PEDIOMATERNAL NURSING JOURNAL
Vol. 8 No. 1, March 2022
Journal Homepage: https://e-journal.unair.ac.id/PMNJ/
http://dx.doi.org/10.20473/pmnj.v8i1.26987

Original

Biological Nurturing Baby-led Feeding to Reduce the Pain Intensity of Post-Section Caesarian: A Quasi-Experimental Study

Siti A'inurrohmah, Mukhoirotin Mukhoirotin*

Nursing Science Program, Faculty of Health Science, University of Pesantren Tinggi Darul Ulum, Indonesia

ARTICLE HISTORY

Received : May 22, 2021
Revised : September 16, 2021
Accepted : October 18, 2021
Published : In Press

KEYWORDS

biological nurturing baby led feeding, pain, caesarean section, postpartum

CORRESPONDING AUTHOR

*Mukhoirotin Mukhoirotin
mukhoirotin@fik.unipdu.ac.id
Nursing Science Program, Faculty of Health Science, University of Pesantren Tinggi Darul Ulum, Indonesia

ABSTRACT

Introduction: Caesarean surgery can cause pain that affects mobilization, daily activities, and the process of breastfeeding the baby. Baby-led feeding is one of the recommended breastfeeding positions for postpartum mothers post-Caesarean because it feels more relaxing. However, the effectiveness of baby-led feeding at reducing the pain levels needs further research. This study therefore aimed to determine the effect of baby-led feeding on the pain intensity among post-Caesarean section patients.

Methods: The research design used was quasi-experiment with a pre-test-post-test control group design and multi-stage sampling. This totaled 26 respondents across the two groups. The biological nurturing baby-led feeding treatment was given every feeding time. The research instrument used was the Numeric Rating Scale (NRS), and the data was analyzed using a Paired Sample T-Test and an Independent Sample T-Test with $\alpha \leq 0.05$.

Results: This study showed there to be an effect of biological nurturing baby-led feeding on the pain intensity experienced by the patients ($p<0.001$). There were significant differences in pain intensity between the intervention and control groups ($p=0.001$).

Conclusion: Biological nurturing in the form of baby-led feeding is effective at reducing the pain intensity of post-Caesarean section patients. Further research recommends that post-intervention pain observations be carried out on the first day after the baby-led feeding intervention is initiated.

Cite this as:

A'inurrohmah, S., & Mukhoirotin, M. (2022). Biological Nurturing Baby-led Feeding to Reduce the Pain Intensity of Post-Section Caesarian: A Quasi-Experimental Study. Pediomaternal Nurs. J., 8(1). Doi: http://dx.doi.org/10.20473/pmnj.v8i1.26987

INTRODUCTION

Nowadays, many delivery units are integrated with the hospital's surgical room. The surgical birth method is known as a Caesarean section. Delivery by Caesarean section is suggested in the presence of certain medical conditions. Caesarean delivery is an alternative to vaginal delivery when it cannot be done (Mulyawati et al., 2011; Nurjanah, 2013; Reeder et al., 2011). Pain is a side effect experienced by patients who experience an operation, especially after Caesarean section delivery. The pain is due to the incision of tissue. The Caesarean

section surgery causes pain and changes the continuity of the tissue. Post-Caesarean section pain appears after the disappearance of the anesthesia effects (Andarmoyo, 2013; Patasik et al., 2013; Pratiwi, 2012).

The World Health Organization (WHO) said that the average method of delivery by Caesarean section method in some countries was 10 - 15% per 1,000 births around the world. In Indonesia, the Basic Health Research (RISKESDAS) results in 2018 showed the Caesarean section delivery made up 17.6% of the total 78,736 births. In East Java, Caesarean section delivery represented 22.4% of 9,832 births (Banlitbangkes, 2019). Based on a preliminary study conducted at RSIA (Mother and Child Hospital) Muslimat Jombang on March 13, 2020, there were 1800 deliveries through the Caesarean section method during 2019, with an average of 150 deliveries per month.

