



Combination of Effleurage Massage and Lavender Aromatherapy on Back Pain in Pregnant Women

Riona Sanjaya^{*1)}; Hellen Febriyanti¹; Kalissing Pangudi Rahayu¹

¹⁾ Universitas Aisyah Pringsewu

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ABSTRACT

Back pain is a problem of discomfort that occurs in 20% to 80% of pregnant women, especially in late pregnancy. This condition causes the activities of daily life to be disrupted and has an impact on decreasing the quality of life so that back pain during pregnancy needs attention. Effleurage and aromatherapy are forms of therapy that are believed to reduce discomfort and pain. The aim of this research was to find out the effectiveness of the combination of effleurage and lavender aromatherapy on back pain in pregnant women. The research used a pre-experimental with a one-group pretest-posttest design. The samples consisted of 13 thirdtrimester pregnant women. The data were analyzed using paired t-test. The results showed that the average back pain of pregnant women before (pretest) treatment was 4.31 ± 1.032 and after treatment (posttest) 1.23 ± 0.927 with an average difference of 3.077 ± 0.760 . The results showed that the combination of effleurage and lavender aromatherapy was proven to be effective in reducing back pain for pregnant women ($p = 0.000$).

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Kata kunci:

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*⁾ corresponding author

Riona Sanjaya

Prodi Kebidanan, Fakultas Kesehatan,
Universitas Aisyah Pringsewu

Email: riona2212@gmail.com

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ABSTRAK

Nyeri punggung merupakan masalah ketidaknyamanan pada ibu hamil terutama pada trimester akhir dengan prevalensi berkisar 20% hingga 80%. Kondisi ini menyebabkan terganggunya aktivitas sehari-hari dan berdampak terhadap kualitas hidup yang menurun, sehingga nyeri punggung pada kehamilan perlu mendapatkan perhatian. Gangguan rasa nyaman akibat nyeri punggung dapat diminimalisir salah satunya dengan effleurage dan aromaterapi. Tujuan penelitian ini adalah untuk mengetahui efektivitas kombinasi effleurage dan aromaterapi lavender terhadap nyeri punggung ibu hamil trimester III. Desain penelitian pra eksperimen dengan rancangan one group pretest-posttest design. Populasi dalam penelitian ini adalah ibu hamil trimester ketiga. Sampel yang digunakan sebanyak 13 ibu hamil trimester III. Analisis data dalam penelitian ini dilakukan menggunakan uji paired t test. Hasil penelitian menunjukkan rata-rata nyeri punggung ibu hamil sebelum (pretest) perlakuan adalah $4,31 \pm 1,032$ dan setelah perlakuan (posttest) $1,23 \pm 0,927$ dengan selisih rata-rata $3,077 \pm 0,760$. Hasil analisis didapatkan bahwa kombinasi effleurage dan aromaterapi lavender terbukti efektif menurunkan nyeri punggung ibu hamil ($p = 0.000$). Disarankan terapi kombinasi effleurage dan aromaterapi lavender dapat dijadikan salah satu terapi untuk menurunkan nyeri punggung pada ibu hamil.

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INTRODUCTION

Pregnancy is a process of intrauterine fetal growth and development starting from conception and ending until the onset of labor (Khumaira, 2018). There are various changes in a woman's body during pregnancy, especially in the musculoskeletal system. Hormonal changes such as increased levels of the relaxin hormone affect the flexibility of the ligamentous tissue which has an impact on increasing joint mobility in the hip, in addition to weight gain and a shift in the center of gravity that causes hyperlordosis lumbar spine and anterior hip tilt. In addition, vascular changes can also cause disruption of metabolic supply in the lower back, which causes pain (Casagrande, Gugala, Clark, & Lindsey, 2015). Back pain could present as either a pelvic girdle pain between the posterior crest of the ilium and the gluteal fold or as a lumbar pain over and around the lumbar spine (Katonis et al., 2011).

