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JASMINE AROMATHERAPY TO REDUCING AFTERPAIN PAIN SCALE IN POSTPARTUM MOTHERS AT IBRAHIM ADJIE HEALTH CENTER

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Abstract **Background**: Approximately 50% of first-time mothers and 86% of mothers who have given birth more than once experience afterpains following spontaneous delivery. Management of postpartum pain is necessary to ensure mothers feel comfortable and to prevent negative impacts on their maternal functions and experiences. . Jasmine aromatherapy contains linalool and benzyl acetate, which can enhance relaxation and calmness, thereby reducing pain levels.
Objectives: The aim of this study was to determine the effect of jasmine aromatherapy on postpartum pain levels in postpartum mothers
Method: This study used a quantitative analytical one-group pretest-posttest research method. The population in this study was postpartum mothers at the Ibrahim Adjie Community Health Center. The sampling technique used consecutive sampling with a sample size of 29 people. The intervention involved administering jasmine aromatherapy using an aromapatch with 5 drops, placed 10 cm from the nose for 15 minutes, performed twice when the mother experienced afterpain, over a period of 3 days.
Results: The study results showed an average pain scale score of 3.53 before jasmine aromatherapy administration and 2.24 after administration. Based on the results of the paired t-test analysis, the p-value was 0.000 (< 0.05), indicating that jasmine aromatherapy had an effect on the postpartum pain scale in postpartum women at the Ibrahim Adjie Health Center.
Conclusion: This study concluded that jasmine aromatherapy could affect the postpartum pain scale in postpartum women at the Ibrahim Adjie Health Center. It is hoped that this aromatherapy administration can be applied as complementary care in midwifery practice, particularly for afterpain management during the postpartum period.

Keywords: afterpain, jasmine aromatherapy, postpartum women.

BACKGROUND

The postpartum period is a critical phase that begins after the delivery of the placenta and continues until the uterus returns to its pre-pregnancy state. During this phase, mothers experience significant physiological changes, particularly in the reproductive organs, namely the uterus (1). One of the main changes is uterine involution, which is the process of the uterus returning to its original size through contractions that often cause pain known as afterpains. Uterine contractions are triggered by the hormone oxytocin, released by the pituitary gland to aid in homeostasis and stop postpartum bleeding. Although part of the physiological process, these contractions often cause cramping or lower abdominal pain that can be quite disruptive (2).

The prevalence of afterpains is quite high, especially among multiparous women, reaching 86%, compared to 50% among primiparous women (3). This pain can last for several days to weeks after childbirth, and in some cases, it may persist as chronic pain (4). Afterpains can occur on days 3–10 of the postpartum period (5). Pain that is not effectively managed can affect mobility, rest, eating patterns, sleep, mood, daily activities, and the mother's role in caring for the baby (6). Additionally, uncontrolled postpartum pain also carries the risk of triggering serious complications, such as psychological disorders (postpartum depression, anxiety), lactation disorders, infections due to a weakened immune system, and may even increase the risk of bleeding and slow down the uterine involution process (7).

Studies indicate that ineffective pain management can delay the recovery process by up to 40% and increase the risk of postpartum complications by 35% (8)(9). The long-term consequences may even impact the mother's reproductive and psychological health in the future. Therefore, managing afterpain is an important aspect of postpartum care.

Various pain management methods have been developed, both pharmacological and non-pharmacological. The use of pharmacological analgesics can have side effects on the lactation process (10), thereby encouraging the development of safer non-pharmacological approaches. One non-pharmacological method that is increasingly being used is aromatherapy. Aromatherapy works through the limbic system by influencing the release of brain chemicals such as endorphins and serotonin, which can reduce pain and create a sense of relaxation (11).

Previous studies have demonstrated the effectiveness of aromatherapy using various essential oils, including jasmine essential oil (Jasminum sambac). Jasmine contains primarily linalool and benzyl acetate, which act as natural sedatives, providing analgesic effects, calming the nervous system, improving mood, and reducing pain. Several studies have proven the effects of jasmine aromatherapy in reducing post-cesarean section pain, dysmenorrhea, and pain from wounds; however, research on its effects on postpartum pain in mothers is still very limited (12)(13).

The city of Bandung, particularly in the service area of the Ibrahim Adjie Health Center, shows a relatively high number of postpartum mothers, with 650 postpartum mothers in 2022 (14). The Ibrahim Adjie Community Health Center was chosen as the research location because it is a community health center with a wide range of services and high accessibility in a densely populated area of Bandung City, making it representative for data collection.

