

The Effect of Lavender Aromatherapy Giving on Perineum Pain in Post Partum Mothers

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Abstract: Perineum pain in post-partum mothers is a physiological condition that is experienced by post-partum mothers, but it can interfere mobilization that causes complications such as post-partum hemorrhage. Lavender aromatherapy is proven to reduce perineum pain. The purpose of this study was to determine the effect of lavender aromatherapy giving on perineum pain. This study used quasy experimental method with pre-test post-test with control group approach with total of 36 research subjects. Subjects were in 2 groups which there were 18 research subjects in each group. The study was conducted twice with pain observation sheets or VAS (Visual Analogue Scale), i.e. during the active phase. Statistical analysis tests used Wilcoxon test with Mann Whitney test. There was a difference on perineum pain in post-partum mothers in the assessment before and after lavender aromatherapy given with p value = 0,000 ($p < 0.05$) whereas pain level of pre-test in Lavender therapy group majority of severe pain category (72.2%) and after post-test the majority are moderate pain categories (77.8%).

1 INTRODUCTION

Based on WHO data, there are as many as 99% of maternal deaths due to childbirth or birth problems that occur in developing countries. The annual pregnancy ratio in developing countries is the highest with 450 maternal deaths per 100,000 live births when it is compared to the maternal mortality ratio in 9 developed countries and 51 commonwealth countries due to complications during pregnancy and childbirth, and 25% during the postpartum period (WHO, 2016). The maternal mortality rate in Indonesia is still high at 359 per 100,000 live births. The fifth global MDG (Millennium Development Goals) target is to reduce Maternal Mortality Rate (MMR) to 102 per 100,000 live births in 2015. It is referring to current conditions, the potential to achieve these targets is off track, it means that it requires hard work and really to achieve it (SDKI, 2012).

One of the efforts that is taken to reduce maternal mortality is save motherhood program, which is about post-partum care where there are often occur complications such as bleeding, sepsis and perineum trauma. Post-partum care must really

be considered, because 50% of maternal deaths occur after giving birth (post-partum).

Post-partum is a period of six weeks from the baby is born until the reproductive organs return to normal before pregnancy. There are majority of women who have vaginal delivery experience some degree of perineum pain after childbirth, both women who have perineum injury or not due to episiotomy. Mothers who experience perineum laceration will feel pain for several days until healing occurs. Perineum tears or rupture occur in almost first labor and it is not infrequently in subsequent deliveries. It is occurred in primiparous or first-time births when the fetal head comes out. Episiotomy wounds that are not handled properly will cause complications, such as blood loss due to episiotomy too early, infection due to contamination with urine and feces, dyspareunia, and local hematomas that cause infections.

According to Smeltzer & Bare (2013), pain is an unpleasant sensory and emotional experience due to actual and potential tissue damage. Pain is the main reason for someone to seek health care assistance. According to the International Association for the Study of Pain (IASP) defines pain as a subjective

sensory and unpleasant emotional experience associated with actual or potential or damaged tissue damage felt in events where damage occurred. In some people, pain can be more troublesome than other diseases. After giving birth, a mother often reports pain and trauma to the perineum. Perineum pain is physiological in post-partum mothers, but this pain will affect a woman's ability to mobilize so that it can cause of complications such as post-partum hemorrhage. Perineum pain due to trauma such as perineum laceration can cause discomfort and dyspnoea (Widayani, 2017).

Vakilian (2015) reports that the lavender aromatherapy giving can reduce perineum pain on 60 postpartum mothers with spontaneous laceration and episiotomy, 40% of whom do not feel pain. According to research that is conducted by Widayani (2017) there is a decrease in pain intensity of postpartum perineum suture before and after being given lavender aromatherapy with inhalation techniques. It is also supported by Vaziri F (2017) that lavender aromatherapy that is given to post-partum mothers has better mood and physicality. Aromatherapy is a treatment technique by using odors that come from plants, flowers, trees that smell nice and delicious (Ali B, 2015). The use of aromatherapy inhaled can stimulate endorphin expenditure so that it can reduce pain (Vakilian, 2015). Endorphin substances are chemicals that are produced by the body as a result of external stimuli and it produces feelings of calm, pleasure, relaxes, stimulated and relaxes tense muscles such as pain and physical exertion (Aprilia, 2015).

