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Research Article

Effectiveness of Lavender Aromatherapy on Reducing Pain Intensity after 24 Hours Post Sectio Caesarea

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Abstract

Aims: Based on the 2018 Basic Health Research (Riskesdas) data, there was 81.5 percent of normal deliveries, and 17.6 percent of them were born by Section Caesarea. Delivery by SC can provide higher complications than giving birth vaginally or normally. One of the conditions that cause patient discomfort is pain. One of the non-pharmacological therapies to treat post-SC pain is lavender aromatherapy.

Methods: Quantitative method employing a quasi-experimental design with a pre-post test design in one group (pretest-posttest design in one group). By diffusion, using a diffuser to emit a fragrant fragrance, a dose of 5-10 drops diluted with 20 ml of water is administered once every 60 minutes. This study's demographic consisted of post-Caesarean section patients treated at YPK Mandiri Hospital in December 2022. The sampling method was incidental sampling, and the sample size was forty respondents.

Results: Prior to receiving lavender aromatherapy, there were 38 respondents with moderate pain (95%) and two respondents with mild pain; after receiving lavender aromatherapy, the intensity of pain decreased to mild. 39 respondents (97.5%) and 1 respondent (2.5%) continued to experience moderate pain. Aromatherapy with lavender is efficacious in reducing pain 24 hours after SC (Asymp. Sig).

Conclusions: Lavender aromatherapy is effective in reducing pain 24 hours after SC; therefore, it is anticipated that lavender aromatherapy will become the primary therapy before patients are given pharmacological therapy, such as pain-relieving medications.

Keywords:

Lavender aromatherapy, post-SC pain

INTRODUCTION

Improving maternal health is one of the thirteen targets for the International Community's Sustainable Development Goal 3 (SDG-3) on health, which was established in 2015. They emphasize the need of going beyond survival rates in addition to directly reducing maternal mortality. Countries agree to eliminate preventable maternal mortality by reaching a worldwide maternal mortality ratio of fewer than 70 deaths per 100,000 live births under target 3.1. Meeting

this aim will be a substantial challenge because it will necessitate an average decrease rate almost three times that of the Millennium Development Goals (MDGs) timeframe (1). Maternal death is defined as a woman's death caused by processes related to pregnancy (including ectopic pregnancy), childbirth, abortion (including molar abortion), and the period within 42 days after the end of pregnancy, regardless of gestational age, and does not include death caused by an accident or incidental incident. The Maternal Mortality Rate

(MMR) is defined as all fatalities within this scope per 100,000 live births in the 2020 Indonesia Health Profile (2).

Even though the worldwide SDGs aim is to reduce the MMR to 183 per 100,000 KH by 2024 and to less than 70 per 100,000 KH by 2030, Indonesia's rate remains the highest in Southeast Asia. Since it will need at least a 5.5% annual decrease in maternal mortality to meet the MMR objective of falling to 183 per 100,000 KH in 2024, this condition is indicative of continued efforts that are more planned and comprehensive. Hypertensive disorders during pregnancy (33.1%), obstetric bleeding (27.03%), other obstetric problems (12.04%), infections connected to pregnancy (6.06%), and other reasons (4.81%) are the leading causes of maternal death, according to the SRS (2016). These factors suggest that maternal mortality can be reduced if service provision is universal and of high quality. According to the RI Ministry of Health in 2020, of all maternal deaths, 77% occurred in hospitals, 15.62% occurred at home, 4.11% occurred en route to hospitals/health facilities, and 2.5 % occurred in other health care facilities.

Normal (spontaneous) delivery and the birth process are the two types of delivery that can be distinguished by Rustam's criteria. With the mother's own labor and irregular delivery, such as childbirth aided by a tool or through the abdominal wall via SC surgery (SC), the baby is born behind the mother's head (3). According to the most up-to-date data from the World Health Organization, one in five births worldwide (or 21%) currently involves a Sectio Caesarea procedure. By 2030, caesarean sections are projected to account for 29 percent of all deliveries, and this percentage is expected to continue rising. From roughly 7% in 1990, the caesarean section rate has climbed to the current 21%, and it is expected to continue rising during the previous decade. According to the World Health Organization's projections for 2030, the regions with the greatest rates will be East Asia (63%) and Latin America and the Caribbean (54), West

Asia (50), North Africa (48), Southern Europe (47), and Australia and New Zealand (45%), respectively. The international public health service has deemed a Sectio Caesarea rate between 10 and 15 percent to be optimal for nearly 30 years. This is based on the statement made by a panel of reproductive health experts at a WHO-sponsored meeting in 1985 in Fortaleza, Brazil, that there is no justification for any region to have a Caesarean section surgery rate greater than 10-15% (4).

