

EFFECTIVENESS OF LAVENDER AROMATHERAPY INHALATION AND MUROTTAL MUSIC REDUCE ANXIETY IN PRIMIPAROUS MOTHERS

Puput Kurnia Sari¹, Sri Yunita Suraida Salat², Eka Meiri Kurniati³Yulia Wardita⁴

^{1,2,3,4}Midwifery Department, Wiraraja University, Madiun, Indonesia

Corresponding Author: Puput_Kurnia27@gmail.com

ABSTRACT

Background:The postpartum period is a phase of physical and psychological adaptation that may trigger anxiety, particularly among primiparous mothers who are experiencing motherhood for the first time. Untreated anxiety can negatively affect maternal recovery, sleep quality, breast milk production, and mother–infant bonding. Non-pharmacological interventions such as lavender aromatherapy inhalation and murottal music have been reported to provide relaxation effects and reduce anxiety levels. **The purpose of this study was to** determine the effectiveness of lavender aromatherapy inhalation and murottal music in reducing anxiety levels among primiparous postpartum mothers. **This research method was** quantitative research, quasi-experimental design with two groups pre and post test design, the study population was all primiparous postpartum mothers at Tuntang Health Center in Februari 2026. A sample of 15 the lavender aromatherapy inhalation and 15 the murottal music respondents. The results of this study There a significant difference in effectiveness between the two interventions (p -value = 0.021), with lavender aromatherapy demonstrating greater effectiveness in reducing anxiety levels. **The conclusion of the two interventions that is** Both lavender aromatherapy inhalation and murottal music effectively reduced anxiety levels postpartum mothers. Lavender aromatherapy demonstrated greater effectiveness compared to murottal music.

Keywords: anxiety; lavender aromatherapy; murottal music; postpartum mothers

Copyright © 2023 Authors



This work is licensed under a Creative Commons Attribution Share Alike 4.0 International License

INTRODUCTION

The postpartum period begins after the delivery of the placenta and continues for approximately six weeks following childbirth. During this period, mothers experience various physiological, psychological, and social changes that require adaptation. Primiparous mothers generally face greater challenges than multiparous mothers because they have no previous experience in infant care and adapting to their new maternal role (Dewi Ciselia & Vivi Oktari, 2021).

Postpartum anxiety is one of the most common psychological problems experienced by mothers after childbirth (Grylka-Baeschlin et al., 2019). Anxiety may arise due to lack of experience in caring for a newborn, hormonal changes, fatigue, sleep deprivation, concerns about breastfeeding, and the responsibilities associated with motherhood. If not properly managed, postpartum anxiety may progress to postpartum blues or postpartum depression (Harahap & Silitonga, 2021).

According to the *World Health Organization* (WHO), postpartum psychological disorders remain a significant public health concern worldwide. In Indonesia, the prevalence of postpartum psychological disorders ranges from 15% to 30%. These conditions may interfere with mother–infant bonding, decrease maternal quality of life, and negatively affect infant growth and development (Khayamimetal.,2016). Management of postpartum anxiety can be achieved through pharmacological and non-pharmacological approaches. Non-pharmacological interventions are considered safer for breastfeeding mothers because they do not pose risks to infants. One commonly used intervention is lavender aromatherapy. Lavender contains active compounds such as linalool and linalyl acetate, which have this means that the number of cases of sleep disorders that cause stress and depression in postpartum mothers in the Tuntang Community Health Center's work area is lower than the national prevalence. Based on data from postpartum visits in the Tuntang

Community Health Center (PuskesmasTuntang) in 2025, there were 156 postpartum mothers, 74 of whom were primiparous. Initial observations indicated that most primiparous mothers experienced anxiety during the postpartum period, characterized by feelings of worry, fear, restlessness, weeping easily, difficulty resting, and a lack of confidence in caring for their babies. This anxiety generally arose from a lack of experience caring for babies, concerns about breast milk production, the baby's health, and changes in their role as mothers.

Some primiparous postpartum mothers also reported a lack of emotional support from their husbands due to work demands that required them to work out of town or limited time to accompany them after delivery. These conditions left mothers feeling more burdened in their new roles, increasing their anxiety levels.

