

Effectiveness of Effleurage Massage and Gentle Prenatal Yoga Poses on Pregnancy Back Pain Discomfort

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Abstract

Background: Back pain during pregnancy is a type of back pain that occurs during pregnancy, and previously, the pregnant woman had no history of back pain. Based on the results of a study conducted in the Kartasura Health Center Working Area, Central Java, on 140 respondents of pregnant women in the first and second trimesters, it was found that 64.3% of respondents complained of back pain, 18.6% of respondents complained of lower back pain, and 17.1% of respondents complained of a combination of both.

Objective: To analyze the significant differences between effleurage massage and Prenatal Gentle Yoga Pose on pregnancy back pain discomfort.

Method: Quantitative research using quasi-experimental measurement method and one group pretest-post test design. The population and sample in this study were pregnant women in the second and third trimesters who experienced back pain during pregnancy. Respondents were divided into two treatment groups, namely the group with effleurage massage treatment and the group with Prenatal Gentle Yoga Pose treatment. The sampling technique used was accidental sampling. This study consisted of independent variables, namely effleurage massage and Prenatal Gentle Yoga Pose while the dependent variable was complaints of back pain during pregnancy. This study was conducted at TPMB Maulina Hasnida, M.MKes Surabaya. The data analysis techniques used were the Wilcoxon signed-rank test and the Mann Whitney Test.

Results: The results of the research analysis using the Wilcoxon signed-rank test showed that $\alpha < 0.05$, p Value = 0.000 which means that Effleurage Massage and Prenatal Gentle Yoga Pose have an effect on the discomfort of Back Pain in pregnancy. The results of the analysis test using the Mann Whitney test in each treatment group showed significant results (P-value 0.048 & 0.035).

Conclusion: Effleurage massage has higher effectiveness compared to prenatal gentle yoga to reduce discomfort of pregnancy back pain. Pregnant women are advised to apply effleurage massage and Prenatal Gentle Yoga pose to overcome discomfort of pregnancy back pain and further research is needed on factors that may influence the occurrence of discomfort of pregnancy back pain.

Keywords : Back Pain ¹ , Effleurage Massage ² , Gentle Prenatal Yoga Poses ³

1. Introduction

A major physiological impact on a woman's body will occur during pregnancy. In addition to affecting the cardiovascular, hormonal, and urinary systems, this condition will also cause musculoskeletal problems, especially in the axial skeleton. Hormonal changes that occur significantly are followed by an increase in body mass and changes in size. The position of the uterus contributes to changes in the center of gravity which causes additional static and dynamic forces that affect the axial skeleton (Bryndal et al., 2020). The enlarging abdomen causes postural changes, resulting in low back pain (LBP), which is the most common musculoskeletal complaint experienced during pregnancy (Ritchie, 2003). Factors that may make someone experience back pain discomfort during pregnancy are complaints of back pain in previous pregnancies, back pain during menstruation, young age, and lack of physical activity. Most pregnant women with back pain discomfort experience minimal to mild disability (Bryndal et al., 2020).

Pregnancy back pain refers to the type of back pain that occurs during pregnancy, and the person has no previous history of back pain (Liu et al., 2021). Pregnancy back pain is the most common musculoskeletal pain experienced by most women for the first time during pregnancy and can cause various problems and risks causing dangerous conditions for them. Severe back pain makes them unable to do daily activities and requires them to rest. (Citko et al., 2018). The estimated prevalence of back pain ranges from 30% to 78% in the United States, Europe, and some parts of Africa (Abebe et al., 2014; Carvalho et al., 2017; Mota et al., 2015). Based on the results of a study conducted in the Kartasura Health Center Work Area, Central Java, on 140 respondents of pregnant women in the first and second trimesters, it was found that 64.3% of respondents complained of pelvic girdle pain (*PGP*), 18.6% of respondents complained of lower back pain (*low back pain* or *LBP*), and 17.1% of respondents complained of combined pain of both (*lumbo pelvic pain* or *LPP*) (Fatmarizka et al., 2021).

Back pain is more common in the second trimester of pregnancy, but in some cases, back pain during pregnancy can occur since the first trimester (Kalinowski & Krawulska, 2017). Back pain usually begins between the fifth and seventh months of pregnancy, and pregnancy-related back pain can continue for up to three months after delivery (Tavares et al., 2020). In addition, women who experience back pain before pregnancy are twice as likely to suffer from this condition where the frequency of back pain increases with increasing age at pregnancy and the number of pregnancies (Heuch et al., 2020).