In the United States the average CS has increased to 29.1%, in England and Wales it has also reached 21.4%, a 5-fold increase since 1971. In addition, it was also recorded from 2001 to 2003, the incidence of Sectio Caesarea in Canada is 22.5%. The data shows that globally, especially in developed countries, the number of births with CS is relatively high. In the 70s, the action of Sectio Caesarea with patient requests was 5%, currently more than 50% of pregnant women want delivery by SC (5).

There are 1.2 million SC procedures performed annually in China. Although this is an indication for SC surgery, as much as 28% of surgeries were performed because the mother wanted them to be. Indonesia seen an uptick in SC activities as well. The number of Sectio Caesarea deliveries in Indonesia increased by 1.2%-6.8% between 1991 and 2017 according to data from the Indonesian Demographic and Health Survey (SDKI) (6). According to the results of the 2018 Basic Health Research survey, 81.5% of births occurred normally while 17.6% required surgical delivery (Sectio Caesarean). Among Indonesia's 33 provinces, DKI Jakarta accounts for 31.1% of all Sectio Caesarea deliveries, followed by Riau province at 23.7% and Papua at 6.7% (Ministry of Health RI, 2019). Delivery by SC has been linked to more problems than natural or vaginal birth, according to research conducted by (7). Reduced abdominal muscle elasticity, bleeding, thrombosis, bladder damage, infection, swelling in the lower limbs, and pain at the

incision site are common problems for moms after SC. As reported by Astutik and Kurlinawati in Mariam 2020, post-SC pain can cause a mother to be less active, which can make it harder for her to care for her baby. If this happens, the baby may not get the best nutrition possible, as the mother will still be in pain and unable to move around as much.

Post-spinal-cord-severance pain management strategies can be divided into two categories: pharmaceutical and non-pharmacological. Although pharmaceutical pain management is more successful than non-pharmacological techniques, it is expensive and can have negative side effects. Comparatively, non-pharmacological approaches are cost-effective, straightforward, and safe (8). Non-pharmacological methods include deep breathing exercises, early mobilization, aromatherapy, distraction tactics, autogenic treatment, acupuncture therapy, yoga, warm compresses, and steam, while pharmacological methods include pain-relieving medicines.

Aromatherapy is an option for non-pharmaceutical management because it is a complementary therapy that employs the use of volatile plant liquids (essential oils) and other compound aromas to influence psychological and physiological states (9). Aromatherapy, which involves the inhalation or rubbing of essential oil fragrances, has been shown to have an effect on the limbic system, the brain's emotional control center, leading to the release of endorphins and enkaphalin hormone neurons, both of which have pain-relieving properties, as well as serotonin, which has the effect of relieving tension, anxiety, and causing a person to become relaxed.

(10) found that the average pain level of responders was 5.80 on a scale from 0 to 10 before receiving aromatherapy lavender

through inhalation. On a scale from 1 to 10, respondents reported a 7 for their worst pain and a 4 for their least. Lavender aromatherapy, administered through inhalation, was found to be beneficial in lowering pain in post-SC patients, with an average pain score of 4.73 on a scale from 0 to 10 (with 10 being the worst pain experienced by responders).

The YPK Mandiri Hospital was founded in 1960 as a general hospital with a specialization in the care of women and children. There has been a rise in the number of Caesarean sections in recent years. The number of mothers who delivered via Sectio Caesarean was 531 (73%) of the total number of deliveries, namely 720, according to the results of a preliminary study conducted at YPK Mandiri Hospital in June 2022 via a study of documentation of data recapitulation of pain assessment in post-Section Caesarea patients in 2020 obtained from the Medical Record unit. In 2021, 440 (or 78%) of the anticipated 562 births will occur via Sectio Caesarea. After having a baby via Sectio Caesarea, the pain levels of 112 patients (25.4%), 205 patients (46.6%), and 123 patients (27.9%) ranged from mild to severe. In light of these findings, the investigator is considering a study of Lavender Aromatherapy's impact on pain intensity 24 hours after spinal catheter insertion in patients at YPK Mandiri Hospital.

