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The Effectiveness of Aromatherapy Using Peppermint Leaves on Reducing Anxiety Levels in Postpartum Mothers At RSIA Paradise South Kalimantan

Lidia Widia¹, Rena Oki Alestari²

^{1,2}*Sekolah Tinggi Ilmu Kesehatan Eka Harap Palangkaraya*
Corresponding author: mrslidyawidya@gmail.com

ABSTRACT

Background: Childbirth is the process of expelling a viable conception from the uterus to the outside world. A mother in labor who is anxious will produce cortisol hormones excessively. The anxious state that can affect the pain perception in mothers.

Purpose: The purpose of this research is to determine the effectiveness of peppermint aromatherapy on reducing anxiety levels in primiparous mothers during the active phase of labor.

Methods: The research design uses a quasi-experimental method while the sampling technique employs purposive sampling, resulting in 11 samples of primiparous mothers in active phase of first stage labor.

Results: The research results obtained a p-value of 0.03 (<0.05), indicating an effect of peppermint leaf aromatherapy on reducing anxiety levels in primiparous mothers during the active phase of the first stage of labor.

Conclusion: The conclusion of this research is that the aromatherapy of peppermint leaves is effective in reducing the anxiety levels of mothers during childbirth at RSIA Paradise South Kalimantan. It is recommended that this aromatherapy be applied in midwifery care during childbirth.

Keywords: *Aromatherapy; Emergency; Peppermint Leaves; Postpartum Mother*



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BACKGROUND

The anxiety of pregnant women in facing childbirth will increase in the third trimester of pregnancy and will affect the childbirth process. Continuous anxiety can also lead to a decrease in fetal well-being. The factors causing anxiety in facing childbirth are beliefs about childbirth, which are responses of belief or disbelief from pregnant women regarding myths they have heard from others. The feelings leading up to childbirth are related to the feelings of fear or lack of fear experienced by the mother before labor, and the pain during labor. Low knowledge leads to an individual's susceptibility to anxiety, information from healthcare professionals regarding childbirth, and support from husbands and family when facing labor (Hanifah, 2019).

Nearly 1 in 5 women experience mental health problems during pregnancy or within a year of giving birth. In high-income countries, 1 in 10 women experience perinatal anxiety and depression, while in low- and middle-income countries, the figure rises to 1 in 5 women (WHO, 2022). In Indonesia, there are about 107,000 (28.7%) pregnant women who experience anxiety in facing childbirth. Research conducted on primigravida mothers shows that 22.5% experience mild anxiety, 30% experience moderate anxiety, 27.5% experience severe anxiety, and 20% experience very severe anxiety.

The maternal mortality rate (MMR) in Indonesia nationwide until 2020 is still high at 305 per 100,000 live births (LB), while the target for MMR in the National Medium-Term Development Plan (RPJMN) 2024 is 183 per 100,000 LB and the target for the Global SDGs MMR is 70 per 100,000 LB. In Indonesia, based on the Sampling Registration System (SRS) data in 2018, from 76% of maternal deaths, about 36% occurred during childbirth. (Ministry of Health of the Republic of Indonesia, 2020). According to the Indonesian Health Profile data in 2022, the number of pregnant women in Indonesia was 4,884,771, with a coverage of third trimester at 4,336,254 (88.8%). Based on the 2022 Indonesian Health Profile, the number of pregnant women in Indonesia was recorded at 4,884,771, with 4,336,254 (88.8%) attending check-ups in the third trimester. The psychological condition of pregnant women, especially primigravida, is a major concern because they are at risk of experiencing anxiety prior to delivery (Kemenkes, 2022).

Childbirth is the process of expelling the result of conception that occurs at full-term pregnancy (Walyani dan Purwoastuti, 2020). The labor process is divided into 4 stages. Stage I of labor begins with the onset of regular contractions that increase until the mother is fully dilated. In Labor Stage I, based on the progress of dilation, Stage I is divided into 2 phases: the latent phase and the active phase. The strength of contractions during labor is related to the degree of pain. The pain felt by the mother in labor will cause anxiety (Pairman et al., 2019).



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During this Active Phase I, there is also an increase in uterine contractions and cervical dilation, which results in heightened labor pain and consequently increases the anxiety of the laboring mother. Feelings of fear and anxiety themselves are the main factors that cause pain during labor and affect uterine contractions as well as cervical dilation, leading to prolonged labor. The phenomenon of the relationship between anxiety and pain, and vice versa, is a positively correlated relationship whereby as the labor process advances, pregnant mothers feel increasingly anxious, and this anxiety causes the pain to become more intense, and vice versa (Wijayanti & Altika, 2020)

Efforts to alleviate labor pain can be done using both pharmacological and non-pharmacological methods. Considering the potential side effects on the mother and fetus, the use of pharmacological methods in the form of analgesics and anesthetics may not be the first choice for delivery (Karahmet & Fatma, 2023). One of the relaxation techniques and non-pharmacological actions in managing anxiety during childbirth is using Aromatherapy. Accessing aromatherapy through the nose (inhalation) is the fastest route compared to other methods (Alhabardi et al., 2025).