The prevalence of back pain during pregnancy at the global level varies across studies, which ranges from 20% to 80% (Shijagurumayum Acharya, Tveter, Grotle, Eberhard-Gran, & Stuge, 2019). The prevalence of the back pain during the first trimester of pregnancy is estimated at 50%, in the second trimester from 40% to 70%, and in the third trimester from 70% to 80% (Bryndal, Majchrzycki, Grochulska, Glowinski, & Seremak-Mrozikiewicz, 2020). Reports of studies in the United States, Europe, and parts of Africa estimate the prevalence of back pain from 30% to 78% (Manyozo, 2019). Meanwhile, a limited clinical examination in Nepal found that 73% of pregnant women experienced back pain disorders (Shijagurumayum Acharya et al., 2019). Meanwhile, one study in the Semarang Region of Indonesia found that all (100%) third-trimester pregnant women respondents stated that they had experienced low back pain (Purnamasari & Widyawati, 2019).

Common risk factors that cause back pain in pregnancy include heavy activities, flexed body position, back pain during a previous pregnancy, history of trauma in the pelvic area, body mass index, parity, and depression (Shijagurumayum Acharya et al., 2019). In addition, there are several physiological factors that cause back pain in pregnancy, namely an increase in hormones (relaxin, progesterone, and estrogen) which results in increased joint weakness, structural imbalances caused by a weakening of the abdominal muscles due to an enlarged uterus, compensatory hyperlordosis (rotation of the uterus) sagittal pelvis and a shift in the anterior center of gravity. Other rare pathologies such as spinal tumors and osteomyelitis (Sehmbi, D' Souza, & Bhatia, 2017)

The effects of back pain in pregnancy are not life-threatening, but this condition can affect the daily life activities of pregnant women, such as work, and sleep, and also affect the mother's mood, resulting in a decrease in quality of life. Therefore, the problem of back pain during pregnancy needs to get good therapy so that the health condition of pregnant women is maintained and the activities of the daily life of pregnant women are not disturbed (Shijagurumayum Acharya et al., 2019). Several ways can be done to reduce back pain, including yoga (Fauziah et al., 2020), and massage therapy (massage)

around the upper and lower back. A massage is an act of caring for the mother so that it will increase a sense of security, and improve her quality of life, especially for pregnant women (Gozali, Astini, & Permadi, 2020).

There are many massage techniques, including effleurage, which is a massage technique with sweeps along the back and extremities and circular motion patterns in several parts of the body (Indrayani & Djami, 2016). Massage is believed to relieve pain and create a sense of comfort, because of the endorphins released by massage (Gozali et al., 2020). In addition to using massage techniques, the management of discomfort and pain can also be done using aromatherapy, which is a relaxation method that uses essential oils in its implementation. The essential oil or essential oil that reduces/relieves pain is the scent of lavender. The pleasant aroma will stimulate the thalamus to secrete enkephalins which function as natural pain relievers and also give the effect of a feeling of well-being (Solehati & Kosasih, 2015)

Research conducted by (Setiawati, 2019) showed that the effleurage technique was proven to be effective in reducing the level of back pain in pregnant women ($p = 0.003$), where the mean score of back pain before giving effleurage was 5.6 and after treatment decreased to 1.8. Research conducted by Sabrinda et al (2020) that lavender aromatherapy is effective in reducing menstrual pain in adolescents (Sabrinda, Sanjaya, & Sagita, 2020). Aromatherapy lavender is also effective in reducing labor pain in the active phase I (Juliani, Sanjaya, Veronica, & Ifayanti, 2021).

METHOD

This study is an experimental with a pre-experimental design, and a one-group pretest-posttest design. The population in this study was pregnant women in the Punggur Health Center, Central Lampung, the sample size used was 13 people, and the sampling technique used was purposive sampling. The intervention (giving effleurage & lavender aromatherapy) was carried out once with a duration of 20 minutes. Pain measurement was carried out using a numerical pain scale. Data analyzed were using the paired t-test.

RESULTS AND DISCUSSION

Based on the table 1, it can be seen that before the intervention (pretest) was given a combination of effleurage and lavender aromatherapy, the average back pain score of the respondents was 4.31, Confidence Interval at the 95% confidence level was in the range of 3.68 to 4, 93. And the average pain score after treatment (posttest) was 1.23, with confidence intervals of 0.67 to 1.79.

