Effectiveness of giving oxytocin massage and klabet seed tea (Trigonella Foenum-Graceum L) on increasing breast milk production

Efektivitas pemberian pijat oksitosin dan teh biji klabet (Trigonella Foenum-Graceum L) terhadap peningkatan produksi ASI

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Abstract

Background*: Breast milk is the main source of nutrition for babies which is easily digested by their digestive system. However, there are various reasons why mothers stop breastfeeding, one of which is because of insufficient breast milk production. One effort to increase breast milk production naturally is through non-pharmacological therapy, such as oxytocin massage which plays a role in improving blood circulation, stretching muscles, and increasing the production of the hormone oxytocin. In addition, klabet seed tea is known to have estrogenic effects thanks to its saponin, alkaloid, and flavonoid content*. ***Purpose****: The purpose of this study was to determine the effectiveness of providing oxytocin massage and klabet seed tea (Trigonella Foenum-Graceum L.) on increasing breast milk production.* ***Methode****: This study was conducted at TPMB Tutut Ismayanti and TPMB Suprihtin. Research design Pre-Experimental One group Pretest Postest Design. The population of postpartum mothers who experienced insufficient breast milk production was 42 respondents, with a purposive sampling technique and a sample size of 38 respondents with insufficient breast milk production. Oxytocin massage and klabet seed tea 3g a day were given twice a day for 7 days. The research instrument used observation sheets and SOPs. Data analysis was carried out Univariately in the form of frequency distribution and Bivariately using the Paired Sample T-test.* ***Results****: The results of the study were that postpartum mothers' breast milk production before intervention was mostly substandard (52.63%) with a mean value of 3.37 and breast milk production after intervention increased to smooth (63.16%) with a mean value of 5.76. Results of Paired Sample T-test ρ-value 0.000 <0.05.* ***Conclusion****: There is Effectiveness of Giving Oxytocin Massage and Klabet Seed Tea (Trigonella Foenum Graceum L.) to Increase Breast Milk Production. Oxytocin massage and klabet seed tea are very useful in helping to facilitate breast milk production economically on days 1-10 after giving birth.*

Keywords*: oxytocin massage; klabet seed tea; breast milk production*

Abstrak

Latar Belakang: ASI adalah sumber utama nutrisi bagi bayi yang mudah dicerna oleh sistem pencernaan mereka. Namun, terdapat berbagai alasan yang

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menyebabkan ibu berhenti memberikan ASI, salah satunya adalah karena produksi ASI yang tidak mencukupi. Salah satu upaya untuk meningkatkan produksi ASI secara alami adalah melalui terapi non-farmakologi, seperti pijat oksitosin yang berperan melancarkan sirkulasi darah, meregangkan otot, dan meningkatkan produksi hormon oksitosin. Selain itu, teh biji klabet diketahui memiliki efek estrogenik berkat kandungan saponin, alkaloid, dan flavonoid. **Tujuan**: untuk mengetahui efektivitas pemberian pijat oksitosin dan teh biji klabet (Trigonella Foenum-Graceum L.) terhadap peningkatan produksi ASI. **Metode**: Penelitian ini dilakukan di TPMB Tutut Ismayanti dan TPMB Suprihtin. Desain penelitian *Pre-Eksperimental One group Pretest Postest Design*. Populasi ibu postpartum yang mengalami produksi ASI kurang berjumlah 42 responden, dengan tehnik *purposive sampling* dan besar sampel 38 responden dengan produksi ASI kurang. Pemberian pijat oksitosin dan teh biji klabet 3g sehari 2 kali selama 7 hari. Instrumen penelitian menggunakan lembar observasi dan SOP. Analisis data dilakukan secara Univariat dalam bentuk distribusi frekuensi dan Bivariat dengan menggunakan *Paired Sample T-test*. **Hasil Penelitian**: produksi ASI ibu postpartum sebelum diberikan intervensi sebagian besar kurang lancar (52,63%) dengan nilai mean 3,37 dan produksi ASI sesudah diberikan intervensi terjadi peningkaan menjadi lancar (63,16%) dengan nilai mean 5,76. Hasil *Paired Sample T-test* ρ-value 0,000<0,05. **Kesimpulan**: Terdapat Efektivitas Pemberian Pijat Oksitosin dan Teh Biji Klabet (Trigonella Foenum Graceum L.) terhadap Peningkatan Produksi ASI. Pijat oksitosin dan teh biji klabet sangat bermanfaat membantu memperlancar Produksi ASI secara ekonomis pada hari 1-10 setelah melahirkan.

