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Original Article

Effect of Acupressure Therapy on Low Back Pain among Third-Trimester Pregnant Women

Ermaya Sari Bayu Ningsih[1], Yuli Erlina[2], Dina Hartini[3], Grace Evelyn Malinti[4]

[1] Midwifery Professional Education Program, Helvetia Institute of Health, Medan, Indonesia
[2,3,4] Diploma III Nursing Program, Efarina Hospital School of Nursing, Purwakarta, Indonesia

Abstract

Low back pain during pregnancy is defined as pain occurring in the lumbar region, specifically above the sacrum, which may radiate to the legs and increase the risk of low back pain in subsequent pregnancies. This study aimed to determine the effect of acupressure therapy on low back pain among third-trimester pregnant women at Mitra Sehat Clinic, Pabuaran, in 2025. This study employed a quantitative analytical approach with a pre-experimental one-group pretest–posttest design without a control group. The sampling technique used was purposive sampling, involving 30 pregnant women. Data were collected from primary and secondary sources, and the instrument used was a pain scale measurement. Data were analyzed using a paired t-test. The results showed that before receiving acupressure therapy, 22 participants (73.4%) experienced severe low back pain. After the intervention, 19 participants (63.4%) demonstrated a reduction in pain intensity to a moderate level. In conclusion, acupressure therapy has a significant effect on reducing low back pain among third-trimester pregnant women. Pregnant women are encouraged to maintain their health during pregnancy, participate in maternal health classes, and undergo acupressure therapy twice a week to prevent low back pain.

Keyword: acupressure; low back pain; third-trimester pregnant women

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Corresponding Author:
Ermaya Sari Bayu Ningsih
Midwifery Professional Education Program, Helvetia Institute of Health, Medan, Indonesia
Email:
mayapendi3969@gmail.com

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Introduction

Pregnancy and childbirth are natural processes and are not considered dangerous or pathological conditions. The gestational period begins at conception and continues until the birth of the fetus. A normal pregnancy lasts approximately 280 days (40 weeks or 9 months and 7 days), calculated from the first day of the last menstrual period. Pregnancy is divided into three trimesters: the first trimester from conception to three months, the second trimester from the fourth to the sixth month, and the third trimester from the seventh to the ninth month. During pregnancy, anatomical and physiological changes require psychological adaptation, which often leads to discomfort in pregnant women, such as swelling of the legs and feet and back pain (Kasmiati et al., 2023).

Low back pain during pregnancy is defined as pain in the lumbar region, specifically above the sacrum, which may radiate to the legs. The pain is generally described as dull and tends to worsen when the lumbar spine is flexed forward. Low back pain is a common musculoskeletal discomfort experienced by pregnant women (Arummega et al., 2022).

Back pain during pregnancy may originate from the sacroiliac or lumbar region and can lead to long-term problems in the back muscles and pelvic area. A history of low back pain in a previous pregnancy significantly increases the risk of recurrence in subsequent pregnancies (Omoke et al., 2021).

The prognosis of low back pain can be poor if it is not managed properly. Pregnant women who experience low back pain may have difficulty standing, sitting, and moving in and out of bed, which disrupts daily activities and reduces their quality of life. The pain may also spread to the pelvic and lumbar areas, causing difficulty in walking. Therefore, low back pain in pregnant women requires appropriate management (Aswitami, 2018).

Management of low back pain can be divided into pharmacological and non-pharmacological approaches. The long-term use of pharmacological agents during pregnancy may pose risks to both the mother and the fetus; therefore, non-pharmacological therapies such as acupressure and stretching are considered safer alternatives. According to Fitrina (2019), acupressure is a therapeutic technique that involves applying finger pressure to acupuncture points as a substitute for needle insertion. The BL23 point (Shenshu), located 1.5 cun lateral to the second lumbar vertebra (L2), is commonly used to reduce back pain. Pressure is applied for two seconds,

repeated 30 times, twice a week for one week to relieve back pain.

A study by Charpentier et al. (2012) reported that the prevalence of back pain during pregnancy was 83% among women in Benin and 58% in Canada. This finding is supported by Mafikasari and Kartikasari (2015), who reported that 60–80% of third-trimester pregnant women experienced back pain related to sleeping position. In Indonesia, the prevalence of low back pain is approximately 18%, and it increases with age, particularly in middle adulthood (Ramachandra, 2017).

