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Implementation of Warm Compress to Treat Back Pain in Pregnant Women in The Thirty Trimester

Ilham Juliyana[1], Elis Roslianti[1], Nur Hidayat[1]
[1]*STIKes Muhammadiyah Ciamis, Ciamis, Indonesia*

Correspondence Author: Ilham Juliyana
Email: juliyanailham@gmail.com
Address: Jl. K.H Ahmad Dahlan No. 20, Ciamis, West Java, Indonesia, +6281323202007
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ABSTRACT

Introduction: Pregnant women in the third trimester often experience back pain due to physiological changes, increased body weight, and a shift in the center of gravity. This discomfort can interfere with daily activities and maternal well-being. Pain management can be addressed through both pharmacological and non-pharmacological approaches. Warm compresses are a simple, safe, and effective non-pharmacological method to relieve pain during pregnancy. **Objective**: This study aimed to determine the effect of warm compress application on back pain intensity in a third-trimester pregnant woman. **Method**: This study used a descriptive case study design with a nursing care process approach. The subject in this study was one third-trimester pregnant woman who experienced back pain. The intervention given was in the form of giving warm compresses to the lower back twice a day for four consecutive days. Measurement of pain intensity was carried out using the Numeric Rating Scale (NRS) before and after the intervention. Data collection was carried out through interviews, observations, physical examinations, and documentation of the development of client nursing care systematically according to the stages of the nursing process. **Result**: After four days of intervention, the patient's back pain intensity decreased from a score of 6 (moderate pain) to 2 (mild pain). The patient reported improved comfort, reduced physical limitations, and no adverse effects from the intervention. **Conclusion**: Warm compress therapy is proven to be effective in reducing back pain intensity in third-trimester pregnant women. It can be recommended as an alternative non-pharmacological pain management strategy in maternity nursing care practices.

Keywords: back pain, pregnant women, third trimester, warm compress

Introduction

Pregnancy is a condition in which a woman carries and develops a fetus in her uterus for approximately nine months. During pregnancy, women experience various anatomical, physiological, and psychological changes, which may cause discomfort. These changes are especially noticeable during the third trimester of pregnancy (Rahmawati et al., 2021).

Warm compresses are a technique that can be used to reduce pain. According to a study by (Inayah, 2021), warm compresses are beneficial in reducing back pain in pregnant women and can also provide warmth to specific areas, thereby offering comfort and helping to reduce or prevent muscle spasms. Warm compresses can be applied by placing a rubber bag or bottle filled with warm water on the affected area, or by using a small towel soaked in warm water. The physiological effects of warm compresses include softening fibrous tissues, relaxing body muscles, reducing pain, and improving blood circulation. The recommended water temperature for warm compresses is approximately 35–40°C, which helps prevent muscle spasms and enhances blood flow.

A study by Tri Sulistyarini concluded that warm compress therapy reduces back pain more effectively than back massage. A meta-analysis published in the BioMed Central journal reported that 47.8% of women in their third trimester of pregnancy experience back pain (Salari et al., 2023). In the United States, Canada, Iceland, Turkey, and Korea, more than 50% of pregnant women suffer from lower back pain. In non-Scandinavian countries such as parts of North America, Africa, the Middle East, Norway, Hong Kong, and Nigeria, the prevalence is even higher, ranging from 21% to 89.9% (Sanjaya et al., 2023). In Indonesia, according to the Ministry of Health, 373,000 pregnant women experienced back pain in 2018 (Darmawan et al., 2023). Research by Kuswati reported that 70% of pregnant women in their third trimester experience back pain (Dayani et al., 2024) In West Java specifically, the prevalence of third-trimester back pain reaches 17.5%. In Tasikmalaya Regency, 70% of pregnant women report experiencing back pain, and both primigravida and multigravida women (80%) experience back pain. Overall, 70% of pregnant women report significant discomfort from back pain. Around 70% of pregnant women experience lower back pain, and 30% of those with chronic lower back pain reported it began during pregnancy (Istianah, 2021).

During the third trimester of pregnancy, as the uterus enlarges and body weight increases, the center of gravity shifts forward, requiring pregnant women to adjust their posture. Improper posture may cause additional strain and fatigue. This condition aligns with the gradual increase in body weight (Putri et al., 2023).

Due to changes in ligaments and the redistribution of body weight during pregnancy, the center of gravity shifts forward. Combined with weakened abdominal muscles, this leads to forward shoulder curvature and increased pressure on the lower back muscles. Pressure from the baby's head and spine on the lower back causes back pain in pregnant women (Nasriyah & Wulandari, 2022).