Based on table 2. The normality test using the Shapiro Wilk test $p > \alpha$ (0.05) means that the data is normally distributed. So that the bivariate analysis used the t-test.

Table 1
Distribution of mean score on back pain n before (pretest) and after (posttest) treatments

Variables	Mean	SD	Min-Max	CI; 95%	n
Back pain (pretest)	4,31	1,032	3-6	3,68-4,93	13
Back pain (posttest)	1,23	0,927	0-3	0,67-1,79	

Table 2
Test of The Normality before (pretest) and after (posttest) treatments

Group data	n	Shapiro Wilk (sig.)
Pretest	13	0,093
Posttest	13	0,110

Table 3
The Effect of effleurage and lavender aromatherapy on back pain scale in pregnant women

Group	Mean ± SD	Difference Mean ± SD	CI;95%		P-value
			Lower	Upper	
pretest	4,31±1,032	3,077±0,760	2,618	3,536	0,000
Posttest	1,23±0,927				

Based on table 3, there is a significant difference in the average score before and after the interventions, with a mean ± SD of 3.077 ± 0.760. The results of the analysis using paired t-test showed that the administration of effleurage and aromatherapy had an effect on reducing back pain in third-trimester pregnant women (p = 0.000).

Back Pain Before (Pretest) Treatments

The results showed that before (pretest) given the intervention of a combination of lavender aromatherapy and effleurage, respondent's average back pain was 4.31 ± 1.032, the lowest back pain score was 3 and the highest was 6. At the 95% confidence level, it is believed that before Treatment (pretest) the average back pain in the moderate pain range, namely 3.68 to 4.93.

Pain is a subjective response to both physical and psychological stressors. In addition to being felt as discomfort, pain also plays a protective role, by providing a warning against possible health-threatening conditions (Le Mone, Burke, & Bauldoff, 2016). Low back pain that often occurs in pregnant women is defined as parasagittal or axial discomfort in the lower back, which is included in the musculoskeletal system disorder caused by various mechanical, hormonal, circulatory, and psychosocial factors. (Carvalho et al., 2017). Low back pain (LBP) and pelvic girdle pain (PGP) or a combination of both, are common back pains in pregnancy. LBP is characterized by pain in the lumbar region, above the sacrum, and can radiate to the legs. Typical pain is dull and exacerbated by forwarding flexion. PGP in pregnancy is usually experienced between the posterior iliac crest and the gluteal folds near one or both sacroiliac joints, occasionally spreading to the posterior thigh. It can occur simultaneously with or separately from the pubic symphysis, with possible radiation to the anterior thigh. (Casagrande et al., 2015).

Research conducted by Richard stated that the average intensity of back pain for pregnant women before giving effleurage is 5.8 or is in the moderate pain range (Richard, 2017). Fitriana & Vidayanti's research, (2017) also shows that before giving effleurage the average intensity of back pain for pregnant women is 4.81 ± 1.87 or is in the pain range (Fitriana & Vidayanti, 2019).

Based on the description above, it can be explained that before being given a combination of effleurage and lavender aromatherapy, pregnant women in the third trimester experienced discomfort with back pain in the moderate pain range. This can occur due to the effects of the development of pregnancy as described by Casagrande et al., (2015) that hormonal changes cause ligamentous joint weakness.

Hyperlordosis of the lumbar spine and anterior tilt of the pelvis due to weight gain and a shift in the center of gravity. Back pain in pregnancy itself is not life-threatening, but this condition can affect the daily life activities of pregnant women, such as work, and sleep, and also affect the mother's mood, resulting in a decrease in quality of life, causing back pain problems. in pregnancy need to get the right therapy. so that the health condition of pregnant women is maintained and the activities of the daily life of pregnant women are not disturbed (Casagrande et al., 2015).

Back Pain After (Posttest) Treatments

The results of the analysis after treatment (posttest), the average back of pregnant women in the third trimester is 1.23 ± 0.927, the lowest back pain score is 0 and the highest is 3.

