The 6th Mitra Husada Health International Conference (MiHHICo) 2026
Volume 6 (2026) ISSN: 2988-3768

EVIDENCE-BASED GINGER COMPRESS THERAPY FOR REDUCING LOW BACK PAIN IN THIRD-TRIMESTER PREGNANT WOMEN

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ABSTRACT

Introduction: Back pain is a common problem experienced during pregnancy. Various factors contribute to this condition, including uterine growth, weight gain, the effect of the relaxin hormone on ligaments, a history of back pain, parity, and daily activities. If not managed properly, back pain may persist after childbirth and become chronic. **Objective:** This implementation aimed to evaluate the effectiveness of ginger compresses in reducing back pain among pregnant women. **Methods:** The study used a case report approach involving two third-trimester pregnant women. The intervention was conducted over four visits, with ginger compresses applied three times, each session lasting 15 minutes. Pain intensity was assessed using the Numeric Rating Scale (NRS). Pain scores were measured before and after the application of the ginger compress. **Results:** showed a reduction in pain intensity in both participants. The first pregnant woman had an initial pain score of 5 (moderate pain), while the second pregnant woman had an initial pain score of 6 (moderate pain). At the end of the intervention, both participants experienced a decrease in pain. **Conclusions:** The implementation of ginger compress to reduce back pain was effective in reducing back pain intensity among third-trimester pregnant women.

Keywords: Pregnancy, Back Pain, Ginger Compress

INTRODUCTION

Pregnancy is a natural biological process. The physiological changes that occur during pregnancy are normal; however, if these changes are not properly managed, they may lead to discomfort that can interfere with the well-being of pregnant women. During the third trimester, discomfort is commonly caused by the enlargement of the uterus and the increasing size of the fetus as gestational age advances. In addition, significant maternal weight gain increases the physical burden that the body must support, contributing to various musculoskeletal complaints (Sukini, Safitri and Maryani, 2023). Back pain is one of the most common discomforts experienced during pregnancy. More than one-third of pregnant women report experiencing pain in the back region. Several factors contribute to the occurrence of back pain, including uterine enlargement, which alters body posture and exerts pressure on

specific areas, resulting in discomfort. Other contributing factors include maternal weight gain, the effects of the hormone relaxin on ligaments, a previous history of back pain, parity, and daily physical activities (Kusnaningsih, Aprilia and Heriteluna, 2023). In Indonesia, approximately 68% of pregnant women experience moderate back pain, while 32% report mild back pain. Across various regions, between 60% and 80% of pregnant women experience back pain during pregnancy (Faradilla and Ambarwati, 2021). In West Java Province, it is estimated that approximately 36.8%–69.7% of pregnant women suffer from low back pain (Megasari, 2015).

If not managed appropriately, back pain may persist after childbirth and develop into a chronic condition. Chronic pain can complicate the recovery process and result in prolonged discomfort. Furthermore, back pain negatively affects daily physical activities, including standing up after sitting, getting out of bed, sitting for extended periods, standing for prolonged durations, and lifting or moving objects that require back movement (Amalia, Erika and Dewi, 2020). Back pain commonly occurs during the third trimester due to the rapid growth and increasing weight of the fetus. In addition, elevated levels of the hormone relaxin during pregnancy cause the pelvic joints, including the symphysis pubis, sacroiliac, and sacrococcygeal joints, to become more flexible in preparation for childbirth. This condition increases strain on the muscles of the back and thighs, resulting in pain and discomfort (Natalia, Amalia and Nursyifa, 2023). The management of back pain during pregnancy can be achieved through non- pharmacological interventions, one of which is the application of warm ginger compresses. Ginger provides a warming effect that can improve blood circulation, reduce pain intensity, and alleviate discomfort associated with pregnancy-related back pain (Natalia, Amalia and Nursyifa, 2023). A study conducted by Natalia (2023) entitled *"The Effect of Warm Ginger Compresses on Back Pain in Third- Trimester Pregnant Women"* involved 20 respondents. The study implemented a non-pharmacological intervention using ginger compresses to reduce back pain complaints. Ginger's warming properties were found to enhance blood flow and reduce pain and discomfort associated with pregnancy-related back pain. Prior to the intervention, 11 respondents (55.0%) experienced severe pain, while 9 respondents (45.0%) experienced moderate pain. Following the administration of ginger compresses, none of the respondents reported severe pain (0%), while 20% experienced moderate pain and 80% experienced mild pain. These findings demonstrate that ginger compresses are effective in reducing back pain among pregnant women (Natalia, Amalia and Nursyifa, 2023).

