

The Effectiveness of Acupressure and Warm Compress in Reducing Lower Back Pain in Third Trimester Pregnant Women at The Practice of dr. Fajar Irianto, Sp.Og Bandar Lampung

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ABSTRACT

The purpose of this study was to determine the effectiveness of acupressure and warm compresses in reducing back pain in third-trimester pregnant women at the practice of Dr. Fajar Irianto, Sp.OG, Bandar Lampung. This quantitative study used a quasi-experimental design using a pretest–posttest non-equivalent control group design. The population was all third-trimester pregnant women experiencing back pain. The sample size was 32 respondents, divided into two groups: 16 respondents in the acupressure group and 4.38 in the warm compress group with a standard deviation of 0.957. The Mann–Whitney statistical test yielded a significance value of $p < 0.001$ ($\alpha < 0.05$), thus concluding that there was a significant difference between the acupressure and warm compress groups.

INTRODUCTION

Pregnancy is a natural process experienced only by women, starting from conception to delivery, lasting approximately 40 weeks (280 days). During this period, the mother's body undergoes various physiological, anatomical, and hormonal changes to adjust to the growth of the fetus and prepare for labor and breastfeeding. These adaptations involve various body systems, such as the cardiovascular, endocrine, musculoskeletal, and reproductive systems. Therefore, pregnant women need to maintain physical and emotional balance for optimal pregnancy (Wilayah et al., 2025).

In the third trimester, the enlarging uterus shifts the body's center of gravity, altering the pregnant woman's posture and causing stretching of the lower back muscles. Factors such as weight gain, fatigue, and hormonal changes also exacerbate back pain. This condition causes tension, stiffness, and soreness in the lower back area. Therefore, pregnant women need to maintain good posture, fitness, and regularly engage in light exercise to prevent and reduce pain (Rini, 2024).

According to 2023 data from the World Health Organization (WHO), the incidence of back pain during pregnancy varies widely across countries. Approximately 70% of pregnant women in Australia and 50% of women in the UK and Scandinavia report experiencing this complaint. This condition is also common in Indonesia, where approximately 60–80% of pregnant women experience back discomfort. The majority of cases, approximately 70%, are caused by muscle tension or strain on the back structure due

to changes in posture during pregnancy. Research conducted by Ramachandra (2017) indicates that the incidence of back pain in pregnant women in India tends to be higher than in other countries. Of the 261 pregnant women surveyed, 33.7% experienced back pain in the second trimester. Meanwhile, a 2014 survey of 157 pregnant women by the University of Ulster revealed that 70% experienced back pain during pregnancy.

In Indonesia, this phenomenon is also quite concerning. According to the study, approximately 32% of pregnant women reported severe lower back pain, while 68% experienced moderate lower back pain. This indicates that back pain is a common problem in pregnant women that requires special attention from healthcare professionals, given its impact on maternal comfort, mobility, and quality of life during pregnancy (Juita et al., 2024).

According to the 2022 Lampung Provincial Health Office Profile, there were 160,016 pregnant women (92%) of the total pregnant population in the region. Of these, 3,815 cases of maternal complications occurred during pregnancy, and approximately 70% of these women experienced lower back pain (Juita et al., 2024).

Lower back pain in pregnant women generally begins to appear between the fourth and seventh months of pregnancy, as the fetus grows and the mother's posture changes. One common form of pain is sciatica, a pain that radiates from the lower back to the buttocks, thighs, and legs. This condition occurs due to pressure from the enlarging uterus on the sciatic nerve, causing a sharp pain, sometimes accompanied by tingling or burning (Sihaloho et al., 2024).

Lower back discomfort in pregnant women occurs due to changes in posture, a shift in the center of gravity, and excessive muscle stretching during pregnancy. This puts pressure on the spine and muscles, increasing the curvature (lordosis), which causes pain. If left untreated, this complaint can develop into a chronic musculoskeletal problem that is more difficult to manage after delivery (Rahayu, 2023).