Lavender aromatherapy is a therapeutic action that is beneficial to improve the physical and psychological condition of maternity mothers. Physically it is good to be used to reduce pain, whereas psychologically it can relax the mind, reduce tension and anxiety and provide calm (Ali B, 2015). Currently the handling used to relieve pain is complementary therapy aromatherapy with essential oil of lavender, because lavender has the properties of anticonvulsant, antidepressant, anxiolytic, and also soothing. Lavender aromatherapy can be a complementary alternative therapy to reduce pain in postpartum women. Ten pleasant odors will stimulate the thalamus to release enkephalin which have the functions as a natural painkiller and produces feelings of well-being. Enkephalin is same as endorphins, namely endogenous chemicals (produced by the body) that have structure similar to enkephalin opioids that are thought to cause presynaptic barriers (neurons that secrete transmitter material) and postsynaptic barriers (where the

transmitter works) in the commutator. This process achieves inhibition by enkephalin, the inhibition of substance P so that pain is reduced to the brain.

2 METHOD

The research type was quasi experimental design with pre-test and post-test with control group approach, this design used two groups where the first group is given lavender aromatherapy (treatment group), while the second group as control was not given lavender aromatherapy and both groups undergo a test beginning and end. The results of this study were comparing the groups treated with control group to determine the effect of lavender aromatherapy giving on perineum pain in postpartum mothers in working area of Sibolangit Public Health Centre, Deli Serdang District. The population of this study were post-partum mothers in Sibolangit Health Centre in March until May 2019. The samples of this study were post-partum mothers who experienced perineum tears. Inclusion criteria were mothers during the 1st active phase, physiological deliveries, mothers who had experienced perineum tears and they were willing to be respondents. Exclusion criteria were mothers who gave birth surgically and mothers who had asthma.

The sampling technique in total sampling is done by taking the case of the entire population of 36 subjects. This research was conducted after obtaining approval from the head of Public Health Centre. The study instruments were the observation sheet of respondents' characteristics (Name, Age, Ethnicity, Education, occupation) and observation sheet of Visual Analogue Scale (VAS) pain. While the tools used in this study were diffuser and lavender aromatherapy oils for 10 minutes at 10, 30, and 60 minutes. It is done to find out the decrease in pain scale by using Visual Analogue Scale (VAS). With the assessment of pain intensity on a scale of 0 there was no pain, pain intensity on a scale of 1 to 3, pain such as itching or electric shock or twitching or twisting or beating or aching or colic. Pain intensity on a scale of 4 to 6, such as ham or stiff or depressed or difficult to move or burn or stab. Very painful on a scale of 7 to 9 but it can still be controlled by the client. Pain intensity is very severe on a scale of 10 uncontrolled pains.

Substances that are contained in lavender oil have a lot of potential because it consists of several ingredients. According to research, in 100 grams of lavender oil composed of several ingredients, such

as: essential oils (13%), alpha-pinene (0.22%), camphene (0.06%), beta-myrcene (5.33%), p-cymene (0.3%), limonene (1.06%), cineol (0.51%), linalool (26.12%), borneol (1.21%), terpinen-4-ol (4, 64%), linalyl acetate (26.32%), geranyl acetate (2.14%), and caryophyllene (7.55%). Based on the data above, it can be concluded that the main content of lavender is linalyl acetate and linalool (C₁₀H₁₈O).

This research analysis used univariate and bivariate. Bivariate analysis is used to prove the existence of periods before and after each group by using Wilcoxon test.



