



## The Effect of a Combination of Effleurage Massage and Lavender Aromatherapy on Back Pain in Third-Trimester Pregnant Women

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### ABSTRACT

Every pregnant woman experiences different psychological and physiological changes in each quarter. Discomfort that occurs in the third trimester includes back pain. This study aimed to determine the effect of a combination of effleurage massage and lavender aromatherapy on back pain in third-trimester pregnant women. This study is a quantitative study with a one-group pretest-posttest design without control using a purposive random sampling technique. The research was conducted in February-April 2023 with 30 pregnant women as respondents. Data collection techniques using observation sheets. Using univariate and bivariate analysis methods. The results of the study showed that there were differences in the intensity of back pain before and after the intervention,  $p < 0.05$ . The combination of effleurage massage and lavender aromatherapy can significantly reduce back pain in third-trimester pregnant women.

### 1. Introduction

Women during their pregnancy need time to adapt to the various changes that occur in them. As the gestational age increases, the uterus will enlarge, and gravity will be centered towards the front. This makes pregnant women, when standing, really able to position themselves because, during pregnancy, the mother focuses more on muscle strength, weight gain, joint relaxation properties, fatigue, and pre-pregnancy posture. When pregnant women can't adjust their body posture too quickly, there will be maximum stretching and cause fatigue and soreness in the lower back area, resulting in pain or pain in the lower back. The global prevalence of low back pain in pregnancy varies between studies, ranging from 20% to 80%. The

prevalence of back pain during the first trimester of pregnancy is estimated to be 50%, in the second trimester from 40% to 70%, and in the third trimester from 70% to 80%. One study found that all (100%) third-trimester pregnant women respondents stated that they had experienced low back pain.<sup>1-3</sup>

Pharmacological treatment, such as analgesic drugs, should not be administered haphazardly because it can have secondary physiological effects on the fetus. One of the efforts that can be made to reduce back pain during pregnancy is by non-pharmacological methods such as massage therapy, which can reduce back pain in pregnant women. Massage therapy can reduce muscle tension and pain, improve blood circulation, and increase mobility. If



back pain is not resolved, it can result in very long back pain, an increased tendency for back pain after childbirth, and chronic back pain, which will be more difficult to treat or cure. Pain can also be relieved using aromatherapy applications. Aromatherapy, as a non-pharmacological, complementary, and alternative therapy, is the application of essential oils from natural plants to calm and control the mind and body through aromatic compounds with neurological and physiological effects. Evidence from various countries shows the level of use of aromatherapy in pregnant women increased from 13% to 78%. The use of aromatherapy is also recommended because there are no significant reported side effects in mothers and neonates. One of the aromatherapy that is often used is lavender. Lavender, which has long been used in traditional medicine, belongs to the *Lamiaceae* family. It is also an herbal, aromatic, and herb containing volatile oily essence and is widely used as aromatherapy. When essential oils such as lavender are released into the air and inhaled by the mother, this can cause the production of endorphins in the body, which can reduce pain.<sup>4-8</sup> This study aimed to determine the effect of a combination of effleurage massage and lavender aromatherapy on back pain in third-trimester pregnant women.

## 2. Methods

This research is experimental research with a one-group pretest-posttest design approach and uses primary data obtained using an assessment instrument in the form of a numeric rating scale (NRS) to determine the level of back pain in pregnant women. A total of 30 research subjects participated in this study, where the research subjects met the inclusion criteria. The research was conducted in February-April 2023 in the working area of the Munjul Health Center, Purwakarta Regency, Indonesia. The inclusion criteria in this study were third-trimester pregnant women who experienced back pain and were willing to

participate in the study. Effleurage massage is done 4 times within 2 weeks. Lavender aromatherapy is given by inhaling through a diffuser placed in the corner of the room. Data analysis was carried out using SPSS version 25 software in univariate and bivariate ways to assess the frequency distribution of each variable and assess the effect of the research conducted, with a p-value <0.05.

## 3. Results and Discussion

Based on Table 1, it was found that the majority of mothers who experience back pain are in the age range of 20-35 years, with multigravida pregnancies, high school education/equivalent, and not working. Table 2 shows the results of the bivariate test analysis using the paired T-test statistic and obtained a value of  $P = 0.000$  ( $P < 0.05$ ) so that there is an effect of a combination of effleurage massage and lavender aromatherapy on back pain in third-trimester pregnant women.

Complaints of low back pain during pregnancy have an impact on psychological and social life and quality of life. These complaints make them inactive to do many activities, force them to take frequent breaks, and depend on others for help. Mothers with complaints of low back pain during pregnancy are at higher risk of experiencing a longer duration of labor and emergency cesarean section. About 70% of pregnant women often experience pain in the waist area or low back pain (LBP), which may occur later in the beginning trimester and peaks when entering the second and third trimesters. Massage Effleurage is a non-pharmacological method that can be applied to reduce discomfort in the lower back in pregnant women. This massage technique stimulates the release of endorphins, which are natural compounds in the body that play a role in creating a feeling of comfort and act as a pain reliever.<sup>9-12</sup>



Table 1. Characteristics of research subjects.

Variable	Category	N	Percentage (%)
Age	<20 years	5	16,7%
	20-35 years	20	66,7%
	>35 years	5	16,7%
	Total	30	100%
Gravida	Primigravida	11	36,7%
	Multigravida	17	56,7%
	Grandemulti	2	6,6%
	Total	30	100%
Education	Primary school/equivalent	3	10%
	Junior high school/equivalent	9	30%
	Senior high school /equivalent	11	36,7%
	College	7	23,3%
	Total	30	100%
Occupation	Working	13	43,3%
	Not working	17	56,7%
	Total	30	100%

Table 2. Comparison of back pain intensity.

Pain intensity	Mean±SD	P-value
Before treatment	4,02±1,58	0,000
After treatment	2,14±1,46	

Massage will reduce muscle tension and pain, increase mobility, and improve blood circulation. Technique Massage effleurage in the form of long gentle strokes, and not intermittent, causing a relaxing effect. Aromatherapy, as a non-pharmacological, complementary, and alternative therapy, is the application of essential oils from natural plants to calm and control the mind and body through aromatic compounds with neurological and physiological effects. One of the aromatherapy that is often used is lavender. Lavender, which has long been used in traditional medicine, contains a volatile oily essence and is widely used in aromatherapy. When lavender is released into the air and inhaled by the mother, it can cause the production of endorphins in the body, which can reduce pain. Lavender oil extract has sedative and analgesic effects based on animal studies. Lavender contains linalool alcohol ketone

esterzoaldehyde, which is effective in reducing pain and inflammation and helps improve sleep quality.<sup>13,14</sup>

The way lavender essential oil works is through interaction with postsynaptic receptors regulated by cAMP, without influence receptors such as atropine. The linalool compound found in lavender inhibits the release of acetylcholine and changes the function of ion channels in the neuromuscular junction area. Therefore, linalyl acetate has a similar effect to narcotics, while linalool also has a sedative effect. The delivery of aromatherapy sensations through touch and smell. When aromatic herbal essences are inhaled, odor impulses are passed through the olfactory receptors to the brain, stimulating the limbic system. This, in turn, can affect mood, emotional awareness, maintenance of body temperature, reduce anxiety, and induce feelings of calm. Therefore, it can be concluded that lavender aromatherapy affects the



hypothalamus and reduces corticotropin hormone secretion through stimulation of the olfactory pathway.<sup>15,16</sup>

#### 4. Conclusion

The combination of effleurage massage and lavender aromatherapy can significantly reduce back pain in third-trimester pregnant women.

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