Kata kunci: pijat oksitosin; teh biji klabet; produksi ASI

INTRODUCTION

Breast milk, secreted by the mother's mammary glands, serves as the primary and most nutritious food for infants in their early stages of life. It contains a mixture of proteins, lactose, and organic salts, making it unparalleled as a source of nourishment. Despite its benefits, challenges in breastfeeding remain prevalent, leading to negative consequences for both mothers and infants (Halimah et al., 2022). According to WHO data from 2023, the global rate of exclusive breastfeeding is approximately 48%, nearing the target of 50% set for 2025. In Indonesia, the exclusive breastfeeding rate stands at 73.97%; however, in East Java, the figure is slightly lower at 72.68%, and in Sidoarjo Regency, it reaches only 71.5%, which is below the national target of 80% (World Health Organization, 2023) (Stastistik Badan Pusat, 2020). A preliminary study conducted in November–December 2023 at BPM Tutut Ismayanti and TPMB Suprihatin revealed several issues. Among nine postpartum mothers, seven reported inconsistent milk production due to maternal nutritional deficiencies, one mother did not breastfeed regularly, and three experienced improper infant latching. The lack of exclusive breastfeeding significantly increases the risks of infant mortality, diarrhea, and acute respiratory infections (ARIs). For instance, infants not exclusively breastfed are 2.23 times more likely to die, 2.40 times more prone to diarrhea, and 3.94 times more at risk of ARIs (Arifeen et al., 2001). Research also

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indicates that exclusive breastfeeding helps reduce the incidence of ARIs, with symptoms observed in only 9% of exclusively breastfed infants compared to higher rates among those not exclusively breastfed (Farrag et al., 2024).

Several factors influence breast milk production, including breastfeeding frequency, infant birth weight, gestational age at delivery, maternal age, parity, stress, illness, early initiation of breastfeeding, and nutritional status (Montolalu & Zamli, 2024).

The hormone oxytocin plays a vital role, as its release is stimulated by factors such as breastfeeding and specific massages. Oxytocin massage, for instance, triggers signals from the medulla oblongata to the hypothalamus, releasing oxytocin into the bloodstream. This process stimulates the contraction of myoepithelial cells surrounding mammary alveoli, facilitating the flow of milk through the ducts (P. Lestari et al., 2022). According to research by Triansyah et al. (2021), after administering oxytocin massage and breast care, 12 respondents achieved adequate breast milk production, while 6 remained inadequate (Triansyah et al., 2021). Another study by S. S. T. Lestari et al. (2021) observed breastfeeding issues in 16.3% of mothers during the first week postpartum, which were resolved following oxytocin massage. Additionally, there was an average increase in infant body length of 8.44 cm (98.8%) by two months of age (S. S. T. Lestari et al., 2021). In the same research by Triansyah et al. (2021), out of 30 respondents before the intervention, 18 had inadequate breast milk production, while 12 had adequate production. After the intervention, the number of mothers with adequate production increased to 7, while 11 still faced inadequate production. It is noted that breast massage alone primarily releases milk stored in the acini without significantly enhancing oxytocin levels (Triansyah et al., 2021). To optimize milk production, increasing serum oxytocin activity is necessary. Fenugreek seeds (Trigonella Foenum-Graceum L.) offer a natural solution, as they are rich in bioactive compounds, including 20-25% protein, 45-50% dietary fiber, 20-25% soluble fiber with a mucilaginous texture, 6-8% fatty acids and essential oils, and 2-5% steroid saponins. Additionally, fenugreek contains flavonoids, alkaloids like trigonoline, choline, gentianin, carpaine, and amino acids such as 4-hydroxyisoleucine, along with steroidal compounds like diosgenin and protodioscin. While oxytocin massage aids milk ejection, combining it with fenugreek seed-based herbal remedies enhances overall lactation through its galactagogue properties. This study highlights the combined benefits of these interventions and aims to explore their impact on improving postpartum breast milk production.

METHOD

This research utilized an experimental approach with a pre-experimental design, specifically the One Group Pretest-Posttest Design. In this design, measurements were taken both before and after the intervention to observe changes in the outcomes. The study targeted postpartum mothers with insufficient breast milk production as the population, and the sample comprised a subset of these mothers selected using purposive sampling based on specific criteria.

