



Effect of Giving Warm Water Compresses with Red Ginger (*Zingiber Officinale*) on Lower Back Pain in Third-Trimester of Pregnant Women

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Abstract

Approximately 84% of pregnant women in the world suffer from back pain. This study aimed to determine the effect of giving warm red ginger water compresses on lower back pain in pregnant women in the third trimester in the Belimbing Health Center work area in Padang City in 2025. The research method used was quantitative with a Quasy Experiment design. Data collection was carried out from November 2024 - March 2025. The study population was all pregnant women in the third trimester in the Belimbing Health Center work area. Sampling using the purposive sampling method totaling 36 pregnant women. Data were collected using observation sheets. Data were analyzed using univariate and bivariate analysis with a dependent t-test statistical test. The study's results showed a difference in the average pain level before the red ginger warm water compress was 4.19 and after the red ginger warm water compress was 2.88. Based on the dependent t-test statistical test, it was found that red ginger warm water compresses had an effect on lower back pain in pregnant women in the third-trimester p-value = 0.000. It can be concluded that red ginger warm water compresses have an effect on lower back pain in pregnant women in the 3rd trimester in the Belimbing Health Center working area of Padang City in 2024. It is hoped that the Belimbing Health Center, especially midwives, will provide one form of loving care for mothers when treating pregnant women: red ginger warm water compresses to reduce lower back pain in pregnant women.

Keywords: Warm water compress, Red ginger, Lower back pain, Pregnant women

Introduction

According to the World Health Organization, around 84% of pregnant women suffered from lower back pain in 2020. Similar things also happened in the United States, Canada, Iceland, Turkey, Korea, and Israel. In Malaysia, around 81% of pregnant women suffer from lower back pain (Azis et al., 2023).

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Lower back pain is one of the discomforts experienced by pregnant women. Lower back pain is a common musculoskeletal problem during pregnancy, with a prevalence ranging from 30% to 78% in the United States, Europe, and some parts of Africa. One third of the population suffering from back pain suffers from severe pain, which is often associated with performance limitations in pregnant women. This is associated with decreased quality of life, thus reducing the productivity of pregnant women in everyday life (Manyozo, 2019)

The phenomenon of lower back pain in pregnant women is one of the most frequently reported symptoms in pregnant women characterized by: The presence of symptoms such as 50% varies, and previous studies in various countries have shown that only 8% result in severe disability (Todd, 2022). According to previous research conducted by (Amalia, et al. 2024) In 2018, there were 121,161 pregnant women in West Sumatra, around 75.8% of pregnant women in the second and third trimesters felt moderate back pain and 24.2% had no back pain.

In Indonesia, the number of pregnant women who suffer from lower back pain is relatively high, namely 5,354,594 people, not much different from other countries, 60% to 80% of women experience lower back pain during late pregnancy. This means that 68% of pregnant women in Indonesia experience moderate lower back pain, 32% experience mild lower back pain, and 6.5% experience severe lower back pain (Oktavia et al., 2023).

The impact of lower back pain during pregnancy includes sleep disturbances, decreased productivity due to stress, difficulty standing, and pain that interferes with daily activities, the use of pain medication often causes chronic back pain (Sonmezer et al., 2021). Lower back pain in pregnant women is also related to fetal health. In this case the indicator is the changes that affect the fetal heart rate. When the pain is repeated, its impact on the sympathetic response and heart rate variability increases (Ary et al., 2024).

Lower back pain in pregnant women is caused by hormonal changes, especially estrogen and relaxin hormones, which change the supporting and connecting soft tissues, causing reduced muscle elasticity and flexibility. According to (Tyastuti, 2020), factors that cause lower back pain can be muscle tension, fatigue, hunched posture when lifting objects, increased hormone levels that cause softening of cartilage in large joints and spinal hypertrophy.

Pregnant women with complaints of back pain can undergo pharmacological or non-pharmacological therapy, pharmacological therapy can be in the form of administering analgesics such as paracetamol (Kodiyah, 2021) and non-pharmacological therapy can be in the form of distraction relaxation techniques, ginger water compresses, pregnancy exercises, yoga, acupressure, massage, sleeping on the left side and propping the back with pillows, and getting enough rest.

To relieve lower back pain in pregnant women, use a warm water compress with red ginger in addition to dry compress therapy, red ginger affects pain because it is an analgesic, similar to ibuprofen and mefenamic acid (Athallah & Lianda, 2021). Warm water compresses with red ginger are one of the non-pharmacological treatments to reduce back pain in pregnant women (Khofifah et al., 2023). Ginger is a plant that we often encounter with compounds that

act as analgesics, antipyretics, and anti-inflammatories.

Literature Review

Reni et al.'s research (2024), entitled The Application of Red Ginger Compresses to reduce lower back pain in pregnant women in the third trimester in the M.M Dunda Limboto Hospital Polyclinic, resulted in a study of the average measurement results before being given a red ginger warm water compress, namely 2.13% of respondents experienced moderate pain and the average measurement results after being given a red ginger warm water compress, namely 1.20% of respondents experienced moderate pain, there is a relationship between the application of red ginger warm water compresses to reduce lower back pain ($p = <0.005$).