Similarly, a study conducted by Ani Retni in 2024 on the implementation of ginger compress therapy for reducing low back pain among third-trimester pregnant women at the outpatient clinic of M.M. Dunda Limboto Regional Hospital identified several factors contributing to back pain, including prolonged sitting, prolonged standing, lifting heavy objects, and frequently bending forward. These conditions are associated with postural changes, increased hormone levels, and stretching of the rectus abdominis muscles, which can

lead to muscle stiffness and pain. Changes in posture and gait resulting from maternal weight gain and uterine enlargement often contribute to lumbar lordosis. Consequently, back pain may affect daily activities, reduce quality of life, decrease productivity, and impair physical functioning in pregnant women. Before the intervention, moderate pain was the most common complaint, affecting 13 participants (86.7%), while severe pain was reported by 2 participants (13.3%). After receiving ginger compress therapy, 12 participants (80.0%) reported mild pain and 3 participants (20.0%) reported moderate pain. The study findings showed changes in the pain intensity experienced by pregnant women following the application of ginger compresses. Three participants continued to experience moderate pain after the intervention. Although a reduction in pain intensity was observed, the pain remained within the same category, suggesting that the analgesic effect of the ginger compress was limited in these participants. This finding indicates that other factors may have influenced the effectiveness of the intervention, such as excessive maternal movement during the application of the ginger compress or the participants resuming physical activities immediately after the treatment (Ani, Andi and Ayu, 2024). Based on the background described above, the authors implemented evidence-based midwifery care for third-trimester pregnant women by applying ginger compresses to reduce complaints of low back pain at Kertamukti Community Health Center (Puskesmas Kertamukti).

METHODS

This study employed a case report design using an evidence-based midwifery care approach through the application of ginger compresses in two third-trimester pregnant women. The inclusion criteria consisted of pregnant women who were housewives, with the first participant having a gestational age of ≥31 weeks and the second participant having a gestational age of ≥33 weeks.

The ginger compress intervention was administered three times, with each session lasting 15 minutes. A pre-test and post-test assessment were conducted before and after each intervention session to evaluate changes in back pain intensity. Pain levels were measured using the Numeric Rating Scale (NRS), a validated pain assessment tool (Asroyo *et al.*, 2019).

RESULTS AND DISCUSSIONS

Midwifery care was provided to pregnant women experiencing back pain through the application of ginger compresses as an evidence-based intervention to reduce back pain complaints during the third trimester of pregnancy, based on the study conducted by Ani et al. (2024). This evidence-based practice was implemented at Kertamukti Community Health Center. The intervention was provided to two respondents. The first respondent was Mrs. T (G4P3A0) with a gestational age of 31 weeks and 1 day, and the second respondent was Mrs. N (G2P1A0) with a gestational age of 33 weeks and 3 days. The intervention was administered once daily for three consecutive days.

