

The Effectiveness of Biologic Nurturing Baby Led Feeding (BNBLF) and Side Lying Breastfeeding Positions on Pain Intensity in Post Caesarean Section Mothers

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ABSTRACT

Background: The rate of Caesarean section (CS) deliveries has reached 58.1% globally and is expected to continue rising, especially in the Americas (39.3%) and Asia (23.1%). Postoperative pain is a common issue that may disrupt breastfeeding. The Biologic Nurturing Baby Led Feeding (BNBLF) position is considered more effective than the side lying position in reducing pain among post CS mothers.

Objective: This study aimed to compare the effectiveness of the BNBLF position and the side-lying position in reducing pain intensity in post Caesarean section mothers.

Method: This study employed a quasi-experimental design with a pre-test post-test control group format and involved 42 respondents divided into two groups. Pain intensity was measured using the Numeric Rating Scale (NRS), and data were analyzed using the Wilcoxon and Mann-Whitney tests.

Result: The results showed a significant reduction in pain scores in both groups. Statistical analysis revealed a significant difference between the two groups with a p-value of 0.018 ($p < 0.05$).

Conclusion: The BNBLF position is more effective than the side-lying position in

reducing pain intensity in post-Caesarean section mothers.

Keyword: *Biologic Nurturing, Breastfeeding, Pain, Caesarean Section, Side-Lying*

INTRODUCTION

The global rate of childbirth by Caesarean section continues to rise. The prevalence of Caesarean sections has been reported at 58.1%, with an upward trend projected through 2030, including 23.1% in Asia. In Indonesia, the prevalence of Caesarean section is approximately 30%, with the highest rates observed in Bali (53.2%) and Bengkulu (24.5%) [1;2;3]. While conventional Caesarean section is effective in addressing high-risk deliveries, it is associated with maternal consequences, particularly in relation to recovery and postoperative pain [4;20]. Conventional Caesarean section is effective in managing high-risk deliveries, but it causes significant postoperative pain. Pain usually occurs 3-4 hours after the surgery and affects mobility, emotions, and the breastfeeding process [5;6]. Emphasizes the importance of early breastfeeding initiation (EBI) to accelerate maternal recovery. Several non-pharmacological techniques have been used

to reduce pain, including distraction techniques through breastfeeding positions [7;8]. The side lying position allows the mother to breastfeed comfortably while lying down without putting pressure on the incision, and has been proven to significantly reduce pain [9;21;23]. The biologic nurturing baby-led feeding (BNBLF) position also promotes relaxation and reduces pain intensity [10;22].

Although both methods are effective, there has been no study directly comparing the BNBLF and side-lying positions in reducing post-Caesarean section pain. A preliminary study at Bhayangkara Hospital Bengkulu revealed that post- Caesarean section mothers experienced pain that interfered with breastfeeding and had not received education about the BNBLF technique. Therefore, this study aims to compare the effectiveness of the BNBLF and side-lying breastfeeding positions in reducing pain intensity among post- Caesarean section mothers.

MATERIALS & METHODS

This study employed a quantitative research design with a quasi-experimental approach using a pre-test and post-test control group design. The intervention group received Biologic Nurturing Baby Led Feeding and Side Lying breastfeeding positions, whereas

the control group received only the Side-Lying position. Data on pain intensity were collected throughout the study, which was conducted over a two-month period from May 2 to June 15, 2025. Participants were post-Caesarean section mothers who voluntarily agreed to take part in the study after receiving a full explanation of the procedures and interventions involved.

Sample

The sample consisted of 42 post- Caesarean section mothers, with 21 in the intervention group and 21 in the control group, recruited from Bhayangkara Hospital in Bengkulu City. Participants were selected using purposive sampling. The sample size was calculated using the formula for the difference between two means.

Instrument

Based on a previous study [11] the Numeric Rating Scale (NRS) is a trusted and proven clinical tool for measuring pain levels. It is standardized and has been tested and recognized for its validity and reliability in assessing pain intensity.

RESULT

1. Overview of Respondent Characteristics

Table 1 Overview of Respondent Characteristics and Respondent Equivalence (n=42)

No	Variable	Group		pValue
		Intervention	Control	
1	Age			0.587
	Mean	29.95	30.95	
	Min	18	20	
	Max	42	44	
	SD	5.472	6.336	
	SE	1.194	1.383	
	CI 95 %	27.46-32.44	28.07-33.84	
2	Parity			0.743
	Primipara	8 (38.1%)	6 (28.6%)	
	Multipara	13 (61.9%)	15 (71.4%)	
3	History of Caesarean section			0.352
	Present	10 (23.8%)	13 (31%)	
	Not Present	11 (26.2%)	8 (19%)	

Based on Table 1, the average age of mothers in the intervention group was 29.95

years, while in the control group it was 30.95 years, with age ranges of 18–42 years

and 20–44 years, respectively. Most participants in both groups were multiparous mothers. A history of Caesarean section deliveries was also more frequently found in the control group compared to the intervention group.