Caesarean sections can have a range of impacts, one of which is pain. Pain after a Caesarean delivery includes the incision site, bloating due to gas retention in the recovery process, lower back pain due to the stretching of the abdominal muscles during surgery, muscle pain due to immobilization, afterpains, and sometimes the feeling of discomfort due to bladder distention. In addition, the post-Caesarean section pain experienced by the mother will have a negative impact including the limitation of mobilization, the disruption of ADL (Activity Daily Living), and delays in the breastfeeding process for the baby. Moreover, this condition also has an impact on the babies including a lack of nutrition due to the delay of the breastfeeding process, respiratory problems, and low immune resistance (Karso et al., 2017; Latifah & Ramawati, 2018; Oxorn & Forte, 2010).

Analgesics are the most common treatment to reduce post-Caesarean section pain. However, pharmacology treatments are not efficient at increasing the client's ability to control their pain. This means that there needs to be a combination of pharmacological and non-pharmacological approaches to reduce the pain intensity in the recovery period. Non-pharmacological methods are not exclusive to alternative drugs and they are necessary to shorten the pain episodes for anywhere from a few seconds to a few minutes (Katzung, 2014; Mayasari, 2016).

Relaxation techniques and cutaneous stimulation are the treatments that are often used to reduce post-Caesarean section pain. The previous studies showed that finger grip relaxation and relaxation using lavender were effective at reducing the level of post-Caesarean section pain (Dinengsih & Suciatmi, 2017; Rahmawati & Yuniarti, 2020). Other studies showed that cutaneous stimulation through a slow stroke back massage was effective at reducing the post-Caesarean section pain (Ningrum et al., 2019).

Biological nurturing baby-led feeding is one of non-pharmacological treatments that is still not commonly use to reduce pain. Previous studies have showed that there is a reduction in the pain scale response of post-Caesarean section mothers who provide baby-led feeding. The respondents of the study showed that all mothers who had had a post-Caesarean section across a range of parities. Most of the respondents were in the second and third parity. Moreover, the study also said that the parties were affected in terms of their response to the pain scale because most of the respondents had postpartum pain experiences. This experience can influence or change the patient's sensation of pain (Susilo Rini & Susanti, 2018). Other studies have also shown that baby-led feeding can reduce the pain post-Caesarean section (Cahyanti et al., 2020). The aim of this study was to determine the effect of baby-led feeding on pain intensity among post-Caesarean section patients.

METHOD

Study Design

The study used a quasi-experimental research method approach with a pre-test – post-test control group design (Nursalam, 2016).

Population, Sample, and Sampling

The population of this study consisted of all post-Caesarean section mothers experiencing their first pregnancy in the postpartum room of RSIA Muslimat Jombang. The sample totaled 26 (intervention group, n = 13; control group, n = 13) who met the research criteria. The criteria in this study were as follows: 1) the mother's post-Caesarean section on the

first day, and 2) the mothers post-Caesarean section who were breast feeding their baby. The sampling technique used was multi-stage Sampling (Solimun, Fernandes & Nurjannah, 2017) and the sample size formula was based on the unpaired numerical analytical research formula (Dahlan, 2013). Based on the formula, the sample of this study consisted of eleven respondents with 10% added to compensate for any who dropped out of the sample. The sample size of each group was thirteen respondents.

Instruments

The research instrument was measured using the NRS (Numeric Rating Scale) with a range of 0 - 10 used to measure the pain level (Kozier et al., 2010).

Procedure

Biological nurturing baby-led feeding is breastfeeding in the lying position while leaning at a tilt angle between 15° - 64°. This involves putting the baby on the mother's stomach with the head of the baby in front of the mother's breast and then letting the baby suckle by themselves. The mother can hold the baby and keep them from falling (S Rini & Kumala, 2016). The baby-led feeding treatment can be given every breastfeeding time. The post-Caesarean section pain was measured before the giving of biological nurturing baby-led feeding and 2 days after the baby-led feeding in the intervention group. The post-Caesarean section pain was measured before and 2 days after the provision of the correct breastfeeding technique in the control group.

Data Analysis

The data was analyzed using a paired t-test and independent t-test with $\alpha \leq 0.05$. The normality data used was Shapiro-Wilk's (Notoadmodjo, 2012).

Ethical Clearance

The data was collected after obtaining ethical research approval from the Ethics Commission of the Health Faculty in Unipdu Jombang, certificate number: 003-KEP-Unipdu/10/2020. This research also obtained a research permit from the Director of RSIA Muslimat Jombang.