Peppermint aromatherapy functions as an anticonvulsant. One of the anticonvulsant mechanisms is spasmolytic or anti-seizure muscle contraction. Peppermint has spasmolytic activities in vitro and can also reduce skeletal muscle tension. The spasmolytic effect of peppermint acts as a mediator for the release of enzymes that reduce muscle contraction. The action mode of linalool, one of the dominant components in peppermint, provides a reflective taste (Alex et al., 2022).

The results of a preliminary study conducted on July 19-20, 2025, using interviews with 15 first-time mothers in labor revealed that 12 mothers expressed feelings of fear, anxiety, restlessness, and unease due to excessive pain, while 3 mothers did not feel anxious and were more calm.

OBJECTIVE

Efforts to alleviate labor pain can be done using both pharmacological and non-pharmacological methods. Considering the potential side effects on the mother and fetus, the use of pharmacological methods in the form of analgesics and anesthetics may not be the first choice for delivery. One of the relaxation techniques and non-pharmacological actions in managing anxiety during childbirth is using Aromatherapy.

METHODS

The research design in this study is quasi-experimental with the design used being a one group pre-post test without a control. This research was conducted in August-September 2024. The data collection tool used in this study employs a questionnaire and a standard operating procedure for administering peppermint aromatherapy by adding 5



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drops of peppermint aromatherapy mixed with 20 ml of water, which is then evaporated using an electric stove, and respondents inhale the aromatic steam for 15 minutes. This study only intervenes in one group without a comparison, the effectiveness of the treatment is assessed by comparing the pre-test scores with the post-test scores. Quasi-experimental design with a pre and post test design without control.

In this study, the population taken is all primiparous mothers in active phase I of labor at RSIA Paradise Tanah Bumbu District. In this study, the researcher uses several criteria to determine the respondents, as follows:

1. Inclusion Criteria

The inclusion criteria of this study are:

- a. Mothers in labor who are willing to be respondents
- b. The mother is giving birth through normal delivery
- c. Mothers in labor who are not given oxytocin
- d. The mother in labor is in a closed room

2. Exclusion Criteria

- a. A mother in active labor whose condition suddenly becomes pathological (breech, placenta previa, uterine abnormalities)
- b. A mother in labor who is allergic to the smell of peppermint.

This study uses sampling with the saturation sampling technique, which is a sampling method that uses the entire population. This saturated sample is used when the population is less than 30 people, and the anxiety data is collected using the HAR'S questionnaire. The total sample used consists of 11 respondents. The interpretation of the Wilcoxon test is using a significance level ($\alpha = 0.05$). The decision rule for the data analysis is that if the p -value > 0.05 , then H_0 is accepted, meaning there is no effect of peppermint leaf aromatherapy on reducing anxiety levels in first-time laboring mothers during the first stage, and conversely, if the p -value < 0.05 , then H_0 is rejected, meaning there is an effect of peppermint leaf aromatherapy on reducing anxiety levels in first-time laboring mothers during the first stage.

RESULTS

1. Univariate Analysis

- a. Characteristics of Respondents Based on Age Group of Mothers in Labor at RSIA Paradise South Kalimantan

Tabel 1. Characteristics of Respondents Based on Age Group of Mothers in Labor

No.	Age Group	Frequency	Percentage (%)
1	< 20 Years	5	45,5



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2	20-25 Years	6	54,5
Total		11	100

According to table A above, it is known that the majority of respondents (54.5%) are in the middle age group (20-35 years old).

- b. Characteristics of Respondents Based on Education of Mothers Giving Birth at Paradise Hospital South Kalimantan

Table 2. Characteristics of Respondents Based on Education of Mothers Giving Birth

No.	Education	Frequency	Percentage (%)
1	Elementary School	5	45,5
2	Junior High School	3	27,3
3	High School	3	27,3
Total		11	100

Based on the table B above, it is known that almost half of the respondents (45.5%) have elementary school education

- c. Characteristics of Respondents Based on Occupation of Mothers. Delivery Among Mothers in RSIA Paradise, South Kalimantan

Table 3. Characteristics of Respondents Based on Occupation of Mothers

No.	Work	Frequency	Percentage (%)
1	Housewife	6	54,5
2	Private	5	45,5
Total		11	100

Based on table C above, it is known that the majority of respondents (54.5%) work as housewives.