Treatment of lower back pain in pregnant women can be done with pharmacological and non-pharmacological therapies. Pharmacological therapy uses medications such as paracetamol or ibuprofen, but must be supervised by a medical professional due to the risk of side effects and potential fetal harm. Therefore, non-pharmacological therapy is more recommended because it is safer, has fewer side effects, and is easy to implement (Murdiyanti, 2024).

Acupressure is a complementary therapy intervention that involves stimulating specific anatomical points. This technique uses one or two finger pressure with light to moderate intensity, accompanied by circular massage movements while maintaining steady contact at specific meridian points, which are generally located bilaterally (Sari et al., 2020). Acupressure can be used to help improve blood circulation, relax muscles, and reduce lower back pain in pregnant women in the third trimester. Apply gentle pressure for 3–5 minutes in a circular, rhythmic motion for optimal results.

Most previous studies have only examined the effect of a single type of non-pharmacological therapy, such as warm compresses or acupressure, on reducing back pain in pregnant women. However, few studies have directly compared the

effectiveness of these two therapies in reducing back pain, particularly in the third trimester. However, knowing which therapy is more effective is crucial for selecting appropriate, safe, and effective non-pharmacological interventions for pregnant women.

Based on the results of a pre-survey conducted at Dr. Fajar Irianto, Sp. OG, on September 23, 2025, the number of pregnant patients visiting in 2024 was 5,400, with 450 pregnant patients per month, and 75 cases of back pain in the third trimester. Furthermore, from January to September 2025, there were 4,000 monthly visits, with 444 pregnant patients. Then, in November 2025, 4,100 pregnant women visited, and 50 patients experienced back pain in their third trimester. These included 20 primigravida, 25 multigravida, and 5 grandemultigravida. Interviews with the midwife at Dr. Fajar Irianto, Sp. OG, who treated these patients, revealed that back pain was one of the most common problems experienced by pregnant women in their third trimester. Interviews with two pregnant women revealed that one reported relieving back pain by rubbing her back with her hands, and the other by resting and lying down. These two women had never treated back pain using warm compresses and acupressure because they were unaware of the effectiveness of these therapies. Therefore, the researchers chose these two interventions because they were effective, safe, and easy to implement. Non-pharmacological therapies, such as warm compresses and acupressure, have been shown to help reduce back pain and increase relaxation and comfort in pregnant women.

Based on the background explanation above, the researcher is interested in

conducting a study entitled "The Effectiveness of Providing Acupressure and Warm Compresses in Reducing Back Pain in Third Trimester Pregnant Women in the Practice of Dr. Fajar Irianto, SpOG in 2025." This study is expected to be a reference in efforts to manage back pain with non-pharmacological methods that are effective, safe, and easy to apply in obstetric services, as well as enrich scientific studies on warm compress and acupressure interventions.

METHOD

Research participants

The population in this study was all third-trimester pregnant women experiencing back pain at the practice of Dr. Fajar Irianto, Sp.OG, Bandar Lampung during the study period of December 2025. Based on data on the average number of visits by third-trimester pregnant women experiencing back pain during that month, a population of 50 was obtained.

The sample size was determined using the two-proportion estimation formula with finite population correction (FPC), resulting in a sample size of 32 respondents. The sample was divided into two intervention groups: 16 respondents in the acupressure group and 16 respondents in the warm compress group.

This study uses a quantitative approach, namely a scientific method that is objective, measurable, rational, and systematic, with the aim of testing hypotheses based on numerical data analyzed statistically (Sugiyono, 2019). The research design used is a Quasy Experimental Design research design with a Pretest-Post test design, Control Group Design Non-Equivalent Control Group Design, which involves an intervention group and a control group, where in this study the treatment group received an intervention in the form of acupressure and the control group received a warm compress intervention.

Instrument

In this study, researchers used instruments, namely: NRS (Numeric Rating Scale) pain scale, observation sheets, and SOP for warm compresses and acupressure.

Data Analysis

In this study, bivariate analysis was used to assess the effectiveness of acupressure and warm compresses on reducing back pain in pregnant women in the third trimester. Therefore, the statistical analysis used in this study was the Mann–Whitney test to compare the difference in pain reduction between the acupressure and warm compress groups.