Figure 2: Lavandula officinalis chaix

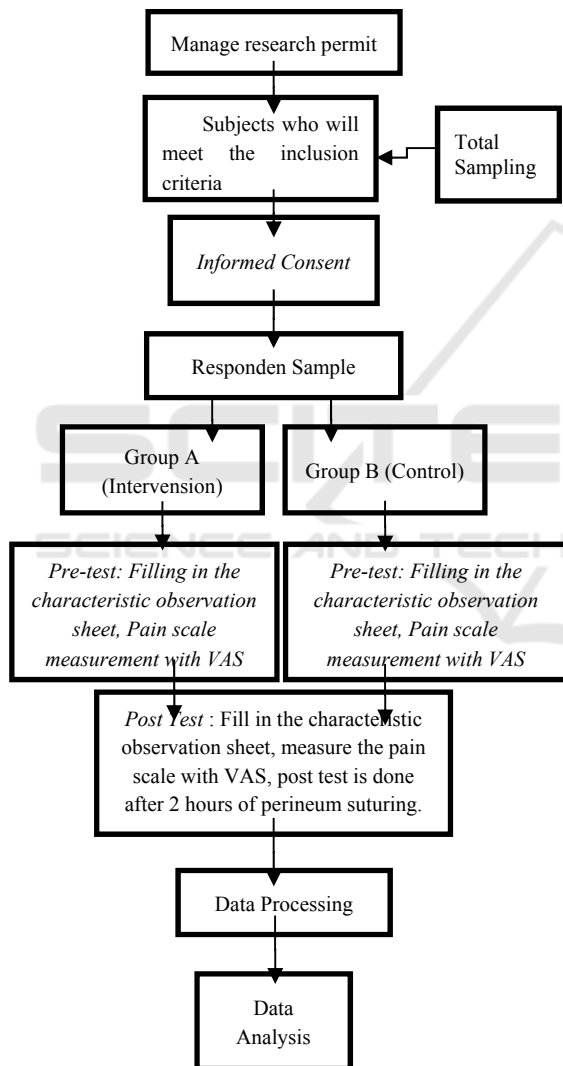


Figure 1: Research Flowchart

3 RESULTS

The results showed that there was an influence of lavender aromatherapy giving on perineum pain in post-partum mothers. From table 1 it can be seen that the group which was not given lavender aromatherapy, the majority of pre-test categories were moderate pain levels that were 72.2%, the majority of post-tests were in the category of severe pain levels namely 88.9%, it can be seen in the Table 1. From Table 1 can be known that group were not given lavender aromatherapy, the pre-test majority category of moderate pain level is 72.2%, the post-test majority category of severe pain levels is 88.9%.

Table 1: Distribution of perineum pain without lavender aromatherapy.

Score	Pain Level (VAS)	(Pre)		(Post)	
		N	%	N	%
0	No pain	0	0	0	0
1-3	Mild pain	0	0	0	0
4-6	Moderate pain	13	72,2	2	11,1
7-9	Severe pain	5	27,8	16	88,9
10	Very heavy pain	0	0	0	0

From Table 2 it can be seen that in the group that is not given lavender aromatherapy, the pre-test pain level was lower than the post-test pain level, it was indicated by a median of 3 and 7.5, respectively. At the time the pre-test, the highest level of pain was score of 7 (severe pain), and the lowest was score of 5 (moderate pain). Whereas at the time of the post-

test, the highest level of pain was score of 9 (severe pain), and the lowest was score of 6 (moderate pain).

Table 2: Wilcoxon test for perineal pain levels without lavender aromatherapy

	Median (Minimum-Maximum)	P Value
Pre Pain Level (N=18)	3 (5-7)	0,001
Post Pain Level (N=18)	7,5 (6-9)	

Based on the Wilcoxon Test results p value <0.05 means that there are statistically significant differences in pain levels between pre-test and post-test in groups that were not given lavender aromatherapy. It can be concluded that there was an increase in the level of perineum pain in the group not given lavender aromatherapy.

From Table 3, it can be seen that in the group that was given lavender aromatherapy, the majority pre-test in the category of severe pain level was 72.2%, the majority of post-test in the category of moderate pain level was 77.8%.

Table 3: The Frequency of perineum pain with lavender aromatherapy.

Score	Pain Level (VAS)	(Pre) N	%	(Post) N	%
0	No pain	0	0	0	0
01-Mar	Mild pain	0	0	0	0
04-Jun	Moderate pain	5	27,8	14	77,8
07-Sep	Severe pain	13	72,2	4	22,2
10	Very heavy pain	0	0	0	0

From Table 4, it can be seen that the median value of the group that was given lavender aromatherapy, the pretest pain level (7.5) was higher than the posttest pain level (5.5).

Table 4: Wilcoxon test for perineal pain level with lavender aromatherapy.

	Median (Minimum-Maximum)	P Value
Pre pain level (n=18)	7,5 (6-9)	0
Post pain level (n=18)	5,5 (4-8)	

The Wilcoxon test resulted p value <0.05, it is to conclude that statistically there were significant differences in pain levels between pre-test and post-test, it means that there was a decrease in perineum pain level after being given lavender aromatherapy.

From Table 5, it can be seen that in the post-test, most of the groups were not given lavender aromatherapy experienced severe pain category as much as 88.9% while those in the groups were given lavender aromatherapy experienced a category of moderate pain level that was as much as 77.8%.

Table 5: The Differences on perineum pain in post-partum mother's pre-test without and with lavender aromatherapy.

