**Indonesian Journal of Global Health Research**
Volume 6 Number 6, December 2024
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

# THE EFFECT OF LAVENDER AROMATHERAPY RELAXATION TECHNIQUES ON LABOR PROGRESS DURING STAGE I ACTIVE PHASE

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**ABSTRACT**
The purpose of this study was to determine the effect of lavender aromatherapy relaxation techniques on the progress of active phase I labor at the Kassi-Kassi Public Health Center in Makassar. The design of this study was non randomized control group post test design. The number of samples was 30 women giving birth at the Kassi-Kassi Makassar Public Health Center. In sampling the technique used is non random technique with a purposive sampling approach and for data collection using instruments in the form of SOPs and partographs. The data analysis technique used the Mann Withney test to analyze the effect of lavender aroma therapy relaxation techniques on the progress of labor in the active phase I using a significant level $\alpha = 0.05$. The results of the Man Withney test on the effect of lavender aromatherapy relaxation techniques on the progress of labor in the first phase of active phase, obtained a value of $p = 0.004$. These results indicate that $\rho < \alpha$ ($0.004 < 0.05$). The conclusion of this study is the influence of lavender aromatherapy relaxation techniques on the progress of active phase I labor at Kassi-Kassi Makassar Public Health Center in 2019.

Keywords: hypertension; lifestyle; society

| First Received | Revised | Accepted |
|---|---|---|
| 28 March 2024 | 28 April 2024 | 30 April 2024 |
| **Final Proof Received** | | **Published** |
| 15 July 2024 | | 01 December 2024 |

**How to cite (in APA style)**
Sampara, N., Marwang, S., Sudirman, J., & Shafira, M. D. (2024). The Effect of Lavender Aromatherapy Relaxation Techniques on Labor Progress During Stage I Active Phase. Indonesian Journal of Global Health Research, 6(6), 3561-3568. https://doi.org/10.37287/ijghr.v6i6.3771.

## INTRODUCTION

Aromatherapy has a positive effect because fresh and fragrant scents stimulate sensory receptors, ultimately influencing other organs and creating a strong impact on emotions. Scents are captured by receptors in the nose, which then send information to areas in the brain that control emotions and memory, as well as to the hypothalamus, which regulates the body's internal systems, including the sexual system, body temperature, and stress responses( Untari & Kodiyah, 2022;Aini & Hidayat, 2023).Psychologically, mothers in labor have better coping mechanisms, especially when supplemented with aromatherapy, which can help them relax. This state of relaxation can facilitate the dilation of the cervix, thus speeding up the delivery process (Septiani & Agustia, 2021). This is supported by Andini et al., (2022), who stated that when the scent of lavender oil is detected by the nose, the molecules bind to aroma receptors located in the nose. These receptors then send chemical signals through neural pathways to the limbic system in the brain. This system regulates a person's emotional state. By boosting morale, the body is encouraged to heal itself. This strong morale enhances the mother's strength in facing labor (Hermayani & Maran, 2023;Puspita & Oktaviana, 2023).

The progression of labor during the active phase of stage I is the most exhausting and painful, with most mothers starting to feel significant pain as the uterus becomes more active. During this phase, contractions become longer, stronger, and more frequent, which can lead to anxiety. Anxiety in mothers during stage I can result in increased adrenaline secretion. One effect of adrenaline is the constriction of blood vessels, which reduces the oxygen supply to the fetus. Reduced blood flow also weakens uterine contractions, prolonging the labor process and potentially causing prolonged labor. Weak or inadequate uterine contractions are the most common cause of prolonged labor. ( Kamaruddin, 2019;Arisjulyanto & Hikmatushaliha, 2018)Based on a preliminary study conducted at the Kassi-Kassi Health Center in Makassar, secondary data from partograph sheets over one day showed that out of 5 deliveries, 4 experienced prolonged labor in stage 1. Therefore, special management is needed to address issues that may arise from a prolonged active phase, such as providing alternative therapies like lavender aromatherapy.

The results of Nurhayati (2022) study show that lavender aromatherapy can significantly improve healthcare workers' performance. This improvement is due to the progress in labor observed after the administration of lavender aromatherapy. Lavender was chosen for this study because it is one of the most popular essential oils used for therapeutic purposes. The pharmacological properties of lavender oil that induce relaxation are primarily due to its major components, linalool and linalyl acetate, with a minor influence from geraniol. These pharmacological effects of lavender oil offer a comprehensive approach to achieving both physical and psychological relaxationUntari & Kodiyah (2022) conducted a study on the use of aromatherapy to reduce labor pain. The data from their research showed a significant reduction in pain during the active phase of stage I labor in the experimental group after the application of relaxation techniques through aromatherapy, with a p-value of 0.000, which is less than the significance level of 0.05. SimilarlyAndini et al., (2022) studied the effectiveness of combining aromatherapy with deep breathing techniques on pain during stage I of active labor. Their results indicated a significant reduction in pain during the active phase of stage I labor in the experimental group after the combination of aromatherapy and deep breathing techniques, with a p-value of 0.000, which is less than the significance level of 0.05.

