Indonesian Journal of Global Health Research
Volume 8 Number 5, October 2026
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

EFFECTS OF OKETANI MASSAGE AND JASMINE AROMATHERAPY IN PRIMIPAROUS POSTPARTUM MOTHERS

Claudia Nurapriliasari[1]*, Walin[1], Sri Wahyuni[2]
[1]Fakultas Kesehatan, Poltekkes Kemenkes Semarang, Jl. Tirto Agung, Pedalangan, Banyumanik, Semarang, Jawa Tengah 50268, Indonesia
[2]Fakultas Kesehatan, Poltekkes Kemenkes Surakarta, Jl. Letjen Sutoyo, Mojosongo, Jebres, Surakarta 57127, Indonesia
*cnurapriliasari@gmail.com

ABSTRACT
Low breast milk production in the first postpartum week may compromise infant nutrition and increase maternal psychological distress. Anxiety and stress can reduce prolactin levels, thereby affecting lactation. Objective: To determine the effect of combining Oketani massage and jasmine aromatherapy on prolactin hormone levels and anxiety in primiparous postpartum mothers. A quasi-experimental study with a pretest–posttest control group design was conducted at Klinik Mutiara Medika in 2023. Thirty-two primiparous postpartum mothers were selected through purposive sampling and assigned to intervention (n=16) and control (n=16) groups. Prolactin levels were measured using the ELFA method, while anxiety was assessed using the Postpartum Specific Anxiety Scale (PSAS), a validated and reliable instrument widely used to measure postpartum-specific anxiety. Data were analyzed using Paired Sample T-Test, Independent T-Test, and Mann–Whitney test. The intervention significantly increased prolactin levels and reduced anxiety ($p<0.001$). Post-treatment prolactin levels were higher in the intervention group (266.26 ng/mL) than in the control group (170.02 ng/mL). The intervention group showed an average prolactin increase of 111.55 ng/mL and an average anxiety reduction of 34.32 points. The combination of Oketani massage and jasmine aromatherapy is an effective non-pharmacological intervention for increasing prolactin levels and reducing anxiety among primiparous postpartum mothers.

Keywords: anxiety; jasmine aromatherapy; oketani massage; postpartum mothers; prolactin hormone

How to cite (in APA style)
Nurapriliasari, C., Walin, W., & Wahyuni, S. (2026). Effects of Oketani Massage and Jasmine Aromatherapy in Primiparous Postpartum Mothers. *Indonesian Journal of Global Health Research*, *8*(5), 711–716. https://doi.org/10.37287/ijghr.v8i5.2302.

INTRODUCTION

Breast milk plays an essential role in supporting infant growth and development because it contains nutrients that are easily digested and absorbed by the infant's body (Kurniati et al., 2016). Exclusive breastfeeding during the first six months of life provides adequate nutritional intake and contributes to both maternal and infant health, including physical and psychological well-being (Fron & Pawiłowicz, 2024). Recognizing these benefits, the World Health Organization (WHO) has included exclusive breastfeeding as one of the global nutrition targets. UNICEF reported in The State of Food Security and Nutrition in the World (SOFI) that the prevalence of exclusive breastfeeding worldwide increased from 37% in 2012 to 44% in 2020. However, the current achievement remains below the global target of 50% by 2025 and 70% by 2030 (Unicef, 2023).

In Indonesia, exclusive breastfeeding coverage has not yet reached optimal levels in several regions. Data from the Badan Pusat Statistik (BPS) indicated that the proportion of exclusive breastfeeding for infants under six months in Banten Province reached 70.67% in 2021. In Lebak Regency, the coverage declined from 76.9% in 2019 to 69.97% in 2020 (Kementerian Kesehatan, 2021), while Kalanganyar District reported a coverage of 76.2%. These findings suggest that breastfeeding practices and problems related to breast milk production continue to be important public health concerns, particularly among postpartum mothers.

One of the major challenges experienced by postpartum mothers is insufficient breast milk production during the early postpartum period. This condition is closely related to the inadequate stimulation of prolactin and oxytocin hormones, which are important in the lactation process. Psychological conditions such as stress, fatigue, anxiety, and negative emotional responses may reduce prolactin hormone levels and interfere with breast milk production (Kraus & Cižmárová, 2025). In some cases, mothers who experience breastfeeding difficulties may lose confidence in their ability to meet their infants' nutritional needs and eventually choose formula feeding (Roth et al., 2021). Primiparous mothers are considered more vulnerable to anxiety and stress because they lack previous breastfeeding experience. Earlier studies also reported that primiparous mothers tend to have higher cortisol levels, which may negatively affect lactation (Lindblad et al., 2022)

