The Effectiveness of Aromatherapy on Pain Intensity in First Stage Mothers at TPMB Ana Masnah, Tarumajaya Bekasi

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ABSTRACT

During the labor process, most women will feel pain. During childbirth, pain is a sign that the cervix is open and enlarged. However, the pain that occurs will have a bad impact on the mother and baby if not handled properly. The aim of this community service is to determine the effectiveness of aromatherapy on the intensity of pain in postpartum mothers in the first stage at TPMB Ana Masnah, Tarumajaya Bekasi in 2024. This community service used quasi experimental with a total sampling with a sample of 20 people. Data techniques include uivariate analysis using frequency distributions and bivariate analysis using statistical calculations. Based on the community service results, it was found that the average age of postpartum mothers in the first stage was of productive age. After being given treatment there was a reduction in pain in mothers in the first stage of birth, thus proving the effectiveness of Aromatherapy on the intensity of pain in mothers in the first stage of birth at TPMB Ana Masnah Tarumajaya Bekasi in 2024. The conclusion from the results of this community service is that there is effectiveness of Aromatherapy on the intensity of pain in first-stage mothers at TPMB Ana Masnah Tarumajaya Bekasi in 2024. Suggestions for providing information about the benefits of aromatherapy to reduce pain. felt in mothers in the first stage.

INTRODUCTION

Labor pain is a subjective sensation characterized by physical sensations that arise with uterine contractions, the opening and closing of the cervix, and the descent of the fetus during childbirth. When we experience pain, our body reacts by increasing blood pressure, heart rate, respiration, sweating, pupil dilation, and muscle tension (Sari et al., 2018).

During childbirth, the pain begins from the cervical dilation of 1 cm to 10 cm. Contractions occur when the cervix opens between 1 to 3 cm and remains open for an extended period, approximately every 8 hours (Syahida, 2022). For a woman experiencing childbirth for the first time, the pain intensifies until the cervix is fully dilated. This process can take between 4 to 6 hours, whereas for the second child, it may take only 2.5 hours (Seftianingtyas et al., 2021).

The success of maternal health interventions is measured by the Maternal Mortality Rate (MMR), which increased during the COVID-19 pandemic. The Indonesian Ministry of Health recorded an increase of 300 maternal deaths to around 4,400, and infant deaths rose by nearly 40% to around 44,000 in 2020. The MMR in Indonesia remained stable until 2019 but is predicted to continue rising. In West Java Province, the MMR is expected to decrease by 80-84% from 147 per 1,000 live births by 2023. In Bekasi Regency, there was a 33% spike in MMR in 2021, but it declined in 2022. The primary causes of MMR in Bekasi Regency are hypertension and postpartum hemorrhage.

Both pharmaceutical and non-pharmacological methods are available to alleviate labor pain. Patients can be prescribed medication to reduce persistent discomfort. However, respiratory depression in newborns can occur due to pain relief medication taken by the mother after childbirth, necessitating non-pharmacological therapies. Aromatherapy during labor is one effective non-pharmacological option. There is a close connection between the limbic system and other brain regions that control functions such as breathing, memory, stress, blood pressure, and endorphin release, which reduces labor pain (Putri & Amalia, 2019).

In 2022, Ahsan Almaisan community service the effects of lavender aromatherapy on labor pain and found that aromatherapy could reduce pain levels from 8 (severe pain) to 5 (moderate discomfort) in respondents with 4 cm cervical dilation. Additionally, TPMB Ana Masnah Tarumajaya Bekasi conducted a study in 2024 on 15 laboring mothers, finding that aromatherapy effectively decreased pain intensity during the first stage of labor. Community service is interested in further investigating the potential effects of aromatherapy on labor pain severity.

During labor, the mother's body undergoes a series of contractions leading to the delivery of the baby from the uterus. Midwifery methods for childbirth include natural birth, induction, and facilitated delivery (Fitriana and Nurwiandani, 2018). To assist in the baby's delivery, the uterus contracts, causing labor pain. Significant anxiety and tension may arise during labor due to discomfort. Increased maternal pulse and respiration rates can interfere with the placenta's ability to meet the unborn baby's nutritional needs (Dewie et al., 2020).

