrates the effectiveness of biological nurturing baby-led feeding techniques in reducing pain in post-operative caesarean section patients. The significant reduction in pain scores after implementing this technique suggests that it can be a valuable non-pharmacological adjunct to traditional pain management strategies. By promoting a sense of calm and relaxation, biological nurturing baby-led feeding techniques can help alleviate pain and discomfort in new mothers. Based on the findings of this study, it is recommended that future research focus on conducting randomized controlled trials to further investigate the efficacy of biological nurturing baby-led feeding techniques in reducing pain in post-operative caesarean section patients. Additionally, larger sample sizes should be included to increase the generalizability of the findings and explore potential correlations between pain reduction and demographic variables. Future studies should also examine the long-term effects of biological nurturing baby-led

feeding techniques on pain management, maternal-infant bonding, and breastfeeding outcomes. Furthermore, comparing the effectiveness of biological nurturing baby-led feeding techniques with other non-pharmacological pain management strategies and investigating the underlying mechanisms of pain reduction can provide valuable insights into the benefits and applications of this technique.

References

Bekele, Z., Ayana, M., Haile, M., Tesfaye, A., & Tasew, A. (2023). Incidence and predictors of postoperative severe acute pain within 24 hours after cesarean section performed under spinal anesthesia at public hospitals in West Shoa, Ethiopia, 2022 prospective cohort study. *Annals of medicine and surgery (2012), 85*(9), 4239–4247. https://doi.org/10.1097/MS9.0000000000001031

Bimrew, D., Misganaw, A., Samuel, H., Daniel Desta, T., & Bayable, S. D. (2022). Incidence and associated factors of acute postoperative pain within the first 24 h in women undergoing cesarean delivery at a resource-limited setting in Addis Ababa, Ethiopia: A prospective observational study. *SAGE open medicine, 10,* 20503121221133190. https://doi.org/10.1177/20503121221133190

Cagle, J. G., Zimmerman, S., Cohen, L. W., Porter, L. S., Hanson, L. C., & Reed, D. (2015). EMPOWER: an intervention to address barriers to pain management in hospice. *Journal of pain and symptom management, 49*(1), 1–12. https://doi.org/10.1016/j.jpainsymman.2014.05.007

Chhabra, S., Chhabra, N., Kaur, A., & Gupta, N. (2017). Wound Healing Concepts in Clinical Practice of OMFS. *Journal of maxillofacial and oral surgery, 16*(4), 403–423. https://doi.org/10.1007/s12663-016-0880-z

Chi, N. C., Barani, E., Fu, Y. K., Nakad, L., Gilbertson-White, S., Herr, K., & Saeidzadeh, S. (2020). Interventions to Support Family Caregivers in Pain Management: A Systematic Review. *Journal of pain and symptom management, 60*(3), 630–656.e31. https://doi.org/10.1016/j.jpainsymman.2020.04.014

Chi, N. C., Demiris, G., Pike, K. C., Washington, K., & Oliver, D. P. (2018). Pain Management Concerns from the Hospice Family Caregivers' Perspective. *The American journal of hospice & palliative care, 35*(4), 601–611. https://doi.org/10.1177/1049909117729477

Javed, H., Olanrewaju, O. A., Ansah Owusu, F., Saleem, A., Pavani, P., Tariq, H., Vasquez Ortiz, B. S., Ram, R., & Varrassi, G. (2023). Challenges and Solutions in Postoperative Complications: A Narrative Review in General Surgery. *Cureus, 15*(12), e50942. https://doi.org/10.7759/cureus.50942

Kan A. (2020). Classical Cesarean Section. *Surgery journal, 6*(Suppl 2), S98–S103. https://doi.org/10.1055/s-0039-3402072

Limbong, M., Riawahyuni, R., Kasim, E., & Nurbaiti, N. (2025). Biological Nurturing and Baby-Led Feeding Techniques for Pain Reduction in Post-Caesarean Mothers. *Genius Journal, 6*(1), 19–26. https://doi.org/10.56359/gj.v6i1.448

Mills, S. E. E., Nicolson, K. P., & Smith, B. H. (2019). Chronic pain: a review of its epidemiology and associated factors in population-based studies. *British journal of anaesthesia, 123*(2), e273–e283. https://doi.org/10.1016/j.bja.2019.03.023

Mislu, E., Kumsa, H., Arage, M. W., Shitie, A., & Adimasu, A. (2024). Effective breastfeeding techniques and associated factors among lactating women: a community-based study, north east Ethiopia. *Frontiers in public health, 12,* 1337822. https://doi.org/10.3389/fpubh.2024.1337822

Modak, A., Ronghe, V., & Gomase, K. P. (2023). The Psychological Benefits of Breastfeeding: Fostering Maternal Well-Being and Child Development. *Cureus, 15*(10), e46730. https://doi.org/10.7759/cureus.46730

Mylonas, I., & Friese, K. (2015). Indications for and Risks of Elective Cesarean Section. *Deutsches Arzteblatt international, 112*(29-30), 489–495. https://doi.org/10.3238/arztebl.2015.0489

Pilewska-Kozak, A. B., Dziurka, M., Bałanda-Bałdyga, A., Monist, M. J., Kopiel, E., Jurek, K., Łęcka, A. F., & Dobrowolska, B. (2024). Factors conditioning pain control and reduction in post-cesarean section parturients: a cross-sectional study. *BMC pregnancy and childbirth, 24*(1), 382. https://doi.org/10.1186/s12884-024-06579-9

Reni, C., Sinar, P., & Rohmatin, E. (2020). Effect of biologic nurturing baby-led feeding on post sectio caesarea pain scale in Majenang Hospital 2018. *Midwifery and Nursing Research Journal, 2*(1), 22–27.

Rosin S. I. (2019). A Case Study of Biological Nurturing. *Journal of human lactation, 35*(2), 318–322. https://doi.org/10.1177/0890334419829044