METHODS

S*tudy setting and design*

This study used a pre-experimental design with a one-group pretest-posttest approach. The intervention consisted of jasmine aromatherapy using an aromapatch with 5 drops of jasmine oil, placed 10 cm from the nose and inhaled for 15 minutes. The intervention was conducted twice daily for three days during the period when the mothers

experienced postpartum pain. The study was conducted at the Ibrahim Adjie Health Center in Bandung City from February to April 2025.

Study population and sampling procedure

The population in this study was all postpartum mothers undergoing the postpartum period at the Ibrahim Adjie Community Health Center. The sample in this study was taken using consecutive sampling technique, which is sampling based on inclusion and exclusion criteria in sequence according to subject availability until the sample size was met. The sample size in this study was 29 postpartum mothers.

Data Collection and Variable measurement

Data collection was conducted using direct measurement of postpartum pain using the Numeric Rating Scale (NRS), a numerical scale ranging from 0 to 10, where 0 indicates no pain and 10 indicates severe pain (15).The collected data were then analyzed using a Paired t-test to determine whether there was a difference in the average pain scale before and after the administration of jasmine aromatherapy intervention.

Ethic Consideration

The studies involving human participants were reviewed and approved by the Research Ethic Committee from Poltekkes Kemenkes Bandung (No.24/KEPK/EC/II/2025). The participants provided their written informed consent to participate in this study.

RESULT AND DISCUSSION

Table 1 shows that out of 29 respondents, the majority of postpartum mothers in this study were aged 20–35 years (21 people, 72.4%), the majority had three children (12 people, 41.4%), the majority were housewives (23 people, 79.3%), and all respondents exclusively breastfed their babies (100%).

Table 1. Demographic Characteristic of Respondents

Demographic Characteristic	Frequency (n)	Percentage (%)
Age		
<20 y.o	0	0
20 – 35 y.o	21	72,40
>35 y.o	8	27,60
Parity		
2	9	31,00
3	12	41,40
4	8	27,60
Occupation		
No working	23	79,30
Working	6	20,70
Breastfeeding		
Yes	29	100,00
No	0	0
Total	29	100,00

Uterine elasticity and contractility decrease with age (16). Higher parity levels cause uterine muscles to stretch and weaken further, while the lumen and volume of blood vessels increase (17). Working mothers may be more likely to experience more intense pain due to fatigue and stress from work, while stay-at-home mothers with family support are better able to manage pain (18). All respondents were breastfeeding, which increases the intensity of afterpains because the baby's sucking triggers the release of oxytocin and causes uterine contractions (19).

Table 2 shows that a study on jasmine aromatherapy among 29 postpartum mothers demonstrated a decrease in the average afterpain pain scale of 1.29 with a more

homogeneous standard deviation after intervention (0.59 vs. 0.74). Uterine involution involves three simultaneous mechanisms: autolysis through proteolytic enzymes, myometrial ischemia due to reduced blood flow, and increased oxytocin effects alongside decreased estrogen and progesterone levels (17).

Table 2. Afterpain Pain Scale Before and After Jasmine Aromatherapy was given to Postpartum Mothers

Treatment (N=29)	Mean	SD
Before intervention	3,53	0,74
After intervention	2,24	0,59

Jasmine essential oil contains the bioactive compounds linalool and benzyl acetate, which have antinociceptive effects by reducing pain intensity by up to 40% through modulation of the central nervous system and inhibition of inflammatory mediators (20). Various studies support the effectiveness of jasmine aromatherapy, such as the study by Widyastuti et al. (2020), which showed a significant reduction in pain after 15 minutes of inhalation, and the study by Pratiwi et al. (2021), which reported a decrease in pain scores from 4.2 to 2.5 (21)(22). The mechanism of action of jasmine aromatherapy works through the olfactory pathway, which influences the limbic system to modulate pain perception, improve mood, and reduce anxiety, thereby proving effective as a non-pharmacological method in postpartum pain management, although it still has methodological limitations (23).

Table 4.3, the results of the bivariate analysis using a paired sample t-test showed a p-value of 0.000 ($p<0.05$), proving the significant effect of jasmine aromatherapy on reducing the afterpain pain scale in postpartum mothers.

Table 3. Effect of Jasmine Aromatherapy on Afterpain Pain Scale in Postpartum Mothers

Treatment (N=29)	Mean	SD	P Value
Before intervention	3,53	0,74	0,00
After intervention	2,24	0,59	

This finding is supported by the study by Ariestantia et al. (2023), which showed a significant reduction in postpartum pain in the intervention group compared to the control group ($p=0.001$) through the combination of jasmine aromatherapy and herbal ball compresses (24). Jasmine aromatherapy works by influencing the release of endorphins as the body's natural analgesics and reducing cortisol levels, a stress hormone that can exacerbate pain perception, as well as providing a relaxing effect on the contracting uterine muscles during the postpartum period (25).