Lower back pain refers to discomfort located between the lower ribs and the inferior gluteal region. Around 10% of pregnant women experiencing lower back pain report difficulty performing daily activities. Changes in the musculoskeletal system during the third trimester, including reduced abdominal muscle strength due to the growing uterus, shift the body's center of gravity forward, causing muscle imbalance in the pelvic and lower back areas (Riansih, 2022).

Pain management can be addressed through both pharmacological and non-pharmacological therapies. While pharmacological approaches are generally more effective, they are also more expensive and may cause side effects. Pharmacological treatments can

affect the mother, the fetus, and labor progress. One of the non-pharmacological methods to reduce or eliminate pain, prevent muscle spasms, and provide comfort is the application of warm compresses (Lestari et al., 2023).

Objective

The purpose of this study is to provide nursing care using warm compress therapy to reduce back pain in Mrs. T in the Cikunir Village area.

Method

The research design used by the author is a case study with a nursing care approach. This study was conducted by collecting data starting from assessment, formulating nursing diagnoses, planning interventions, implementing nursing actions, and conducting evaluations intensively. This case study applies a descriptive-analytic method with the primary aim of exploring the problem and providing a comprehensive overview of the case by analyzing in depth the nursing care process through the implementation of warm compress therapy for a third-trimester pregnant woman to reduce back pain on Jalan Jamrud 3, Block J241, Singaparna, Tasikmalaya Regency.

The descriptive-analytic method is a research approach used to systematically describe the object of study and provide a clear depiction of the phenomenon being investigated. By using this method, researchers can obtain a more accurate understanding of the subject and gain deeper insights into the phenomenon under study (Dayani et al., 2024).

Result

Nursing Assesment

Assessment was conducted on Mrs. T, a 32-year-old woman, G2P1A0, currently at 34 weeks of gestation. The client complained of lower back pain that has persisted for more than two weeks. The pain primarily appears upon waking up and after performing light activities. The intensity of the pain, based on the Numeric Rating Scale (NRS), was rated as 6, indicating moderate pain.

During the interview, the client reported discomfort during daily activities and difficulty sleeping due to the pain.Physical examination showed that the client's vital signs were within normal limits: blood pressure was 120/80 mmHg, pulse rate was 82 beats per minute, respiratory rate was 20 breaths per minute, and body temperature was 36.8°C. The client was observed frequently holding her lower back and walking with a slightly hunched posture. Gynecological obstretric history as follows:

Table 1. Gynecologic Obstretric History

1.	Obstetric status	G1P1A0
	Gravidarum	1st pregnancy
	Partus	1
	Abortion	0
2.	Menstrual history	
	Age at menarche	13 year
	Menstrual cycle	27 day
	Dysminorrhea	Rarely
	Length of menstruasi	7 day

3.	Marital history	
	Married how any times	1 time
	Age at marriage	21 year
	Lenghth of merriage	2 year
	Sexual problems	none
4.	Contraceptive history	The client has not used contraceptives from the beginning of the marriage until now.
5.	Pregnancy history	
	HPHT	August 09, 2024
	HPL	May 16, 2025
	Complaints during pregnancy	Frequent nausea and vomiting
	Drugs taken	None

At the time of physical examination, it was found that there was tenderness in the abdomen, the height of the uterine pundus was 1 finger below the center, bowel noise was 9x/minute, at the time of assessment the client said that there were no lesions and swelling of the anus, symmetrical breasts, protruding nipples, breast milk had come out, hyperpigmented areolas.

Nursing Diagnosis

At the time of physical examination, it was found that there was tenderness in the abdomen, the height of the uterine pundus was 1 finger below the center, bowel noise was 9x/minute, at the time of assessment the client said that there were no lesions and swelling of the anus, symmetrical breasts, protruding nipples, breast milk had come out, hyperpigmented areolas.

Table 2. Nursing Diagnosis

Focus Data	Etiology	Diagnosis	Page
• Subjective Data - The client said he felt uncomfortable due to pain in his back. - The pain is felt as if it comes and goes, like being pressed. - Pain occurs when the client is tired from doing household chores and the pain decreases when they rest. - Pain scale 5 (0-10). • Objective Data - The client sometimes appears to grimace in pain.	Pregnacy ↓ Musculoskeletal system ↓ Abdominal Mass ↓ Lumbar nerve compression ↓ Stimulates Receptors ↓ Nyen perception ↓ Lower back pain ↓ MK.Disturbance of Compfort	Disturbances in general comfort are related to symptoms of illness, inadequate resources e.g. financial, social and knowledge support), disturbances in pregnancy adaptation (D.0074).	166

- Vital signs
  BP: 120/80 mmHg
  Pulse: 87x minute
  T: 36,3°C

Nursing Intervention, Implementation and Evaluation

The following intervention is derived from the Indonesian Nursing Intervention Standards book, edition 1 print II 2018, following the analysis of the diagnosis data.