The details of each visit are as follows:

1. **First Patient**
   a. **Visit 1**

Assessment findings revealed that the mother experienced back pain after performing daily household activities, such as washing clothes, washing dishes, folding laundry,

sweeping, mopping floors, and cooking. During this initial visit, a physical examination was conducted, and the purpose and benefits of the ginger compress intervention were explained. Informed consent was obtained before the procedure, and the patient agreed to receive the intervention.

b. Visit 2

The ginger compress intervention was implemented on Wednesday, March 5, 2025, at 09:00 a.m. with the aim of reducing back pain. The total duration of the procedure was approximately 20 minutes, consisting of 2 minutes for equipment preparation, 3 minutes for soaking the ginger, and 15 minutes for the compress application. Before the intervention, the patient completed a pre-test using the Numeric Rating Scale (NRS). The patient reported a pain score of **5**, indicating moderate pain at that time.

The ginger compress procedure was carried out as follows:

1. The required materials were prepared, including 100 grams of fresh ginger that had been thoroughly washed without removing the skin, a container for soaking, warm water, a grater, gauze, and a stopwatch.
2. The ginger was placed in a container and soaked in warm water for 3 minutes.
3. The ginger was then grated until completely processed.
4. The grated ginger was wrapped in sterile gauze.
5. The gauze containing the grated ginger was applied to the painful area of the mother's back for 15 minutes, with the duration monitored using a stopwatch.

During the second visit, the ginger compress intervention had a positive impact on the patient. It increased her knowledge regarding the benefits of ginger compress therapy. The patient reported feeling comfortable and experienced a natural warming sensation produced by the active compounds in ginger. After the intervention, a post-test assessment was conducted using the Numeric Rating Scale (NRS). The patient stated that her back pain had slightly decreased following the compress application and rated her pain as 4, indicating a reduction from the previous score.

c. Visit 3

The ginger compress intervention was administered on Thursday, March 6, 2025, at 09:00 a.m. with the aim of reducing back pain. The procedure lasted approximately 20 minutes, including 2 minutes for equipment preparation, 3 minutes for soaking the ginger, and 15 minutes for the compress application.

The intervention was carried out using the same procedure as during the previous visit. Before the treatment, the patient completed an NRS pre-test and reported a pain score of 4. The patient stated that after receiving the ginger compress therapy twice, her back pain had decreased. She also reported being able to perform household activities more comfortably and experiencing improved sleep quality. Following the intervention, a post-test assessment was conducted, and the patient rated her pain as 3.

d. Visit 4

The final ginger compress intervention was conducted on Friday, March 7, 2025, at 10:00 a.m. The total duration was approximately 20 minutes, consisting of 2 minutes for preparation, 3 minutes for soaking the ginger, and 15 minutes for the compress application. Prior to the intervention, the patient completed an NRS pre-test and reported a pain score of 3. During this final session, the patient reported that her back pain had noticeably decreased after several applications of ginger compress therapy. She also stated that she felt significantly

better overall. Following the intervention, a post-test assessment was performed, and the patient rated her pain as 2, indicating mild pain.

2. **Second Patient**

a. Visit 1

Assessment findings revealed that the patient experienced back pain severe enough to make standing up or rising from a sitting position difficult. The patient also complained of vaginal discharge. During the first visit, a physical examination was performed, and the purpose and

benefits of ginger compress therapy were explained. Informed consent was obtained prior to the intervention, and the patient agreed to receive the treatment.

b. Visit 2

The ginger compress intervention was administered on Wednesday, March 5, 2025, at 09:00 a.m. with the objective of reducing back pain. The procedure lasted approximately 20 minutes, including 2 minutes for equipment preparation, 3 minutes for soaking the ginger, and 15 minutes for the compress application. In addition, health education regarding personal hygiene was provided to help reduce vaginal discharge and prevent infection. Before the intervention, the patient completed a NRS pre-test and reported a pain score of 5, indicating moderate pain. The ginger compress procedure was performed as follows:

1. Preparation of equipment and materials, including 100 grams of fresh ginger washed thoroughly without removing the skin, a soaking container, warm water, a grater, gauze, and a stopwatch.
2. The ginger was placed in a container and soaked in warm water for 3 minutes.
3. The ginger was grated completely.
4. The grated ginger was wrapped in gauze.
5. The gauze containing grated ginger was applied to the painful area of the patient's back for 15 minutes, with the duration monitored using a stopwatch.