Most pregnant women who experience back pain consider this as part of the pregnancy process, so they do not take special action to overcome it (Salari et al., 2023). In fact, complaints of back pain can cause disability, decreased quality of life, or even paralysis in pregnant women (Cepnja et al., 2021). If back pain during pregnancy is not treated or treated for too long, it can lead to the need for surgery, and can leave negative impacts after pregnancy (Al-Hadidi et al., 2020).

Lower back pain can be treated using various methods, including using pharmacological and non-pharmacological techniques, each of which has its own advantages and disadvantages. Pain management using pharmacological techniques is considered more effective in reducing pain, but the funds required are more expensive, and have the potential to cause negative side effects if used incorrectly, in addition, sometimes the use of drugs does not provide the desired effect. The advantages of non-pharmacological techniques include being cheaper, simpler, more effective and without side effects. There are several variations of non-pharmacological techniques that can be used to reduce lower back pain during pregnancy, namely massage, relaxation, acupuncture, yoga and acupressure (Rahmadona & Batubara, 2021; Ratna Dewi Permatasari, 2019).

One of the non-pharmacological therapies that can be given is Effleurage Massage, which is providing a gentle, slow and continuous massage on the back of pregnant women so that it can create a feeling of relaxation and reduce pain (Maulida, 2020). Prenatal Gentle Yoga Pose is one example of non-pharmacological therapy which is an activity that includes breathing exercises and stretching. Pregnant women can experience imbalances that can cause back pain. Gentle stretching with a little emphasis on balance and muscle flexibility will help relieve discomfort and relax muscles during pregnancy (Tanjung Rejeki, S., & Fitriani, Y., 2019). Previous studies have stated that prenatal gentle yoga poses are effective in reducing discomfort in the first trimester of pregnancy (Andriani et al) and effleurage massage can be given as a therapy to reduce back pain in pregnant women (Maulida, 2020).

2. Materials and Methods

2.1 Materials

Penelitian ini melibatkan 88 ibu hamil trimester kedua dan ketiga yang mengalami nyeri punggung selama kehamilan. Ibu hamil tersebut dibagi menjadi dua kelompok perlakuan kelompok yaitu dengan perlakuan pijat effleurage dan kelompok dengan perlakuan Prenatal Gentle Yoga Pose. Penelitian ini terdiri dari variabel bebas yaitu pijat effleurage dan Prenatal Gentle Yoga Pose, sedangkan variabel terikatnya adalah ketidaknyamanan nyeri punggung kehamilan. Penelitian ini dilaksanakan di TPMB Maulina Hasnida, M.MKes Surabaya.

2.2 Data collection procedures

This research is a quantitative research with a *quasi-experimental design* with a *one-group pretest-posttest design*. Sampling was carried out using the purposive sampling method. sampling technician accidentally.

2.3 Data analysis

Data processing was done using SPSS. Univariate analysis was done to describe or illustrate the collected data. Bivariate analysis was done to describe the difference in pain levels before and after acupressure and prenatal yoga interventions. Bivariate analysis used the Wilcoxon Signed Rank Test and Mann-Whitney Test with α (0.05), if $p < \alpha$, it indicates a meaningful or significant relationship between the two variables.

2.4 Research Ethics

This research has passed the ethical review carried out at the KEPK Brahmada Lentera Chakra Institution, with Number 056/20/VII/EC/KEP/LCBL/2024.

3. Results and Discussion

3.1 Results and Discussion

Table 1. Respondent Characteristics According to Age, Education and Parity.

Respondent Characteristics	Number (n)	Percentage (%)
Age		
< 20 Years	-	-
20-35 Years	80	90.9
>35 Years	8	9.1
Education		
Elementary (Primary-Junior High School)	-	-
Middle School (SMA)	45	51.1
High (D3–S1)	43	48.9

Balance		
Primipara	48	54.5
Multipara	40	45.5
Number of Respondents	88	100

Based on table 1, it shows the results of the frequency distribution of pregnant women who experience back pain, the majority are aged 20-35 years and have secondary education (high school) with primiparous status.