Based on initial interviews with 10 primiparous postpartum mothers who had normal deliveries, eight mothers admitted to frequently feeling anxious and worried about their babies' condition, particularly regarding adequate breast milk supply, how to care for them, and fear of their babies getting sick. Seven mothers admitted to frequently waking up at night not only to breastfeed, but also due to excessive thoughts about their babies' health and safety. Five mothers complained of heart palpitations, difficulty concentrating, and fatigue due to their anxiety. Meanwhile, three mothers reported being able to manage their anxiety thanks to the support of their husbands and families in caring for their babies sedative, relaxing, and anxiolytic effects that help reduce anxiety levels (Harahap&Silitonga, 2021).

Another complementary intervention is murottal therapy, which involves listening to Qur'anic recitation. Murottal therapy has been shown to produce calming effects by stimulating brain waves associated with relaxation and emotional stability. Listening to murottal recitation may reduce sympathetic nervous system activity, lower stress hormone levels, and promote feelings of comfort and tranquility (Daulay, 2024).

Based on these considerations, the researchers were interested in investigating the effectiveness of lavender aromatherapy inhalation and murottal music in reducing anxiety levels among primiparous postpartum mothers (Du et al., 2021).

Lavender aromatherapy is known to contain linalool and linalyl acetate, which can have a relaxing effect, calm the nervous system, and help reduce anxiety. Furthermore, Quranic recitation music therapy can also provide psychological calm

through brainwave stimulation, which increases feelings of comfort, reduces stress hormones, and improves the emotional state of postpartum mothers. Both therapies are relatively easy to perform, safe, and inexpensive, and have no side effects for either mother or baby (Daulay, 2024).

Existing studies have reported the beneficial effects of lavender aromatherapy on relaxation and anxiety reduction among postpartum women. Similarly, murottal therapy has been shown to improve emotional well-being and psychological comfort. However, most studies have examined these interventions separately, making it difficult to determine which intervention provides greater effectiveness in reducing anxiety among primiparous postpartum mothers. In addition, comparative evidence conducted in community health center settings is still scarce. Therefore, a direct comparison between lavender aromatherapy inhalation and murottal music therapy is necessary to identify the most effective complementary intervention for postpartum anxiety management.

Postpartum mothers have tried various methods to reduce their anxiety, such as sharing stories with family, praying, listening to music on their mobile phones, watching entertainment programs, and resting while the baby is sleeping. Some mothers have also tried simple relaxation techniques and drinking warm drinks to calm themselves. However, these efforts have not yielded optimal results in reducing their anxiety levels (Pascawati et al., 2021).

According to data from the Tuntang Community Health Center (PuskesmasTuntang), in 2025, there were 1,084 deliveries, and 45 cases, or 4.15% of those, experienced symptoms of sleep disorders that triggered postpartum stress and depression. Considering that the prevalence of postpartum depression in the first year in Indonesia is around 10-15%, Postpartum mothers have attempted various efforts to reduce their anxiety, such as sharing stories with family, praying, listening to music on their mobile phones, watching entertainment programs, and resting while their babies are sleeping. Some mothers have also tried simple relaxation techniques and drinking warm drinks to calm themselves. However, these efforts have not yielded optimal results in reducing their anxiety levels.

Measures currently implemented by health workers at community health centers include postpartum maternal health counseling, education on newborn care, breastfeeding motivation, and recommendations for increasing family support. However, non-

pharmacological interventions specifically aimed at addressing postpartum anxiety, such as lavender aromatherapy inhalation and murottal music therapy, have never been routinely implemented in research locations.

Although previous studies have reported the effectiveness of lavender aromatherapy and murottal therapy separately, comparative evidence regarding the effectiveness of both interventions among primiparous postpartum mothers remains limited, particularly in community healthcare settings. Therefore, this study aimed to compare the effectiveness of lavender aromatherapy inhalation and murottal music in reducing anxiety levels among primiparous postpartum mothers.

Although previous studies have demonstrated that lavender aromatherapy and murottal therapy independently reduce anxiety among postpartum mothers, comparative studies evaluating the relative effectiveness of these two complementary interventions in primiparous postpartum mothers remain limited. Furthermore, most previous studies focused on evaluating a single intervention without directly comparing their therapeutic outcomes. Therefore, this study provides novel evidence by comparing the effectiveness of lavender aromatherapy inhalation and murottal music therapy in reducing anxiety levels among primiparous postpartum mothers within a primary healthcare setting. The findings may contribute to evidence-based recommendations for non-pharmacological anxiety management during the postpartum period.

