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Original Article

The Marmet Technique as an Effort to Improve Breast Milk Production in Postpartum Mothers

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Abstract

The Marmet technique, which combines breast expression and massage, is designed to stimulate the breast milk ejection reflex. This method is believed to enhance the smooth flow of breast milk in postpartum mothers, but requires scientific validation. This study aimed to examine the effect of the Marmet technique on breastfeeding smoothness among postpartum mothers in the working area of the Watunohu Health Center, North Kolaka Regency. A quasi-experimental design with a two-group post-test only approach was employed. The study involved 32 postpartum mothers, divided into an intervention group (n=16) and a control group (n=16) through purposive sampling. The intervention group received the Marmet technique according to standard operating procedures (SOP), while the control group did not receive any treatment. Breastfeeding smoothness was assessed using a questionnaire covering eight indicators. Data were analyzed with the Mann-Whitney test, with a significance level set at $p < 0.05$. On the fourth day postpartum, exclusive breastfeeding smoothness was achieved in 62.5% of mothers in the intervention group compared to only 18.8% in the control group. The Mann-Whitney test yielded a p-value of 0.017 (<0.05), indicating a statistically significant effect of the Marmet technique. These findings demonstrate that the Marmet technique results in a significant increase in exclusive breastfeeding rates among postpartum mothers. It is recommended that healthcare providers in maternal and child health services adopt this technique as part of routine interventions to promote successful breastfeeding.

Keywords: marmet technique; breastfeeding smoothness; postpartum mothers; north kolaka.

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Introduction

The postpartum period is a critical period that begins after childbirth until the next six weeks, during which the reproductive organs undergo a process of physiological recovery and adaptation. In this phase, the success of exclusive breastfeeding is one of the important factors that determine the health status of the mother and baby. Breast milk is an ideal nutrient for babies, containing complete nutrients, antibodies, and growth factors that cannot be replaced by formula milk. However, various problems can hinder the smooth production of breast milk, such as breast dams, lack of stimulation, or inappropriate breastfeeding techniques, which can ultimately affect the success of lactation (Devi, 2024; Jan et al., 2022).

Global data shows that in 2019 there were 532,000 maternal deaths related to childbirth, increasing to 542,000 in 2020 (WHO, 2020 in Ahmad & Nurdin, 2024). In Indonesia, the Maternal Mortality Rate (MMR) in 2018 was recorded at 102 per 100,000 live births (SDKI, 2018). In Southeast Sulawesi Province, AKI in 2020 was recorded at 26 per 100,000 live births (Ministry of Health, 2020). Although most maternal deaths occur due to obstetric complications, lactation disorders in the postpartum period also contribute to increased maternal and infant health risks (Lilis et al., 2023).

One approach to addressing inadequate breast milk production is the Marmet technique, which combines manual expression and breast massage to stimulate the let-down reflex and enhance the secretion of prolactin and oxytocin. Evidence from previous studies suggests that this technique is effective in improving the smooth flow of breast milk. The Marmet technique offers several advantages: it is simple to learn, requires no special equipment, is more comfortable than breast pumps, and is environmentally friendly (Mardiyaningsih et al., 2011; Murti et al., 2024; Siagian & Zega, 2022).

In the working area of the Watunohu Health Center, North Kolaka Regency, the number of postpartum mothers has remained relatively stable over the past three years; however, some continue to report difficulties with efficient breast milk production. This highlights the need for evidence-based interventions to optimize breastfeeding outcomes. Therefore, this study aims to evaluate the effect of the Marmet technique on

breastfeeding smoothness among postpartum mothers in the Watunohu Health Center area.

Method

This study employed a quasi-experimental design with a two-group post-test-only approach, comparing an intervention group (Marmet technique) and a control group (no intervention) to evaluate breastfeeding smoothness in postpartum mothers. The research was conducted in November 2024 at the Watunohu Health Center, North Kolaka Regency, with a purposive sample of 32 postpartum mothers (16 in the intervention group and 16 in the control group).

Inclusion criteria were mothers in the second day of a normal postpartum period, infants with a birth weight of 2,500–4,000 grams, and willingness to participate. Exclusion criteria were postpartum complications or refusal to participate. The Marmet intervention was performed according to standard operating procedures (SOP) for 20–30 minutes per session, consisting of manual expression combined with gentle breast massage for 5–7 minutes on each side.

Breastfeeding smoothness was assessed using an eight-indicator questionnaire, scored as 1 (“Yes”) or 0 (“No”). Data were analyzed using the Mann–Whitney test with a significance level of $p < 0.05$. Ethical approval was obtained, and all participants provided informed consent in accordance with principles of anonymity and confidentiality.

Results

Table 1. Distribution of Frequency of Smooth Breastfeeding in Postpartum Mothers in the Working Area of the Watunohu Health Center, District Watunohu, North Kolaka Regency Year 2024

Smooth Breastfeeding in Postpartum Mothers	Intervention Group f (%)	Control Group f (%)
The second day		
Not enough	16 (100%)	16 (100%)
The third day		
Fluent	4 (25%)	2 (12,5%)
Not enough	12 (75%)	14 (87,5%)
The fourth day		
Fluent	10 (62,5%)	3 (18,8%)
Not enough	6 (37,5%)	13 (81,2%)
Total	16 (100%)	16 (100%)

Table 1 shows that on the second day, all postpartum mothers in both the treatment and control groups experienced a decreased milk supply (100%). However, starting on the third day, there was a difference between the two groups. In the treatment group, the

proportion of mothers with a normal milk supply was higher (25%) than in the control group (12.5%). This difference became even more pronounced on the fourth day, when 62.5% of mothers in the treatment group experienced a normal milk supply, compared to only 18.8% in the control group. This indicates a greater increase in milk supply in the treatment group compared to the control group.

