

Comparative Analysis of Direct Inhalation vs. Diffuser Delivery Methods for Lavender Aromatherapy on Pain Intensity in Primigravida During Active Labor Phase

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ABSTRACT

Background: Pain is an uncomfortable feeling that everyone has experienced, whether mild or acute. The intensity of labor pain in primigravidas is often more severe than labor pain in multiparas. Aromatherapy is a non-pharmacological method for treating, reducing symptoms, preventing and reducing anxiety. Using lavender aromatherapy can increase relaxation and reduce pain. Providing aromatherapy through inhalation is the most popular method of administration. However, there has been no research that proves a more effective method of administration in reducing labor pain between direct inhalation aromatherapy and using a diffuser. Aromatherapy has not been widely developed in PMB Cirebon city. The aim was to determine the difference between giving lavender aromatherapy by direct inhalation and diffuser on pain intensity in active phase I primigravidas in BPM Cirebon Regency.

Methods: Quasi Experiment research with a two group pre-test and post-test design. The independent variable in this research is the administration of lavender aromatherapy by direct inhalation using a diffuser. The dependent variable in this research is the intensity of labor pain. Population of all primigravida mothers. Non Random Sampling technique with Accidental Sampling with inclusion and exclusion criteria. The inclusion criteria in this study were primigravida, Term (37-42 weeks), Inpartu, Phase I active phase, Age 20-35 years, Patient willing to be a research respondent

The study exclusion criteria were pathological labor, allergies to aromatherapy odors, olfactory disorders (flu). The number of samples was 30 people. 15 people were given aromatherapy by inhaling directly and 15 people by using a diffuser. Univariate and bivariate data analysis. The bivariate test uses the Wilcoxon Signed Rank and Mann Whitney tests.

Results: The results of the Wilcoxon test for the direct inhalation group had a p-value of 0.157. The results of the diffuser group have a p value of 0.001. Mann Whitney test results p value of 0.001. So giving lavender aromatherapy using a diffuser is more effective in reducing labor pain.

Conclusion: There are differences in the intensity of labor pain when giving direct inhalation of lavender aromatherapy and using a diffuser. Diffuser aromatherapy is more effective in reducing labor pain

Keyword : Lavender Aromatherapy, Direct Inhalation, Diffuser, Labor Pain Intensity

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Background. Labor or birth is a natural and physiological process in which cervical dilatation occurs, and the birth of the baby and placenta from the mother's womb. Normal delivery occurs at term pregnancy 37-42 weeks, birth spontaneously with a posterior presentation that occurs within 18 hours without maternal and fetal complications¹. Labor can proceed normally, supported by 4 important factors ("4 P"), namely Powers (strength of contractions), Passage (pelvis and birth canal), Passenger (fetus) and Psyche (female response)(Durham, 2019). Labor feels

very painful caused by contractions of the smooth muscles of the uterus.(Cunningham FG,Leveno KJ, Bloom SL,Hauth JC, Gilstrap LC, 2005)

The period of labor is divided into 4 stages, the first stage starts from the cervix opening less than 4 cm to complete opening (10 cm) (Gulardi H Wiknjastro, Omo Abdul madjid, 2014). The birthing process takes 18 hours, requires the mother's patience, physical and psychological strength. Psychological factors, fear and anxiety are often the cause of labor taking a long time, so that the delivery

becomes less good and the opening becomes less smooth. Previous research stated that 59% of primigravida mothers experienced anxiety when facing childbirth (Aniroh and Fatimah, 2019)

Various methods have been used to reduce labor pain, namely pharmacological and non-pharmacological management. Pharmacological methods are more effective in reducing labor pain but have adverse effects on both the mother and the fetus such as nausea, dizziness in the mother and respiratory problems in the baby (Maryunani, 2010). Meanwhile, non-pharmacological management is cheaper, simple, effective and without adverse effects (Baroroh Rohmana Haqiqi, 2016). strength and can increase the comfort of the mother during childbirth and has an influence on effective coping of the delivery experience (santi, 2015).