METHODS

One-group, pretest-posttest, quasi-experimental design (no control group). Forty ladies who gave birth with CS in November 2022 at YPK Mandiri Hospital made up the sample size. The treatment was done, and then the results were measured. Unintentional sampling is used for the sample. Univariate and bivariate analyses using the Wilcoxon test are employed for this purpose.

RESULTS

Table 1. Pain Intensity 24 hours Post SC Before Giving Lavender Aromatherapy at YPK Mandiri Hospital in 2022

Pain Intensity	n	%
Mild Pain	2	5
Moderate Pain	38	95
Total	40	100

Based on table 1 above, it can be seen that of the 40 respondents before being given lavender aromatherapy, most of them experienced moderate pain as many as 38 people (95%), with mild pain as many as 2 people (5%), and those who had no pain were not found in the respondents (0%).

Table 2. Pain Intensity 24 hours Post SC After Giving Lavender Aromatherapy at YPK Mandiri Hospital in 2022

Pain Intensity	n	%
Mild Pain	39	97,5
Moderate Pain	1	2,5
Total	40	100

Based on table 2 above, it can be seen that of the 40 respondents after being given lavender aromatherapy, most of them experienced mild pain as many as 39 people (97.5%), only 1 person experienced moderate pain (2.5%).

Table 3. Average Pain Intensity 24 hours Post SC Pre and Post Lavender Aromatherapy at YPK Mandiri Hospital in 2022

Giving Aromatherapy	pain intensity					St. Dev
	N	Mean	Mean difference	Min	Max	
Pre Test	40	4,88	2,48	3	6	.757
Post Test	40	2,4		1	6	1.008

Based on table 3 above, there was a 2.48-point difference between the average values of pain intensity before and after lavender aromatherapy was administered (24 hours post-SC, before receiving lavender aromatherapy, the average value of pain intensity was 4.88, and after receiving lavender aromatherapy, the average value of pain intensity was 2.4).

Table 4 Test Analysis of the Effect of Lavender Aromatherapy on Pain Intensity 24 Hours Post SC at YPK Mandiri Hospital in 2022

	Giving Aromatherapy Lavender			
	Mean	Mean Rank	Asymp. Sig. (2-tailed)	
	Pre test	Post test		
Pain Intensity	4,88	2,40	19,50	0,000

Based on table 4 above, the analysis results obtained by Asymp. Sig. (2-tailed) 0.000 <0.05 means that there are differences in pain intensity before and after giving lavender aromatherapy so it can be concluded that giving lavender aromatherapy is effective in reducing pain intensity 24 hours post SC.

DISCUSSION

Pain Intensity 24 Hours Post SC Before Given Lavender Aromatherapy at YPK Mandiri Hospital in 2022

According to univariate analysis before to the intervention of providing lavender aromatherapy, the majority of post SC moms experienced moderate pain, with 38 respondents (95%) experiencing moderate pain and 2 experiencing mild pain (5%). The interplay of the sensory nerve system, cognitive knowledge (cerebral cortex), and emotional experience (hippocampus and amygdala) results in pain perception. The level of the pain felt is determined by perception; once it reaches the brain, the pain is felt consciously and produces a response in the form of behavior (11). Incisions in the 7 layers of the abdomen and suturing the 7 layers create post-sectional discomfort, which causes the patient to feel exceedingly disturbed and uncomfortable. Post-sectional mothers who experience mild pain objectively can communicate well, there is pain, it begins to be felt, and it can still be endured, whereas mothers who experience moderate pain objectively hiss, smirks, can show the location of pain, can follow orders well, and can describe the pain (12).

In line with (13) on 15 respondents before being given lavender aromatherapy, it was found that 11 respondents with severe pain (73%) and moderate pain were 4 respondents (26.7%). According to the researchers' assumptions from the results of the study it can be seen that the respondents who experienced moderate pain were mostly primiparas because mothers with primipara parity did not have experience on

how to interpret pain. Besides that, the amount of information obtained from various communication media made primiparous women assume that after surgery they would experience excessive pain.