The primary research instrument was an observation sheet used to measure breast milk production, including indicators such as breastfeeding frequency, infant

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sleep patterns after feeding, and the number of infant urinations. Additional tools included a standard operating procedure (SOP) for administering oxytocin massage and preparing fenugreek seed tea.

Data analysis was conducted using univariate methods to describe respondent characteristics (e.g., age, parity, and education) in frequency distributions, and bivariate analysis to test intervention effectiveness. A paired sample t-test was employed to compare pretest and posttest results statistically..

Ethical approval for the study was obtained from the Health Research Ethics Test Commission, Faculty of Health Sciences, Universitas PGRI Adibuana Surabaya, on July 5, 2024, under No. 116-KEPK.

RESULT AND DISCUSSION

Result

This study was conducted in 2 TPMBs, namely TPMB Tutut Ismayanti and TPMB Suprihatin. The research period was from October 2023 to July 2024, with a sample of 38 postpartum mothers. The research results are as follows:

Table 1. Frequency Distribution of Respondent Characteristics

Category	n=38	%
Age		
<20 years	1	2.63
20-35 years	36	94.74
>35 years	1	2.63
Education		
Elementary school	0	0
Junior high school	2	5.26
Senior High School	22	57.89
College	14	36.84
Work		
Housewife	25	65.79
Work	13	34.21
Parity		
Primipara	26	68.42
Multipara	12	31.58
Grande Multipara	0	0
Nutrition		
Eat Fast	0	0
Not Eating	38	100
Breastfeeding Frequency		
<8 Times/Day	29	76.3
>8 Times/Day	9	23.7

Source: Primary Data, 2024

Based on Table 1, the study included 38 respondents, with the majority (94.74%) aged between 20 and 35 years, comprising 36 individuals. Regarding education, most respondents (57.89%) were high school graduates, totaling 22 individuals. In terms of parity, a significant proportion (68.42%) were primigravidas, accounting for 26 respondents. All participants (100%) were

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categorized as having non-constant nutritional patterns. Most respondents (65.79%) were housewives, representing 25 individuals.

The age of respondents ranged from a minimum of 19 years to a maximum of 36 years. The median age was categorized as 20–35 years, with a calculated median value of 2.00, and the mean value was 2.05, also falling within the 20–35 age range.

Homogeneity tests showed that age (p = 0.37), education (p = 0.45), parity (p = 1.00), and occupation (p = 0.51) were homogeneously distributed, as all p-values exceeded 0.05. However, the nutritional category yielded a p-value of 0.00 (<0.05), indicating non-homogeneous data, as all respondents fell into the same subcategory. This variation in homogeneity highlights differences in nutritional characteristics compared to the other demographic categories, which were more evenly distributed.

Table 2. Data Analysis Test of Oxytocin Massage and Klabet Seed Tea (Trigonella Foenum Graceum L.) on Increasing Breast Milk Production

Breast milk production	**n=38**	**%**	***Mean* ± SD Min - Max *Median***	***p-value***		
Pretest						
Not Smooth	20	52.63	3.37±1.44			
Quite Smooth	18	47.37	1.00-5.00	*0.055	**0.047	
Fluent	0	0	4			
Posttest						***0.000
Not Smooth	0	0	5.76±1.65			
Quite Smooth	14	36.84	3.00-8.00	*0.074	**0.550	
Fluent	24	63.16	6			

Source: Primary Data, 2024
Description:
* *: Normality*
** *: Homogeneity*
*** *: Paired T-Test*

Based on Table 2, the study revealed that prior to the intervention, the majority of respondents (52.63%) experienced inadequate breast milk production. After undergoing oxytocin massage and consuming fenugreek seed tea for seven days, a significant improvement was observed, with 63.16% of respondents achieving smooth milk production.

The pre-intervention data indicated a minimum score of 1.00, categorized as insufficient milk production, and a maximum score of 5.00, categorized as moderately smooth production. The median value was 4.00, and the mean score was 3.37, both categorized as moderately smooth production. The normality test for this phase yielded a p-value of 0.055 (> 0.05), indicating normally distributed data, while the homogeneity test returned a p-value of 0.047 (< 0.05), showing non-homogeneous data.

Post-intervention results showed an improvement, with a minimum score of 3.00, categorized as moderately smooth production, and a maximum score of 8.00, categorized as smooth production. The median value was 6.00, and the mean score was 5.76, both categorized as smooth production. The normality test in this phase yielded a p-value of 0.074 (> 0.05), confirming normally distributed data, and the

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homogeneity test returned a p-value of 0.550 (> 0.05), indicating homogeneous data.

