

The Effect of the Marmet Technique on Breast Milk Production in Postpartum Mothers

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Abstract

Background: Briefly explains the arguments for the importance of the research by emphasizing the existence of a research problem breast milk (ASI) is the best natural nutrition for newborns because it contains balanced proteins, carbohydrates, fats, and minerals that meet infants' needs through the stages of colostrum, transitional milk, and mature milk. However, postpartum mothers often experience low breast milk production due to inadequate stimulation of prolactin and oxytocin hormones, which play an important role in milk secretion. One effective non-pharmacological intervention to stimulate breast milk production is the Marmet technique. **Objective:** This study aimed to determine the effect of the Marmet technique on breast milk production in postpartum mothers in the working area of the Kairatu Community Health Center. **Method:** A quasi-experimental design with a one-group pretest-posttest approach to evaluate the effect of the Marmet technique on breast milk production in postpartum mothers. **Results:** The results showed a significant increase in breast milk production after the application of the Marmet technique, with a p-value of 0.000 ($p < 0.05$). **Discussion:** The increase in breast milk production after the intervention is associated with stimulation of the prolactin and oxytocin hormones through manual breast expression, which improves milk flow and supports effective lactation, in accordance with existing lactation theories. **Conclusion:** The Marmet technique has a significant effect on increasing breast milk production in postpartum mothers and can be recommended as a safe and effective non-pharmacological intervention to support breastfeeding success.

Keywords: breast milk extraction, kairatu, marmet technique, postpartum

INTRODUCTION

Breast milk (ASI) is the best natural food that a mother can give to a newborn child, breast milk contains nutrients that are suitable for babies so that babies who get enough breast milk do not need to get other additional food [1]. The composition of breast milk is protein, carbohydrates, fat and minerals which are balanced according to the baby's needs and in breast milk there is a composition between colostrum, transitional or transitional breast milk and mature breast milk [2].

Breast milk is a white liquid which is an emulsion of fat and a solution of protein, lactose and organic salts which is secreted by the mammary glands in humans and is provided for babies from birth until they are 2 years old or older [3]. Breast milk contains nutrients,

hormones, immune-boosting, anti-allergic, and anti-inflammatory properties [4]. The nutrients in breast milk include nearly 200 nutritional elements [5].

Worldwide, 4.3 million (43%) of the 10 million babies aged less than 6 months do not receive breast milk [6]. According to the 2020 Indonesian Demographic and Health Survey (SDKI), the infant mortality rate in Indonesia was 24 per 1,000 live births. Causes of infant mortality in Indonesia include low birth weight (29%), asphyxia (27%), tetanus and infection (15%), diarrhea and pneumonia (13%), and breastfeeding problems (16%) [7]. Research in 42 developing countries shows that exclusive breastfeeding for 6 months is the public health intervention that has the greatest positive impact on reducing infant mortality, namely around 13% [8].

The cause of low breast milk production after giving birth is minimal stimulation of the hormone prolactin which plays a role in smooth breast milk production [9]. According to the Ministry of Health of the Republic of Indonesia (2021), the 2021 Indonesian Health Profile nationally, the coverage of infants receiving exclusive breastfeeding in 2021 was 56.9% [10]. Central Java Province reached 67.4%. The highest percentage of exclusive breastfeeding coverage was in West Nusa Tenggara Province (82.4%), while the lowest percentage was in Maluku Province (13.0%) [11]. There are 5 provinces that have not achieved the 2021 program target, namely Maluku, Papua, Gorontalo, West Papua and North Sulawesi [12]. West Seram Health Service Profile Data shows that the percentage of exclusive breastfeeding in 2020 was 20% and in 2021 the percentage decreased to 13.9% [13].

Based on a preliminary study conducted by researchers in the Kairatu Community Health Center work area, the number of pregnant women in 2021 reached 421 people, and in 2022 reached 451 people, while in 2023 alone the number of pregnant women was around 493 people, pregnant women with complaints of difficulty breastfeeding after giving birth in 2022 reached 33 people, and in 2023 reached 66 people and experienced a decrease in cases of the lactation process of 27 postpartum mothers. In 2024, from January to May, 42 mothers gave birth, 22 of whom had smooth breast milk supply and 20 mothers whose breast milk supply was not smooth. Mothers who had HPL or postpartum mothers in June-July 2024 in the Kairatu Health Center work area were 17 respondents, including 5 respondents in Talaga Ratu Hamlet, 3 respondents in Siompo Hamlet, 4 respondents in Waisari Hamlet, 3 respondents in Riupa Hamlet and 2 respondents in Waralohi Hamlet.