Various non-pharmacological approaches have been introduced to support lactation and improve maternal comfort during the postpartum period (Rezaie Keikhaie et al., 2026). Oketani massage is one of the breast massage techniques that may help stimulate mammary gland function, improve breast elasticity, and facilitate milk secretion. In addition, aromatherapy has been used to promote relaxation and reduce maternal anxiety. Jasmine aromatherapy is believed to stimulate endorphin release, improve mood, and decrease stress responses (Hugo et al., 2025). Previous studies have separately reported the positive effects of Oketani massage and jasmine aromatherapy on breastfeeding and maternal psychological conditions (Mahdizadeh-Shahri et al., 2021). Nevertheless, evidence regarding the combined effect of these two interventions on prolactin hormone levels and anxiety among primiparous postpartum mothers remains limited. Therefore, this study aimed to analyze the effect of the combination of Oketani massage and jasmine aromatherapy on prolactin hormone levels and anxiety levels among primiparous postpartum mothers.

METHOD

This study employed a quasi-experimental design using a pretest-posttest control group approach. The sampling technique used in this study was purposive sampling. The reference population consisted of all primiparous postpartum mothers, while the study population included all primiparous postpartum mothers at Klinik Mutiara Medika, Kalanganyar District, in 2023. The study subjects were 32 primiparous postpartum mothers starting from the third postpartum day who met the inclusion and exclusion criteria. The respondents were divided into two groups consisting of 16 participants in each group. The intervention group received a combination of Oketani massage and jasmine aromatherapy, while the control group received breast care treatment. The combination of Oketani massage and jasmine aromatherapy was administered starting on the third postpartum day for seven consecutive days, twice daily in the morning and evening. The massage intervention used olive oil, while jasmine aromatherapy was administered through inhalation using a diffuser containing five drops of jasmine essential oil mixed with 100 ml of water for 30 minutes. The control group received breast care treatment starting on the third postpartum day with the same frequency and duration as the intervention group. Blood sampling and anxiety assessments in both groups were conducted equally on the morning of the third postpartum day and repeated on the tenth postpartum day. The interventions were provided by trained midwives experienced in postpartum maternal care. Data collection in both groups was assisted by two trained midwives and one laboratory analyst to ensure consistency in the research procedures. Serum prolactin hormone levels were measured using the Enzyme Linked Fluorescent Assay (ELFA) method at the National Brain Center Hospital Laboratory, Jakarta. Anxiety levels among primiparous postpartum mothers were assessed using the Postpartum Specific Anxiety Scale (PSAS) questionnaire. The data were analyzed descriptively, and hypothesis testing was performed using comparative tests to assess differences before and after treatment between the intervention and control groups. This study received ethical approval from the Health Research Ethics Committee of Poltekkes Kemenkes Semarang with ethical clearance number 0448/EA/KEPK/2023.

RESULT

A total of 32 primiparous postpartum mothers participated in this study and were divided equally into intervention and control groups. Respondents in both groups had fulfilled the inclusion and exclusion criteria established by the researchers. The results section presents respondent characteristics, prolactin hormone levels, and anxiety levels before and after the intervention.

Table 1.
Results of Respondent Characteristics Analysis

Variabel	Intervensi n= 16	Kontrol n= 16	*p-value*
Usia (Mean±SD)	23,19±1,87	23,25±2,05	0,846
Pendidikan			
SMP	7 (43,8%)	5 (31,3%)	0,696
SMA	7 (43,8%)	8 (50%)	
Perguruan Tinggi	2 (12,5%)	3 (18,8%)	
Frekuensi Menyusui			
< 8x	-	1 (6,3%)	0,010
8-12x	9 (56,3%)	13 (81,3%)	
2x	7 (43,8%)	2 (12,5%)	
Dukungan Suami			
Mendukung	13 (81,3%)	9 (56,3%)	0,007
Tidak Mendukung	3 (18,8%)	7 (43,8%)	
Kadar Hormon Prolaktin Pre (Mean±SD)	154,71±57,17	176,4±51,83	0,541
Tingkat Kecemasan Pre (Mean±SD)	129,31±14,38	120±10,55	0,104

Table 1 presents the characteristics of respondents in the intervention and control groups. The mean age of respondents in the intervention group was 23.19±1.87 years, while the control group had a mean age of 23.25±2.05 years. Most respondents in both groups had senior high school educational backgrounds. The majority of respondents breastfed their infants 8–12 times per day during the observation period. Most respondents also received support from their husbands during the postpartum period. The mean baseline prolactin hormone level in the intervention group was 154.71±57.17 ng/ml, while the control group had a mean level of 176.40±51.83 ng/ml. In addition, the mean baseline anxiety score in the intervention group was 129.31±14.38, compared to 120±10.55 in the control group. Homogeneity testing showed that age, education level, baseline prolactin hormone levels, and baseline anxiety scores were homogeneous between the two groups ($p>0.05$).