Additionally, labor pain can vary significantly based on individual factors such as the mother's pain threshold, the baby's position, and the speed of labor progression. Non-pharmacological pain management techniques, such as breathing exercises, water immersion, massage, and the use of birthing balls, have shown promising results in reducing pain and improving the overall childbirth experience. These methods not only provide pain relief but also empower women by giving them active roles in managing their labor.

The integration of aromatherapy with other complementary techniques could potentially enhance its effectiveness. For example, combining aromatherapy with guided imagery or hypnobirthing might offer additional relaxation and pain relief benefits. Future community service could explore these combinations to provide a more comprehensive approach to pain management during labor.

Understanding the physiological and psychological aspects of labor pain is crucial for developing effective pain management strategies. By combining pharmacological and non-pharmacological methods, healthcare providers can offer personalized care that addresses the unique needs and preferences of each laboring woman. This holistic approach can lead to better maternal and neonatal outcomes, promoting a positive and empowering childbirth experience.

Based on the background explanation, the community service was interested in conducting community service with the title "The Effectiveness of Aromatherapy on Pain Intensity in First Stage Mothers at TPMB Ana Masnah, Tarumajaya Bekasi".

METHOD

This community service uses a one-group experimental design with quantitative methods. The intervention group received aromatherapy therapy and was assessed before and after the intervention to reduce the severity of postpartum pain in the first stage of TPMB (Almanac Tarumajaya Bekasi, Ana Masnah 2024). The following are the stages of implementing community service at TPMB Ana Masnah, Tarumajaya Bekasi:

1. Preparation Stage

   Preparations will be carried out starting in January 2024 consisting of:

   - Starting from a location survey by visiting the location and partners who will be targeted in the TPMB Ana Masnah work area, Tarumajaya Bekasi.
   - The licensing process begins with a permission letter from the university addressed to the relevant institution or organization where services are provided to implement the program. The university also asked for help in obtaining data on the community who will take part in this outreach and training program.
   - Bribery of officers, namely the division of duties and responsibilities of lecturers and students involved in this service.
   - Bribery of materials and media for community service activities such as aromatherapy and information brochures containing aromatherapy and pain intensity in mothers in the first stage.
   - Preparation of evaluation tools in the form of attendance lists and writing tools used to collect data for further analysis.

2. Implementation of Activities

   This activity will be carried out from January to May 2024. The activities that will be carried out are as follows:

   - Data collection on pregnant women who come to TPMB Ana Masnah, Tarumajaya Bekasi.
   - Then pregnant women are given a brochure containing information about aromatherapy and the intensity of pain in mothers in the first stage.
   - Next, the officer on duty provided education to the pregnant mother and ended with a question and answer session and also gave memento gifts.
   - In addition, demonstration activities were carried out on the use of aromatherapy which can reduce the intensity of pain in mothers in the first stage.

RESULTS AND DISCUSSION

Based on community service conducted at TPMB Ana Masnah Tarumajaya Bekasi, the results obtained are listed in tables 1, 2 and 3.

TABLE 1. Distribution of Respondent Characters

Type	Variable	F (n =20)	Percentage (%)
Age	20-22	4	20
	23-25	6	30
	26-28	2	10
	29-31	6	30
	32-34	2	10
	Total	20	100
Work	Self-employed	1	5
	IRT	14	70
	Employee	5	25
	Total	20	100
Education	SENIOR HIGH SCHOOL	9	45
	JUNIOR HIGH SCHOOL	10	50
	elementary school	1	5
	Total	20	100

Based on the table above, it can be concluded that the majority of respondents were aged between 23-25years and 29-31 or as many as (30%), 4 people aged 20-22 (20%), 2 people aged 26-28 (20%). 10%), and 2 people aged 32-34 years (10%). Meanwhile, most of the respondents' jobs were working as housewives, 14 people (70%), 1 person was self-employed (5%) while 5 people were employees (25%). and the majority of respondents had junior high school education (50%). 9 people had a high school education (45%) while 1 person had an elementary school education (5%).