Maternal classes are conducted to screen for complications and problems during pregnancy. Based on a preliminary survey at Mitra Sehat Clinic, Pabuaran, through direct interviews with seven third-trimester pregnant women, five reported experiencing back pain and did not know how to manage it, while two relieved the pain by receiving back massage. Based on this background, the researchers were interested in conducting a study entitled "The Effect of Acupressure Therapy on Low Back Pain among Third-Trimester Pregnant Women at Mitra Sehat Clinic, Pabuaran, in 2025."

Method

This study employed a quantitative analytical approach with a pre-experimental one-group pretest–posttest design without a control group. The participants were assessed before the intervention and reassessed after the intervention.

The sample consisted of all pregnant women who visited Mitra Sehat Clinic, Pabuaran, in 2025. A purposive sampling technique was used, resulting in a total sample of 30 pregnant women. The intervention was conducted using a standardized procedure based on the Standard Operating Procedure (SOP) for the Shenshu (BL23) acupressure point.

Univariate analysis was performed to describe the frequency distribution of each variable. Bivariate analysis was conducted using the Wilcoxon signed-rank test to determine the difference in pain intensity before and after the intervention.

Results

Univariate and bivariate analyses were conducted to statistically explain the relationship between two variables: the independent variable and the dependent variable. The independent variable was acupressure therapy, while the dependent variable was low back pain among third-trimester pregnant women at Mitra Sehat Clinic, Pabuaran.

1. Univariate Analysis

a. Demographic Data

Table 1. Frequency Distribution of Respondents' Demographic Characteristics at Mitra Sehat Clinic, Pabuaran

Category	Frequency	(%)
Age		
<21 years	1	3,3
21 – 35 years	26	86,7
>35 years	3	10,0
Education		
Primary school	2	6,7
Junior high school	3	10,0
Senior high school	23	76,7
Bachelor's degree	2	6,7
Occupation		
Housewife	14	46,7
Self-employed	8	26,7
Private employee	6	20,0
Civil servant	2	6,7
Total Respondents	30	100

Based on Table 1, the age distribution showed that the majority of respondents were 21–35 years old, accounting for 36 respondents (86.7%). Most respondents had a secondary level of education, totaling 23 respondents (76.7%). In terms of occupation, the majority were housewives (unemployed), accounting for 14 respondents (46.7%) among third-trimester pregnant women at Mitra Sehat Clinic, Pabuaran.

b. Low Back Pain Scale Data

Table 2. Frequency Distribution of Pretest Low Back Pain Intensity among Third-Trimester Pregnant Women at Mitra Sehat Clinic, Pabuaran

Variable	Low back pain scale	Numeric Rating Scales (NRS)				
		n	%	Mean	Min	Max
Pre Test	No pain	0	0	7,93	6	10
	Mild pain	0	0			
	Moderate pain	5	16,7			
	Controlled severe pain	22	73,4			
	Uncontrolled severe pain	3	10,0			
Total Respondents		30	100			

Based on Table 2, the distribution of low back pain intensity among third-trimester pregnant women before receiving acupressure therapy showed that the majority experienced controlled severe pain, reported by 22 respondents (73.4%). The mean pain score prior to the intervention was 7.93.

Table 3. Frequency Distribution of Posttest Low Back Pain Intensity among Third-Trimester Pregnant Women at Mitra Sehat Clinic, Pabuaran

Variable	Low back pain scale	Numeric Rating Scales (NRS)				
		n	%	Mean	Min	Max
Pre Test	No pain	0	0	3,87	2	6
	Mild pain	11	36,3			
	Moderate pain	19	63,4			
	Controlled severe pain	0	0			
	Uncontrolled severe pain	0	0			
Total Respondents		30	100			

Based on Table 3, the distribution of low back pain intensity among third-trimester pregnant women after receiving acupressure therapy showed that the majority experienced moderate pain, reported by 19 respondents (63.4%). The mean pain score following the intervention was 3.87.

2. Bivariate Analysis

a. Normality test of the data

The normality test in this comparative study was conducted to determine whether the data were normally distributed. The distribution of the data served as the basis for selecting the appropriate statistical test for further analysis. Normality was assessed using the Shapiro–Wilk test, and the data were considered normally distributed if the p-value was > 0.05. The results of the normality test are presented below.

