ISSN 2985-5667 (Online) | 2985-6353 (Print) | Vol. 1, No. 3, August (2023), pp. 197-203

Published by: IARN Institute

International Journal on Health and Medical Sciences

Journal homepage: https://journals.iarn.or.id/index.php/HealMed/index

The effect of giving lavender aromatherapy to pain in the first stage of labor in motherss

Septiwiyarsih[1], Devina Anggrainy[2], Deby Utami Siska Ariani[3]

[1] STIKes Bhakti Husada Cikarang, Indonesia

[2,3] STIK Bina Husada Palembang, Indonesia

Article Info

Article history:

Received Jul 8, 2023
Revised Jul 12, 2023
Accepted Jul 21, 2023

Keywords:

Aromatheraphy;
Lavender;
Labor pain.

ABSTRACT

As many as 810 mothers die every day from diseases/complications related to pregnancy and childbirth in 2017 and the Maternal Mortality Rate (MMR) is still high in Indonesia. In the process of childbirth there is pain that is physiological in nature but can have bad consequences if not handled properly. Labor pain can be treated in non-pharmacological ways such as aromatherapy. Objective: to determine the effect of giving lavender aromatherapy to pain in the first stage of labor in mothers. Method : pretest-posttest experiment with control group design. The experimental group was given lavender aromatherapy, the control group was not intervention. The study was conducted in to the Midwife Practice Mandiri Nini and Ria at the in June - July 2022. The sample consisted 38 Mother Maternity first Stage. Data were analyzed using paired sample t test and non-parametric Mann Whitney test. The results : the p value of each characteristic in the experimental group and the group control shows a number > 0.05. This means that the characteristics of respondents between groups are equal or homogeneous. Bivariat : the value of P 0.001 in the experimental group and 0.002 in the control group. This is that the lavender aromatherapy for the scale of labor pain. The Non-Parametric Mann Whitney Test results obtained a p value of 0.004 (p <0.05), it can be concluded that there are differences in decreasing labor pain scale in the experimental group and the control group.

Corresponding Author:

Septiwiyarsih,
Prodi Kebidanan ,
STIKes Bhakti Husada Cikarang, Jakarta Indonesia,
Jl. RE. Martadinata, Karangbaru, Cikarang Utara, Bekasi, Jawa Barat 17530, Indonesia
Email : septiwiyarsih@gmail.com

1. INTRODUCTION

As many as 810 mothers die every day from diseases/complications related to pregnancy and childbirth in 2017 and the Maternal Mortality Rate (MMR) is still high in Indonesia. It is estimated that the MMR is 305/100,000 live births in 2015. In 2012 the MMR is 359/100,000 live births. The government's target for 2024 is 232/100,000 live births. Causes of maternal death include hypertension 33.07%, obstetric bleeding 27.03%, non-obstetric complications 15.7%, other obstetric complications 12.04%, infection during pregnancy 6.06% and other causes 4.81% (WHO, 2019)

Childbirth is one of the vulnerable phases with the threat of maternal death. Head of the National Population and Family Planning Agency (BKKBN), Hasto Wardoyo, at the Nairobi Summit in the framework of the 25th ICPD (25th International Conference on Population and Development) held on 12-14 November 2019 stated that the national priority is to end death mothers during pregnancy and

childbirth (Hasto, 2019).

In the process of childbirth there is pain that is physiological in nature but can have bad consequences if not handled properly (Namazi et al., 2014). This labor pain is needed for the progress of labor and the opening of the birth canal (Nuriya et al., 2021). Normal labor pain can cause stress and can cause excessive hormone seeding such as catecholamines and steroids, these hormones can cause smooth muscle and blood vessel vasoconstriction, and can cause decreased contractions, and uterine ischemia arises which makes uterine pain impulses increase during labor (Lamadah, 2016). Labor pain can be treated in non-pharmacological ways such as relaxation and breathing, effleurage and sacral pressure, jet hydrotherapy, Transcutaneous Electrical Nerve Stimulation (TENS), and other techniques such as hypnotherapy, massage, acupressure, aromatherapy, yoga and touch therapeutic (Vakilian, 2018).