2. Differences in the Average Pain Scores Before and After the Intervention in the Intervention and Control Groups

Table 2 Differences in Pain Scores Before and After the Intervention in the Intervention and Control Groups (n=42)

Variable Skor Nyeri	N	Median (Min-Max)	Z	P Value
BNBLF				
Sebelum	21	6.00 (5-8)	-4.018	0.000
Setelah	21	4.00 (3-6)		
Side lying				
Sebelum	21	6.00 (5-8)	-3.482	0.001
Setelah	21	5.00 (3-7)		

Table 2 shows that in the BNBLF intervention group, the median pain score before the intervention was 6.00 and decreased to 4.00 afterward, reflecting a reduction of 2.00 points. The Wilcoxon test yielded a p-value of 0.000, indicating a statistically significant difference before and after the intervention. Meanwhile, in the control group (side lying position), the

Normality testing on the pain score data before and after the intervention in both groups indicated that the data were not normally distributed ($p < 0.05$). Therefore, the analysis of differences in average pain scores was conducted using the non-parametric Wilcoxon test. This test was used to assess changes in pain scores before and after the intervention within each group the intervention and the control group.

median pain score decreased from 6.00 to 5.00, with a reduction of 1.00 point. The Wilcoxon test also showed a significant difference, with a p-value of 0.001.

3. Effectiveness of BNBLF and Side-Lying Interventions on Reducing Pain Intensity in Post-Cesarean Section Mothers

Variable Pain Score	N	Mean (SD)	Mean Difference	P value	Efficacy (%)
BNBLF	42	2.14 (0.793)	0.81	0.018	27,1%
Side Lying	42	1.33 (1.155)			16,7%

Table 3 shows that the BNBLF intervention reduced the average pain score by 2.14, which is greater than the 1.33-point reduction observed with the side-lying position. The Mann-Whitney test revealed a statistically significant difference ($p = 0.018$), with the effectiveness of BNBLF at 27.1% compared to 16.7% for side-lying. These findings indicate that BNBLF is more effective in reducing pain among post-Caesarean section mothers at Bhayangkara Hospital Bengkulu.

DISCUSSION

The discussion of this study indicates that the age characteristics of respondents in both the intervention and control groups fall

within the active reproductive age range, between 18 and 42 years. The average age was 29.95 years in the intervention group and 30.95 years in the control group. Maternal age during the postpartum period is known to influence pain perception, where younger mothers tend to experience higher levels of pain due to limited childbirth experience and coping mechanisms that are more emotionally focused [12]. Most respondents were multiparous, indicating they had previous childbirth experience. However, undergoing a Caesarean section (CS) is not solely influenced by a history of prior CS, but also by new obstetric complications such as preeclampsia. [13]. Previous Caesarean

section (CS) is a significant factor influencing the likelihood of subsequent CS deliveries, owing to the progressively higher risk of complications associated with repeat procedures [14;15].

The average pain scores based on the Numeric Rating Scale (NRS) showed a decrease following the intervention in both groups. In the BNBLF group, pain scores dropped from 6.38 to 4.24, while in the side-lying group, they decreased from 6.43 to 5.10. These findings indicate that both interventions were effective in reducing pain, though the reduction was greater in the BNBLF group. This decline in pain scores is supported by findings from other studies that highlight the effectiveness of natural breastfeeding positions in enhancing maternal comfort and minimizing post-operative discomfort [16;17;18]. These findings indicate that both BNBLF and side-lying positions are effective in reducing pain, but BNBLF demonstrates a more significant effect. The physiological mechanism of BNBLF, which involves a semi-upright position and direct skin-to-skin contact, contributes to the release of oxytocin a hormone known for its natural analgesic properties [19].

In contrast, the side-lying position provides relative comfort but requires body rotation, which may trigger mild pain, particularly in post Caesarean section mothers [18;23].

Further analysis using the Wilcoxon test revealed a significant difference in median pain scores before and after the intervention in both the BNBLF and side-lying groups ($p=0.000$ and $p=0.001$, respectively). This finding is consistent with previous studies that demonstrated the significant effectiveness of BNBLF in reducing pain intensity among post-Caesarean section mothers [17]. In the BNBLF group, the median pain reduction was 2.00, while in the side-lying group it was 1.00. The difference in effectiveness between the two methods was also reflected in the average reduction in pain scores, which was greater in the BNBLF group (2.14) compared to the control group (1.33). The Mann-Whitney

test yielded a p-value of 0.018, indicating a statistically significant difference. This finding is supported by previous studies that highlight the superior effectiveness of BNBLF in enhancing maternal comfort and reducing pain following Caesarean section [9;16;20], which stated that BNBLF is more effective than other positions, including side-lying, in reducing post-Caesarean section pain.

CONCLUSION

The Biologic Nurturing Baby-Led Feeding (BNBLF) and side-lying positions were proven effective in reducing pain intensity among post-Caesarean section (CS) mothers. Both methods significantly decreased pain levels and can serve as non-pharmacological alternatives in postoperative pain management, particularly for back pain commonly experienced by mothers after a Caesarean section.

Declaration by Authors

Ethical Approval: Ethics Commission of the Bengkulu Ministry of Health Polytechnic No.KEPK.BKL/29/04/2025 dated April 26, 2025

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