Based on the background described above, the researcher believes it is important to conduct a study on "The Effect of Lavender Aromatherapy Relaxation Techniques on the Progress of Labor During Stage I of Active Labor at Kassi-Kassi Health Center in Makassar." This study aims to investigate the impact of lavender aromatherapy relaxation techniques on the progress of labor during stage I of active labor at Kassi-Kassi Health Center in Makassar

## METHOD

Based on the scope of the problem and the research objectives, a Quasi-Experimental design was used for this study. In this design, respondents were given a specific intervention, which was the lavender aromatherapy relaxation technique, and the effects on the progress of labor during Stage I (active phase) were observed by recording cervical dilation data using partograph sheets. A control group without treatment was also included for comparison. This research was conducted at the Kassi-Kassi Health Center in Makassar. The study population consisted of 67 women undergoing normal labor at the Kassi-Kassi Health Center, and the sample for this study included 30 participants whose characteristics were representative of the population of women in normal labor at the Kassi-Kassi Health Center.

## RESULTS

### Progress of Labor During Stage I Active Phase

An overview of the progress of labor during Stage I Active Phase at Kassi Kassi Health Center in Makassar can be seen in the following table:

Table 1.
Frequency Distribution of the Progress of Labor During Stage I Active Phase

| Progress Of Labor | f | % |
|---|---|---|
| Intervention Group | | |
| Abnormal | 4 | 26,7 |
| Normal | 11 | 73,3 |
| Control Group | | |
| Abnormal | 12 | 80,0 |
| Normal | 3 | 20,0 |

Table 1 above, it can be seen that in the intervention group, 11 respondents (73.3%) experienced progress in labor during Stage I Active Phase, while 4 respondents (26.7%) did not show normal progress. Therefore, it can be concluded that labor progress during Stage I in the intervention group was more dominant, with 11 participants (73.3%) experiencing progress. In the control group, it can be seen that 3 respondents (20.0%) experienced progress in labor during Stage I Active Phase, while 12 respondents (80.0%) did not show normal progress. Thus, labor progress during Stage I in the control group was more dominant in not experiencing progress, with 12 participants (80.0%).

### Analysis of Labor Progress During Stage I Active Phase

An overview of the analysis of labor progress during Stage I Active Phase in the Control and Intervention Groups at Kassi-Kassi Health Center in Makassar can be seen in the following table:

Table 2.
Labor Progress During Stage I Active Phase in the Control and Intervention Groups

| Labor Progress During Stage I Active Phase | Mean | Min | Max | 95% Cl |
|---|---|---|---|---|
| Intevention Group | 5,60 | 5 | 8 | 4,74-6,46 |
| Control Group | 8,47 | 6 | 9 | 7,63-9,30 |

According to Table 2, the average (mean) labor progress during Stage I Active Phase for the intervention group (receiving lavender aromatherapy) was 5.560, with a 95% Confidence Interval (CI) ranging from 4.74 to 6.46 and a standard deviation of 1.549. The labor progress values in this group ranged from a minimum of 5 to a maximum of 8. This indicates that, with 95% confidence, the average labor progress for the intervention group falls between 5 and 8. In contrast, the average (mean) labor progress during Stage I Active Phase for the control group (not receiving lavender aromatherapy) was 8.47, with a 95% Confidence Interval (CI) from 7.63 to 9.30 and a standard deviation of 1.506. The values for labor progress in this group ranged from a minimum of 6 to a maximum of 9. Therefore, with 95% confidence, the average labor progress for the control group falls between 6 and 10.