RESULTS

Characteristics of the Respondents in this Study Included Age, Education and Occupation. The characteristics of the respondents based on age, education, and occupation showed that the characteristics were balanced and homogeneous. This was indicated by the significance value ($p > 0.05$) that shows that there were no significant differences between the characteristics between the intervention and control groups (Table 1).

The pain intensity among the post-Caesarean section patients in the intervention group before baby-led feeding was, for more than half, at the moderate level (53.8%). Nearly half (30.8%) of the respondents had a severe level of pain and a small proportion (15.4%) had a light level of pain. However, most of

Table 1. Characteristic of Respondent and Homogeneity

Variable	Intervention Group		Control Group		p-value
	n	%	n	%	
Age					
< 20 years old	1	7.7	1	7.7	0.321
20-30 years old	12	93.7	12	93.7	
Education					
Primary High School	4	30.8	1	7.7	0.533
Senior High School	4	30.8	6	46.2	
Bachelor degree	5	38.4	6	46.2	
Occupation					
Farmer	2	15.4	0	0	0.857
Civil servant	1	7.7	1	7.7	
Business	3	23.1	2	15.4	
House wife	3	23.1	6	46.2	
Teacher	1	7.7	3	23.1	
Private workers	3	23.1	1	7.7	

the respondents (61.5%) experienced a mild level of pain and 38.5% of respondents had a moderate level of pain after providing baby-led feeding. Regarding the intensity of post-Caesarean section pain in the control group before the giving of the correct breastfeeding technique, most (69.2%) of the respondent were in a moderate level of pain and a small proportion were in either a severe level of pain (23.1%) and a mild level of pain (7.7%). However, the intensity of the post-Caesarean section pain after the correct breastfeeding technique was, for almost all patients (77%), associated with a moderate level of pain. Additionally, a small proportion had either a severe pain level (15.3%) or a mild level of pain (7.7%) (Table 1).

The results of the paired t-test showed that there was an effect due to biological nurturing baby-led feeding on reducing the pain intensity of post-Caesarean section patients ($p < 0.05$). The average pain intensity before baby-led feeding was 5.61 and the score after the same method of feeding was 1.66. This means that biological nurturing baby-led feeding was effective at reducing the pain intensity experienced by the post-Cesarean patients (Table 2).

The results of the independent t-test showed that there were differences in pain intensity in both the intervention and control groups ($p < 0.05$). This is because in the intervention group, they provided baby-led feeding and in the control group, they provided the correct breastfeeding technique. The biological nurturing baby-led feeding intervention made the abdomen more relaxed, meaning that the average menstrual pain intensity in the intervention group was lower than it was in the control group (Table 3).

DISCUSSION

The pain intensity of post-Caesarean section patients in the postpartum ward of RSIA Muslimat Jombang was mostly at the moderate level. Almost half in the intervention group had a severe level of pain, while a small portion was in mild level of pain among the same group. Most of the respondents were aged between 20 - 30 years old in both the intervention and control groups. The 20 - 30-year-old age group is included in the adult age category. A severe level of pain was found among the respondents aged < 20 years and between 20 - 30 years old. Age is one of the factors that influences pain, especially among children and the elderly. However, an adult's perception of pain is much lower than the perception of children and the elderly (Andarmoyo, 2013). Most of the respondents experienced a moderate level of pain among the intervention and control groups. Only a small proportion experienced a severe or mild level of pain. The respondents who experienced severe pain were not found in same age group, so the age variable in this study was found not to affect the intensity of the pain felt. This is in line with the previous research which said that age does not affect the level of pain among post-Caesarean section mothers before and after deep breathing relaxation (Sugathot & Nugrahanintyas, 2018). Education level is one of the factors that influences behavior. The higher the level of

Table 2. The influencing of Biological Nurturing Baby Led Feeding Toward the Intensity of Post Sectio Caesarea Pain

Groups	Pre		Post		The difference of mean (95% CI)	p-value
	Mean	SD	Mean	SD		
Biological nurturing baby led feeding	5.61	1.66	3.00	1.41	2.61 (2.22-3.00)	<0.001*
Control	5.76	0.92	5.23	1.16	0.53 (0.22-0.85)	0.003*

**p<0.05; SD: Standard Deviation; CI: Confidence of Interval*

Table 3. The Differences of Pain Intensity after Giving Intervention among Post Sectio Caesarea Patients.

