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The Effect of Effleurage Massage on Reducing Back Pain in the Third Trimester Pregnant Women in the Guidance Area of Gunungpati Public Health Centre

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Abstract

Pregnancy in the third trimester often causes discomfort for expectant mothers, including back pain. This pain, typically located in the lumbosacral area, arises from the growing uterus, which alters posture and increases pressure on the spinal curvature. As the abdominal muscles stretch to accommodate the enlarging uterus, muscle fatigue and increased spinal load contribute to back pain. Effleurage massage, a non-pharmacological therapy involving gentle stroking movements, may help alleviate this discomfort. The massage technique stimulates and relaxes tense nerves and muscles. This study aimed to analyze the effect of effleurage massage on reducing back pain in third-trimester pregnant women. A quasi-experimental research method with a one-group pre-test-post-test design was employed. Participants were recruited using total sampling. The results showed a significant difference in back pain scores before and after effleurage massage ($p = 0.000$). This study concludes that effleurage massage has a significant effect on reducing back pain in pregnant women in the third trimester.

Keywords: Back Pain, Effleurage Massage, Pregnant Women, Third Trimester.

1. INTRODUCTION

Pregnancy involves significant physiological changes, including uterine enlargement, fatigue, breast tenderness, and increased urinary frequency due to pressure on the bladder (Puspitarini, 2019). During the third trimester, these changes become more pronounced, often leading to musculoskeletal discomfort, particularly low back pain (Wahyuningsih, 2019). This pain, typically located in the lumbosacral region (Rosida, Nuzliati, & Nurkila, 2021), arises from altered posture, increased spinal curvature, and strained abdominal muscles as they accommodate the growing uterus (Andarmoyo, 2013). These factors contribute to muscle fatigue and increased load on the spine.

The prevalence of low back pain in pregnancy is a significant concern. According to the 2020 Basic Health Research, there were 5,221,784 pregnant women in Indonesia, with 93.3% receiving first antenatal care visits (K1) and 84.6% receiving the fourth antenatal care visit (K4) (Ministry of Health of the Republic of Indonesia, 2020). In Central Java Province, the number of pregnant women in 2020 was 575,082 (Central Java Health Office, 2020). Data from the 2020 Semarang City Health Profile indicate that 2,254 pregnant women received K4 services, highlighting the considerable number of women reaching the third trimester (Semarang City Health Office, 2020). A preliminary study conducted at the Gunungpati Health Center in April 2024 revealed that out of 168 pregnant women, 72 were in

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the third trimester, and 30 of those experienced back pain (UPTD Gunungpati Health Center, 2024).

Back pain during pregnancy can significantly impact a woman's well-being, causing discomfort, sleep disturbances, and limitations in daily activities. Non-pharmacological approaches to pain management, such as effleurage massage, are therefore crucial (Koukoulithras et al., 2021).

Effleurage massage involves gentle, rhythmic stroking movements, typically starting with the fingertips and progressing to the palms of the hands (Kurniawan & Kurniawan, 2021). This technique promotes relaxation by stimulating tense nerves and muscles, leading to the release of endorphins, the body's natural pain relievers (Ni Luh, Putu, & Ida, 2019). Effleurage massage also aims to improve blood circulation, apply therapeutic pressure, warm the muscles, and enhance overall relaxation (Rahareng et al., 2022). This study aims to analyze the effect of effleurage massage on reducing low back pain in third-trimester pregnant women attending the Gunungpati Health Center.

2. LITERATURE REVIEW

Third Trimester Pregnancy

Pregnancy, the physiological process encompassing fertilization and implantation, typically lasts 40-42 weeks (Kartini et al., 2023). The third trimester, spanning weeks 28-40, marks a period of preparation for childbirth and parenthood (Lia & Sunarsih, 2011). During this stage, expectant mothers commonly experience heightened fatigue, physical discomfort, and emotional changes, including mild depression (Bobak et al., 2010). Hormonal fluctuations, particularly increased estrogen and progesterone levels, contribute to these experiences. As birth approaches, physical discomforts intensify, and feelings of awkwardness, body image concerns, and the need for increased emotional support may emerge. Additionally, sexual desire may decline due to physical changes and discomfort (Bobak et al., 2010).