Table 2.
Comparison of Prolactin Hormone Levels Before and After Treatment in the Intervention and Control Groups

Kadar Hormon Prolaktin	Kelompok		*p-value*
	Intervensi (Mean±SD)	Kontrol (Mean±SD)	
Pre	154,71±57,17	176,40±51,83	0,270
Post	266,26±92,35	170,02±45,33	0, 001
Δ pre-post	111,55±90,88	-6,37±42,14	0,000
P-value	0,000	0,554	

Table 2 shows the comparison of prolactin hormone levels before and after treatment in both groups. The intervention group demonstrated a significant increase in prolactin hormone levels after receiving the combination of Oketani massage and jasmine aromatherapy ($p=0.000$). In contrast, the control group did not show a statistically significant difference in prolactin hormone levels before and after treatment ($p=0.554$). The post-treatment prolactin hormone level in the intervention group was significantly higher than that in the control group ($p=0.001$). The mean increase in prolactin hormone levels in the intervention group was 111.55±90.88 ng/ml, whereas the control group experienced a decrease of 6.37±42.14 ng/ml.

Table 3.
Comparison of Anxiety Levels Before and After Treatment in the Intervention and Control Groups

Tingkat Kecemasan	Kelompok		*p-value*
	Intervensi (Mean±SD)	Kontrol (Mean±SD)	
Pre	129,31±14,80	120,00±10,55	0, 049
Post	96,56±11,48	124,88±14,31	0, 000
Δ pre-post	-34,32±10,54	4,88±10,16	0,000
P-value	0,000	0, 074	

Table 3 presents the comparison of anxiety levels before and after treatment in the intervention and control groups. The intervention group experienced a significant reduction in anxiety scores following treatment (p=0.000), while the control group showed no significant difference before and after treatment (p=0.074). Furthermore, post-treatment anxiety scores in the intervention group were significantly lower compared to the control group (p=0.000). The intervention group showed a mean decrease in anxiety scores of 34.32±10.54 points, whereas the control group experienced an increase of 4.88±10.16 points after treatment.

DISCUSSION

The findings of this study demonstrated that the combination of Oketani massage and jasmine aromatherapy significantly increased prolactin hormone levels among primiparous postpartum mothers. The intervention group showed a higher increase in prolactin hormone levels compared to the control group after treatment. This finding indicates that the combination of physical stimulation through massage and psychological relaxation through aromatherapy may contribute positively to the lactation process (Sakinah et al., 2023).

Oketani massage focuses on breast massage techniques that help stimulate mammary gland function, improve breast elasticity, and facilitate milk secretion (S, 2024). The massage technique may improve blood circulation and lymphatic drainage in the breast area, thereby supporting the stimulation of prolactin and oxytocin hormones (Restyo & Maulina, 2026). Previous studies reported that Oketani massage could improve breastfeeding effectiveness and increase breast milk production among postpartum mothers (Mahdizadeh-Shahri et al., 2021). In addition, gentle breast massage may provide comfort and relaxation, which are important factors in supporting successful lactation (Suryani, 2024).

Jasmine aromatherapy may also contribute to the improvement of prolactin hormone levels through psychological relaxation mechanisms. The inhalation of jasmine essential oil is believed to stimulate endorphin release, improve mood, and reduce stress responses (Xiong et al., 2023). Reduced stress and anxiety may support the release of prolactin and oxytocin hormones, which are important in breast milk production and secretion (Lajuna & Sriyanti, 2025). Previous studies have reported that jasmine aromatherapy may improve maternal comfort and support breastfeeding outcomes (Mahdizadeh-Shahri et al., 2021).

This study also found that the combination of Oketani massage and jasmine aromatherapy significantly reduced anxiety levels among primiparous postpartum mothers. Mothers in the intervention group experienced lower anxiety scores after treatment compared to the control group. Primiparous mothers are generally more vulnerable to anxiety because they lack previous childbirth and breastfeeding experience (Layyinah & Abidin, 2023). Psychological stress during the postpartum period may interfere with maternal adaptation and breastfeeding performance (Nagel et al., 2022).