The effectiveness of jasmine aromatherapy is explained by Melzack and Wall's gate control theory, where aromatherapy works by modulating pain impulses in the substantia gelatinosa of the spinal cord and closing the “gate” of pain when non-pain sensory stimulation reaches the brain faster than pain impulses (22). The mechanism of action involves olfactory receptors that transmit impulses through the olfactory nerve to the limbic system and hypothalamus, activating the release of enkephalins and endorphins as natural analgesics, and stimulating large-diameter A-beta nerve fibers to inhibit pain transmission through small-diameter C and A-delta fibers. Benzyl acetate in jasmine aromatherapy plays a role in this pain gate closure mechanism as the theoretical basis for pain relief (26).

A systematic review (2022) supports the effectiveness of aromatherapy in reducing postpartum physiological pain, including afterpains, episiotomy pain, and post-cesarean section pain, using various administration methods such as inhalation, essential oil baths, and topical application (27). Aromatherapy is considered a non-invasive and natural method that can support the physical and psychological comfort of postpartum mothers

without serious side effects, even providing additional benefits such as improved sleep quality and better mood (20).

Although the results show a significant effect and are consistent with previous studies, this study has methodological limitations in the form of a single-group design without a control group and the potential influence of other factors such as the body's natural healing mechanisms and physiological adaptation to postpartum pain. Therefore, further research with a better design and the use of more objective pain markers is needed to reduce respondent subjectivity bias.

CONCLUSION

The results of the study conducted at the Ibrahim Adjie Health Center from February to April 2025 led to the following conclusions:

1. The characteristics of the respondents in this study were predominantly aged 20–35 years, had three children, were housewives, and were breastfeeding their infants.
2. The average pain scale for afterpain before aromatherapy was 3.53, while after the intervention, the average value was 2.24.
3. The paired t-test yielded a p-value of 0.000 ($p<0.05$). This indicates that jasmine aromatherapy has an effect on the afterpain pain scale among postpartum women at the Ibrahim Adjie Health Center.

COMPETING INTERESTS

All authors had none to declare

AUTHOR'S CONTRIBUTION

All authors contributed to the final manuscript.

REFERENCES

1. Yuliana, W., & Hakim, BN. 2020. Emodemo dalam asuhan kebidanan masa nifas. Yayasan Ahmar Cendekia Indonesia. Sulawesi Selatan.
2. Danur Jayanti, N., & Indah Mayasari, S. 2022. Asuhan komplementer tatalaksana afterpain pada ibu postpartum: Literature review. Jurnal MID-Z (Midwifery Zigot): Jurnal Ilmiah Kebidanan, 5(1); 22–28.
3. Namboothiri, SP. 2021. Afterpain: An overview. Issues in Development and Health Research, 2; 65–70.
4. Yuli Astutik, R., & Purwandari, ES. 2022. Pendampingan ibu postpartum multipara dalam penurunan keluhan afterpain di Kabupaten Kediri. Jurnal Inovasi dan Pengabdian Masyarakat Indonesia, 1(3); 14–18.
5. Namboothiri, S., & Viswanath, L. 2016. Nature and characteristics of after pain among postnatal mothers admitted in a tertiary care hospital in South India. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, (August); 3041–3045
6. Maryani, D., & Himalaya, D. 2020. Efek aroma terapi lavender mengurangi nyeri nifas. Jurnal Midwifery, 8(1); 11–16.
7. Kemenkes RI.. 2020. Profil kesehatan Indonesia. http://kemkes.go.id. Diakses 17 November 2024/
8. Boushra. 2024. Postpartum infection. In StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK560804/.
9. Safaah. 2019. Perbedaan efektivitas aromaterapi lavender dan aromaterapi peppermint terhadap nyeri pada pasien post-sectio caesarea di RSUD Ajibarang. Journal of Bionursing. https://doi.org/10.20884/1.bion.2019.1.1.10
10. Juwita, D. R., Faradani, N., & Wibowo, M. I. N. A. 2019. Studi Penggunaan Obat Analgesik pada Pasien Pasca Partus Pervaginal dan Sectio Caesarea di RSU

Bunda Purwokerto. PHARMACY: Jurnal Farmasi Indonesia (Pharmaceutical Journal of Indonesia), 16(2); 265–277. https://doi.org/10.30595/pharmacy.v16i2.5627