### Difference in Labor Progress During Stage I Active Phase Between the Control and Intervention Group

An overview of the analysis of the differences in labor progress during Stage I Active Phase between the Control and Intervention Groups at Kassi-Kassi Health Center in Makassar can be seen in the following table:

Table 3.
Distribution of Differences in Labor Progress During Stage I Active Phase Between the Control and Intervention Groups

| Labor Progress During Stage I Active Phase | Mean | SD | P *Value* |
|---|---|---|---|
| Intevention Group | 11,50 | 0,549 | 0,004 |
| Control Group | 19,50 | 1,506 | |

Table 3, the average (mean) labor progress during Stage I Active Phase in the control group (no lavender aromatherapy relaxation techniques applied) is 19.50, with a standard deviation of 1.506. In contrast, the average (mean) labor progress during Stage I Active Phase in the intervention group (lavender aromatherapy relaxation techniques applied) is 11.50, with a standard deviation of 1.549. The Mann-Whitney U test results show a significance value of 0.004, which is less than the alpha level of 0.05. Therefore, it can be concluded that there is an effect of lavender aromatherapy on the progress of labor during Stage I Active Phase. Thus, the alternative hypothesis (Ha) is accepted and the null hypothesis (H0) is rejected.

## DISCUSSION

Research results show that in the control group (not using lavender aromatherapy), 3 respondents (20.0%) experienced labor progress, while 12 respondents (80.0%) did not. In the treatment group, 11 respondents (73.3%) experienced progress in the first stage of active labor, and 4 respondents (26.7%) did not. The Mann-Whitney statistical test with a 95% confidence level showed a significant value of 0.004, where the significance level is < α (0.05). Therefore, it can be concluded that there is an effect of lavender aromatherapy on the progress of the first stage of active labor. Thus, the alternative hypothesis (Ha) is accepted, and the null hypothesis (H0) is rejected.Pain experienced during labor can affect the mother's condition, leading to fatigue, fear, anxiety, trauma from previous labor, and dehydration, all of which can impact the labor process and negatively affect the fetus. The mother's reaction to pain varies and is influenced by her attitude and mental state, habits and culture, fatigue, worry, and fear of the pain experienced during labor. The role of midwives or other healthcare providers is crucial in reducing the pain level in the first stage of active labor because if not properly managed, it can affect the labor process and negatively impact the fetus. Midwives and other healthcare providers can use practical non-pharmacological methods to reduce labor pain. If the mother can manage her pain, the labor process will run smoothly, one method being the provision of lavender aromatherapy(Sari & Yulviana, 2024;Cholilalah & Arifin, 2021).

Aromatherapy is one of the treatment techniques that use aromas derived from essential oils. The extraction (distillation) process of essential oils can generally be done in three ways: water distillation (boiling), water and steam distillation (steaming), and steam distillation (evaporating). One of the most popular aromas is lavender. The main components of lavender flowers are linalyl acetate and linalool (C10H18O). Linalool is the main active ingredient that contributes to the anti-anxiety (relaxation) effects of lavender (Setiati, 2019).Nurhayati (2022) study, the intensity of pain in the intervention group was mostly categorized as controlled severe pain before the intervention, and it remained as controlled severe pain after the intervention. In contrast, the control group primarily experienced moderate pain before the intervention, which became uncontrolled severe pain after the intervention period. The Mann-Whitney U test results showed a significant difference in pain intensity between the intervention and control groups, with a p-value of 0.000 < 0.05, indicating that the null hypothesis (H0) is rejected.

Research by Hukuba & Tridiyawati (2022) shows that the analysis results obtained indicate that the pain intensity in mothers in the intervention group mostly experienced controlled severe pain intensity after the intervention, whereas before the intervention it was categorized as

uncontrolled severe pain. On the other hand, the pain intensity in mothers in the control group mostly experienced uncontrolled severe pain intensity after the intervention, whereas before the intervention it was categorized as moderate. There is an effect of lavender aromatherapy on reducing pain intensity in mothers during the active phase of labor at RSIA Quratuain. Lavender oil has several advantages over other types of aromatherapy, including being economical, easy to obtain, safe to use, not time-consuming, and practical because it does not require complicated equipment. The combination of lavender therapy and medical treatment can improve the patient's condition. Lavender oil is one of the safest oils, so it is often used to treat lung, sinus, vaginal, and skin infections, as well as relieve headaches, muscle pain, and other pains..(Lestari et al., 2023;Untari et al., 2022;Sari & Yulviana, 2024)

Darmawan et al., (2022) Before receiving aromatherapy, respondents who were about to give birth appeared anxious and experienced uncontrolled pain. After observation, the pain levels in the intervention group before receiving aromatherapy showed that severe pain was generally controlled. After receiving aromatherapy, the pain level became moderate. In the control group, the average pain level during the pretest was moderate, but after the posttest, it changed to controlled severe pain. The intensity of pain during the labor process is related to fear and lack of knowledge, which can worsen the pain. Mothers who received lavender aromatherapy during labor experienced lower labor pain compared to mothers who did not receive lavender aromatherapy. Lavender aromatherapy can reduce anxiety before labor, which can cause pain and discomfort during contractions. Other research shows that lavender oil significantly reduces anxiety levels, increases relaxation, increases sleepiness, and improves mood(Aulya et al., 2021; Sari & Sanjaya, 2020)

