

COMPARISON OF THE USE OF LAVENDER OIL AND GINGER OIL IN EFFLAURAGE MASSAGE TO TREAT LOWER BACK PAIN

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Abstract

Background : Lower back pain is a condition that occurs due to the enlargement of the uterus and weight gain so that the center of gravity moves forward and the mother's body position adapts to this. Improper posture will force excessive stretching. Low backpain that is not treated immediately can result in long-term back pain and increase the likelihood of post-partum back pain

Objective Comparing the effectiveness of lavender oil and ginger oil in efflaurage massage to reduce lower back pain in pregnant women

Methods : This research is quantitative research with a research design *analitik comparative* with a plan *Two group pretest posttest design*. The independent variable is the use of lavender and ginger oil, the dependent variable is low back pain. The population in this study were pregnant women who experienced back pain by means of *simple random sampling* taking into account the inclusion criteria. The research was conducted for 3 months, namely May-July 2024 in the PMB Mukaromah Gresik area. Data collection using *Numerical Rating Scales* . The data analysis technique used uses tests *Mann Whitney*

Results : The results of this research analysis show that there is a significant difference in lower back pain between before and after Efflaurage massage with ginger oil ($p < 0.05$). Meanwhile, in the ginger oil group, there was no significant difference in lower back pain between before and after the Efflaurage massage with Lavender oil ($p > 0.05$).

Conclusion : Effleurance massage using ginger oil is more effective than effleurance massage using lavender oil in reducing lower back pain. Effleurance massage using ginger oil should be used to treat lower back pain in pregnant women.

Keywords: *Massage Efflaurage, lavender oil, ginger oil, lower back pain*

1. Introduction

The most frequent complaints experienced by pregnant women are Lower back pain, The pain will increase in intensity as the gestational age increases. Lower back pain is a condition that occurs due to the enlargement of the uterus and weight gain so that the center of gravity moves forward and the mother's body position adapts to

this. Improper posture will force excessive stretching. This results in a curve in the shoulders, there is a tendency for the back muscles to put pressure on the back, (Wahyuni et al., 2016) Low Backpain that is not treated immediately, can result in long-term back pain, increasing the tendency for post-partum back pain, and chronic back pain that will more difficult to treat or cure so it can have a negative impact on the quality of life of pregnant women due to disruption of daily physical activities (Katonis P, 2011). Back pain cases experienced by pregnant women in Indonesia also have a high presentation. Based on the results of research, around 60% - 80% of women complain of back pain during pregnancy (Mafikasari & Kartikasari, 2015). The results of Purnamawati's research (2019) showed that 73.33% of pregnant women experienced back pain with moderate intensity, 10% with mild intensity and 16.67% with severe intensity. (Purnamasari & K; Widyawat, 2019). Low back pain is the most frequent cause of long-term disability worldwide (Lima., 2018).

Pharmacological and non-pharmacological therapies can be used to reduce lower back pain. Use of pharmacological therapy for pregnant women of gestational age <30 weeks carries the risk of causing complications such as respiratory depression in the fetus, apart from that there is also the risk of causing malformations in the fetal formation process and the effect of dependence on the mother after using it for a long time. (Sinclair et al., 2014) Due to the impact of pharmacological therapy, non-pharmacological treatment is needed, including warm compresses using herbal ingredients, prenatal yoga and efflaurage massage. The results of research conducted by Anggasari, et al (2023) show that effleurage massage is more effective in reducing the intensity of lower back pain in pregnant women. compared to Prenatal Gentle Yoga (Anggasari et al., 2024), this is also supported by Wulandari's research that there is an effect of Effleurage Massage on the intensity of reducing back pain in pregnant women in the third trimester. (Wulandari Diah Ayu AY, 2019) In line with research conducted by Sylvia T in Dwi Astuti (2017), using 10 non-pharmacological methods carried out on a sample of 46 people, it was found that breathing, relaxation, acupressure and massage techniques is the most effective technique for reducing pain during labor (Rahmawati, 2016). To increase the relaxing power resulting from Efflaurage massage, the author is interested in adding the use of lavender essential oil and ginger essential oil in the massage process so that the hands are slightly slippery and the mother feels comfortable.