One of the relaxation techniques and non-pharmacological measures in treating pain during labor is using lavender aromatherapy (Hatami Rad, 2021). The fragrance produced by lavender aromatherapy will stimulate the thalamus to secrete enkephalins, which function as natural pain relievers (Lane B, 2012). Enkephalin is a neuromodulator that functions to inhibit physiological pain (Nursahidah et al., 2020)

Lavender oil, which is widely used in aromatherapy; It has antidepressant, antibacterial, antiseptic, anti-inflammatory, antifungal, antispasmodic properties (Karatopuk, 2023). It is also known to have diuretic properties, effective for rheumatic pain, stimulant, blood pressure regulator, blood glucose lowering, mast cell degranulation inhibitor, local anesthetic, heart booster, relieves urinary tract inflammation, hair loss, gynecological diseases, burns and wounds (Nikjou et al., 2016)

According to Patimah et al (2020) in her research on aromatherapy for labor pain, it was found that Lavender, Rose, Jasmine, Citrus Aurantium and Boswellia Carterii aromatherapy have been proven effective for reducing labor pain which can be used in various methods such as inhalation, bathing, massage and soaking foot (Patimah & Sundari, 2020).

The results of Zahra's research (2013) showed that the intensity of pain before and after intervention was significantly lower in the latent and active phases of lavender aromatherapy massage groups, and had a lower duration of stage I and II labor (Zahra, 2013). Tabata's research (2020) shows the results that aromatherapy, as a complementary and alternative modality, can help relieve maternal anxiety and pain during labour (Tabatabaeichehr & Mortazavi, 2020).

2. RESEARCH METHOD

The type of research used is experimental research with a pretest-posttest control group design. The experimental group was the group that was given treatment, namely giving lavender aromatherapy during the first stage of the active phase. While the control group is the group that was not given any treatment. The population is primigravida mothers in the active phase I who are 20-35 years old who have no complications for the mother and fetus, with a total sample of 36 as participants. The research was conducted at the Independent Midwife Practice (PMB) "W and H" in the city of Palembang. The instrument used was an observation sheet about the intensity of labor pain using the Faces Pain Rating Scale, with an intensity of 0 no pain, 1 slightly painful, 2 more painful, 3 more painful, 4 much more painful, 5 really painful. The tools and materials used are an aromatherapy humidifier, 3-6 drops of lavender essential oil, and 100 mL of water. n a steam device in the form of an electric diffuser. Lavender aromatherapy steam is produced from a mixture of approximately 100-150 ml of water with 3-6 drops of lavender essential oil. The tool can be used for a maximum of 6 hours. The lavender aromatherapy is given for 30 minutes at a distance of 10-20 cm then turns on the diffuser with lavender aroma and places it near the mother with the aim of reducing pain in the mother and can create a comfortable sensation so that the mother is more relaxed. Data analysis using univariate and bivariate analysis. Univariate analysis used a homogeneity test to see the similarity of the characteristics of the respondents between the experimental group and the control group. Bivariate analysis used the paired sample t-test and the non-parametric Mann Whitney test.

3. RESULTS AND DISCUSSIONS

3.1 Respondent Characteristics

Table 1 The Frequency Distribution based on Respondents

Responden Characteristic	Experiment f	Experiment %	Control f	Control %	f	%	p value
Age							
20 – 27 years old	9	25	9	25	18	50	0,106
28-25 years old	9	25	9	25	18	50	
Education							
High	8	22.2	9	25	17	47.2	0.174
Low	10	27.8	9	25	19	52.8	
Gestasional Age							
37-39 weeks	10	27.8	9	25	19	52.8	0.121
40-42 weeks	8	22.2	9	25	17	47.2	

Table 1 shows the p value of each characteristic in the experimental group and the group control shows a number > 0.05. This means that the characteristics of respondents between groups are equal or homogeneous.