Score	Pain Level VAS (post-test)	Groups			
		Groups that were not given Lavender Aromatherapy		Groups that were given Lavender Aromatherapy	
		N	%	N	%
0	No pain	0	0	0	0
01-Mar	Mild Pain	0	0	0	0
04-Jun	Moderate Pain	2	11,1	14	77,8
07-Sep	Severe Pain	16	88,9	4	22,2
10	Very Heavy Pain	0	0	0	0
Total		18	100	18	100

From Table 6, it can be seen that the groups were not given lavender aromatherapy; there were 2 subjects (11.1%) that experienced moderate pain, and 16 subjects (88.9%) that experienced severe pain. In the groups that were given lavender aromatherapy, there were 14 subjects (77.8%) that experienced moderate pain, and 4 subjects (22.2%) that experienced severe pain.

Table 6: Wilcoxon test post-test pain levels without and with lavender aromatherapy

	Pain Level Post-Test								P
	Mild Pain		Moderate Pain		Severe Pain		Very Heavy Pain		
	(1-3)		(4-6)		(7-9)		-10		
	N	%	N	%	N	%	N	%	
Groups that were not given lavender aromatherapy	0	0	2	11,1	16	88,9	0	0	0.000
Groups that were given lavender aromatherapy	0	0	14	77,8	4	22,2	0	0	
Total	0	0	16	44,4	20	55,5	0	0	

The Wilcoxon test resulted p value <0.05 , it concluded that statistically there were significant differences in the level of post-test pain between the groups that were not given, and the groups were given lavender aromatherapy. The mean level of post-test pain in the groups without lavender aromatherapy was 8.00 while the mean level of pain in the post-test groups given lavender aromatherapy was 0.00.

4 DISCUSSION

4.1 Perineum Pain Levels with Lavender Aromatherapy

Changes in the level of pain in the pre-test and post-test in the groups which are given lavender aromatherapy was the higher level of pre-test pain than the level of post-test pain. At the time of pre-test, the highest level of pain was severe pain, the lowest was pain moderate. While at the post-test the highest level of pain was severe pain and the lowest was mild pain.

Based on the Wilcoxon test results in the groups which were given aromatherapy, it is obtained p value = 0.001 which was smaller than $\alpha = 0.005$ thus there were differences in the level of pain pre-test and post-test in the groups which were given aromatherapy lavender. Aromatherapy lavender was given pre-test and post-test, there were 18 peoples who experienced an increase and there were 17 peoples experienced an increase in pain levels.

4.2 Changes in Perineum Pain Levels with Lavender Aromatherapy

A change in the level of pain in the pre-test and post-test in the groups that were not given lavender aromatherapy was the higher level of pre-test pain than the level of post-test pain. At the time of pre-test, the highest level of pain was the lowest moderate pain namely severe pain. While in the post-test the highest level of pain was severe pain and the lowest was moderate pain.

Based on the Wilcoxon test, it resulted in groups that were not given lavender aromatherapy p values = 0.001 which was smaller than $\alpha = 0.05$ thus there were differences in the level of pain pre-test and post-test in the groups that were given lavender aromatherapy. Lavender aromatherapy was given pre-test and post-test there were 18 peoples who experienced an increase and 17 peoples who experienced an increase in pain levels and who experienced the same level of pain were as many as 1 person who looked worried because the husband was absent in labor because the husband was working.

Aromatherapy is one of the non-pharmacological methods to reduce pain. Aromatherapy is a healing process using concentrations of essential oils extracted from plants to improve the health and well-being of the body, mind and spirit. The scent is captured by nasal receptors and then provides further information to areas in the brain that control emotions and memory as well as information to the hypothalamus which is the body's internal system of immersion, including the sexuality system, body temperature, and reactions to stress.

Lavender Aromatherapy has bactericidal, analgesic, and antidepressant, antispasmodic when aromatherapy is inhaled, the substances contained in it will stimulate the hypothalamus to release endorphin hormones because it can relax and calm the body as well as active substances in the form of linalool and linalyl acetate in the effects of lavender as analgesic.

The results showed that lavender aromatherapy can reduce the intensity of post sectio Caesarea wound pain and Marni's study (2015) proved that aromatherapy can reduce labour pain from the pain scale from 9.58 to 7.30. It is also supported by Nasiri A (2016) that the administration of Lavender essential oil can relieve pain in patients with osteoarthritis of the knee. According to Salamati (2016) in his research it was found that pain before and after inhalation of lavender essential oil significantly affected pain reduction. Lavender

aromatherapy contains linalyl acetate and linalool inhaled into the nose that is captured by the olfactory bulb and then entered through the second branched, lateral and non-medial olfactory ducts. On the lateral side, this channel sneaks in the third neuron in the amygdala, seminular gyrus and gyrus ambiens which are part of the limbic. The medial side line also terminates in the limbic system. Limbic is part of the brain, shaped like the letter C as the centre of memory, mood, and intellect. Part of the limbic, namely amygdala is responsible for our emotional response to its aroma. After limbic aromatherapy stimulates are exposure encephalin or endorphins to the hypothalamus gland, and rostral ventromedial spinal cord. Enkephalin stimulates an area in the cerebellum called raphe nucleus to secrete serotonin to create a relaxed, calm and low anxiety effect.