The results of this study are in line with the theory stated by (Tessalonika, 2024) regarding Warm Ginger Water Compresses to Reduce Lower Back Pain in Pregnant Women at the Afiyah Pratama Clinic in Pekanbaru City in 2023 which states that the cause of lower back pain is due to the increasing age of pregnancy because the increasing size of the uterus affects the center of gravity, stretching out and weakening the abdominal muscles, changing posture, and putting pressure on the back, causing lower back pain experienced by pregnant women in the third trimester. Warm water compresses with red ginger can provide a warm sensation that can increase blood flow to obtain analgesic and muscle relaxation effects so that it can reduce pain and inhibit the formation of prostaglandins as pain inhibitors felt by pregnant women in the third trimester.

Amalia AR, et al (2020) conducted an experiment entitled Effectiveness of Warm Compresses on Back Pain Intensity in Pregnant Women in the Third Trimester, a Quasi-experimental research method with a non-equivalent control group design; 30 respondents. The results obtained: The average pain intensity decreased from 4.53 to 3.07 after giving warm compresses. Warm compresses are a non-pharmacological therapy effective for reducing back pain in pregnant women in the third trimester ($p = <0.005$).

Research conducted by: Indah Savitri, et al (2023) entitled The Effect of Warm Compresses with Glass Bottles on Reducing Lower Back Pain in Pregnant Women in the Third Trimester, with a Quasi-experimental research method with a one-group pretest-posttest serial design; the intervention was carried out three times. The results obtained: The average pain decreased from 5.514 (posttest 1) to 4.511 (posttest 2) and 3.425 (posttest 3). The most significant decrease occurred in the second intervention with a t value of 27.499 and it was concluded that warm compresses with glass bottles were effective in reducing lower back pain in pregnant women in the third trimester, with the most significant effect in the second intervention ($p = <0.005$).

Research Method

This research aims to The Effect of Giving Warm Water Compresses with Red Ginger (*Zingiber Officinale*) on Lower Back Pain in Pregnant Women in The Third Trimester in the

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Work Area of Belimbing Health Center, Padang City. This research will be conducted from November 2024 - March 2025. This research method uses a cross-sectional design carried out in Bekasi Regency. The number of samples in this study was 36 third pregnancy. Data analysis using univariate analysis was carried out on each variable from the research results by describing each variable, including the independent variables and related variables. Using the T-Test, biviral analysis is used to find the effect between the independent variable and the dependent variable. This relationship is identified by looking at the p-Value.

Result

1. Univariate Analysis

Univariate data analysis means simplifying or facilitating data intervention through graphical or tabular presentation. This study aims to see the effect of giving red ginger warm water compresses related to lower back pain in pregnant women in the third trimester. The variables studied include lower back pain regarding the average pain results as follows.

a. Average Lower Back Pain Before Red Ginger Warm Water Compress in The Third Trimester

Table 4.1 Average Lower Back Pain Before Red Ginger Warm Water Compress in Pregnant Women in the Third Trimester

LBP scale	N	Meam	SD	Min-Max
Before	36	4,19	1,109	2 – 6

Based on the table above, the average lower back pain before being given a warm red ginger water compress in pregnant women in the third trimester was 4.19 with a standard deviation of 1.109. The lowest average pain value of pregnant women in the third trimester before the warm red ginger water compress was 2-6.

b. Average Lower Back Pain After Red Ginger Warm Water Compress in The Third Trimester

Table 4.2 Average Lower Back Pain After Red Ginger Warm Water Compress in Pregnant Women in the Third Trimester

LBP scale	N	Mean	SD	Min-Max
After	36	2,88	1,258	1 - 5

Based on the table above, the average back pain after being given a warm red ginger water compress in pregnant women in the third trimester was 2.88 with a standard deviation of 1.258. The lowest average pain value for pregnant women in the third trimester after a warm red ginger water compress was 1-5.

Frequency Distribution of Respondents Based on Nutrition Knowledge in the Wanasari Community Health Center

Working Area

2. Bivariate Analysis

Bivariate analysis aims to study 2 variables, namely independent variables and dependent variables. The statistical test used is the Paired T-test statistical test, using a 95% confidence level to determine the effect of giving warm red ginger water compresses on lower back pain in pregnant women in the third trimester; the average pain results are as follows. The table below show research result about The Effect of Red Ginger Warm Water Compress on Lower Back Pain Levels in The Third Trimester

Table 4.3 The Effect of Red Ginger Warm Water Compress on Lower Back Pain Levels in Pregnant Women in the Third Trimester

Pain Scale	N	Mean	SD	95 % Confidance Interval of The Difference		P value
				Lower	Upper	
Before	16	4,19	1,109	0,992	1,633	0,000
After	16	2,88	1,258			

Based on Table 4.4, the average pain before treatment was 4.19 and after treatment was 2.88, the difference results were obtained using the Paired T-test statistical test, the p value was obtained (0.000) <0.05. This means that there is an effect of red ginger warm water compresses on the level of back pain in pregnant women in the third trimester in the Belimbing Health Center work area of Padang City.