Table 2. Labor Pain Scale Before and After Intervention (Pretest and Posttest)

Group	Mean		Min	Max	p value
	Pretest	Postest			
Experiment	2.6	2.2	2	4	0.001
Control	2.8	2.6	1	3	0.002

Based on Table 2, the value of P 0.001 in the experimental group and 0.002 in the control group. This is that the lavender aromatherapy for the scale of labor pain

Table 3. The results of the difference between the Non-Parametric Test of Mann Whitney of labor pain in the experimental group and the control group

Group	N	Mean Rank	Sum of Rank	Z	ρ
Experiment	18	18.83	289.00	-2.893	0.004
Control	18	10.07	156.00		

Discussion

Table 1 shows the p value of each characteristic in the experimental group and the group control shows a number > 0.05. This means that the characteristics of respondents between groups are equal or homogeneous. Based on Table 2, the value of P 0.001 in the experimental group and 0.002 in the control group. This is that the lavender aromatherapy for the scale of labor pain. Based on Table 3, the Non-Parametric Mann Whitney Test results obtained a p value of 0.004 (p <0.05), it can be concluded that there are differences in decreasing labor pain scale in the experimental group and the control group.

The results of this study support the results of previous studies conducted by Patimah et al (2020) in her research on aromatherapy for laboratory pain, it was lavender has been proven effective for reducing laboratory pain which can be used in various methods such as inhalation, bathing, massage and Soaking Foot (Patimah & Sundari, 2020).

Although the primary mechanism of action of lavender aromatherapy is unknown, according to an analysis of clinical trial results in our research, it can make women in labor experience less pain during labor (Karo Hy, 2017). Based on previous research on the psychological and physiological benefits of EOs, aromatherapy controls human mood and reduces anxiety without altering physiological circumstances (Yuan R, 2021)(Alavi, 2010).

According to Mirzaei et al, aromatherapy EOs relieve stress in postpartum women, reduces cortisol production from the adrenal glands, and enhances gastrointestinal serotonin production (Count et al., 2017) (Seraji A, 2011) . The linalool in lavender inhibits acetylcholine release and alters the function of ion channels at the neuromuscular junction (Mohamadkhani, 2014) Linalyl acetate and linalool are

considered as narcotic and sedative, respectively, and are consumed by skin massage in about 5 minutes, and their plasma concentration peaks in about 20 minutes (Aromaterapi et al., 2023)

This result is also the same as Tabata's Research (2020) showing the results that aromatherapy, as a complementary and alternative quality, can help relieve maternal anxiety and pain during Labor Pain felt by the mother during labor is a physiological thing but if it hurts labor is left alone it will have an impact to things that are not desirable like the first stage elongated. Aromatherapy Lavender is a natural treatment method using essential oils originating from lavender plants with certain dilution. The fragrance produced by lavender aromatherapy will stimulate the talamus to release the enechants, functioning as a natural pain remover. Enkefalin is a neuromodulator that functions to inhibit physiological pain. The perception of pain is influenced by subjective factors, although the mechanism is unclear, even the brain structure that causes the perception is also unclear, so that pain is fundamentally a subjective experience.

Various studies showed that aromatherapy can help with nausea and vomiting, body aches and pains, anxiety, confusion, stress and depression, exhaustion and insomnia, muscle aches, headaches, circulatory complications, menstrual problems, and menopausal symptoms among other things (Burns, 1994). Lavender (Lavandula angustifolia), as a green mint family species, is one of the medicinal herbs that is applied in aromatherapy (Tillett J, 2010). The ketones in lavender are helpful in reducing pain and inflammation. Esters also avoid muscle spasms, relieving stress and depression (Lotfipur Rafsanjani SM, 2015). Lavender aromatherapy was applied during labor and demonstrated positive effects in terms of pain relief and anxiety reduction (Bakhtshirin F, 2015). Based on previous evidence, those certain non-pharmacological methods (e.g., lavender aromatherapy) may improve labor outcomes although there is a need for a systematic look at the findings of published studies in this field (Tabatabaeichehr & Mortazavi, 2020)

4. CONCLUSION

Inhalation of lavender aromatherapy can reduce labor pain in the primigravida I active phase. Research subjects that experience severe pain and severe pain, after inhaling aromatherapy lavender becomes severe pain and moderate pain. Further research with pure experimental design is needed to determine the effect of lavender aromatherapy on labor pain during the first stage of the active phase and the characteristics of the mother associated with labor pain. In this study the pain assessment was carried out by the research subjects with NRS still allowing bias because pain is very subjective, so it is necessary to strive for pain assessment using the pain assessment instrument carried out by respondents and researchers. For future research, giving lavender aromatherapy can be combined with relaxation music therapy so as to maximize efforts to overcome physiological pain during labor and the research results can be compared with only giving aromatherapy.