RESULTS AND DISCUSSION

Table 1. Characteristics of Respondents in the Practice of Dr. Fajar Irianto, Sp.OG Bandar Lampung in 2025

Characteristics	n	%
Age		
< 20 years	0	0,0
20 – 35 years	32	100,0
>35 years	0	100,0

Education		
University	5	15,6
High School	27	84,4
Jobs		
IRT	26	81,3
PNS	5	15,6
Swasta	1	3,1
Patient Parity		
Grande	3	9,4
Multipara	16	50,0
Primipara	13	40,6
Total	32	100

Based on table above showing the characteristics of the respondents, it is known that all respondents were in the 20–35 years age group, namely 32 people (100%), while there were no respondents in the age group <20 years or >35 years. This indicates that the respondents in this study were in the productive adult age. Based on education level, the majority of respondents had a high school education, namely 27 people (84.4%), while respondents with a college education numbered 5 people

(15.6%). Viewed from the type of employment, most respondents were housewives (IRT) as many as 26 people (81.3%), followed by respondents with civil servant jobs as many as 5 people (15.6%) and private sector jobs as many as 1 person (3.1%). Based on patient parity, most respondents were multiparous, namely 16 people (50.0%), followed by primiparous as many as 13 people (40.6%), and grande as many as 3 people (9.4%).

Table 2. Intensity of Back Pain in Pregnant Women in the Third Trimester Before and After Acupressure Treatment at the Practice of Dr. Fajar Irianto, Sp. OG Bandar Lampung in 2025.

Variable	N	Mean	SD	Min- Max
Pain before (pretest)	16	5.69	0,946	4-7
Pain after (posttest)	16	3.00	0,816	2-5

Table 2 shows that of the 16 respondents before receiving acupressure, the intensity of back pain in pregnant women in the third trimester obtained a mean value (average) of 5.69 (Moderate Pain), with a standard deviation of 0.946, the minimum value of the back pain scale was 4 (Moderate Pain), and the maximum value of the back pain scale was 7 (Severe Pain).

Of the 16 respondents after receiving acupressure, the intensity of back pain in pregnant women in the third trimester obtained a mean value (average) of 3.00 (Mild Pain), with a standard deviation of 0.816, the minimum value of the back pain scale was 2 (Mild Pain), and the maximum value of the back pain scale was 5 (Moderate Pain).

Table 3. Intensities of Back Pain in Third Trimester Pregnant Women Before and After Warm Compresses at the Practice of Dr. Fajar Irianto, Sp. OG, Bandar Lampung, 2025

Variable	N	Mean	SD	Min- Max
Pain before (pretest)	16	5,75	0,775	2-5
Pain after (posttest)	16	4,38	0,957	3-6

Table 3, above shows that, before receiving warm compresses, the intensity of back pain in pregnant women in the third trimester of pregnancy had a mean score of 5.75 (Moderate Pain), with a standard deviation of 0.775. The minimum score on the back pain scale was 5 (Moderate Pain), and the maximum score was 7 (Severe

Pain). Of the 16 respondents, before receiving warm compresses, the intensity of back pain in pregnant women in the third trimester of pregnancy had a mean score of 4.38 (Moderate Pain), with a standard deviation of 0.957. The minimum score on the back pain scale was 3 (Mild Pain), and the maximum score was 6 (Moderate Pain).

Table 4. Differences in Back Pain After Acupressure and Warm Compresses in Third Trimester Pregnant Women at the Practice of Dr. Fajar Irianto, Sp. OG, Bandar Lampung, in 2025.

Group	N	Mean	SD	Asymp. Sig.
Pain scale before Acupresure	16	5,69	0,946	
Pain scale after Acupresure		3,00	0,816	<0,001
Pain scale before Warm Compresses	16	5,75	0,775	
Pain scale after Warm Compresses		4,38	0,957	

Based on Table 4, the Mann-Whitney test results showed a significance value of <0.001. Because this significance value is less than 0.05, it can be concluded that there is a significant difference in pain scale between the group of third trimester pregnant women who received acupressure and the group who received warm compresses.