11. Irawati, N. B. U., & Xanda, A. N. 2021. Ginger aromatherapy (Zingiber officinale) against post partum pain. Jurnal Kebidanan Malahayati (JKM), 8(1); 25–31.
12. Dewi Utaminingsih, T., Agustina, R., Misnawati, Z., & Sandiana, P. 2023. Pengaruh kombinasi genggam jari dan aromaterapi jasmine terhadap nyeri pasien post operasi sectio caesarea. Comserva: Jurnal Penelitian dan Pengabdian Masyarakat, 2(12); 3122–3130.
13. Wahyu, H., & Lina, L. F. 2019. Terapi kompres hangat dengan aroma jasmine essential oil terhadap penurunan intensitas nyeri pada pasien post sectio caesarea. Jurnal Telenursing, 1(2); 406–415.
14. Dinas Kesehatan Kota Bandung. 2022. Open data Kota Bandung 2019–2022. https://opendata.bandung.go.id/. Diakses 6 Mei 2024.
15. Atisook, R., Euasobhon, P., Saengsanon, A., & Jensen, M. P. 2021. Validity and Utility of Four Pain Intensity Measures for Use in International Research. Journal of pain research, 14; 1129–1139. https://doi.org/10.2147/JPR.S303305
16. Bertone, A. C., & Dekker, R. L. 2021. Aromatherapy in obstetrics: A critical review of the literature. Clinical Obstetrics and Gynecology, 64(3); 572–588.
17. Astuti, E., & Dinarsi, H. 2022. Analisis proses involusi uterus pada ibu post partum hari ke tiga di praktik bidan mandiri Lystiani Gresik. Kebidanan, 11(1); 22–26. https://jurnal.stikeswilliambooth.ac.id/index.php/Keb/article/view/342
18. Fadilah, S. 2021. Penatalaksanaan afterpain pada ibu post partum multipara hari ke 2–4 dengan terapinya di BPM Siti Azizah Wijaya S.St Sukolilo Bangkalan. https://repository.stikesnhm.ac.id/id/eprint/1132/1/18154010016-2021-MANUSCRIPT.pdf. Diakses 19 Mei 2025
19. Aworinde, O. 2021. Oral Paracetamol versus oral Diclofenac in the control of uterine cramping pain after vaginal birth: CONTROL OF AFTER PAIN. Ethiopian Medical Journal, 59(04). Avalilable from https://doi.org/10.22038/jmrh.2013.1916
20. Lalitkumar, K. V., Gholap, A. D., Hatvate, N. T., Naren, P., Khan, S., Chavda, V. P., Balar, P. C., Gandhi, J., & Khatri, D. K. 2024. Essential oils for clinical aromatherapy: A comprehensive review. Journal of Ethnopharmacology, 330, 118180. https://doi.org/10.1016/j.jep.2024.118180
21. Widyastuti, Y., Rahmawati, A., & Purwaningsih, H. 2020. Efektivitas aromaterapi jasmine terhadap intensitas nyeri afterpain pada ibu nifas di Puskesmas Mlati II Sleman. Jurnal Kebidanan dan Keperawatan, 16(1); 43–51.
22. Maulida, R., Sari, G. N., & Fadila, A. 2023. Mekanisme neurofisiologis aromaterapi terhadap modulasi nyeri: Tinjauan sistematis. Jurnal Kebidanan dan Kesehatan, 10(2); 114–123.
23. Prayusi, A. 2016. Pengaruh pemberian terapi wewangian bunga lavender secara oles terhadap skala nyeri pada klien infark miokardium di CVCI RSUP Dr. Jamil Padang. Jurnal Kesehatan, 3(2); 8.
24. Ariestantia, A., dkk. 2023. Efektivitas kombinasi terapi komplementer herbal kompress ball dengan aromaterapi jasmine untuk mengurangi afterpain pada masa nifas. Jurnal Media Informasi (JUMIN), 5(1); 89–95.
25. Gebhart, G. F., & Schmidt, R. F. (Eds.). 2019. Encyclopedia of pain (2nd ed.). Springer. https://doi.org/10.1007/978-3-642-28753-4
26. Soares GABe, Bhattacharya T, Chakrabarti T, Tagde P, Cavalu S. 2022. Exploring Pharmacological Mechanisms of Essential Oils on the Central Nervous System. Plants. 11(1):21. https://doi.org/10.3390/plants11010021
27. Tsai, Shuo-Shin et al. 2020. The Effects of Aromatherapy on Postpartum Women: A Systematic Review. The journal of nursing research : JNR vol. 28,3. e96. doi:10.1097/jnr.0000000000000331.