5. ACKNOWLEDGEMENTS

Thank you to respondents who are willing to be invited to work together. Thank you also to the Midwife Practice Mandiri Nini and Ria who facilitated the research site.

REFERENCES

Adams ED, Bianchi AL. A practical approach to labor support. J Obstet Gynecol Neonatal Nurs. 2008;37(1):106- 15Alavi N, Nemati M, Kaviani M, Tabaie MH. The effect of lavender aromatherapy on the pain intensity perception and intarapartum outcomes in primipare. Armaghane Danesh. 2010;15(1):30-7Aromaterapi, P., Untuk, L., Nyeri, M., Kala, P., Aktif, I. F., Lavender, G., To, A., & Labor, R. (2023). *(JURNAL INSPIRASI KESEHATAN) (JURNAL INSPIRASI KESEHATAN)*. *1*(1).

Bakhtshirin F, Abedi S, YusefiZoj P, Razmjooee D. The effect of aromatherapy massage with lavender oil on severity of primary dysmenorrhea in Arsanjan students. Iran J Nurs Midwifery Res. 2015;20(1):156-60.

Burns E, Blamey C. Complementary medicine. Using aromatherapy in childbirth. Nurs Times. 1994;90(9):54-60.

Chen SF, Wang CH, Chan PT, Chiang HW, Hu TM, Tam KW, et al. Labour pain control by aromatherapy: a metaanalysis of randomised controlled trials. Women Birth. 2019;32(4):327-35

Feldman E. Labor, pain management, and acupuncture: a cochrane review. Integr Med Alert. 2020;23(9).

Hasto. (2019). Konferensi Internasional, Hasto Wardoyo Ungkap Capaian Kesehatan Reproduksi", https://today.line.me/id/pc/ article/Di+Konferensi+Intern asional+Hasto+Wardoyo+Un gkap+Capaian+Kesehatan+Re produksi-G68POL, diakses 29 November 2019. Hatami Rad, R. (2021). Effect of Aromatherapy with Lavender on Labor Pain: A Literature Review. *Disease and Diagnosis*, *10*(3), 123–128. https://doi.org/10.34172/ddj.2021.23

Hodge NS, McCarthy MS, Pierce RM. A prospective randomized study of the effectiveness of aromatherapy for relief of postoperative nausea and vomiting. J Perianesth Nurs. 2014;29(1):5-11

Kataropuk Seda, Yarici. (2023). Determining the effect of inhalation and lavender essential oil massage therapy on the severity of perceived labor pain in primiparous women: A randomized controlled trial. Elsevier Volume 19, Issue 1, January–February 2023, Pages 107-114

Karo HY, Pramono N, Wahyuni S, Mashoedi ID, Latifah L. Lavender (Lavandula angustifolia) aromatherapy as an alternative treatment in reducing pain in primiparous mothers in the active first stage of labor. Belitung Nurs J. 2017,3(4):420-5

Kaviani M, Azima S, Alavi N, Tabaei MH. The effect of lavender aromatherapy on pain perception and intrapartum outcome in primiparous women. Br J Midwifery. 2014;22(2):125-8

Lamadah, SM & Ibtesam, N. (2016). Effects of aromatherapy massage using lavender oil on pain and anxiety during childbirth between primigravida women. American Journal of Nursing Science, 5(2), 37.