If seen from the average pain scale, pregnant women in the third trimester in the group before acupressure had an average pain scale of 5.69 with a standard deviation of 0.946 and in the group after acupressure of 3.00 with a standard deviation of 0.816, while pregnant women in the group before warm compresses had an average pain scale of 5.75 with a standard deviation of 0.775 and pregnant women in the group after warm compresses of 4.38 with a standard deviation of 0.957. This shows that the group of pregnant women in the third trimester who were given acupressure

intervention had a significantly lower pain scale compared to pregnant women who were given warm compresses. So it can be concluded that there is a significant difference in the effectiveness of reducing pain intensity in pregnant women in the third trimester who were given acupressure compared to those who were given warm compresses. Thus, acupressure is more effective in reducing pain intensity in pregnant women in the third trimester at the practice of Dr. Fajar Irianto, Sp. OG Bandar Lampung compared to giving warm compresses.

The results of the study showed that the Mann-Whitney test yielded a significance value of <0.001. Because this significance value is less than 0.05, it can be concluded that there is a significant difference in pain scale between the group of pregnant women in their third trimester after acupressure and the group of pregnant

women in their third trimester after warm compresses.

Looking at the average pain scale, the 16 respondents in the acupressure group had an average pain scale before treatment of 5.69 with a standard deviation of 0.946, while the average pain scale after treatment was 3.00 with a standard deviation of 0.816. The 16 respondents in the warm compress group had an average pain scale before treatment of 5.75 with a standard deviation of 0.775, and the average pain scale after treatment was 4.38 with a standard deviation of 0.957. This indicates that the group of pregnant women in their third trimester who received acupressure intervention had significantly lower pain scales than those who received warm compresses. Therefore, it can be concluded that there is a significant difference in the effectiveness of reducing pain intensity in pregnant women in their third trimester who received acupressure compared to warm compresses. Therefore, acupressure is more effective in reducing pain intensity in pregnant women in their third trimester at the practice of Dr. Fajar Irianto, Sp. OG, Bandar Lampung, compared to warm compresses.

The results of this study align with those of (Indaryani et al., 2022) who demonstrated the effect of acupressure therapy on reducing back pain in pregnant women in their third trimester. This is evident from the average pain scale before acupressure therapy, which was 3.9, and after acupressure therapy, the average pain scale decreased to 1.7. Statistical analysis yielded a p-value of 0.0001, indicating the effect of acupressure therapy on reducing back pain in pregnant women in their third trimester.

This study aligns with the theory of (Mawadda et al., n.d.). In their book, they explain that acupressure works by stimulating specific points on the body that are connected to the body's meridians, energy pathways believed to influence the function of organs and body systems. These

points, when pressed, stimulate the body to produce biochemical responses that help reduce pain, improve blood circulation, and regulate hormonal balance. Acupressure massage is given to pregnant women in their third trimester, namely acupressure massage at Bladder 23 (BL 23), GV 3, and GV 4 points. This massage can reduce muscle tension, improve blood flow, and stimulate the release of endorphins, thus having an effect on reducing the intensity of lower back pain in pregnant women. This therapy is expected to have a positive and effective effect in reducing the intensity of lower back pain in pregnant women in their third trimester, so that mothers can prepare for labor with a peaceful heart (Armayanti et al., 2023). Pressure applied to acupressure points can stimulate the body to release hormones such as dynorphin, serotonin, noradrenaline, beta-endorphin, and met-enkephalin, which play an important role in reducing pain, providing a relaxing effect, and increasing feelings of comfort and well-being (Centis et al., 2022). Stimulating these acupressure points can help release muscle tension, improve blood circulation, and balance the body's energy flow (Rini, 2024). Research by (Rini, 2024) showed that acupressure was effective in reducing lower back pain in pregnant women in their third trimester. This reduction in pain occurs because acupressure increases the production of endorphins, which induce a sense of comfort and inhibit pain signals from reaching the brain.