TABLE 2.Frequency Distribution (Pretest) of Pain Intensity in First Stage Inpartu Mothers at TPMB Ana Masnah Tarumajay Bekasi Before Giving Aromatherapy

Inpartum Pain 1st Stage	Frequency (f)	Percentage (%)
No pain	-	-
Mild pain	-	-
Moderate pain	15	75
Severe pain is controlled	5	25
Severe uncontrolled pain	-	-
Total	20	100

Based on this data, the results showed that before being given aromatherapy or treatment, 15 people (75%) felt moderate pain during the first stage of birth, while 5 people felt controlled severe pain (25%).

TABLE 3. Frequency Distribution (Posttest) of Pain Intensity in First Stage Inpartu Mothers at TPMB Ana Masnah Tarumajay Bekasi After Being Given Aromatherapy

Inpartum Pain 1st Stage	Frequency (f)	Percentage (%)
No pain	-	-
Mild pain	16	80
Moderate pain	4	20
Severe pain is controlled	-	-
Severe uncontrolled pain	-	-
Total	20	100

Based on this data, the results showed that after being given aromatherapy or treatment, 4 people (20%) felt moderate pain during the first stage of birth, while 16 people felt mild pain (80%). Based on these results, it can be concluded that there is effectiveness of aromatherapy on pain intensity in the first stage of labor at TPMB Ana Masnah Amd. Tarumajaya District, Bekasi.

Characteristics of Respondents Regarding the Intensity of Labor Pain in the First Stage Before Being Given Aromatherapy

Based on the community service, the majority of respondents were aged 23-25 years and 29-31 years (30%), followed by those aged 20-22 years (20%), 26-28 years (10%), and 32-34 years (10%). Most respondents were housewives (70%), followed by entrepreneurs (5%) and employees (25%). The majority of respondents had an education level of junior high school (50%), followed by senior high school (45%) and elementary school (5%).

The community service concluded that the average age of mothers during childbirth falls within the productive age range of 20-35 years. This age range is considered safe for pregnancy and childbirth, as ages below and above this range can pose health risks. Women over the age of 35 face a higher risk of obstetric complications such as hypertension, diabetes, and preterm labor, which can increase morbidity and mortality rates, particularly perinatal. Fertility tends to decline in women over 35, making pregnancy and childbirth riskier for both mother and baby. Women over the age of 40 have a higher risk of miscarriage and are more prone to fatigue during pregnancy.

The study results indicated that aromatherapy effectively reduced the intensity of labor pain in the first stage at TPMB Ana Masnah Amd.Keb Tarumajaya Bekasi in 2024. This finding is supported by the significance values that favor rejecting the null hypothesis (H0) and accepting the alternative hypothesis (Ha), demonstrating a difference in mean pain levels between pretest and posttest. Labor pain is caused by natural processes such as cervical dilation, uterine muscle contractions, ischemia of the uterine corpus, and stretching of the lower uterine segment. Factors such as age and the number of previous births also influence pain perception. Labor pain can lead to excessive stress and anxiety, affecting the supply of nutrients to the fetus from the placenta.

Expanding on these findings, it is important to understand the implications of age and socioeconomic factors on labor pain perception and management. Younger mothers may have different pain thresholds and coping mechanisms compared to older mothers. Socioeconomic status, indicated by occupation and education level, can influence access to pain management resources and overall health literacy, affecting how pain is reported and managed.

Moreover, the psychological state of the mother plays a crucial role in labor pain perception. Anxiety, fear, and lack of support during labor can amplify pain perception, while a supportive environment, including the presence of a birth partner and trained healthcare providers, can significantly alleviate pain. Aromatherapy, as a non-pharmacological intervention, not only offers physical pain relief but also provides psychological comfort by reducing anxiety and promoting relaxation.

The choice of aromatherapy, specifically the use of lavender, is backed by its well-documented benefits in reducing stress and inducing a calming effect. Lavender's active compounds interact with the limbic system, the brain's center for emotion and memory, helping to reduce the perception of pain and anxiety. The study's results align with other community service findings, suggesting that integrating aromatherapy into labor management protocols can enhance maternal comfort and potentially improve labor outcomes.