The reduction in anxiety levels observed in this study may be associated with the relaxing effects of massage and aromatherapy. Massage therapy has been widely recognized as a non-pharmacological intervention that promotes relaxation and reduces psychological distress. Similarly, jasmine

aromatherapy has been reported to reduce stress, improve emotional stability, and create feelings of comfort and calmness (Mahdizadeh-Shahri et al., 2021). These effects may help postpartum mothers feel more confident and relaxed during breastfeeding (Virmani, 2025).

The findings of this study are consistent with previous studies that demonstrated the effectiveness of Oketani massage in improving breastfeeding outcomes and reducing maternal discomfort (Mahdizadeh-Shahri et al., 2021). Other studies also reported that jasmine aromatherapy could reduce anxiety and improve maternal psychological well-being (Hugo et al., 2025). Therefore, the combination of Oketani massage and jasmine aromatherapy may be considered an effective complementary intervention to support both physiological and psychological conditions among primiparous postpartum mothers. Psychological conditions play an important role in the breastfeeding process. Anxiety, stress, and emotional instability may inhibit oxytocin release and interfere with the let-down reflex, resulting in inadequate breast milk production. Therefore, interventions that improve maternal relaxation and emotional comfort are essential to support successful breastfeeding during the postpartum period.

CONCLUSION

The combination of Oketani massage with jasmine aromatherapy twice daily (morning and evening) for 7 days affected prolactin hormone levels using the ELFA method and anxiety levels using the PSAS questionnaire in primiparous postpartum mothers. The results of this study were shown by an average difference in prolactin hormone levels of 111.55 ng/ml and a decrease in anxiety scores of 34.32 in the intervention group.

REFERENCES

Hugo, V., Mascarenhas, A., Caroci-becker, A., Nick, J. M., Sahin, S., Teresa, R., & Luiza, M. (2025). Effectiveness of aromatherapy on physiological and psychological symptoms during pregnancy: A systematic review and meta-analysis. Elsevier, 95(November). https://doi.org/https://doi.org/10.1016/j.ctim.2025.103279

Lajuna, L., & Sriyanti, C. (2025). The influence of psychological factors on breast milk production among breastfeeding mother. Science Midwifery, 13(2).

Layyinah, N. U., & Abidin, Z. (2023). The Experience of Primiparous Mothers in Regulating Emotions during the Postpartum Period. Bulletin of Counseling and Psychotherapy, 5(1), 38–48.

Mahdizadeh-Shahri, M., Nourian, M., Varzeshnejad, M., & Nasiri, M. (2021). The Effect of Oketani Breast Massage on Successful Breastfeeding, Mothers' Need for Breastfeeding Support, and Breastfeeding Self-Efficacy: An Experimental Study. International Journal of Therapeutic Massage & Bodywork, 14(3), 4–14. https://doi.org/10.3822/ijtmb.v14i3.625

Nagel, E. M., Howland, M. A., Pando, C., Stang, J., Mason, S. M., Fields, D. A., & Demerath, E. W. (2022). Maternal Psychological Distress and Lactation and Breastfeeding Outcomes: A Narrative Review. Clinical Therapeutics, 44(2), 215–227. https://doi.org/10.1016/j.clinthera.2021.11.007

Restyo, V. A., & Maulina, R. (2026). The Effect of Lactation Massage on Breast Milk Production in Postpartum Mothers. Health and Technology Journal, 04(02), 167–173.

S, M. (2024). THE APPLICATION OF OKETANI MASSAGE IN INCREASING BREAST MILK PRODUCTION IN POST-CESAREAN SECTION MOTHERS. Getsempena Health Science Journal, 3, 160–168. https://doi.org/10.46244/ghsj.v3i2.1651

Sakinah, Pamungkasari, Poncorini, E., & Prasetya Hanung. (2023). Do Massage and Relaxation Music Therapy Increase Breast Milk Volume? A Meta-Analysis. Journal of Maternal and Child Health, 08(1), 33–47.

Suryani, N. (2024). The Effect of Lactation Massage on Breast Milk Production in Postpartum Mothers at The PAMC Garut Clinic. Nursing Case Insight Journal, 2(2), 41–44.

Virmani, S. (2025). Massage Therapy as an Effective Intervention for Stress Reduction: A. Indian Journal of Ayurveda and AlternaΘve Medicines, 2(2), 26–30. https://doi.org/https://doi.org/10.36676/jaam.v2.i2.38

Xiong, X., Jin, H., Hu, W., Zeng, C., Huang, Q., Cui, X., Zhang, M., & Jin, Y. (2023). Benefits of Jasminum Polyanthum's Natural Aromas on Human Emotions and Moods. Urban Forestry & Urban Greening, 86, 128010. https://doi.org/10.1016/j.ufug.2023.128010