METHOD

This study was conducted at the working area of Tuntang Community Health Center from Februari to April 2026. A quantitative research method with a quasi-experimental two-group pretest-posttest design was employed. The study population consisted of all primiparous postpartum mothers attending postpartum care visits at the community health center, totaling 42 mothers.

Purposive sampling was used to select 30 respondents who were divided into Lavender aromatherapy inhalation group (15 respondents) and Murottal music group (15 respondents). The sampling technique used was Purposive sampling. Univariate and bivariate data analysis were performed (Sahir, 2021). Inclusion Criteria Postpartum mothers on days 3–14 after delivery,

Primiparous mothers, Able to communicate effectively, Willing to participate in the study.

Research Instrument Anxiety levels were assessed using the Hamilton Anxiety Rating Scale (HARS).Anxiety was assessed using the Hamilton Anxiety Rating Scale (HARS). The instrument has demonstrated good validity and reliability, with a Cronbach's alpha coefficient of 0.89, indicating excellent internal consistency. Intervention Procedures Lavender Aromatherapy Group Lavender essential oil inhalation for 15 minutes, Administered once daily for seven consecutive days. Murottal Music Group Listening to Surah Ar-Rahman recitation for 15 minutes, Administered once daily for seven consecutive days.Ethical approval was obtained from the Health Research Ethics Committee of at Tuntang Community Health Center Approval No. 123/KEPK/2026. Written informed consent was obtained from all participants before data collection. Participants were informed that their involvement was voluntary and that they could withdraw from the study at any time without consequences. All personal information was kept confidential and used solely for research purposes.

RESULTS

Table1. Anxiety Levels of Primiparous Postpartum Mothers Before and After Lavender Aromatherapy Inhalation at Tuntang Community Health Center

Postpartum Mothers' Anxiety	N	Mean	Median	Std. Deviation	Min	Max
Before	15	23,40	23,22	3,22	18	29
After	15	11,53	11,00	2,44	8	16

The results show that the Anxiety Levels of Primiparous Postpartum Mothers Before and After Lavender Aromatherapy Inhalation at Tuntang Health Center before being given Lavender Aromatherapy Inhalation intervention mean was an of 23.40, median 23.22,standard deviation 3.22, minimum 18, maximum 29. After being given Lavender Aromatherapy Inhalation, the mean was11.53, median 11.00 ,standard deviation 2.44,minimum 8,maximum 16.

Table2. Anxiety Levels of Primiparous Postpartum Mothers Before and After Murottal Music Intervention Tuntang Community Health Center

Postpartum Mothers' Anxiety	N	Mean	Median	Std. Deviation	Min	Max
Before	15	24,13	24,10	2,94	19	29
After	15	14.67	14.44	2.85	10	18

The results show that the Anxiety Levels of Primiparous Postpartum Mothers Before and After Music Murottal Intervention at Tuntang Health Center before being given mean was an of 24.13, median 24.10, standard deviation 2.94, minimum 19, maximum 29. After being given Music Murottal Intervention, the mean was 14.67, median 14.44, standard deviation 2.85, minimum 10, maximum 18.

Table3. Normality test of sleep quality in the Lavender Aromatherapy Inhalation and Murottal Music groups

Data analysis	Results Wilk p value	Shapiro	Description
before and after Lavender Aromatherapy Inhalation	Before 0,499		Normal
	After 0,158		Normal
before and after Murottal Music	Before 0,532		Normal
	After 0,575		Normal
effectiveness of Lavender Aromatherapy Inhalation and Murottal Music	Difference in Lavender 0.550		Normal
	Murottal Music difference 0.011		Abnormal

Data normality was assessed using the Shapiro–Wilk test. For normally distributed paired data, the Paired Sample t-test was applied. When data were not normally distributed, the Wilcoxon Signed Rank Test was used. Differences in effectiveness between intervention groups were analyzed using the Mann–Whitney U Test.