Based on the research result that is conducted at the health centre, which consists of the treatment and control group, it can be summarized as follows: There was an effect of lavender aromatherapy on perineum pain in post-partum mothers in health centre with p value of 0,000 <0.05.

4.3 Pain Reduction without and with Lavender Aromatherapy

Lavender aromatherapy has an effect on reducing pain level with a proven difference in the average level of perineum pain as measured by VAS (Visual Analogue Scale). It can be seen that the pain level in post-test group that is given lavender aromatherapy with mean value 24.17 is higher than post-test with mean value 12.83. From Wilcoxon test results it was concluded that there were significant differences in post-test pain levels between groups that were not given lavender aromatherapy with groups were given lavender aromatherapy, which was $p = 0,000$.

The study results were consistent with the study of Ghiasi A (2019) that Lavender aromatherapy can be applied as a complementary therapy to reduce anxiety during labour. Likewise, the research result on post-partum post episiotomy mothers that the use of Lavender oil is effective in reducing perineum pain due to episiotomy. Supported also by Ramadhan (2017) Lavender flower (*Lavandula angustifolia*) has sedative effect because it contains linalool (C₁₀H₁₈O). The effect of linalool is stimulate nucleus raphe, an area in brain and will secrete serotonin that can make someone sleep or relax. A review of clinical trial data found that when lavender is used during labour as aromatherapy, women reported less pain. Other studies have found that lavender can reduce pain, nausea, and dizziness

after caesarean section, as well as pain, redness, and need for topical pain relief after episiotomy when used in a sitz bath (M.D. Patel. 2018).

The decrease in pain intensity is due to the subject got the benefits of lavender aromatherapy that functions which serves to calm. Lavender can also provide calm, balance, comfort, a sense of openness and confidence. Besides that, lavender can also reduce stress, stress, pain, emotional imbalance, hysteria, frustration, and panic. Lavender can be useful to reduce pain, and it can provide relaxation (Vaziri, 2017).

Lavender Aromatherapy contains linalyl acetate and linalool which are ester compounds that are formed by combining organic acids and alcohols. The fragrance produced by lavender aromatherapy will stimulate the thalamus to release encephalin as a natural painkiller. Enkephalin is a neuromodulator that functions to inhibit physiological pain. Enkephalin is a neuromodulator that have functions to inhibit physiological pain. The fragrance of lavender will be passed on by the olfactory nerve to the part of the cerebellum, namely nucleus raphe which then releases the neurochemical serotonin. Serotonin works as a neuromodulator to inhibit nociceptive information in the spinal cord.

This neuromodulator closes the defence mechanism by inhibiting the release of substance P in the dorsal horn. The release of the substance P neurotransmitter causes the transmission of synapses from the peripheral nerve (sensory) to the spinothalamic tract nerve. This matter allows the pain impulses to be transmitted further into the central nervous system. Inhibition of nerve fibers that transmit pain (nociceptive) will make pain impulses unable to pass through transmission cells (T cells), so that they cannot be forwarded to higher processes in the somatosensory, transitional, cortical cortex, and so on.

Lavender essential therapy positively influences anxiety, controls insomnia and controls pain. Serotonin also acts as a neuromodulator to inhibit nociceptive information in the spinal cord. This neuromodulator closes the defence mechanism by occupying receptors in the dorsal horn so as to inhibit the release of the substance P. The substance P itself is one example of neurotransmitter with excitatory action. Inhibition of p substance will make the impulse of pain unable to pass through the projection of neurons, so it cannot proceed to a higher process in the sensory cortex, parietal lobe, frontal lobe and midbrain so that it cannot be felt as pain and pain is reduced (Cardia, 2018).

5 CONCLUSION

The conclusion in this study is that there are significant differences in pain levels in post-partum mothers who is given lavenderpre and post aromatherapy (p value = 0,000).

The pre-test pain level in the Lavender therapy group was in the majority category of severe pain level (72.2%) and the post-test was in the moderate pain level category (77.8%).

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