Pain Intensity 24 Hours Post SC After Giving Lavender Aromatherapy at YPK Mandiri Hospital in 2022

According to the study's findings, the majority of the 40 respondents (97.5%) suffered minor discomfort after receiving lavender aromatherapy, while only 1 respondent (2.5%) experienced moderate pain. Aromatherapy is an alternative treatment that use volatile liquids derived from plants known as essential oils and other aromatic compounds to influence one's mental, emotional, cognitive, and physical well-being. Avicenna, a Muslim doctor and chemist, created aromatherapy after discovering distillation techniques or essential oil distillation for medicine in the 7th century AD. It was later created in continental Europe in 1973 by a French chemist named Rene Maurice Gattefose. According to (14) research on 15 respondents after receiving lavender aromatherapy, 12 had moderate discomfort (80%) and three had severe pain (20%).

The Effect of Giving Lavender Aromatherapy on Reducing Pain Intensity 24 Hours Post SC at YPK Mandiri Hospital in 2022

According to the study's findings, the difference in average 24-hour post-SC pain intensity before and after lavender aromatherapy was 2.48. The study results in the lavender aromatherapy group obtained a p value (0.000) (0.05), indicating that there was a significant difference after lavender aromatherapy was administered. It can be inferred that administering lavender aromatherapy has an effect on pain intensity 24 hours after SC. Lavender aromatherapy is a type of aromatherapy that can function as an antibacterial, fungal, or viral treatment for respiratory tract infections, reproductive

tract infections, burns, skin infections, insect bites, and to reduce emotions, anxiety, and depression, as well as to improve the balance of mind and body (by providing a sense of comfort, calm, and sedatives). According to Herlysa et al. (2018)'s research on 68 respondents, the surgical pain scale experienced by post SC mothers before receiving aromatherapy was 3.82 in the control group (34 respondents) and 3.62 in the treatment group (34 respondents). The pain scale in the treatment group was 2.53, while it was 4.65 in the control group after aromatherapy. The pain experienced by mothers 24 hours after SC differed significantly between the control and treatment groups. Aromatherapy with lavender essential oil has a dominant effect on lowering pain scale 24 hours post SC (p-value 0.05) that is up to five times more than that of women who do not use aromatherapy. Aromatherapy Lavender Essential Oil can be used to alleviate discomfort following SC surgery.

This study is also consistent with a study published in 2019 by Haryanti, Richta, and Armen titled "The Effect of Giving Lavender Aromatherapy on Pain in First Day Post Sectio Caesarea Mothers in the Delivery Room at Pertamina Bintang Amin House Bandar Lampung." This study employs a pre-experimental design with one group pretest and post test. This study included 37 post-sectional caesarean moms on the first day in the delivery room at Pertamina Bintang Amin Hospital. The dependent T test is used in the analysis technique. The findings of this study show that pain in post-SC birth mothers on the first day before receiving lavender aromatherapy in the obstetric room at Pertamina Bintang Amin Hospital is 5.8378, while pain in post-SC birth mothers on the first day after receiving lavender aromatherapy in the midwifery room at Pertamina Bintang Amin Hospital is 3.4054. As a result, it can be concluded that offering lavender aromatherapy to discomfort in the first day post SC birth moms in the delivery room at Pertamina Bintang Amin Hospital has an effect (p value = 0.000).

Based on the description above, researchers can conclude that the majority of post SC mothers before being given lavender aromatherapy experienced moderate pain and in post SC mothers after being given intervention the majority of mothers experienced a decrease in their pain level to mild pain as many as 39 respondents and 1 respondent had moderate pain. From these results it can be concluded that giving lavender aromatherapy has an effect on post SC pain.

When a person inhales the aroma of essential oils, sensory nerves on the olfactory membrane absorb the aroma molecules, and electrical impulses are transferred to the gustatory center and the limbic system (emotional center) in the limbic lobe. The limbic lobe is made up of the hippocampus and the amygdala, which can directly trigger the hypothalamus and govern hormone expenditure in the body such as sex, growth, thyrois, and neurotransmitters. Essential oils contain chemicals that directly stimulate the limbic lobe and hypothalamus. The limbic system is directly connected to other regions of the brain that control heart rate, blood pressure, respiration, memory, stress levels, and hormonal balance, and fragrance will activate emotions, causing physiological and psychological repercussions (15)

CONCLUSION

The majority of patients, as many as 38 respondents (95%) experienced moderate discomfort 24 hours after SC. Aromatherapy with lavender is efficacious in reducing pain intensity 24 hours after SC (Asymp. Sig.)

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