2. Multivariate Analysis

Distribution of effectiveness of anxiety levels in postpartum mothers after being given peppermint leaf aromatherapy

No.	Level of anxiety	Before		After		Total	p value
		Frequency	Presentation (%)	Frequency	Presentation (%)		
1	Not Anxious	0	0	1	9,0	9,0	0,03*
2	Light	2	18	6	54,5	72,5	
3	Currently	6	54	4	36,3	90,3	
4	Heavy	3	27	0	0	27	
Total		11	100	11	100		

Based on the table 3 above, it is known that before being given peppermint aroma therapy, almost half of the respondents (27%) experienced severe anxiety and the



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majority of respondents (54%) experienced moderate anxiety. After being given peppermint leaf aromatherapy, it was found that most respondents (54.5%) experienced a decrease in anxiety levels among mothers in labor. The test used was the Wilcoxon alternative test which yielded a P value (exact. Sig/2 tailed) of 0.03 (< 0.05), meaning there was a significant difference in the decrease of anxiety levels among mothers in labor before and after receiving the peppermint leaf aromatherapy. Therefore, H_0 is rejected and H_1 is accepted, which means that there is an effect of giving peppermint leaf aromatherapy on the reduction of anxiety levels in postpartum mothers.

DISCUSSION

Based on the research results in table 1, it is known that all respondents experienced anxiety at (100%). Before being given peppermint leaf aromatherapy, the majority of respondents experienced moderate anxiety (54%), and almost half of the respondents experienced severe anxiety (27%). Meanwhile, from the data obtained, the majority of mothers giving birth are between the ages of 20-25 years old (54.5%), which is within the age range that is prepared for reproduction. However, the experience of childbirth for the first time causes mothers to feel pain, leading to excessive anxiety. If this anxiety is not addressed, it can lead to serious issues such as muscle tension, especially in the birth canal area, irregular breathing and a very fast heart rate, and research results indicate that the education level of first-time mothers is almost half with elementary school education.

Low education causes a person to experience stress and anxiety due to a lack of information obtained. The higher a mother's education, the more mature a person's thinking will be in thinking and acting. Viewed from the level of education, primary education (SD) is categorized as basic education, this level of education tends to be slow to act and is more likely to do things with minimal effort. Based on the research results, most primiparous mothers (54.5%) work as housewives. Looking at the mother's employment status, which is not working, she will have more time to gather information from various media such as magazines and television to enhance her knowledge.

Based on table 2, it is known that after being given peppermint aromatherapy, almost half of the respondents experienced moderate anxiety (36.3%) and the majority of respondents experienced mild anxiety (54.5%). The majority of respondents, after being given aromatherapy, felt relaxed and calm, resulting in a decrease in feelings of anxiety. The results of this study indicate a decrease in anxiety levels among mothers in labor.

According to researchers, inhaling aromatherapy can reduce childbirth anxiety because it affects the psychological condition of the mother. A fresh atmosphere around the mother will create comfort during the labor process. Excessive pain increases anxiety, especially since this is the mother's first experience of childbirth. Refreshing aromas can



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enhance the mother's concentration and stabilize her heart rate. The level of anxiety of mothers before being given aromatherapy was mostly in the severe anxiety category, totaling 14 (43.75%), while the level of anxiety of mothers after being given aromatherapy was in the moderate anxiety category, totaling 15 (46.88%). The results of the Wilcoxon Signed Rank Test indicate that there is an effect of aromatherapy on reducing the anxiety levels of postpartum mothers. This concludes that aromatherapy can be used to reduce anxiety in postpartum mothers.

The effectiveness of giving peppermint aromatherapy on the reduction of anxiety levels in laboring mothers was determined by Wilcoxon test analysis. The statistical analysis results showed a P value of 0.03*. From the results of the data analysis, it can be concluded that there is a difference in the decrease in anxiety levels in laboring mothers before and after being given peppermint aromatherapy. The results of the statistical analysis are supported by the findings of the reduction in anxiety levels in mothers during childbirth, which can be seen from the values before and after being given peppermint aromatherapy. Before the treatment, out of 11 respondents, 6 experienced moderate anxiety and 4 experienced severe anxiety. After being given peppermint aromatherapy, the majority, which is 6 respondents, experienced a decrease in anxiety levels in laboring mothers with a percentage of 54.5%.

CONCLUSION

Based on the research results, the conclusion is as follows:

1. Before the peppermint aromatherapy intervention, during the pre-test, there were no respondents who were not anxious; the majority experienced moderate anxiety (54%), nearly half experienced severe anxiety (27%), and a small portion experienced mild anxiety (18%).
2. After being given peppermint aromatherapy intervention at the post-test, the majority of respondents experienced mild anxiety (54.5%), almost half experienced moderate anxiety (36.3%), a small portion of respondents did not experience anxiety (9.0%), and there were no respondents who experienced severe anxiety.
3. There is an influence of peppermint aromatherapy on the decrease of labor anxiety.

Based on the results of the research that has been conducted, the researcher would like to provide recommendations to several related parties:

1. Respondents are expected to cooperate and implement the provision of peppermint aromatherapy as a non-pharmacological therapy to reduce anxiety in primiparous mothers, thereby reducing the frequency of medication use that may cause side effects.
2. It is hoped that it can serve as input for Midwives that the provision of peppermint aromatherapy can be made a standard operating procedure in midwifery care for



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primiparous mothers during the active phase of labor, especially to address anxiety during childbirth.

3. For future researchers, this can be used as a reference and can be developed further from what has been done in this study. Such as increasing the number of respondents, classifying groups based on age in primipara mothers, as well as the effective time when conducting research..

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