Ginger is a rhizome with many benefits, ginger contains anti-inflammatory compounds and volatile oils which have analgesic and pain relieving effects. Apart from that, ginger is also useful as a medicine for digestive disorders, analgesic, antipyretic, anti-inflammatory, antiemetic, antirheumatic, and increases body resistance. Ginger has an anti-inflammatory effect because it contains gingerol, zingerone, and gingerdione which inhibit prostaglandins by inhibiting the cyclooxygenase enzyme. Apart from that, ginger is also able to inhibit the lipoxygenase enzyme. This will result in a decrease in leukotrienes and prostaglandins which are inflammatory mediators. This effect is the same as the anti-inflammatory effect of the NSAIDs group, including mefenamic acid and ibuprofen. (Rahmawati, 2016) The linalool content in lavender oil is one of the aromatherapy oils that is widely used today, either by inhalation (inhalation) or by massaging the skin. . According to research conducted on mice, lavender oil can reduce motor activity by up to 78% and has quite a good sedation effect, so it is very good to use for stress management. A few drops of lavender oil can release enkafalin which functions as a natural pain reliever and can provide a relaxing effect and endorphins as a neuromodulator. (Astuti et al., 2020)

Although the anti-inflammatory properties of ginger are known, its effect on treating muscle pain in humans is not yet known with certainty. Research regarding its effectiveness is still very limited and there are different results between one study and another.

Several studies have been conducted to assess the effectiveness of using ginger in the form of brews and

compresses. So far, lavender has been used in the form of aromatherapy, while its use in oil form as an anti-inflammatory is still limited. Therefore, it is necessary to investigate the effectiveness of using ginger and lavender essential oils in reducing pain. This study aims to compare the effectiveness of lavender oil and ginger oil in effleurage massage to reduce lower back pain in pregnant women.

2. Materials and methods

2.1 Materials

This research involved 44 pregnant women as samples which was divided into 2 intervention groups, 22 people in the massage effleurage intervention group using lavender oil and 22 people in the massage effleurage intervention group using ginger oil. The research will be carried out at PMB Mukaromah Gresik.

2.2 Data collection procedures

The design of this research is comparative analytic with a quasi-experimental design where all subjects in the group are treated with a two group comparison pretest-posttest design approach. Sampling was carried out using this technique *simple random sampling*. The criteria in this research are as follows: Pregnant women with complaints of back pain, mothers who do not use back pain medication therapy, and mothers who have no history of allergies to oil. The research instrument uses Numerical Rating Scales. Effleurage massage treatment is carried out for 30 minutes and each movement is carried out for about 10 minutes. Before and after the massage, respondents measured the intensity of their lower back pain.

2.3 Data analysis

Data will be tested using the Mann Whitney Test

2.4 Research Ethics

The research procedure received a letter from ethics from the research ethics commission of the Chakra Brahmanda Lentera Institute with a decision letter Number: 027/07/V/EC/KEP/LCBL/2024

3. Results and discussion

Table 1. Frequency distribution of lower back pain in pregnant women Pre and Post Intervention effleurage massage treatment with lavender oil in the PMB Mukaromah area.

Lavender Oil	Pre		Post		Table 1
	Amount	%	Amount	%	
No Pain	0	0	0	0	
Mild	0	0	0	0	
Moderate	10	44	17	77	
Severe	12	56	5	23	
Amount	22	100	22	100	

shows that there was a reduction in lower back pain in pregnant women before and after receiving effleurage massage treatment using lavender oil in the PMB Mukaromah area with a reduction in the severe pain scale from 56% to 23%, changing to moderate pain. The use of lavender oil as a medium for massage in pregnant women can stimulate the hypothalamus to release endorphin hormones because it relaxes and calms so that it can relax and relax the working system of tense nerves and muscles. (Fitri & Emilda, 2020)

Similar research conducted by Astuti (2020), stated that there was a reduction in labor pain after back massage

using lavender oil. The fragrance produced by lavender oil will stimulate the thalamus to release enkephalin, which functions as a natural pain reliever. Lavender is an analgesic essential oil that contains 30-50% ester compounds which are formed by combining organic acids and alcohol (linalyl acetate). Esters are very useful for normalizing emotional states and unbalanced body conditions, and also have properties as a sedative and tonic, especially on the nervous system. Lavender oil also contains 6% ketones and 8% terpenes. Monoterpenes are a type of terpene compound most often found in plant essential oils which can be used as a sedative (Astuti et al., 2020)

Table 2. Frequency Distribution of lower back pain in pregnant women Pre and Post Intervention massage effleurage with ginger oil in the PMB Mukaromah area.

Ginger Oil	Pre		Post		Table
	Amount	%	Amount	%	
No Pain	0	0	0	0	2
Mild	0	0	0	0	
Moderate	13	59	17	77	
Severe	9	41	5	23	
Amount	22	100	22	100	

shows that lower back pain in pregnant women before and after receiving effleurage massage treatment using ginger oil in the PMB Mukaromah area decreased from 9 people (41%) who experienced severe pain after effleurage massage to 5 people (23%).