The results of interviews with 10 postpartum mothers in the Kairatu Community Health Center work area. In 2024, from January to May when researchers conducted initial surveys and interviews in the Kairatu Community Health Center work area, it can be explained that from 10 postpartum mothers, 4 mothers said that 20-30 minutes after the birth process they immediately started breastfeeding and there were no serious obstacles for either mother or baby in the breastfeeding process, but different from the other 3 postpartum mothers with complaints of breast milk not flowing smoothly, due to limited breast milk production,

flat/inverted nipples, the baby does not suckle strongly which then results in swollen breasts, while the other 3 mothers did not know the benefits and had never expressed breast milk using the Marmet Technique.

Therefore, based on the phenomenon of breast milk production in postpartum mothers above, the author is interested in conducting a case study with the title The Effect of the Marmet Technique on Breast Milk Production in Postpartum Mothers in the Kairatu Community Health Center Work Area.

METHOD

This study employed a quasi-experimental design with a one-group pretest-posttest approach to evaluate the effect of the Marmet technique on breast milk production in postpartum mothers [14]. The research population consisted of postpartum mothers in the working area of the Kairatu Community Health Center, with a total sample of 17 respondents selected using a total sampling technique based on inclusion criteria: postpartum mothers on days one to seven, willing to participate as respondents, and willing to undergo all intervention procedures [15]. Data were collected using observation sheets and standard operating procedures (SOP) for the Marmet technique, which were applied consistently during the pretest and posttest to ensure reproducibility [16]. Data processing and analysis were performed using the Wilcoxon test to determine differences before and after the intervention. Ethical principles were applied throughout the study, including informed consent, voluntary participation, and confidentiality of respondent data.

RESULTS AND DISCUSSION

Data processing in this study used computerization, namely through editing, scoring, coding, entry, cleaning, processing, tabulation [17]. Then continued with data processing consisting of univariate analysis, which was carried out to obtain a picture (description) of the study subjects based on characteristics (name, age, maternal education, and measurement of breast milk production (pretest) using a measuring cup before the technique was carried out). The data is presented in the form of a frequency distribution table and percentages are calculated [18]. Next, bivariate analysis is conducted on two variables suspected of having a relationship or influence between the independent and dependent variables [19].

Table 1. Characteristics of Respondents

Characteristics	Frequency (n)	Percentage (%)
Age		
No Risk <36 Years	10	58.8
At risk ≥36	7	41.2
Education		
SD	4	23.5
SMP	3	17.6
SMA	7	41.2

The results of the study showed that the total number of respondents was 17 individuals. Based on age characteristics, most respondents were in the non-risk age group (<36 years), totaling 10 respondents (58.8%), while respondents in the at-risk age group (≥ 36 years) amounted to 7 respondents (41.2%). In terms of educational background, the majority of respondents had a senior high school (SMA) education, with 7 respondents (41.2%), followed by elementary school (SD) graduates, with 4 respondents (23.5%), junior high school (SMP) graduates, with 3 respondents (17.6%), and respondents with higher education, totaling 3 respondents (17.6%).

The mean value before the Marmet technique was 30.18, the minimum value before the Marmet technique was 27, the maximum value before the Marmet technique was 39, there was an increase in the mean value after the Marmet technique was 81.18, the minimum value after the Marmet technique was 76 and the maximum value after the Marmet technique was 90, so it indicates that there is an influence with the p-value value on the pre-test and post-test of the Marmet technique with a value of $0.000 < 0.05$ so that it means there is an influence of the Marmet Technique on Breast Milk Production in Postpartum Mothers in the Kairatu Health Center Work Area.

Kairatu Community Health Center is an inpatient health facility located in Riuapa Hamlet, Kairatu Village, Kairatu District, West Seram Regency, which was established in 1979 and is bordered by the Seram Sea to the south, Waralohi Hamlet/Kamariang Village to the east, West Kairatu District to the west, and Inamosol Village to the north [20]. The results of the study showed a significant increase in breast milk expenditure in postpartum mothers after the application of the Marmet technique [21]. The mean value before the intervention was 30.18, with a minimum value of 27 and a maximum value of 39, while after the intervention the mean value increased to 81.18, with minimum and maximum values of 76 and 90, respectively [22].

Statistical analysis using the pretest-posttest comparison showed a p-value of 0.000 (< 0.05), indicating that the Marmet technique had a significant effect on breast milk expenditure in postpartum mothers [23]. The Marmet technique, which combines breast massage and stimulation, works by emptying the lactiferous sinuses under the areola, thereby stimulating the release of prolactin and oxytocin hormones that enhance milk production and facilitate milk flow [24]. These findings are consistent with previous studies [1], which reported significant improvements in breast milk production and smooth milk flow following the application of the Marmet technique [25]. Based on these findings, it can be concluded that the Marmet technique is an effective non-pharmacological intervention to improve breast milk flow in postpartum mothers.

CONCLUSION

Postpartum mothers' knowledge of the Marmet technique significantly increases in breast milk production from 30 to 85 mL after receiving education. The Marmet technique can be safely applied to all postpartum mothers.

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