Group	Mean	SD	The difference of Mean (95%CI)	p-value
Biological Nurturing Baby Led Feeding	3.00	1.41	-0.215 (-3.27 – 1.03)	0.001*
The correct brestfeeding technique	5.23	1.16		

**p<0.05; SD: Standard Deviation; CI: Confidence of Interval*

education of the mother, the more this will lead the person's learning process to them getting more knowledge. In other words, education level reflects the intensity of the learning process (Notoatmodjo, 2012). Education level affects the behavior changes in people. In terms of this study, this is the ability to control pain. However, some of the results of the previous studies have said that not all respondents who have a high-level education can control of their pain well. This means that some people who have a high education level will still experience severe pain. This statement is in line with the previous studies that have said that there is no significant relationship between the education level of the patient and the pain scale among postoperative patients at Siloam Sriwijaya Hospital Palembang (Hasibuan, 2018).

In the intervention group, after the giving of baby led feeding, most of them experienced either a mild pain level or moderate pain level within the control group. The results of the dependent t-test showed that there was an effect due to biological nurturing baby-led feeding on decreasing the pain intensity among post-Caesarean section mothers. The decrease in the pain intensity among the intervention group occurred because the baby-led feeding is a non-pharmacological therapy that is inclusive of a distraction method. It distracts the mother and leads to them focusing their attention on the breastfeeding process and not their pain (Dinengsih & Suciatmi, 2017). This refers to the gate control theory which states that pain impulses will pass the gates (ends of the sensory nerve). This can regulate or inhibit the defense mechanisms within the nervous system. Pain impulses are delivered when the gate is in the opening condition and they stop when the gate is in the closed condition (Potter et al., 2013). Baby-led feeding can be used as a barrier (closing) so then the nerve impulses cannot move freely. This means that they cannot transmit sensory impulses or any other messages to the sensory cortex. The effort to close these defenses are the basis of pain relief theory (Sinatra et al., 2009).

Relaxation releases the oxytocin hormone which can inhibit impulse transmissions and sensory messages to the sensory cortex. This is involved in decreasing the pain felt by post-Caesarean women. The laid-back / semi-reclining position or lying down was found to be more comfortable and relaxing among the mothers who had just delivered a baby, who had pain in their episiotomy or surgical wounds. This was compared to upright sitting, so it can be said that it indirectly supports the mothers spending a longer time breastfeeding (Colson, 2012). The decrease in the pain of the post-Caesarean section mothers after breastfeeding when baby-led feeding was also paired with skin contact between the mother and her baby. This is known as cutaneous stimulation therapy. One of the specific ideas about cutaneous stimulation is that it works because endorphins release and block the transmission of pain stimulation (Potter et al., 2013).

The results of this study show that there was an influence on pain intensity in each group. This is because breastfeeding is one of distraction methods (pain diversion) where the respondents are more focused on breastfeeding their baby than on the pain (Karso et al., 2017). This result is in line with the previous studies. They show that the correct breastfeeding position reduces the pain intensity among the mothers with episiotomy wounds (Sari et al., 2011). Other studies also explained that the position held while baby-led feeding reduced the pain intensity among the mothers who had experienced a Caesarean (Ningrum et al., 2019; Susilo Rini & Susanti, 2018).

There was a significant difference found in the pain intensity between the baby-led feeding intervention and the correct breastfeeding technique. The baby-led feeding intervention showed that the average post-test score was lower the score was for the correct breastfeeding technique group. This was because the biological nurturing baby-led feeding intervention used 3 types of non-pharmacological methods of pain reduction, specifically distraction, relaxation, and cutaneous stimulation (Colson, 2012; Susilo Rini & Susanti, 2018). However, the correct breastfeeding technique uses 2 methods, specifically distraction and cutaneous stimulation. Pain distraction or diversion occurs when the mother focuses more on breastfeeding their baby than feeling pain, meaning that their pain perception will reduce. Cutaneous stimulation occurs when the baby's skin comes into contact with the mother's skin during the breastfeeding process. This

process causes an increase in endorphins and inhibits pain as a result. The difference in the average post-test pain between the baby-led feeding group and the correct breastfeeding technique group was due to the relaxation process that was part of the intervention. The advantage of baby-led feeding compared to the correct breastfeeding technique is related to the relaxation method. This is because the reclining position within a range of 15 - 64° will make the abdominal area of the women with a Caesarean incision scar more relaxed.