Table 4. Normality Test of Research Data: Low Back Pain Scale among Third-Trimester Pregnant Women

Variabel		Score value	Numeric Rating Scales (NRS)
			Intervention (n=56)
Low back pain scale among third-trimester pregnant women	Pretest	Mean (SD)	7,93
		Median	8.00
		Range	4
p-value			0.017
	Posttest	Mean (SD)	3,87
		Median	4.00
		Range	4
p-value			0.015

Based on Table 4, the normality test results for low back pain scores from a total of 30 respondents, using pretest and posttest data among third-trimester pregnant women at Mitra Sehat Clinic, Pabuaran, indicated that the data were not normally distributed.

b. Test of Differences in Low Back Pain Scale Scores among Third-Trimester Pregnant Women

Table 5. Test of Differences in Low Back Pain Scale Scores among Third-Trimester Pregnant Women at Mitra Sehat Clinic, Pabuaran, Before and After Acupressure Therapy

Variabel	Mean	SD	N	CI 95% (Low-up)		Mean Rank	T	P *Value*
				Lower	Upper			
Prior to acupressure therapy	7,93	1,258	30	3,742	4,391	15.50	0	0,000
After acupressure therapy	3,87	1,008						

Based on Table 5, the cross-tabulation results of acupressure therapy before and after the intervention showed a reduction in low back pain among third-trimester pregnant women at Mitra Sehat Clinic, Pabuaran, in 2025. The mean low back pain score decreased from 7.93 before the intervention to 3.87 after the intervention, indicating a reduction in pain intensity.

The mean rank was 15.50, and the number of ties was 0, indicating that there were no identical values between the pre-intervention and post-intervention scores.

The statistical test results showed an Asymp. Sig. (2-tailed) value of 0.000. Since this value was less than 0.05, it can be concluded that the hypothesis was accepted, indicating a statistically significant difference in low back pain before and after acupressure therapy.

Discussion

The results of this study on the effect of acupressure therapy on low back pain among third-trimester pregnant women at Mitra Sehat Clinic, Pabuaran, demonstrated a reduction in the level of low back pain experienced by the participants. The analysis using the Wilcoxon signed-rank test showed a statistically significant decrease in pain intensity, with a p-value < 0.001, indicating a significant effect of acupressure therapy on low back pain in third-trimester pregnant women.

These findings are consistent with a study by Luh Yenny Armayanti (2023), which reported a reduction in the mean pain score from 5.31 to 2.44, representing a decrease of 2.87 points (54.04%). The study concluded that acupressure significantly reduced the intensity of low back pain in pregnant women and could be used as a non-pharmacological therapy for third-trimester pregnant women experiencing back pain. The intervention should be administered according to the mother's condition and performed by trained

healthcare professionals (Armayanti et al., 2023).

Similar results were reported by Rani Setiya (2023), who found that stimulation of the BL23 acupressure point significantly reduced back pain in third-trimester pregnant women. Before the intervention, most participants experienced moderate pain, whereas after the intervention, 87.5% reported mild pain, with a p-value of 0.01. These findings indicate that acupressure at the BL23 point is effective in reducing low back pain intensity in pregnant women.

Acupressure stimulates meridian points and triggers the release of endorphins, which act as natural analgesics. This mechanism blocks pain transmission and increases blood flow and oxygen delivery to the affected area, resulting in muscle relaxation and enhanced tissue healing (Resmi & Aris, 2020).

A study by Ni Gusti Ayu Pramita Aswitami et al. (2018) also demonstrated a significant effect of acupressure therapy on low back pain among third-trimester pregnant women in the working area of Abiansemal I Public Health Center ($\rho < 0.05$). The authors recommended that midwives provide complementary midwifery care through acupressure therapy to reduce low back pain in pregnant women.

The findings indicate that third-trimester pregnant women frequently experience low back pain due to hormonal changes that soften the connective tissues surrounding the lower spine, leading to increased lumbar lordosis. Interventions aimed at strengthening and improving muscle flexibility are required to compensate for the increased abdominal mass and maintain proper posture, particularly by strengthening the gluteus maximus and preventing lumbar hyperlordosis. Acupressure at points BL23, GV3, and GV4 can be used as a safe non-pharmacological intervention. It is recommended that acupressure be performed twice weekly, as it is expected to significantly reduce low back pain in third-trimester pregnant women and serve as an alternative solution to common pregnancy-related discomforts.

Conclusion

Before receiving acupressure therapy, the majority of third-trimester pregnant women experienced controlled severe low back pain, reported by 22 participants (73.4%). After the intervention, most participants reported moderate pain, accounting for 19 participants (63.4%). There was a statistically significant difference in low back pain intensity before and after the acupressure therapy, with a p-value of 0.000 (< 0.05). Therefore, it can be concluded that acupressure therapy has a significant effect on reducing low back pain among third-trimester pregnant women at Mitra Sehat Clinic, Pabuaran.

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