During this second visit, the intervention had a positive impact by increasing the patient's understanding of the benefits of ginger compress therapy. However, the patient reported feeling excessively warm due to the heat generated by the ginger. After the intervention, a post-test assessment was conducted. The patient reported a slight reduction in pain and rated her pain as 4.

c. Visit 3

The ginger compress intervention was repeated on Thursday, March 6, 2025, at 09:00 a.m. using the same procedure as the previous visit. Before the intervention, the patient completed an NRS pre-test and reported a pain score of 4. The patient stated that her back pain had decreased after two sessions of ginger compress therapy. Although she still experienced the warming sensation from the ginger, it was less intense than during the first application. The patient also reported that her vaginal discharge had decreased. Furthermore, she no longer experienced pain when getting out of bed or standing up from a seated position and was able to resume her daily activities comfortably. Following the intervention, a post-test assessment was conducted, and the patient rated her pain as 3.

d. Visit 4

The final ginger compress intervention was carried out on Friday, March 7, 2025, at 10:00 a.m. The procedure lasted approximately 20 minutes, consisting of 2 minutes for preparation, 3 minutes for soaking the ginger, and 15 minutes for the compress application.

Before the intervention, the patient completed an NRS pre-test and reported a pain score of 3. At the final visit, the application of the ginger compress had a positive effect. The participant reported that her low back pain had decreased after several sessions of ginger compress therapy. She stated that she felt more comfortable, although she still experienced a warm sensation due to the active compounds in the ginger. The participant also reported an overall improvement in her condition. Following the intervention, a post-test pain assessment was conducted, and she rated her current pain intensity as 2 on the Numeric Rating Scale (NRS), indicating a substantial reduction in pain.

Table 1. 1 Ginger Compress Procedure

	Assessing vital signs
	Grate all the ginger.
 	Place the grated ginger into a piece of sterile gauze and wrap it securely.

	Apply the ginger compress to the participant's lower back, where the pain is localized, for 15 minutes.

DISCUSSION

Based on the subjective data obtained, both pregnant women experienced one of the common discomforts associated with the third trimester of pregnancy, namely back pain. This finding is consistent with the literature, which states that common discomforts during the third trimester include shortness of breath, low back pain, frequent urination, leg edema, and constipation (Febrina *et al.*, 2022). Furthermore, previous studies have reported that back pain is among the most frequently experienced discomforts during the second and third trimesters, affecting approximately 70% of pregnant women (Yuliani, 2023). Both participants reported that their back pain began during the late second trimester and became more severe during the third trimester, particularly at approximately 28 weeks of gestation. This finding is consistent with previous research indicating that low back pain tends to increase in frequency and severity as pregnancy progresses into the third trimester (Purnamasari, 2019). Several factors may have contributed to the low back pain experienced by the two pregnant women. The first participant was 42 years old, while the second was 24 years old. Previous studies have reported that low back pain commonly occurs among pregnant women aged 20–24 years and reaches its highest prevalence among those over 40 years of age (Sukeksi, Gita and Emi, 2018). In addition, the second participant routinely performed household activities, including sweeping, washing clothes, washing dishes, and other domestic chores, whereas the first participant engaged only in light activities, such as sweeping inside and around the house. These findings are consistent with previous research indicating that household tasks such as sweeping, mopping, cleaning, lifting and carrying buckets of water, cooking with firewood, and childcare place considerable mechanical stress on the lower back. Combined with the biomechanical and postural changes that occur during pregnancy, these activities may exacerbate low back pain (Omoke *et al.*, 2021).

Both participants were multiparous and had experienced low back pain during their previous pregnancies, which may have contributed to the recurrence of pain in the current pregnancy. Both women reported moderate levels of pain at baseline. This finding is consistent with previous studies showing that multiparous and grand multiparous women are at greater risk of developing low back pain than primiparous women because repeated pregnancies may weaken the abdominal and pelvic muscles, reducing their ability to adequately support the enlarging uterus (Fithriyah, Rizky and Ratna, 2020).