Multiparous and grandemultiparous mothers will experience back pain and are at greater risk than primiparous mothers because their muscles are weaker, causing the muscles to be unable to support the uterus or the uterus to enlarge. Without support, the uterus looks loose and the back becomes longer. Muscle weakness in the abdominal area is generally experienced by grandemultiparous (Arummega et al., 2022).

Table 2. The Effect of Effleurage Massage on Pregnancy Back Pain Discomfort

Effleurage Massage Trimester 2	No Pain	Mild Pain	Moderate Pain	Controlled Severe Pain	Severe and uncontrollable pain	Total	By counting
Pre-exam	-	-	16 (72.7%)	6 (27.3%)	-	22 (100%)	-3,857 years
Post-Exam	-	12 (54.5%)	7 (31.8%)	3 (13.6%)	-	22 (100%)	
Wilcoxon test $\alpha < 0.05$, p value = 0.000							
Effleurage Massage Trimester 3	No Pain	Mild Pain	Moderate Pain	Controlled Severe Pain	Severe and uncontrollable pain	Total	By counting
Pre-exam	-	1 (4.5%)	11 (50%)	10 (45.5%)	-	22 (100%)	-4,005 years
Post-Exam	2 (9.1%)	6 (27.3%)	11 (50%)	3 (13.6%)	-	22 (100%)	
Wilcoxon test $\alpha < 0.05$, p value = 0.000							

Table 2 above shows that most pregnant women in the second trimester experienced mild pain after effleurage massage intervention, while half of pregnant women in the third trimester experienced moderate pain after effleurage massage intervention. The results of the analysis using the Wilcoxon test showed that each result was p Value = 0.000 < 0.05 and Z value $(-3.857 \text{ \& } -4.005) < Z_{(1.9)}$. This means that H_0 is rejected and H_1 is accepted so that giving effleurage massage has an effect on the discomfort of back pain during pregnancy.

This is in accordance with research conducted by Arzeta et al., (2023) where effleurage massage intervention is effective for complaints of back pain in pregnant women (p -value = 0.000). Similar research conducted by Febiartini (2023) also explained that providing effleurage massage intervention can reduce the scale of back pain in pregnant women. According to research conducted by Hall et al (2016) showed that from the results of a literature review, effleurage massage intervention is an effective complementary therapy for treating lower back and pelvic pain during pregnancy.

Table 3. The Effect of Gentle Prenatal Yoga Poses on Pregnancy Back Pain Discomfort

Gentle Prenatal Yoga Poses Trimester 2	No Pain	Mild Pain	Moderate Pain	Controlled Severe Pain	Severe and uncontrollable pain	Total	By counting
Pre-exam	-	4 (18.2%)	10 (45.5%)	8 (36.4)	-		-4,141 years
Post-Exam	8 (36.4%)	9 (40.9%)	5 (22.7%)	-	-		
Wilcoxon test $\alpha < 0.05$, p value = 0.000							
Gentle Prenatal Yoga Poses Trimester 3	No Pain	Mild Pain	Moderate Pain	Controlled Severe Pain	Severe and uncontrollable pain	Total	By counting
Pre-exam	-	4 (18.2%)	9 (40.9%)	9 (40.9%)	-	22 (100%)	-4,146 years
Post-Exam	9 (40.9%)	5 (22.7%)	7 (31.8%)	1 (4.5%)	-	22 (100%)	
Wilcoxon test $\alpha < 0.05$, p value = 0.000							

Table 3 above shows that most pregnant women in the second trimester experienced mild pain after prenatal gentle yoga intervention, while almost half of pregnant women in the third trimester did not experience pain after prenatal gentle yoga intervention. The results of the analysis using the Wilcoxon test showed that each result was p Value = 0.000 < 0.05 and Z value $(-4.141 \text{ \& } -4.146) < Z_{(1.9)}$. This means that H_0 is rejected and H_1 is accepted so that Prenatal gentle yoga affects the discomfort of pregnancy back pain.