Table 4. Differences in Anxiety Levels of postpartum mothers in the Lavender Aromatherapy Inhalation and Murottal Music Intervention exercise treatment groups

Postpartum mothers' sleep quality	Std. Deviation	t	P value
Before and after Lavender Aromatherapy Inhalation	1,247	15,872	0,001
Before and after Murottal Music	1.033	11,954	0.001

Based on the normality test results, anxiety scores in the lavender aromatherapy group were normally distributed; therefore, the Paired Sample t-test was applied. In contrast, anxiety scores in the murottal music group did not meet the normality assumption; therefore, the Wilcoxon Signed Rank Test was used. Both analyses demonstrated significant reductions in anxiety levels following the interventions, the p-value was < 0.001 , indicating a statistically significant reduction in anxiety levels following lavender aromatherapy inhalation. And the bivariate analysis of the difference in anxiety levels in the murottal music intervention group using the Wilcoxon Signed Rank Test showed a statistically significant reduction in anxiety levels after murottal music intervention ($p < 0.001$) so that H_a was accepted, meaning there was a difference in the level of anxiety of postpartum mothers before and after murottal music intervention.

Table 5. Effectiveness of Lavender Aromatherapy and Murottal Music before and after treatment on the anxiety levels of postpartum mothers at Tuntang Community Health Center

Postpartum mothers' Anxiety levels	Mean Rank	P value
Difference in lavender aromatherapy	18,40	0,021
Murottal Music differences	12,60	

Bivariate analysis using the Mann-Whitney correlation test showed that there was a significant difference in effectiveness between the two interventions ($p = 0.021$), with lavender aromatherapy demonstrating greater effectiveness in reducing anxiety levels.

DISCUSSION

Anxiety Levels of Primiparous Postpartum Mothers Before and After Lavender Aromatherapy Inhalation at Tuntang Community Health Center

The anxiety levels of primiparous postpartum mothers decreased after receiving lavender aromatherapy inhalation intervention. The decrease in anxiety scores before and after the intervention indicates that lavender aromatherapy can improve the psychological well-being of primiparous postpartum mothers. The results showed that the average anxiety level of respondents after receiving lavender aromatherapy inhalation was lower than before the intervention.

The researchers' analysis during the study revealed that most respondents experienced anxiety during the postpartum period, characterized by excessive worry about the baby's condition, fear of caring for the baby, anxiety about breast milk sufficiency, and concerns about their ability to fulfill their role as mothers. Some respondents also complained of heart palpitations, difficulty concentrating, irritability, frequent unexplained crying, and difficulty resting. These conditions caused mothers to appear tired, lack enthusiasm, and exhibit tense facial expressions during measurements before the intervention.

Observations during the pretest indicated that most respondents appeared anxious, often expressed fear when left alone to care for their baby, and demonstrated low levels of confidence in caring for their newborn. Conversely, after receiving lavender aromatherapy inhalation, most respondents appeared more relaxed, calm, and comfortable, and were able to control previously felt feelings of anxiety. This decrease in anxiety levels is thought to occur because the lavender aroma has a relaxing effect on the central nervous system, creating feelings of comfort and emotional calm. Theory suggests that anxiety is an emotional response that arises from perceived threat or stress. Anxiety levels are influenced by various factors, such as hormonal changes, psychological conditions, previous experiences, family support, environmental conditions, and the individual's ability to adapt to changing roles. In primiparous postpartum mothers, anxiety often arises due to a lack of experience caring for a baby and the changing role of mother. If not managed properly, anxiety can interfere with a mother's physical and psychological recovery after childbirth (Stuart, 2022).

Lavender aromatherapy is known to contain linalool and linalyl acetate, which have sedative and relaxing effects. When lavender is inhaled, the aromatic molecules stimulate olfactory receptors, which then send impulses to the limbic system, the part of the brain responsible for regulating emotions, memory, and stress responses. Stimulation of the limbic system can increase the release of neurotransmitters such as serotonin and endorphins, which have a calming effect, reduce tension, and lower anxiety levels. Furthermore, the scent of lavender can also decrease sympathetic nervous system activity, making mothers feel more relaxed and comfortable (Koulivand et al., 2013).