Back Pain

Pain is a complex, multifactorial experience involving both sensory and emotional components, often arising from actual or potential tissue damage (Hidayat, Aziz, & Uliyah, 2016). Low back pain, characterized by muscle tension or stiffness in the lumbar region, is a common complaint among pregnant women (Saraha, Djama, & Suaib, 2021).

During pregnancy, back pain is often attributed to increased load on the spine, altered posture, and shifts in the body's center of gravity (Fitriani & Firawati, 2021). These changes

can lead to lordosis (exaggerated lumbar curvature) and compensatory adjustments in the cervical spine, resulting in muscle and ligament strain.

Effleurage Massage

Effleurage massage is a therapeutic technique employing gentle, rhythmic stroking movements with the fingertips and palms (Kurniawan & Kurniawan, 2021). Strokes are typically applied in a distal direction with light pressure. This massage technique stimulates the skin and underlying tissues, promoting relaxation and improving circulation (Ellysusilawati, 2018).

The benefits of effleurage massage include enhanced venous and lymphatic circulation, improved metabolic processes, reduced fatigue, edema reduction, and pain relief (Almalika, Ludiana, & Dewi, 2022). In this study, effleurage massage is employed to alleviate low back pain in third-trimester pregnant women.

3. METHODS

This quantitative study employed a quasi-experimental design with a one-group pre-test-post-test approach. The study was conducted in the Gunungpati Health Center area. Participants were recruited using total sampling. Inclusion criteria were: (1)Pregnant women in their third trimester, (2)Experiencing back pain, (3)No history of Pelvic Inflammatory Disease (PID), (4)Willingness to participate. Exclusion criteria were: (1)Spinal injuries, (2)Wounds in the back area, (3)Allergies to baby oil

4. RESULTS

1. Respondent Characteristics

Table 1: Frequency distribution of respondent characteristics

No	variabel	n	%
1	Age		
	<20 years old	1	3,33
	20-35 years old	26	86,67
	>35 years old	3	10
2	Gestational age		
	28-31 weeks	12	40
	32-35 weeks	13	43,33
	>35 weeks	5	16,67
3	Parity		
	Primipara	19	63,33
	Multipara	11	36,67
4	Job		
	Working	14	46,67
	Not working	16	53,33

Table 1 presents the demographic characteristics of the participants. The majority of the participants (n=26, 86.67%) were between 20 and 35 years old. Most participants (n=19, 63.33%) had a gestational age of 32-35 weeks. More than half of the participants (n=16, 53.33%) were unemployed.

2. Level of Back Pain in Pregnant Women in the Third Trimester Before Being Given Effluerage Massage

Table 2: Frequency Distribution of Back Pain Levels in Pregnant Women in the Third Trimester Before Effleurage Massage

Pain Scale	Frequency	Percentage (%)
Mild pain	6	20
Moderate pain	15	50
Severe pain	9	30
Total	30	100

Table 2 presents the distribution of back pain severity among participants before the effleurage massage intervention. A large proportion of participants (n=12, 50%) experienced moderate pain, while 9 participants (40%) reported severe pain. Mild pain was reported by 6 participants (20%).

3. Level of Back Pain in Pregnant Women in the Third Trimester After Being Given Progressive Muscle Relaxation

Table 3: Frequency Distribution of Back Pain Levels in Pregnant Women in the Third Trimester After Being Given Effleurage Massage

Pain Scale	Frequency	Percentage (%)
No pain	18	60
Mild pain	11	36,67
Moderate pain	1	3,33
Number	30	100

Table 3 presents the distribution of back pain severity among participants after the effleurage massage intervention. The majority of participants (n=18, 60%) reported no pain after the massage. Mild pain was reported by 11 participants (36.67%), and only 1 participant (3.33%) reported moderate pain. These findings suggest that effleurage massage may be effective in reducing back pain severity in third-trimester pregnant women.