This is in line with the previous studies which said that the 30° semi-fowler position reduced the pain intensity among post-laparotomy patients (Andriani, 2019). This is because 30o position will cause the abdominal muscles to relax. When the muscles relax, the fibers activate contractions (eccentric contractions or elongated muscles) and then release Ca2+ to increase the level of muscle flexibility. The release of Ca2 + causes the thin filament to be freed from the attachment cycle, meaning that it will return to the resting position and the muscle fibers will relax again (Sherwood, 2011). The limitation of this study is that the second pain observation was carried out 2 days after the intervention. There were several respondents who had left the hospital before being observed using the post-intervention pain scale and the researchers had to find new respondents as a result.

CONCLUSIONS

Baby-led feeding is effective at reducing the pain intensity among post-Caesarean section mothers. It also can be used as a non-pharmacological alternative. The recommendation for further research is that post-intervention pain observations should be carried out on the first day after the baby-led feeding intervention is initiated.

ACKNOWLEDGMENT

The authors would like to thank Universitas Pesantren Tinggi Darul 'Ulum Jombang and all of the respondents who participated.

CONFLICT OF INTEREST

There were no conflicts of interest regarding the publication of this research.

REFERENCES

Andarmoyo, S. (2013). Konsep dan Keperawatan Nyeri. Ar-Ruzz Medika.

Andriani, C. (2019). Pengaruh Posisi Semi Fowler Terhadap Penurunan Intensitas Nyeri Pada Pasien Post Post Operasi Laparotomi di Ruang Mawar dan Kutilang RSUD Dr.H.Abdul Moeloek Provinsi Lampung. Poltekkes Tanjungkarang Kemenkes Ri Jurusan Keperawatan Tanjungkarang.

Banlitbangkes. (2019). Laporan Nasional RISKESDAS 2018.

Cahyanti, R., Pertiwi, S., & Rohmatin, E. (2020). Effect of Biologic Nurturing Baby Led Feeding on Post Sectio Caesarea Pain Scale In Majenang Hospital 2018. Midwifery and Nursing Research, 2(1), 22–27. https://doi.org/10.31983/manr.v2i1.5507

Colson, S. (2012). Biological Nurturing: The Laid-back Breastfeeding Revolution. Midwifery Today.

Dahlan, S. M. (2013). Besar Sampel dan Cara Pengambilan Sampel. Salemba Medika.

Dinengsih, S., & Suciatmi, E. (2017). the Influence of Fingerhold Relaxation Technique on Pain Reduction of Post Sectio Caesarea Patients. Qanun Medika, December 2017, 1–9.

Hasibuan, A. I. (2018). Hubungan Tingkat Pendidikan dengan Skala Nyeri Menggunakan Numeric Rating Scale Pada Pasien Paska Operasi Di Rumah Sakit Siloam Sriwijaya. Universitas Pelita Harapan.

Karso, I., Nahariani, P., & Indrawati, A. (2017). Hubungan Nyeri Post Sectio Caesarea Dengan Pemberian Laktasi Di Ruang Rawat Gabung Paviliun Melati Rsud Jombang (The Terms Of Post Sectio Caesarean Pain With Lactation In Sheaf Nursery Ward Of Melati Pavillion Of Rsud Jombang). Jurnal Ilmiah Kebidanan, 3(2), 1–7.

Katzung. (2014). Farmakologi : Dasar dan Klinik. EGC.

Kozier, E., Berman, & Snyder. (2010). Buku Ajar Fundamental Keperawatan: Konsep, Proses & Praktik (7th ed.). EGC.

Latifah, L., & Ramawati, D. (2018). Intervensi Emotional Freedom Technique (Eft)

Untuk Mengurangi Nyeri Post Operasi Sectio Caesaria (Sc). Indonesian Nursing Journal of Education and Clinic (Injec), 1(1), 53–60. https://doi.org/10.24990/injec.v1i1.52

Mayasari, C. D. (2016). Pentingnya Pemahaman Manajemen Nyeri Non Farmakologi bagi Seorang Perawat. Jurnal Wawasan Kesehatan, 1(1), 35–42.