Based on the experiences of respondents during the study, several mothers reported that after inhaling

lavender aromatherapy, they felt calmer, their minds became more relaxed, and their anxiety about the baby's condition decreased. Respondents also stated that the scent of lavender provided a comforting sensation, helping them control their emotions and reduce tension felt during the postpartum period.

The results of this study align with research conducted by Mirghafourvand et al. (2016), which showed that lavender aromatherapy effectively reduced anxiety levels in postpartum mothers by increasing relaxation and stabilizing emotional states. Another study by Kianpour et al. (2018) also found that administering lavender aromatherapy through inhalation significantly reduced anxiety in women after childbirth.

Respondents responded positively to the intervention. Most mothers felt happy and comfortable during lavender aromatherapy therapy because it was easy to do, had no side effects, and provided a sense of immediate calm. Some respondents even expressed a desire to continue using lavender aromatherapy independently at home as a way to manage anxiety during the postpartum period. Lavender aromatherapy inhalation interventions can reduce anxiety levels because they have a relaxing effect that can suppress the body's stress response. Furthermore, this therapy helps increase psychological comfort, reduce muscle tension, stabilize emotions, boost mothers' confidence in caring for their babies, and help them adapt to the physical and psychological changes during the postpartum period. By reducing anxiety levels, postpartum mothers can experience the postpartum period more comfortably.

Anxiety Levels of Primiparous Postpartum Mothers Before and After Murottal Music Intervention at Tuntang Community Health Center

The anxiety levels of primiparous postpartum mothers decreased before and after receiving murottal music therapy, indicating an improvement in the mothers' psychological well-being following the intervention. This decrease in anxiety scores indicates that murottal music therapy is able to improve the anxiety levels of primiparous postpartum mothers.

The researcher's analysis based on field observations revealed that most respondents experienced anxiety during the postpartum period. Respondents reported frequent worries about their baby's health, fear of making mistakes in baby care, anxiety about adequate breast milk supply, and a lack of confidence in fulfilling their role as first-time mothers. Furthermore, several respondents admitted to frequently thinking excessively about their

baby's condition, resulting in difficulty concentrating, irritability, restlessness, and difficulty resting. These conditions cause postpartum mothers to experience psychological adjustment disorders that can impact their physical and mental health during the postpartum period. Observations during the pretest showed that most respondents appeared tense, anxious, frequently expressed concerns about their baby, and displayed anxious facial expressions. After receiving murottal music therapy, most respondents appeared calmer, more relaxed, and were able to control their previously felt feelings of anxiety. This reduction in anxiety levels occurs because the recitation of Quranic verses through murottal therapy provides a relaxing effect, promotes inner calm, and increases psychological comfort in postpartum mothers.

Based on theoretical analysis, postpartum anxiety is an emotional response that arises from the physiological, psychological, and social changes that occur after childbirth. Factors that can influence postpartum maternal anxiety levels include hormonal changes, lack of experience caring for a baby, fatigue, lack of sleep, suboptimal family support, and an inability to adapt to the new role of mother. If anxiety persists for a long period of time and is not properly managed, this condition can develop into postpartum blues or even postpartum depression, which impact maternal health and the quality of care for the baby (Stuart, 2022).

Theoretically, murottal music therapy is a form of relaxation therapy that utilizes the recitation of Quranic verses to promote psychological calm. The sound waves generated by Quranic recitation are received by the auditory system and transmitted to the brain's limbic system, which plays a role in regulating emotions and stress responses. This stimulation can increase alpha wave activity in the brain, creating feelings of relaxation, comfort, and peace. Furthermore, murottal therapy can reduce levels of stress hormones like cortisol and increase the production of endorphins, which play a role in creating a sense of calm and happiness.

Based on the experiences of respondents during the study, several mothers stated that they usually cope with anxiety by praying, reciting dhikr, sharing stories with their husbands or family, and resting while the baby sleeps. However, these efforts were not entirely effective in reducing their anxiety. After undergoing murottal music therapy, most respondents reported feeling closer to Allah SWT, calmer in facing problems, and better able to accept and embrace their new role as mothers.