One way that is believed to reduce pain disorders in pregnant women is through effleurage therapy (Indrayani & Djami, 2016). Massage is believed to stimulate the body to release endorphins that can cause a sense of comfort as well as pain relief (Gozali et al., 2020). In addition to using massage techniques, the management of discomfort due to pain can also be done using aromatherapy, which is a relaxation method that uses essential oils in its implementation. The essential oil or essential oil that is used to reduce/relieve pain is the scent of lavender. The pleasant aroma will produce enkephalins which are stimulated by the thalamus. Enkephalin functions to provide a feeling of well-being and as a natural pain reliever. (Solehati & Kosasih, 2015). This study is in line with previous research which stated that the average back pain of pregnant women after administration of effleurage decreased in the range of mild pain (Fitriana & Vidayanti, 2019; Setiawati, 2019).

Based on the description above, it can be explained that after the intervention of lavender effleurage & aromatherapy with a duration of 20 minutes, the discomfort of the third trimester pregnant women decreased, whereas before treatment the average stage pain of pregnant women was in the moderate pain range and after treatment was in the range mild pain. This illustrates that the combination of effleurage and lavender aromatherapy can help provide comfort for pregnant women so that the back felt by pregnant women decreases.

Differences in back pain before and after an intervention

The results showed that the interventions was proven to be effective in reducing back pain in pregnant women (p = 0.000) where after treatment there was a significant

decrease in back pain compared to before treatment with a difference in the average pain intensity score of 3,077 ± 0.760.

One of the non-pharmacological therapies that can help reduce the level of back pain in pregnancy can be done by using effleurage and offering lavender aromatherapy (Indrayani & Djami, 2016). While aromatherapy using lavender essential oil is the most frequently used aromatherapy in research because the aroma of lavender has been proven to be effective in reducing pain intensity and anxiety levels (Solehati & Kosasih, 2015).

The previous study stated that there was a significant effect of effleurage and lavender in reducing back pain in pregnant women (Fitriana & Vidayanti, 2019; OKTAVIANA, 2020; Richard, 2017). It can be seen that the administration of a combination of effleurage and lavender aromatherapy is proven to be effective in reducing the level of back pain in pregnant women. In this study, before giving the combination of effleurage and lavender aromatherapy, the average back pain of respondents was in the moderate pain range. The causes of back pain during pregnancy can be influenced by various factors, including a heavy workload, flexion of body position, a history of previous back pain, a history of previous trauma in the pelvic area, body mass index, parity, and depression. Sehmbi, D'Souza, & Bhatia, (2017) state that there are several factors that cause low back and pelvic pain in pregnancy, namely an increase in hormones (relaxin, progesterone, and estrogen) which results in increased joint weakness, structural imbalances caused by muscle weakness. abdomen due to the uterus, compensatory hyperlordosis (sagittal rotation of the pelvis), and a shift in the anterior center of gravity. Other less common pathologies such as osteomyelitis and spinal tumors (Sehmbi et al., 2017).

There was a decrease in back pain scores after the intervention, from moderate pain to mild pain. The effleurage technique performs a pain inhibition mechanism based on the concept of gate control theory as explained by Indrayani & Djami, (2016) that in this theory, stimulation of tactile skin fibers can inhibit pain signals from the same or other body areas. Pain impulses travel along the C nerve to be transmitted to the substantia gelatinosa in the spinal cord and then to the cerebral cortex to be interpreted as pain. Tactile stimulation with the effleurage technique produces messages that would otherwise be sent through larger nerve fibers (A Delta fibers). The A-delta fibers will close the gate so that the cerebral cortex does not receive pain messages because it has been blocked by counter stimulation with the effleurage technique so that the perception of pain changes. Giving effleurage combined with lavender aromatherapy will be even better because lavender flower aromatherapy (*Lavandula angustifolia*) contains linalool which works as a sedative effect so that in the process serotonin which is a neurotransmitter is regulated the mood. Serotonin found by the brainstem and dorsal horn, among others, works to inhibit pain transmission (Indrayani & Djami, 2016)

CONCLUSIONS AND SUGGESTIONS

The results showed that the intervention of effleurage and lavender oil was effective in reducing back pain in pregnant women, especially in the third trimester ($p = 0.000$).

For further research who wants to conduct research related to the back in pregnancy using a control group and

other non-pharmacological management so that it can expand information for the community, especially in overcoming back problems during pregnancy.

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