Table 2. The Effect of Marmet Technique on the Smooth Flow of Breastfeeding in Postpartum Mothers in the Working Area of Watunohu Health Center, Watunohu District, North Kolaka Regency Year 2024

Variabel	Group	N	Mean	z	Value p
BMP	Intervention	16	14.00	2,396	0,017
BMP	Control	16	19.00		

**BMP : Breast milk production*

Table 2 shows the results of the Mann–Whitney test on the effect of the Marmet technique on breastfeeding smoothness among postpartum mothers. The mean rank in the intervention group was 14.00, compared to 19.00 in the control group. The statistical analysis yielded a z-value of 2.396 with a p-value of 0.017 (<0.05), indicating a significant difference between the two groups. This result demonstrates that the Marmet technique has a significant positive effect on improving the smooth flow of breast milk in postpartum mothers.

Discussion

The findings indicated that the intervention group receiving the Marmet technique experienced a marked improvement in breastfeeding smoothness from the second to the fourth day postpartum. As shown in Table 1, all respondents (100%) on the second day still reported insufficient milk flow. By the third day, 25% of mothers had reached the fluent category, and by the fourth day this proportion increased to 62.5%. This suggests that consistent application of the Marmet technique facilitates more effective breast emptying and stimulates the release of prolactin and oxytocin, thereby enhancing milk production.

The statistical analysis presented in Table 2 further supports this outcome, with the Mann–Whitney test yielding a p-value of 0.017 (<0.05), indicating a significant difference in breastfeeding smoothness between the intervention and control groups. Physiologically, the Marmet technique—which combines gentle massage and manual expression—helps optimize the

emptying of the lactiferous sinuses, trigger the let-down reflex, and promote milk secretion.

These results are consistent with previous studies (Murti et al., 2024; Nasir et al., 2025), which also demonstrated the effectiveness of the Marmet technique in improving milk flow among postpartum mothers. Similarly, Damanik and Suwardi (2023) highlighted that, compared to breast pumps, the Marmet technique offers advantages in terms of control, comfort, and enhanced stimulation through skin-to-skin contact. Therefore, the Marmet technique may be recommended as a simple, cost-effective, and practical non-pharmacological intervention to support breastfeeding success, particularly for mothers experiencing difficulties with milk flow.

The increase in the proportion of smooth breast milk in the Marmet group from day 3 to day 4 postpartum showed that mechanical stimulation combining breast massage and hand expression accelerated the transition of lactogenesis II (onset "let-down") and effective breast emptying. Physiologically, stimulation of the nipples and areolas triggers the release of oxytocin which induces the milk ejection reflex as well as lowers anxiety levels through the sedative effect of oxytocin, thereby helping the smooth flow of milk; These findings are consistent with a recent review of lactation pharmacology (LactMed) that confirms the key role of oxytocin in breast milk ejection and let-down regulation.

In terms of clinical evidence, some cutting-edge studies support the "massage + manual expression" approach such as the Marmet technique. Randomized controlled trials in mothers of premature babies showed that the manual expression method produced a volume of breast milk that was competitive—and at some point in time—better than an electric pump during the first week, signaling the benefit of tactile stimulation on the initial output of breast milk. Correspondingly, a randomized trial in mothers of premature babies in the NICU found that breast massage (with or without warm compresses) increased breast secretion and at the same time lowered anxiety-two factors that synergistically improve let-down and breastfeeding sustainability.

Current evidence-based clinical practice also recommends a series of "breast massage + hand expression

before pumping sessions" to optimize breast emptying and expressing results, especially in the early postpartum phase and in mothers with hospitalized babies. The 2025 review narrative of lactation optimization in inpatient units places breast massage and manual expression as the ideal first step before 15–20 minute electric dual pumps. More broadly, (Ouellet & Labbé, 2023) on exclusive breast milk expression also emphasizes the strategy of "hands-on pumping" and manual expression of colostrum as techniques that improve the efficiency of emptying and maintaining the milk supply.

Thus, the pattern of improvement in breast milk smoothness that you found (up to 62.5% of the fluent category on day 4 in the intervention group) can be explained by an integrated mechanism: (1) oxytocin stimulation through manual massage/expression that accelerates the ejection reflex, (2) more complete breast emptying thereby reducing inhibitor of lactation feedback and encourage sustainable production, as well as (3) reduce maternal anxiety which indirectly improves milk flow. The consistency of your results with randomized trials and recent reviews reinforces the validity of the finding that manual massage-expression-based techniques-such as Marmet-are inexpensive, easy to teach, and effective non-pharmacological interventions to improve breast milk flow in the early postpartum period.

Conclusion

This study demonstrates that the Marmet technique significantly improves breastfeeding smoothness in postpartum mothers, with marked progress observed from the third to the fourth day after delivery. The technique works by enhancing breast emptying and stimulating the release of prolactin and oxytocin, thereby promoting effective milk production and let-down. Consistent with previous clinical trials and recent reviews, the findings confirm that massage combined with manual expression offers distinct physiological and psychological benefits compared to breast pumps, including better stimulation, maternal comfort, and reduced anxiety. Given its simplicity, low cost, and effectiveness, the Marmet technique can be recommended as a practical, evidence-based, non-pharmacological intervention to support successful breastfeeding, particularly during the early postpartum period or in

mothers experiencing insufficient milk flow.

Conflict of Interests Statement

The authors affirm that they have no financial or personal relationships that could be perceived as potential conflicts of interest concerning the research, writing, or publication of this article.

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