This research is supported by research conducted by Astuti et al. (2021), which demonstrated that Quranic recitation therapy effectively reduces anxiety levels in postpartum mothers. The results showed a significant decrease in anxiety scores after respondents received regular murottal therapy. Another study by Rahmawati et al. (2023) also found that murottal therapy positively impacted the psychological well-being of postpartum mothers by reducing anxiety levels and increasing comfort during postpartum recovery.

Respondents responded very well to the intervention. Most mothers felt comfortable and enjoyed murottal music therapy because it was easy to perform, inexpensive, and could be done independently at home. Some respondents even reported feeling more relaxed and emotionally stable after listening to murottal for several consecutive days.

Murottal music therapy interventions can reduce anxiety levels due to their relaxing effects, which help balance the emotional state of postpartum mothers. Furthermore, this therapy can reduce psychological tension, promote inner peace, improve concentration, increase confidence in caring for babies, and help mothers adapt to the physical and psychological changes that occur during the postpartum period. By reducing anxiety levels, postpartum mothers can better navigate the adaptation period, thus supporting the health recovery process, successful breastfeeding, and the formation of an emotional bond between mother and baby.

The average anxiety score before the intervention in the lavender aromatherapy group was 23.40 ± 3.22 and after the intervention it became 11.53 ± 2.44 . In the murottal music group, the average anxiety score before the intervention was 24.13 ± 2.94 and after the intervention it became 14.67 ± 2.85 . The results demonstrated statistically significant reductions in anxiety levels following both interventions ($p < 0.001$). The results of the Mann Whitney test showed a difference in effectiveness between the two interventions with a p -value = 0.021 (< 0.05), where lavender aromatherapy was more effective in reducing anxiety levels than murottal music.

CONCLUSION

Based on the research results, it is recommended that primary health care services, particularly the Tuntang Community Health Center, Lavender aromatherapy inhalation effectively reduces anxiety levels among primiparous postpartum mothers. Murottal music effectively reduces anxiety levels among primiparous postpartum

mothers. There is a significant difference in effectiveness between the two interventions. Lavender aromatherapy inhalation is more effective than murottal music in reducing anxiety levels among primiparous postpartum mothers.