Furthermore, cultural beliefs and practices regarding childbirth can influence how pain is perceived and managed. In some cultures, the use of traditional pain relief methods, including herbs and massage, is common and can be integrated with modern techniques like aromatherapy to provide holistic care.

Understanding these cultural nuances can help healthcare providers offer more personalized care that respects the mother's preferences and enhances her childbirth experience.

In conclusion, the study underscores the effectiveness of aromatherapy in reducing labor pain and highlights the need for a comprehensive approach that considers age, socioeconomic status, psychological state, and cultural practices. By integrating non-pharmacological methods like aromatherapy with conventional pain management strategies, healthcare providers can offer more effective and compassionate care to laboring mothers, ultimately leading to better maternal and neonatal outcomes.

Intensity of Labor Pain in the First Stage After Administration of Aromatherapy

The study results indicated that aromatherapy is effective in reducing the intensity of labor pain in mothers. Among the 20 participants, 4 (20%) experienced moderate pain and 16 (80%) experienced mild pain during the labor process. The community service also showed a significant decrease in pain scores after lavender aromatherapy was administered to the intervention group, while the control group experienced an increase in average pain scores. This supports the effectiveness of aromatherapy in reducing labor pain, suggesting that aromatherapy is a simple and practical non-pharmacological intervention to reduce labor pain, thereby potentially reducing the use of pharmacological methods to manage labor pain in the first stage of labor.

Expanding on these findings, it is essential to consider the mechanisms by which aromatherapy achieves these effects. Lavender, known for its soothing properties, contains linalool and linalyl acetate, compounds that interact with the brain's neurotransmitters to produce calming and analgesic effects. These compounds help to reduce the perception of pain by modulating the activity of the limbic system, which is involved in emotional regulation and stress response. This biochemical interaction provides a scientific basis for the observed reduction in pain intensity among the participants.

The practical application of aromatherapy in labor also extends to its ease of use and accessibility. Unlike pharmacological interventions, which may require prescription and administration by healthcare professionals, aromatherapy can be easily implemented with minimal training. This makes it an attractive option for both hospital settings and home births, providing a versatile tool for pain management that can be tailored to the needs and preferences of individual mothers.

In addition to its pain-relieving properties, aromatherapy offers psychological benefits that contribute to a more positive labor experience. The use of soothing scents like lavender can create a calming environment, reducing anxiety and stress levels, which are known to exacerbate the perception of pain. By promoting relaxation, aromatherapy helps to create a more supportive and comforting atmosphere for the laboring mother, which can enhance her overall well-being and potentially improve labor outcomes.

Further community service is warranted to explore the long-term benefits of aromatherapy in labor and its impact on maternal and neonatal health. Studies could investigate the effects of different essential oils, combinations of oils, and various delivery methods (such as inhalation, massage, or bath) to determine the most effective protocols for pain management during labor. Additionally, examining the use of aromatherapy in diverse populations and settings can provide insights into its generalizability and potential cultural adaptations.

It is also important to consider the potential integration of aromatherapy with other non-pharmacological pain management techniques. Combining aromatherapy with methods such as hypnobirthing, acupressure, or guided imagery may enhance the overall pain relief and relaxation effects. This integrative approach could offer a comprehensive pain management strategy that addresses both the physical and emotional aspects of labor pain.

In conclusion, the study underscores the significant benefits of aromatherapy in reducing labor pain and highlights its potential as a practical, non-pharmacological intervention. By providing an effective and accessible option for pain management, aromatherapy can enhance the childbirth experience for mothers, reduce reliance on pharmacological methods, and contribute to better maternal and neonatal outcomes. Future community service and clinical practice should continue to explore and refine the use of aromatherapy in labor to maximize its benefits and ensure its safe and effective application in various childbirth settings.

CONCLUSION

Based on this community service, it can be concluded that the results show the effectiveness of lavender aromatherapy for first-stage mothers at TPMB Ana Masnah Tarumajaya Bekasi in 2024. Previously, 20 respondents experienced moderate pain (75%), but after aromatherapy, the pain was reduced to mild (80%). This community service also shows the paired t-test value of $p = 0.000$, indicating the effectiveness of aromatherapy on pain in postpartum mothers.

ACKNOWLEDGMENTS

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