Ginger is a rhizome with many benefits, ginger contains anti-inflammatory compounds and volatile oils which have analgesic and pain relieving effects. Apart from that, ginger is also useful as a medicine for digestive disorders, analgesic, antipyretic, anti-inflammatory, antiemetic, antirheumatic, and increases body resistance. Ginger has an anti-inflammatory effect because it contains gingerol, gingerdione, and zingerone which inhibit prostaglandins by inhibiting the cyclooxygenase and lipoxygenase enzymes, resulting in a decrease in leukotrienes and prostaglandins which are inflammatory mediators. This effect is the same as the anti-inflammatory effect of mefenamic acid and ibuprofen which are NSAIDs (Rahmawati, 2016)

Table 3 Comparison of lower back pain in the lavender oil and ginger oil groups

NO	Variable	Data		Mark
		Pre	Post	
1	Lavender Group Back Pain	25,7	19,3	0,082
2	Ginger Group Back Pain	26,2	18,8	0,049

The results of statistical tests using the Man Whitney test showed that there was a significant difference in lower back pain between before and after effleurage massage with ginger oil ($p < 0.05$). Meanwhile, in the ginger oil group, there was no significant difference in lower back pain between before and after the Effleurage massage with Lavender oil ($p > 0.05$).

The effectiveness of using ginger oil as a lubricant or conductor for massage effleurage in reducing lower back pain is because ginger has warming properties from the essential oil content in ginger. The warm feeling received by the impulse receptors will be transmitted to the posterior hypothalamus, a sympathetic inhibitory

reflex reaction will occur which will cause the blood vessels to dilate thereby increasing blood flow and relieving pain by removing inflammatory products, such as bradyquine, histamine, and prostaglandins which cause local pain. Heat will stimulate the nerve fibers that close the gate so that the transmission of pain impulses to the spinal cord and to the brain is inhibited (Anugraheni VMD, 2013)

Similar research conducted by (Rahmawati et al., 2022), stated that the administration of red ginger oil showed significant changes in changes in the NRS scale of adolescent dysmenorrhea in the Makassar city work area. Ginger compress therapy is effective in reducing lower back pain in third trimester pregnant women, because the essential oil from ginger is warm which can increase blood flow to obtain an analgesic effect and muscle relaxation so that pain can be reduced (Margono, 2016). Based on research conducted by (Sukini et al., 2023) that the red ginger compress is more effective for lower back pain in third trimester pregnant women with a mean rank of 19.88 while the mean rank of the white ginger compress is 13.13

The results of research (Sritooma, 2014), on elderly people who experience lower back pain, by comparing the group that was given massage for 30 minutes twice a week for five weeks using ginger oil with the control group that was given traditional massage without oil, the results obtained were that the group that was given massage using ginger oil was more effective in reducing back pain than the group that did not use ginger oil. The results of this study are inversely proportional to research conducted by Astuti, 2017 comparing pregnant women who were massaged using lavender oil with a control group who were massaged using ginger oil, where the group that was given a massage using lavender oil was more effective in reducing back pain than the group that did not use oil. ginger. (Astuti et al., 2020)

According to Jaelani (2009, in Astuti 2020) the benefits of aromatherapy in the form of lavender and ginger oil are that it fosters feelings of calm (relaxation) in the body, mind and spirit, creates a peaceful atmosphere, and can keep away feelings of anxiety and restlessness. Lavender oil used can influence brain function activities through the nervous system which is related to the sense of smell. This response can stimulate increased production of brain nerve conductor mass (neurotransmitters) which are related to the recovery of psychological conditions such as emotions, feelings, thoughts and desires.

Providing lavender and ginger oil aromatherapy is believed to stimulate the activity of brain cells in the amygdala. Other researchers think that some molecules from essential oils can interact in the blood with hormones or enzymes so that they can help reduce pain. The combination of lavender oil and ginger oil with the Efflaurage massage technique helps further reduce lower back pain. The healing power contained in essential oils can penetrate through the skin and be carried into the body, affecting the internal tissues and organs of the body.

4. Conclusion

The results of this study show that there is a significant difference between the levels of lower back pain where the intervention group using ginger oil experienced a better reduction in lower back pain than the intervention group using lavender oil. Effleurage massage using ginger oil should be used to treat lower back pain. in pregnant women

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Conflict of interest

The author declares that there is no conflict of interest in this manuscript

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