Aromatherapy is a non-pharmacological method for treating, reducing symptoms, preventing and reducing anxiety by inhalation. Smell will affect mood, behavior and energy levels. Aromatherapy given to mothers during pregnancy or childbirth will provide experiences on the baby's sense of smell to reduce anxiety levels and reduce labor pain. The odor molecules contained in essential oils have a positive effect on the central nervous system by inhibiting the release of Adrenocorticotrophic Hormone (ACTH) which causes anxiety in individuals.

The advantages of aromatherapy compared to other non-pharmacological methods, aromatherapy has a direct impact on the nervous system so that it can help relieve stress, anti-depressants, improve memory, increase the amount of energy, healing and recovery, overcome insomnia, the immune system, relieve pain, relieve digestive disorders (B. Rohmana Haqiqi, 2016). Lavender aromatherapy is an aromatic oil that can be used to reduce pain, calm, balance the body and mind systems and is safe to use during pregnancy. Giving aromatherapy using a diffuser tool driven by electricity using water so that aromatherapy can spread in the

surrounding environment (Muchtaridi & Moelyono, 2015).

Based on the background above, the authors are interested in conducting a research study regarding: Differences in Giving Lavender Aromatherapy by Direct Inhalation and Using a Diffuser Device on the Intensity of Pain in the Active Phase I Phase in Primigravida Mothers at PMB Cirebon Regency.

Methods. This research is a quasi-experimental research using a Randomized pre post test Control design research design. The intervention group, namely the direct inhalation group and the other group used a diffuser. The research subjects were primiparous mothers. Sampling used Non Random Sampling techniques with Accidental Sampling with inclusion and exclusion criteria. The inclusion criteria in this study were primigravida, Term (37-42 weeks), Inpartu, Active phase Phase I, Age 20-35 years, Patient willing to be a research respondent

The research exclusion criteria were pathological labor, allergies to aromatherapy odors, olfactory disorders (flu). Respondents for each group were 15 primigravid mothers totaling 30 respondents who were included in the research inclusion criteria.

This research was carried out from November 2017 to March 2018 in 2 PMB District. Cirebon. The independent variable is giving lavender aromatherapy, the dependent variable is the intensity of pain in primigravida women in the first active phase

The population is all primigravida mothers with estimated deliveries in November 2017 to March 2018.

The research instruments consisted of breath brand lavender roll on aromatherapy, lavender aromatherapy in a diffuser, a questionnaire and an NRS pain scale measurement form.

The data collection process was assisted by 5 enumerators before sharing their perceptions, they explained the entire research process and signed a letter of intent. Variables were observed during the active

phase of phase I. Researchers carried out an initial test (pre-test), namely by filling out a questionnaire containing a pain scale. Next, the researcher provides intervention. Each intervention was carried out twice, namely when the mother entered the active phase and the transition phase with a maximum time of 30 minutes, then the respondent underwent a final test (post-test). At PMB A, lavender aromatherapy is given in the form of roll on aromatherapy with a composition of 0.25 ml per package to the mother or birth attendant and then inhaled for a maximum of 30 minutes during contractions. At PMB B, lavender aromatherapy is given using a diffuser by giving 6 drops or the equivalent of 0.3 ml using a 1 cc syringe into 120 ml of water which has been measured using a measuring cup given for a maximum of 30 minutes after the aroma has spread. all over the room. 4.80x1.20 meters.