4. The effect of back pain before and after effleurage massage on the backs of pregnant women in the third trimester

Table 4: The effect of back pain on pregnant women in the third trimester before and after effleurage massage

Back Pain	mean±SD	Δ Mean±SD	P
Before	5,90±1,129	1,67±0,606	0,000
After	4,23±1,165		

5. DISCUSSION

This study found that the majority of pregnant women experiencing low back pain in the third trimester were between 20 and 35 years old. This finding aligns with existing literature, which suggests that age can influence pain perception. Younger pregnant women may be more susceptible to back pain due to the physiological changes associated with pregnancy. As Fraser (2009) noted, there is a relationship between pain and increasing age; however, in the context of pregnancy, younger women may experience more pronounced musculoskeletal discomfort. This is supported by research by Amalia et al. (2020), who found that 90% of respondents experiencing back pain were between 20 and 35 years old.

Back pain in pregnancy is often exacerbated in the second and third trimesters due to the enlarging uterus and shifting center of gravity. As the fetus grows, the body's center of gravity shifts forward, requiring postural adjustments to maintain balance. This can lead to increased lumbar curvature (lordosis), shortened spinal muscles, and tension in the back, ultimately contributing to pain (Fitriani, Firawati, & Raehan, 2021).

Parity also plays a role in back pain during pregnancy. Primiparous women (those experiencing their first pregnancy) are more likely to report back pain (Astuti et al., 2023). This may be attributed to a lack of prior experience with pregnancy-related physical changes and coping mechanisms (Azwaldi, 2022).

This study also found that most participants were housewives. The daily activities of housewives often involve repetitive bending, twisting, lifting, and prolonged periods of sitting or standing, which can strain the lower back muscles and contribute to pain (Gupta & Nandini, 2015). This finding is consistent with research by Mardiani and Novi (2022), who reported a correlation between daily activities and back pain severity in pregnant women.

The results of this study demonstrated a significant reduction in back pain following effleurage massage. The average pain score decreased by 1.67 points, from 5.90 to 4.23 ($p = 0.000$). This finding supports the hypothesis that effleurage massage is effective in alleviating low back pain in third-trimester pregnant women. These results are consistent with research

by Yuliana and Handayani (2024) and Fitriani and Silviani (2023), who also reported significant reductions in back pain following effleurage massage interventions.

Effleurage massage, with its gentle stroking movements, stimulates the nerves and muscles, promoting relaxation and the release of endorphins, the body's natural pain-relieving chemicals (Kurniawan & Kurniawan, 2021). This mechanism likely contributes to the observed reduction in back pain among the participants in this study.

The observed reduction in back pain following effleurage massage can be explained by the Gate Control Theory. This theory posits that tactile stimulation activates large-diameter nerve fibers (A-delta fibers), which transmit non-painful sensory information to the spinal cord. These signals effectively "close the gate" in the substantia gelatinosa, a region in the spinal cord involved in pain transmission, thereby blocking or reducing the transmission of pain signals to the brain.

While both effleurage massage and warm compresses can provide tactile stimulation for pain relief, the mechanism of action differs slightly. Effleurage massage, with its deeper and more sustained stroking movements, may take longer to achieve pain relief compared to warm compresses, which provide more immediate skin stimulation. This difference in the onset of pain relief may be attributed to the varying stimulation of nerve fibers and the time required for the gate control mechanism to fully engage (Hidayat, Aziz, & Uliyah, 2016).

6. CONCLUSION

This study demonstrated a significant effect of effleurage massage on reducing back pain in third-trimester pregnant women. The average back pain score before the massage intervention was 5.90. Following the effleurage massage, the average pain score decreased to 4.23. This reduction in pain scores highlights the potential benefits of effleurage massage as a non-pharmacological intervention for managing back pain during late pregnancy.

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