Pain intensity was assessed using the Numeric Rating Scale (NRS), a widely used instrument for measuring pain severity. Each participant was asked to rate her pain by selecting a number that best represented the intensity of her pain. At baseline (pre-test), the first participant reported a pain score of 5, while the second participant reported a score of 6, both indicating

moderate pain. At the final assessment, both participants reported a pain score of 2, indicating mild pain. These findings are consistent with the NRS classification, in which scores of 1–3 represent mild pain and scores of 4–6 represent moderate pain (Rizaldy, 2016).

Ginger compresses were applied as an evidence-based non-pharmacological intervention to alleviate the low back pain experienced by both participants. Previous studies have demonstrated that ginger compresses produce a warming effect that enhances local blood circulation, promotes muscle relaxation, and provides analgesic benefits. In addition, the bioactive compounds in ginger have been reported to inhibit prostaglandin synthesis, thereby reducing pain perception in pregnant women (Fatmawati, 2021). Before the intervention, the author explained the purpose and procedure of the ginger compress and obtained the participants' informed consent. Pain intensity was then assessed using the Numeric Rating Scale (NRS) prior to the application of the ginger compress. This procedure is consistent with the evidence-based intervention described by Ani Retni (2024), which recommends explaining the purpose of the intervention, obtaining informed consent from participants, and assessing baseline pain intensity before treatment (Ani, Andi and Ayu, 2024). The ginger compress intervention was administered for three consecutive days (March 5–7, 2025). Each session lasted 15 minutes and was conducted once daily in the morning. This protocol is consistent with previous evidence suggesting that ginger compresses should be applied on three consecutive days (Natalia, Amalia and Nursyifa, 2023). For a duration of 15 minutes per session, once daily (Ani, Andi and Ayu, 2024).

A comparison of the two participants demonstrated a reduction in pain intensity following the intervention. The first participant experienced a gradual decrease in pain intensity across the three treatment sessions and reported feeling warm and relaxed after each application. In contrast, the second participant experienced a more marked reduction in pain intensity after the first application but also reported a stronger sensation of heat, which may have been related to the bioactive compounds present in ginger. One possible explanation for this difference is body mass index (BMI). The first participant was classified as having Class II obesity, whereas the second participant had a normal BMI. However, the present case report did not specifically investigate whether differences in body weight or BMI influenced heat absorption or the analgesic effectiveness of the ginger compress. Therefore, this should be considered a limitation of the study and warrants further investigation in future research.

CONCLUSIONS

The implementation of ginger compress therapy to reduce back pain among third- trimester pregnant women, based on evidence-based practice at Kertamukti Community Health Center, was conducted with two participants through four visits and three applications of ginger compresses.

Each intervention session lasted 15 minutes. The results demonstrated that the application of ginger compresses was effective in reducing back pain intensity among third-trimester pregnant women. Both participants experienced a decrease in pain scores from moderate pain before the intervention to mild pain after the completion of the therapy, indicating that ginger compresses can be used as an effective non- pharmacological intervention for managing back pain during pregnancy.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to the Head of Kertamukti Community Health Center, the participating pregnant women, and all healthcare professionals who supported the implementation of this evidence-based midwifery care. The authors also thank Horizon University Indonesia for its academic support throughout the preparation of this case report.

CONFLICT OF INTEREST AND FUNDING DISCLOSURE

The authors declare that there are no conflicts of interest regarding the publication of this article. This study received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The study was conducted as part of the authors' academic and professional activities.

AUTHOR CONTRIBUTIONS

Siti Sopiatun: Conceptualization, literature review, implementation of the evidence-based intervention, data collection, data analysis, manuscript drafting, and manuscript revision.
Yanah Fitri Yani: Study supervision, methodology development, critical review of the manuscript, interpretation of findings, and final approval of the manuscript.

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