Discussion

A. Univariate Analysis

1. Average Lower Back Pain Before Red Ginger Warm Water Compress in The Third Trimester

The results of the study showed that the average level of back pain before being given a warm red ginger water compress in pregnant women in the third trimester in the Belimbing Health Center work area was 4.19.

This study is in line with this study and is also supported by research conducted by (Riyandi, 2020) entitled The Effect of Warm Water Compresses with Red Ginger Decoction on Lower Back Pain in Pregnant Women in the Third Trimester in the Pekauman Banjarmasin Health Center Work Area, the results of the study found that the average measurement results before being given a warm red ginger water compress were 4.67 respondents experiencing moderate pain.

2. Average Lower Back Pain After Red Ginger Warm Water Compress in The Third Trimester

The results of the study showed that the average lower back pain of pregnant

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women in the third trimester after being given a warm red ginger water compress was 2.88 with a standard deviation of 1.258. The lowest pain value was 1 and the highest was 5 in the Belimbing Health Center work area, Padang City in 2025.

This study is in line with this study and is also supported by research conducted by (Inayah, 2021) entitled the effectiveness of Giving Warm Red Ginger Water Compresses on lower back pain in pregnant women III in the Jatinunggal Health Center Work Area, Sumedang Regency, which stated that the average measurement results after being given a warm red ginger water compress were 2.93 on a mild pain scale.

B. Bivariate Analysis

1. The Effect of Red Ginger Warm Water Compress on Lower Back Pain Levels in The Third Trimester

The results of the study showed that the average level of pain before treatment was 4.19 and after treatment 2.88, the difference was 1.31. After conducting the Paired T-test statistical test, the p value (0.000) <0.05 was obtained. This means that red ginger warm water compresses affect lower back pain in pregnant women in the second trimester in the Belimbing Health Center Work Area, Padang City in 2025.

Pregnant women often experience lower back pain in the third trimester. Pain can be overcome with non-pharmacological therapy, namely red ginger warm water compresses, which can provide a warm feeling to meet the need for comfort, reduce or relieve pain, reduce or prevent muscle spasms, and provide a warm feeling to the painful area (Fajarsari, 2020).

This study is also supported by research conducted by Tresy (2024) on the Effect of Red Ginger Boiled Warm Water Compresses on Lower Back Pain in Pregnant Women in the Third Trimester, the pretest pain results were 4.68 and posttest pain 2.61. Warm water compresses with red ginger affect the lower back pain level in pregnant women.

The findings of this study demonstrate that the application of warm ginger compresses significantly reduces lower back pain among third-trimester pregnant women. This aligns with prior research indicating the efficacy of thermotherapy in managing musculoskeletal discomfort during pregnancy. The present results further suggest that the addition of ginger a natural anti-inflammatory and analgesic agent may enhance the effectiveness of warm compress therapy.

Lower back pain in late pregnancy is primarily attributed to postural changes, hormonal effects on joint laxity, and increased mechanical load on the lumbar spine. Heat application helps by improving local blood circulation, relaxing muscle tension, and stimulating thermal receptors that can inhibit pain perception via the gate control mechanism. Ginger (*Zingiber officinale*), known for its bioactive compounds such as gingerol and shogaol, provides additional anti-inflammatory benefits by inhibiting prostaglandin synthesis and reducing oxidative stress in tissues.

The significant reduction in pain scores observed in this study after the application

of warm ginger compresses suggests that this intervention could be a valuable non-pharmacological option for pain relief during pregnancy. It is safe, affordable, and easy to administer at home or in clinical settings. These attributes are particularly important for pregnant women, who are often limited in their use of conventional analgesics due to potential fetal risks.

However, this study is not without limitations. The sample size was relatively small, and the results may not be generalizable to all populations. Additionally, the subjective nature of pain assessment introduces variability. Future studies with larger samples and randomized controlled designs are recommended to validate these findings and explore the long-term effects and safety of repeated ginger compress applications.

Conclusion

The average level of lower back pain before being given a warm red ginger water compress in pregnant women in the third trimester in the Belimbing Health Center work area was a mean of 4.19. The average level of lower back pain after being given a warm red ginger water compress in pregnant women in the third trimester in the Belimbing Health Center work area was a mean of 2.88. There is an effect of warm red ginger water compress on the level of lower back pain in pregnant women in the third trimester in the Belimbing Health Center Work Area, Padang City.

In conclusion, the warm ginger compress is an effective and practical intervention for reducing lower back pain in third-trimester pregnant women. Its dual mechanism of heat therapy and herbal anti-inflammatory properties makes it a promising complementary therapy in maternal health care.

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