The paired t-test analysis revealed a significant result with a p-value (2-tailed) of 0.00 (< 0.05). This indicates that the intervention of oxytocin massage and fenugreek seed tea (Trigonella Foenum Graceum L.) had a significant effect on improving breast milk production, leading to the acceptance of the alternative hypothesis (H1) and the rejection of the null hypothesis (H0).

Discussion

Before the intervention of oxytocin massage and fenugreek seed tea, the majority of respondents (52.63%) experienced insufficient breast milk production, with an average score of 3.37. Most of the mothers in this category were primiparous (68.42%), which aligns with prior research indicating that first-time mothers often face challenges in initiating and maintaining sufficient milk production within the first month postpartum (Wulandari et al., 2018). Another contributing factor was the frequency of breastfeeding, with 76.32% of mothers nursing less than eight times per day (Takahata et al., 2024). Lower breastfeeding frequency can reduce milk synthesis, especially for mothers with smaller milk storage capacities who need to nurse more frequently to prevent lactation inhibition (Iskandar et al., 2020).

After seven days of oxytocin massage and fenugreek seed tea intervention, 63.16% of respondents reported smooth milk production, with an average score rising to 5.76. A paired sample t-test showed a statistically significant improvement (p-value < 0.05) in milk production following the intervention. These findings are consistent with prior studies that highlight the physiological effects of oxytocin massage in stimulating hormone release, reducing muscle tension, and promoting relaxation, all of which support lactation. The findings of this study align with those reported by Fitria and Retmiyanti (2021), where postpartum mothers who received oxytocin massage and fenugreek seed tea interventions showed a smooth breast milk production rate of 93.3%, with an average production level of 6.21% (Fitria & Retmiyanti, 2021). Similarly, research by Anggraini and Dilaruri (2022) highlighted that the average milk production before oxytocin massage was 86.27 ml (standard deviation 34.95), increasing to 126.35 ml (standard deviation 41.4) post-intervention (Anggraini & Dilaruri, 2022). These results corroborate the theory that oxytocin massage significantly enhances breast milk production by physiologically stimulating the release of oxytocin. In addition to oxytocin, endorphins act as ejection hormones that induce relaxation and reduce muscle tension, facilitating milk flow. Spinal or massage stimulation triggers neurotransmitters to send signals to the medulla oblongata, which then instructs the hypothalamus to activate the posterior pituitary, resulting in oxytocin secretion and subsequent milk production (Kartini et al., 2020). For enhanced oxytocin efficiency, the use of galactagogues like fenugreek seeds is beneficial. Fenugreek consumption has been shown to significantly boost milk production, although its effect is relatively lower compared to Coleus amboinicus Lour and date palm (Khan et al., 2018). Moreover, a study by Simbar et al. (2022) found that combining

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fenugreek with honey significantly improved breastfeeding success scores, whereas fenugreek alone did not yield similar improvements (Simbar et al., 2022).

CONCLUSION

The combination of oxytocin massage therapy and fenugreek seed tea (Trigonella Foenum Graceum L.) has been demonstrated to effectively enhance breast milk production in postpartum mothers. Prior to the intervention, most participants experienced suboptimal milk production, with an average score of 3.37. Following a seven-day intervention, the majority of participants exhibited a marked improvement, with the average production score rising to 5.76. Statistical analysis using the Paired Sample T-test yielded a p-value of less than 0.05, confirming a significant difference between pre- and post-intervention milk production levels.

Oxytocin massage stimulates the physiological release of the oxytocin hormone, which is critical for facilitating milk production. Meanwhile, fenugreek seed tea enhances this process by contributing estrogenic effects through its bioactive compounds, including saponins, alkaloids, and flavonoids. Together, these interventions provide an effective, efficient, and cost-friendly solution to support postpartum mothers in optimizing milk production, particularly during the crucial early postpartum period.

SUGGESTION

It is recommended that oxytocin massage and consumption of fenugreek seed tea be integrated into postpartum maternal health services, especially in primary health facilities, by providing training to health workers to ensure effective implementation. Further research with more complex experimental designs, such as randomized controlled trials, is needed to validate these findings, including exploration of optimal doses and other herbal combinations. The development of more practical fenugreek seed-based products, such as capsules or liquid extracts, can also be an innovative step to facilitate consumption.

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