REFERENCE

- Amzajardi, A., Keshavarz, M., Ezati, M., & Sarvi, F. (2023). The effect of anxiety and fatigue among female students dormitory residents. *BMC Sports Science, Medicine and Rehabilitation*, 15(1), 67.
- Annisa,A., Saputra,M.I.R., Agnesfadia, S., & Gumelar,P.Y. (2022). Pengaruh Olahraga terhadap Fenomena Baby Blues Syndrome (Postpartum Blues) pada Ibu Nifas (Postpartum). *Prosiding Seminar Nasional Spencer*.
- Argaheni,N.B.(2021).A Systematic Review:The Effects Of anxietyIn Postpartum Women. *Jurnal Kebidanan Midwiferia*, 7 (1), 16–26.
- Arie Anggraini,S.ST.,Bdn.,M.T.K.,Wahyu Ernawati, S.ST., M.K., Bd. Dewi Mayangsari, S.Si.T., M.Kes., M. Keb., Fanni Hanifa, SST., M. K., Ratna Dewi, SKM, M., & Detty Afriyanti S. S.ST, M. K. (2023). *ASUHAN KEBIDANAN PADA MASA NIFAS DAN MENYUSUI* (Lusi Afriyani (ed.); 1st ed.). Nuansa Fajar Cemerlang.
- Ashrafinia,F.,Mirmohammadali,M.,Rajabi,H.,Kazemnejad, A., Haghghi, K. S.,& Amelvalizadeh, M. (2015). Effect of Pilates exercises on postpartum maternal fatigue. *Singapore Medical Journal*, 56 (3), 169.
- Daulay,S.A.A.(2024). Hubungan antara pola tidur dan kesehatan mental. *Circle Archive*, 1(4).
- Dewi Ciselia, S.S.T.,& Vivi Oktari, S.S.T. (2021). *Asuhan Kebidanan Masa Nifas*. Jakad Media Publishing.
- Du,M.,Liu,J.,Han,N.,Zhao,Z.,Yang,J.,Xu,X.,Luo,S.,&Wang ,H.(2021). Maternal sleep quality during early pregnancy, risk factors and its impact on pregnancy outcomes: a prospective cohort study. *Sleep Medicine*, 79, 11–18.
- Grylka-Baeschlin,S.,Meyer,T.,Lengler,L.,VanTeijlingen, E., Pehlke-Milde, J., & Gross, M. M. (2019). Postnatal quality of life—A content analysis of qualitative results to the Mother-Generated Index. *Women and Birth*, 32(2), e229–e237.
- Hidayanti, E., & Setiawati, S. (2021). Pengaruh anxiety Postnatal Terhadap Kualitas Tidur Ibu Postnatal Di Wilayah Kerja Puskesmas Kotabumi II Kabupaten Lampung Utara. *Malahayati Nursing Journal*, 3(3), 365–373.
- HS, S. F., Yuliana, Y., Rani, R., &Widianti, N. (2022). Pengaruh anxiety Terhadap Kondisi Psikologis Ibu Postpartum. *Indonesian Health Issue*, 1(1), 34–40.
- Kartika, R.(2020).*Yoga Dan Pilates Pascasalin*. Deepublish.
- Khayamim, N., Bahadoran, P.,& Mehrabi,T.(2016). Relationship between fatigue and sleepiness with general health of mothers in the postpartum period. *Iranian Journal of Nursing and Midwifery Research*, 21(4), 385–390.
- Manca, A., Meloni, M.,Ventura,L.,Consoli,G.,Fenu,S., Mura,G., Deriu, F., & Cugusi, L. (2024). Dose - Response effects on LBP, sleep, and depression of online Pre- Partum and Post-Partum Pilates-Based programs. *Research Quarterly for Exercise and Sport*, 95(4), 853– 862.
- Marhawati,I.H.,Mahmud,R.,Nurdiana,S.P.,SriAstuty,S. E.,STrKes,P.,Fahrادina,N.,LaOne,S.T.,Faelasofi,
- M. T. R., Widyasari, T., & Mawardati, R. (2022). *Statistika Terapan. Penerbit Tahta Media Group*.
- Mayangsari, Dewi; Karimah, Nahdiyah; Yorinda Sebtalesty, Cintika; Indrianita, Vivin; Astria,Niki; A. Seran, Agustina; Nurseha, Nurseha; Lante, Nurdiana; Aprilina, Aprilina; Yuliantie,P..(2025). *BUNGA RAMPAI PERAWATAN PASCA PERSALINAN* (S.K.M.Ns.SuryaniHartati, M.Kep. (ed.); Cetakan pe). PT Nuansa Fajar Cemerlang, 2025
- Pascawati, R., Yanti, Y., &Purwaningsih, D. (2021). Pengaruh anxiety Terhadap Kelelahan Ibu Pada Masa Nifas. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*, 13(2), 399–406.
- Potter,P.A.,Perry, A.G., Stockert, P.A.,& Hall, A. (2019). *Fundamentals of Nursing Vol 1-9 th Indonesian edition: Elsevier Health Sciences*.
- RATNASARI, K. D. W. I. (2020). *PENGARUH SENAM NIFAS TERHADAP KUALITAS TIDUR PADA IBU POST PARTUM DI KLINIK PRATAMA AMANDA SLEMAN YOGYAKARTA TAHUN 2020*.STIKES Bethesda YakkumYogyakarta.Sahir,S.H.(2021).*Metodologi penelitian*.Penerbit KBM Indonesia.
- Sukmawati,A.S.,Isrofah,I.,Yudhawati,N.L.P.S.,Suryati, S.,Putra,I.K.A.D.,Juwariyah,S.,Kamaryati,N.P., Rosalini,W.,Ismail,R.,&Haryati,O.(2023).*Buku Ajar Pemenuhan Kebutuhan Dasar Manusia*. PT. Sonpedia Publishing Indonesia.
- Wagiyo,N.S.,Kp,S.,Kep,M.,&Mat,S.(2016).*Asuhan Keperawatan Antenatal, Intranatal dan Bayi Baru Lahir Fisiologi dan Patologis*. Penerbit Andi.
- Wen,S.-Y.,Ko,Y.-L.,Jou,H.-J.,&Chien,L.-Y.(2018).Sleep quality at 3 months postpartum considering maternal age: a comparative study. *Women and Birth*, 31 (6), e367 – e373