Lane B, Cannella K, Bowen C, Copelan D, Nteff G, Barnes K, et al. Examination of the effectiveness of peppermint aromatherapy on nausea in women post C-section. J Holist Nurs. 2012;30(2):90-104

Lotfipur Rafsanjani SM, Vazirinejad R, Ismailzadeh S, Ansari Jaberi A, Bekhradi R, Ravari A, et al. Comparison of the efficacy of massage and aromatherapy massage with geranium on depression in postmenopausal women: a clinical trial. Zahedan J Res Med Sci. 2015;17(4):e970.

Makvandi S, Mirzaiinajmabadi K, Tehranian N, Esmily H, Mirteimoori M. The effect of normal physiologic childbirth on labor pain relief: an interventional study in motherfriendly hospitals. Maedica (Bucur). 2018;13(4):286-93.

Mirzaei F, Keshtgar S, Kaviani M, Rajaeifar AR. The effect of lavender essence smelling during labor on cortisol and serotonin plasma levels and anxiety reduction in nulliparous women. J Kerman Univ Med Sci. 2009;16(3):245-54.

Mohamadkhani Shahri L, Sabet Birjandi S, Mohamadkhani Shahri H. Effect of massage aromatherapy with Lavandula on the duration of first and second stage of labor in nulliparous women. Hormozgan Med J. 2013;17(2):145-54.Namazi, M., Ali Akbari, S. A., Mojab, F., Talebi, A., Majd, H. A., & Jannesari, S. (2014). Effects of citrus Aurantium (bitter orange) on the severity of first-stage labor pain. *Iranian Journal of Pharmaceutical Research*, *13*(3), 1011–1018.

Nikjou, R., Kazemzadeh, R., Rostamnegad, M., Moshfegi, S., Karimollahi, M., & Salehi, H. (2016). The effect of lavender aromatherapy on the pain severity of primary dysmenorrhea: A triple-blind randomized clinical trial. *Annals of Medical and Health Sciences Research*, *6*(4), 211. https://doi.org/10.4103/amhsr.amhsr_527_14

Nuriya, Noor Alivian, G., & Taufik, A. (2021). Aromaterapi Sebagai Terapi Komplementer untuk Mengatasi Nyeri, Depresi, Mual dan Muntah pada Pasien Kanker: A Literature Review. *Journal of Bionursing*, *3*(1), 1–11. https://doi.org/10.20884/1.bion.2021.3.1.86

Nursahidah, A., Novelia, S., & Suciawati, A. (2020). The effect of Lavender Aromatherapy on labor pain among delivery women. *Asian Community Health Nursing Research*, *2*(1), 13. https://doi.org/10.29253/achnr.2020.21332

Patimah, M., & Sundari, S. W. (2020). Aromaterapi untuk mengurangi nyeri persalinan. *Proceeding Book Health National Conference "Stunting Dan 8000 Hari Pertama Kehidupan,"* 45–48. http://hnc.ummat.ac.id

Seraji A, Vakilian K. The comparison between the effects of aromatherapy with lavender and reathing techniques on the reduction of labor pain. Complementary Medicine Journal. 2011;1(1):34-41

Smith A, Laflamme E, Komanecky C. Pain management in labor. Am Fam Physician. 2021;103(6):355-64.

Tabatabaeichehr, M., & Mortazavi, H. (2020). The Effectiveness of Aromatherapy in the Management of Labor Pain and Anxiety: A Systematic Review. *Ethiopian Journal of Health Sciences*, *30*(3), 449–458. https://doi.org/10.4314/ejhs.v30i3.16

Tillett J, Ames D. The uses of aromatherapy in women's health. J Perinat Neonatal Nurs. 2010;24(3):238-45.

World Health Organization. (2019). Maternal Mortality. Diakses dari : https://www.who.int/news-room/factsheets/detail/maternal-mortalit

Yuan R, Zhang D, Yang J, Wu Z, Luo C, Han L, et al. Review of aromatherapy essential oils and their mechanism of action against migraines. Journal of Ethnopharmacology. 2021;265:113326.

Zahra, A. (2013). Lavender aromatherapy massages in reducing labor pain and duration of labor: A randomized controlled trial. *African Journal of Pharmacy and Pharmacology*, *7*(8), 456–430. https://doi.org/10.5897/ajpp12.391