Table 3. Nursing Interventions

Nursing Diagnosis	Intervention	Done/Not
Disturbed feeling of comfort and pain.	Pain management (I.08238) Observation: 1. Identify the location, characteristics, duration, frequency, quality and intensity of pain. 2. Identify the pain scale. Therapeutic: 1. Control the environment that aggravates the pain. 2. Control the environment that aggravates pain. 3. Facilitate rest and sleep. Education: 1. Explain the causes, periods, and triggers of pain. 2. Explain pain relief strategies Collaboration: 1. Collaboration in providing analgesics, if necessary.	Done

Table 4. Nursing Evaluation

Nursing Diagnosis	Date Day	Nursing Evaluation
Disturbed feeling of comfort and pain.	Tuesday, June 17, 2025	S : The client said that the back pain was no longer felt after consecutive warm water compresses were applied to a scale of 0 (0-10). O : The client appeared relaxed during and after being given consecutive endorphin massages, the client no longer grimaced, BP: 120/80 mmHg, Pulse: 87x/minute, Respiration 20x/minute, Temperature: 36.6°C. A : Pain resolved. P : Stop intervention. I : Implementation stopped. E : Problem resolved. R : Intervention stopped

Discussion

During the implementation of nursing care for Mrs. T, the author identified several gaps between theory and practice. Theoretically, warm compresses can reduce pain rapidly through vasodilation and stimulation of skin receptors (Inayah, 2021) however, in practice, significant pain relief was only observed on the third day.

Additionally, while family support is theoretically considered essential (Notoadmodjo, 2010), in reality, it was not optimal at the beginning and only became effective after proper education was provided. Psychological factors such as anxiety also influenced the client's perception of pain.

Physical examination showed that the client's vital signs were within normal limits, with a blood pressure of 120/80 mmHg, a pulse rate of 82 beats per minute, a respiratory rate of 20 breaths per minute, and a body temperature of 36.8°C. The client was frequently observed holding her lower back and walking with a slightly hunched posture.

Lower back pain in third-trimester pregnant women is a common complaint and has a physiological basis. During pregnancy, changes such as an enlarging uterus and increased body weight lead to a forward shift in the body's center of gravity. This results in added strain on the lower back muscles and tension in the ligaments, which in turn trigger pain. This theory is supported by (Nasriyah & Wulandari, 2022).

On the first day, the client's pain scale remained at level 6. After administering warm compresses in the morning and evening, the client reported a slight reduction in pain. On the second day, the pain scale decreased to 4. The client stated that she began to feel more comfortable and was able to sit for longer periods.

On the third day, the pain scale further decreased to 2, and the client reported sleeping more soundly at night. By the fourth day, the pain scale was between 1 and 0. The client stated that she no longer felt pain upon waking and was able to move more freely.

Based on the results of the three-day implementation, there was a significant improvement in the reduction of the client's back pain scale. On the first day, after applying warm compresses, the client reported a decrease in pain from a scale of 5 to 3 (on a 0–10 scale). However, the client was still seen grimacing and walked cautiously, holding her back out of fear of pain recurrence. The client and her husband had already understood the technique of endorphin massage and stated that they would apply it when pain occurred.

On the second day of evaluation, the client reported that the pain had decreased from a scale of 3 to 1 (0–10). Grimacing had reduced, and the client was observed walking more comfortably, only occasionally placing her hand on her lower back.

On the third day, June 13, 2025, the client stated that she no longer felt any back pain. She appeared relaxed, without grimacing. Her vital signs were within normal limits: BP: 120/80 mmHg, RR: 20 breaths/minute, HR: 80 beats/minute, Temperature: 36.5°C. The evaluation on day five also showed significant improvement, indicating the success of the intervention, with the pain scale having decreased from 1 to 0 (0–10).

The nursing care outcomes are consistent with the study by (Munir et al., n.d.), which showed a Z-score of -4.237 with a p-value of 0.000 ($p < 0.05$), indicating a significant effect of endorphin massage on reducing back pain in third-trimester pregnant women.

Conclusion

After providing nursing care to Mrs. T, a 32-year-old pregnant woman at 34 weeks of gestation who experienced discomfort due to lower back pain associated with pregnancy adaptation, the author concludes that the nursing process was successfully implemented. This

process included five key stages: comprehensive assessment, formulation of nursing diagnoses, planning of nursing interventions, execution of those interventions, and continuous evaluation of outcomes.

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