Mulyawati, I., Azam, M., & Ningrum, D. N. A. (2011). Faktor Tindakan Persalinan Operasi Sectio Caesarea. Jurnal Kesehatan Masyarakat, 7(1), 14–21. https://doi.org/10.15294/kemas.v7i1.1788

Ningrum, E. W., Novitasari, D., & Murniati, M. (2019). Cutaneous stimulation of slow stroke back massage to reduce the pain of sectio caesarea. Medisains, 17(1), 12. https://doi.org/10.30595/medisains.v17i1.4549

Notoadmodjo, S. (2012). Metodologi Penelitian Kesehatan. Rineka Cipta.

Notoatmodjo, S. (2012). Promosi Kesehatan dan Perilaku Kesehatan. Rineka Cipta.

Nurjanah, Si. N. (2013). Asuhan Kebidanan Post Partum (1st ed.). PT. Refika Aditama.

Nursalam. (2016). Metodologi Penelitian Ilmu Keperawatan (4th ed.). Salemba Medika.

Oxorn, H.,& Forte, W. R. (2010). Ilmu Kebidanan : Patologi dan Fisiologi Persalinan. ANDI OFFSET.

Patasik, C., Tangka, J., & Rottie, J. (2013). Efektifitas Teknik Relaksasi Nafas Dalam Dan Guided Imagery Terhadap Penurunan Nyeri Pada Pasien Post Operasi Sectio Caesare Di Irina D Blu Rsup Prof. Dr. R. D. Kandou Manado. Jurnal Keperawatan Unsrat, 1(1), 1–8.

Potter, P. A., Perry, A. G., Stockert, P. A., & Hall, A. M. (2013). Fundamentals of Nursing (8th ed.). Elsevier.

Pratiwi, R. (2012). Penurunan Intensitas Nyeri Akibat Luka Post Sectio Caesarea Setelah Dilakukan Latihan Teknik Relaksasi Pernapasan Menggunakan Aromaterapi Lavender Di Rumah Sakit Al Islam Bandung. Students E-Journal, 1(1), 1–15.

Rahmawati, I., & Yuniarti, E. V. (2020). The Influence Of Lavender Aromatherapy To Decrease Of Pain On Patient Post-Sectio Caesarea (Sc) Operations In Hospital Islamic Sakinah Mojokerto. International Journal of Nursing and Midwifery Science (IJNMS), 4(1), 70–74. https://doi.org/10.1016/S0002-9394(26)91015-5

Reeder, S. J., Martin, L. L., & Koniak-Griffin, D. (2011). Keperawatan Maternitas: Kesehatan Wanita, Bayi dan Keluarga (18th ed.). EGC.

Rini, S, & Kumala, F. D. (2016). Panduan Asuhan Nifas dan Evidence Based Practice. Deepublish.

Rini, Susilo, & Susanti, I. H. (2018). Penurunan nyeri pada ibu post sectio caesaria pasca intervensi biologic nurturing baby led feeding. Medisains, 16(2), 83. https://doi.org/10.30595/medisains.v16i2.2801

Sari, G. K. I., Lestari, W., & Dewi, A. P. (2011). Perbandingan Posisi Menyusui Cross Cradle Hold dengan Football Hold terhadap Nyeri pada Luka Episiotomi Ibu Post Partum. Jurnal Maternitas, 1(2), 1–7.

Sherwood, L. (2011). Fisiologi Manusia: Dari Sel Ke Sistem (EGC (ed.); 6th ed.).

Sinatra, R. S., Leon-Casasola, O. A. de, Ginsberg, B., & Viscusi, E. R. (2009). Acute Pain Management. Cambrige University Press.

Solimun, Fernandes, A. A. R., & Nurjannah. (2017). Metode Statistika Multivariat Pemodelan Persamaan Struktural (SEM) Pendekatan WarpPLS (2nd ed.). UB Press.

Sugathot, A. I., & Nugrahanintyas, J. W. U. (2018). Hubungan Umur dengan Tingkat Nyeri Pasca Persalinan Setelah Melakukan Teknik Relaksasi Napas Dalam. Jurnal Medika Respati, 13(3), 1–6.