This is in accordance with research conducted by Fajrin & Wahyuni, (2023) where the *Prenatal Gentle Yoga Pose intervention* is effective for complaints of back pain in pregnant women (p -value = 0.000). Similar research conducted by Amalia et al. (2020) also explained that providing the *Prenatal Gentle Yoga Pose intervention* can reduce the scale of back pain in pregnant women. According to research conducted by Syafitri et al. (2024) shows that the *Prenatal Gentle Yoga Pose* is useful for reducing pregnancy pain and accelerating labor in the third trimester. Doing the *Prenatal Gentle Yoga Pose* during pregnancy will provide health and well-being for the mother-to-be and the baby in her womb. Prenatal yoga is considered to be able to help reduce the discomfort felt by pregnant women during pregnancy. one of which is back pain in pregnant women and also helps smooth the birth process (Putri et al., 2023).

Table 4. Difference in Effectiveness of Effleurage Massage and Prenatal Yoga Poses on Second Trimester Pregnancy Low Back Pain Discomfort

	N	Average Rating	By counting	p value
Effleurage Massage	22	26.27	-1,978 years	0.048
Gentle Prenatal Yoga Poses	22	18.73	-	

Based on table 4, it shows that the average provision of effleurage massage intervention in pregnant women in the second trimester is 26.27 and the average provision of *prenatal gentle yoga pose intervention* in pregnant women in the second trimester is 18.73. Based on this, *Effleurage Massage* is more effective than

prenatal gentle yoga pose. The results of the Mann Whitney Test obtained a *p-value* of 0.048 and a significant level of significance $\alpha = 0.05$. This means that the p value is smaller than the significance level ($p < 0.05$) thus H_0 is rejected which means that there is a difference in the effectiveness of Effleurage Massage and Prenatal Yoga on Lower Back Pain in Pregnant Women in the Second Trimester. This is in line with the results of research from Maulida (2020) which states that the peak of back pain during pregnancy begins at the end of the second trimester and can be overcome with non-pharmacological therapy that can be given through effleurage massage, namely massage for pregnant women in a gentle, slow and continuous manner that can cause relaxation and reduce pain.

Table 5. Difference in Effectiveness of Effleurage Massage and Prenatal Yoga Poses on Third Trimester Pregnancy Low Back Pain Discomfort

	N	Average Rating	By counting	<i>p value</i>
Effleurage Massage	22	26.52	-2,112 years	0.035
Gentle Prenatal Yoga Poses	22	18.48		

Based on table 5, it shows that the average provision of effleurage massage intervention in pregnant women in the third trimester is 26.52 and the average provision of prenatal gentle yoga pose intervention in pregnant women in the second trimester is 18.48. Based on this, *Effleurage Massage* is more effective than *prenatal gentle yoga pose*. The results of the Mann Whitney test obtained a *p-value* of 0.035 and a significant level of significance $\alpha = 0.05$. This means that the *r value* is smaller than the significance level ($p < 0.05$) so that H_0 is rejected, which means that there is a difference in the effectiveness of Effleurage Massage and Prenatal Yoga on Lower Back Pain in Pregnant Women in the Third Trimester.

This is in accordance with research conducted by Yuningsih et al., (2022) which stated that intervention with effleurage massage has been shown to reduce back pain discomfort in pregnant women in the third trimester compared to the exercise group, using the ODI scale. Research shows that both effleurage massage and *prenatal gentle yoga poses* are effective in reducing lower back pain in pregnant women (Putri et al., 2023; Setiawati, 2019). Effleurage massage has been shown to reduce the intensity of back pain in pregnant women in the third trimester (Aini, 2017). Likewise, prenatal gentle yoga has been shown to reduce the intensity of back pain in pregnant women (Mustofa, 2023). The effectiveness of both methods is associated with their ability to reduce muscle tension, improve blood circulation, and improve mobility. Researchers argue that providing *effleurage massage* and *prenatal gentle yoga pose interventions* is recommended because of its safety and ease of implementation in overcoming back pain during pregnancy.

4. Conclusion

Characteristics of pregnant women who experience back pain are the majority of pregnant women aged 20-35 years, and have secondary education (high school) with primiparous status. There is an effect of effleurage massage on reducing back pain in pregnant women before and after intervention with a mean rank of 26.27 in the 2nd trimester and 26.52 in the 3rd trimester. *prenatal gentle yoga* on reducing lower back pain in pregnant women before and after intervention with a mean rank of 18.73 in the 2nd trimester and 18.48 in the 3rd trimester. This suggests that effleurage massage is more effective in reducing the discomfort of pregnancy back pain compared to prenatal gentle yoga poses.

Confession

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Conflict of interest

The author declares no conflict of interest in this manuscript.

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