According to (Silitonga et al., 2023) the application of the Lavender Aromatherapy method during labor affects the intensity of labor pain. Mothers who received Lavender Aromatherapy during labor experienced lower labor pain intensity compared to those who did not receive Lavender Aromatherapy. Lavender aromatherapy offers benefits for relaxation, mood improvement, and increasing alpha waves, which are highly effective in a relaxed state as they promote the flow of creative energy and a feeling of freshness and health. The alpha wave state is ideal for reflection, problem-solving, and visualization, acting as a gateway to creativity, according to Pitaloka et al. Lavender oil is one of the well-known aromatherapy oils that has a calming effect. Aromatherapy involves molecules that are released into the air as vapor. For an object to be smelled, it must be volatile or soluble in water or fat. The plasma membrane in the nose is composed of lipids. When the vapor containing these chemical components is inhaled, the aroma interacts with the lipids and is captured by the olfactory cilia. Lavender essential oil is highly effective and beneficial when inhaled or applied externally, as the sense of smell is closely linked to human emotions. When the aroma of lavender essential oil is inhaled, the body produces a psychological response(Anasril, 2024;Novita et al., 2022)

The results of this study by Tambunan (2024) indicate that lavender aromatherapy through inhalation, as a non-pharmacological method, can reduce the intensity of labor pain during the active phase of the first stage of labor. Therefore, lavender aromatherapy can be used in midwifery care for women in the first stage of labor to alleviate pain and provide comfort and calm to the mother. It is hoped that this study will motivate healthcare professionals, particularly midwives, to incorporate non-pharmacological approaches, such as lavender aromatherapy, into labor pain management strategies. Most of the laboring mothers experienced severe pain before receiving lavender aromatherapy, and after receiving lavender aromatherapy, they experienced moderate pain, demonstrating a reduction in pain levels. Aromatherapy contains molecules that, when released into the air as vapor and inhaled through

the nose and lungs, enter the bloodstream. This vapor is then transmitted to the limbic system, which is responsible for integrating and expressing feelings, memories, emotions, and physical stimuli. Lavender aromatherapy is highly effective and beneficial when inhaled or applied externally, as the sense of smell is closely linked to human emotions. When lavender aromatherapy is inhaled, the body produces a psychological response.(Fadilla & Norhapifah, 2023; Nisa & Hidayani, 2023; Taqiyah, 2023)

Lavender aromatherapy has an impact on the progress of labor, especially during the first stage of active labor. The use of lavender oil in aromatherapy can help reduce anxiety and stress levels in pregnant women, which in turn can facilitate the labor process. The calming aroma of lavender can stimulate relaxation and reduce muscle tension, which is important during the active stage of labor. Several studies also show that lavender aromatherapy can help reduce the perception of pain and increase maternal satisfaction with the childbirth experience. Overall, the use of lavender aromatherapy during the first stage of active labor can positively contribute to labor progress by creating a calmer and more supportive environment for the mother, thus allowing the labor process to proceed more smoothly and effectively(Andini et al., 2022;Rahayu & Sugita, 2018;Karlina et al., 2014). In the treatment group, 11 out of the 15 respondents experienced labor progress. This was because lavender aromatherapy helped individuals feel more relaxed during labor due to the main active ingredients in lavender, which contribute to anti-anxiety (relaxation) effects and thus distracted from the pain experienced. This distraction can reduce pain intensity and lead to a smoother labor process. However, 4 respondents in the treatment group did not experience normal labor progress due to individual differences in response to the aromatherapy, which affected the effectiveness of lavender aromatherapy. In the control group, 12 out of 15 respondents experienced abnormal labor progress, while 3 showed normal labor progress. This progress can be attributed to other psychological factors, such as the presence of a supportive partner, which can offer comfort and reduce pain and discomfort during labor.

## CONCLUSION

The research findings indicate that lavender aromatherapy has a positive impact on labor progress during the Stage I Active Phase. Lavender aromatherapy is effective in reducing anxiety and stress in pregnant women, which leads to increased relaxation and decreased muscle tension during labor. Additionally, lavender oil is associated with a reduction in pain perception and an improvement in maternal satisfaction with the labor experience. Therefore, lavender aromatherapy can be considered a valuable non-pharmacological intervention for facilitating smoother and more effective labor progress during the Stage I Active Phase at Kassi-Kassi Health Center in Makassar.

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