In addition to acupressure, the warm compress intervention in this study also showed a decrease in the average pain scale from 5.75 to 4.38. This decrease indicates that warm compresses still have an effect on reducing the intensity of lower back pain in pregnant women in their third trimester, although not as significantly as the acupressure group.

These results align with research by (Suryanti & Lilis, 2021) on the effect of warm compresses on back pain levels in

pregnant women in their third trimester at the Sekernan Ilir Community Health Center in 2020. Analysis of the average pain level before warm compresses was 5.857 (moderate pain). The analysis results after warm compresses were given showed an average pain level of 4.513 (moderate pain). The analysis results showed an effect of warm compresses on the level of back pain in third-trimester pregnant women, with a p-value of 0.000 ($p < 0.05$).

Based on the results of the research that has been conducted, the researchers conclude that acupressure is a non-pharmacological intervention that is more effective than warm compresses in reducing the intensity of low back pain in pregnant women in the third trimester. This is evidenced by the results of the Mann-

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CONCLUSIONS AND RECOMMENDATIONS

Conclusion

1. The majority of respondents were in the 20–35 age group, totaling 32 people (100%). Based on education level, the majority of respondents had a high school education (27 people (84.4%), while 5 respondents (15.6%) had a college education. In terms of occupation, the majority of respondents were housewives (26 people (81.3%), followed by 5 respondents working as civil servants (15.6%), and 1 respondent working in the private sector (3.1%). Regarding patient parity, the majority of respondents were multiparous (16 people (50.0%), followed by 13 primiparous (40.6%), and 3 grand paralytics (9.4%).
2. Intensity of Back Pain: Pregnant Women in the Third Trimester Before Acupressure Treatment experienced moderate back pain with a mean score of 5.69. Meanwhile, the intensity of back pain in pregnant women in the third

Whitney statistical test which showed a significant difference in pain scale between the two treatment groups, as well as a lower average pain scale value after the intervention in the acupressure group compared to the warm compress group. The effectiveness of acupressure in reducing low back pain in pregnant women in the third trimester is thought to occur due to stimulation at points BL 23, GV 3, and GV 4 which can reduce muscle tension, increase blood flow, and stimulate the release of endorphins which act as natural analgesics in the body. In addition, the therapeutic touch in acupressure also provides a relaxing effect that can reduce anxiety and increase the comfort of pregnant women.

trimester before receiving warm compresses was moderate with a mean score of 5.75.

3. The intensity of back pain in pregnant women in the third trimester after receiving acupressure had a mean score of 3.00, while the intensity of back pain in pregnant women in the third trimester after receiving warm compresses had a mean score of 4.38.
4. There was a difference in the effectiveness of acupressure in reducing back pain in pregnant women in the third trimester at the practice of Dr. Fajar Irianto, Sp. OG, Bandar Lampung, with a p-value of <0.001 .

Recommendations

1. For the Practice of Dr. Fajar Irianto, Sp. OG

The results of this study are expected to provide input for midwifery practice in various healthcare settings, both in community health centers and independent midwifery practices, demonstrating that acupressure can be used as an effective midwifery intervention to reduce back pain in pregnant women in their third trimester. Furthermore, it is hoped that healthcare

providers in Dr. Fajar Irianto's, Sp. OG, practice area will provide facilities and infrastructure, particularly comfortable rooms, to support optimal acupressure therapy.

2. For the Community

It is hoped that pregnant women in their third trimester will be able to apply acupressure techniques independently with family members after understanding the procedure, as an effort to help relieve back pain experienced during pregnancy.

3. For Healthcare Professionals

The results of this study are expected to provide input for midwifery practice in various healthcare settings, both in community health centers and independent midwifery practices, demonstrating that acupressure can be used as an effective midwifery intervention to reduce low back pain in third-trimester pregnant women. Furthermore, healthcare providers are expected to support the implementation of this intervention by providing comfortable facilities and a comfortable service environment that supports optimal acupressure therapy.

4. For Further Research

The results of this study are expected to serve as a source of data and information for future researchers to conduct research with other interventions related to reducing low back pain, as well as to develop research methods and designs with a larger, more complex, and more varied sample size.

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