All respondents received an explanation about the aims, benefits and research process. The researcher explained that respondents have the right to cancel their participation in the research if they feel uncomfortable or disadvantaged. Respondents who agree and are willing to become respondents sign informed consent as a legal aspect of the research process. Respondent data was tested without showing their identity to maintain the confidentiality of the research subjects. The statistical test used to determine the difference in mean pain intensity before and after intervention for each group was the Wilcoxon Signed Rank test. Meanwhile, the Mann Whitney test was used to determine the average difference between giving lavender aromatherapy by direct inhalation and using a diffuser on pain intensity in primigravida women in the first active phase. Thus, if $p \text{ value} < 0.05$ then the statistical calculation results are significant and if $p \geq 0.05$ then the statistical calculation results are not significant. **Result and Discussion.** Tabel I The results there was a decrease in the average intensity of labor pain in primigravida mothers before and after being

given lavender aromatherapy by direct inhalation. there was an increase in the average intensity of labor pain in primigravida mothers before and after being given lavender aromatherapy using a diffuser.

Table 1. Average Intensity of Labor Pain During the First Active Phase Before and After Giving Lavender Aromatherapy by Direct Inhalation and Using a Diffuser

Treatment	Mean	Deviation Standard	Min – Max
A. Direct Inhalation			
1. Pre Test	6.07	0.884	5 - 7
2. Post test	5.67	1.060	5 – 8
B. With a Diffuser Tool			
1. Pre test	5.87	0.384	5 – 7
2. Post test	6.87	0.384	6 – 9

Table 2 Normality test for the direct inhalation group found that the data were not normally distributed ($p = 0.006$) for the diffuser group, it was found that the data were not normally distributed ($p = 0.004$)

Table 2. Data Normality Test of Labor Pain Intensity during Active Phase I Before and After Giving Lavender Aromatherapy by Direct Inhalation and Using a Diffuser Tool

Treatment	N	p value
A. Direct Inhalation		
1. Pre Test	30	0.006
2. Post test		0.000
B. With a Diffuser Tool		
1. Pre test	30	0.004
2. Post test		0.003

Table 3 There was no significant difference in the intensity of active phase I labor pain in primigravidas before and after being given lavender aromatherapy by direct inhalation.

There were differences in the intensity of labor pain during the first stage of the active phase in primigravidas before and after being given lavender aromatherapy using a diffuser.

Table 3 Differences in Mean Intensity of Pain Before and After Administration of Lavender Aromatherapy in the Direct Inhalation and Diffuser Groups

Treatment	N	Median (Min – Max)	<i>p value</i>
A. Direct Inhalation	15	6.00 (5 – 7)	0.157
1. Pre Test			
2. Post test			
B. With a Diffuser Tool	15	7.00 (6 – 9)	0.001
1. Pre test			
2. Post test			

Based on table 4, the results of the Asym.Sig value (*p value*) are 0.001. This shows the Asym.Sig value (*p value*) < 0.05. So it can be concluded that there are differences in the intensity of labor pain when giving lavender aromatherapy by direct inhalation and using a diffuser for the first stage of the active phase in primigravidas.

Table 4 Analysis of Differences in the Intensity of Labor Pain in the Active Phase I Phase by Giving Lavender Aromatherapy by Direct Inhalation and Using a Diffuser Tool

Variable	N	Median (Min – Max)	Mean Rank	<i>p value</i>
Intervention Pain Intensity I	15	6 (5-7)	10.50	0.001
Intervention Pain Intensity II	15	6 (5-9)	20.50	

Conclusion and Suggestions. The There is a decrease in the average pain before and after giving lavender aromatherapy by direct inhalation to the intensity of pain in the first stage of the active phase of primigravida mothers, There is an increase in the average pain before and after giving lavender aromatherapy using a diffuser on the intensity of pain in the first stage of the active phase of primigravida mothers, There was no significant difference in the intensity of active phase I labor pain in primigravidas before and after being given lavender aromatherapy by direct inhalation. There was a significant difference in the intensity of labor pain during the first active phase in primigravidas before and after being given lavender aromatherapy using a diffuser. There are differences in the

intensity of labor pain when giving lavender aromatherapy by direct inhalation and using a diffuser. By using a diffuser, administering lavender aromatherapy is more effective in reducing labor pain during the first stage of the active phase in primigravida mother

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