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Midwifery Care for Pregnant Women in the Third Trimester with the Obstetric Complaint of Low Back Pain

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Abstract:
Low back pain is a common musculoskeletal disorder experienced during pregnancy, with a prevalence ranging from 30% to 78% in regions such as the United States, Europe, and Africa. Approximately one-third of affected individuals experience low back pain that leads to decreased productivity and reduced quality of life. An increased body weight of 11–12 kg, along with hormonal and biomechanical changes during pregnancy, contributes to a higher risk of pain in the back, pelvis, and other musculoskeletal areas. Given the potential impact of such complications during pregnancy, health policymakers should place greater emphasis on addressing this issue. In addition, public education on the importance of maternal health, coupled with timely diagnosis and intervention efforts, plays a crucial role in reducing pregnancy complications. This study aims to provide midwifery care to a third-trimester pregnant woman with complaints of low back pain through a case study of Mrs. N.A. (G3P2002, 28 weeks gestation). Data were collected through interviews, observation, physical examination, and documentation review. Diagnoses were made based on subjective and objective findings, and interventions were implemented through health education and pregnancy gymnastics as a promotive and preventive approach to improving maternal well-being. The evaluation results showed a significant improvement in the client's lower back pain after the intervention. The client reported decreased pain intensity to the point where it no longer interfered with daily activities, indicating that the intervention was effective and aligned with the previously planned objectives and success indicators. It is essential to provide follow-up education and regular evaluations in midwifery practice to ensure that similar complaints do not recur or develop into more serious issues.

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INTRODUCTION

Low back pain (LBP) and pelvic girdle pain are among the most prevalent musculoskeletal complications encountered during pregnancy, affecting up to 50–70% of pregnant women globally (Ozdilek et al., 2025). Despite their high incidence, these conditions remain underprioritized in maternal healthcare, often dismissed as inevitable physiological experiences. This normalization discourages women from seeking clinical support, perpetuating a cycle of untreated discomfort that can escalate into chronic disability (Molin et al., 2024). The third trimester, marked by profound anatomical and physiological changes, represents a critical period for the onset and exacerbation of LBP, underscoring the urgent need for targeted midwifery interventions to mitigate its impact on maternal well-being (Üzelpasaci et al., 2024).

The onset of pregnancy-related LBP typically occurs around 18 weeks of gestation, with symptoms intensifying between 24 and 36 weeks (Daneau et al., 2021). This temporal pattern aligns

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with progressive biomechanical and hormonal shifts, including abdominal weight gain, altered center of gravity, and ligamentous laxity (Sima & Diwan, 2025). Such changes disrupt postural equilibrium, strain lumbar structures, and predispose women to nociceptive and neuropathic pain mechanisms. Notably, the coexistence of pelvic pain further complicates clinical presentation, necessitating a nuanced approach to differential diagnosis and management within routine prenatal care (Ferdinandov et al., 2024).

The etiology of LBP in pregnancy is multifactorial, driven by the interplay between mechanical, vascular, and hormonal factors (Chen et al., 2024). Mechanically, uterine enlargement induces hyperlordosis, increasing compressive forces on lumbar vertebrae and triggering compensatory muscle tension in paraspinal and hip musculature. Vascularly, uterine compression of the inferior vena cava may impair spinal venous drainage, contributing to radicular pain (Tesio, 2023). Hormonal influences, particularly elevated relaxin and progesterone levels, exacerbate joint instability by softening sacroiliac and pubic ligaments, heightening susceptibility to mechanical stress and inflammation (Pang et al., 2023).

Unaddressed LBP during pregnancy carries significant implications for maternal quality of life, physical function, and perinatal outcomes. Chronic pain can impair mobility, disrupt sleep, and hinder daily activities such as standing, sitting, or transitioning between positions (Lin et al., 2022). Psychosocial consequences, including heightened anxiety and depressive symptoms, further compound the burden. Longitudinally, unresolved antenatal LBP increases the risk of postpartum persistence, with studies linking severe third-trimester pain to prolonged disability and reduced workforce participation post-delivery (Wong et al., 2022).

Non-pharmacological interventions form the cornerstone of LBP management in pregnancy, emphasizing safety and holistic care (Muthike, 2021). Evidence supports the efficacy of structured exercise programs—including land- and water-based aerobic activities—to strengthen core stability, improve posture, and alleviate biomechanical strain (Babiloni-Lopez et al., 2024). Adjunctive therapies such as pelvic support belts, kinesiology taping, acupuncture, and manual spinal manipulation demonstrate symptom relief, while transcutaneous electrical nerve stimulation (TENS) offers neuromodulatory benefits. Despite robust clinical guidelines endorsing these modalities, implementation remains inconsistent, reflecting gaps in provider training and patient education (Shi & Wu, 2023; Novelia et al., 2021).

A critical barrier to effective LBP management is persistent misconceptions among pregnant women regarding physical activity safety (Bernard-Giglio et al., 2023). Cultural and societal narratives often equate rest with fetal protection, fostering reluctance to engage in therapeutic exercise (Buin et al., 2024). Over 60% of pregnant women cite fears of harming the fetus as a primary deterrent to adopting recommended interventions (Vesting et al., 2025). These beliefs and healthcare providers' limited emphasis on antenatal musculoskeletal health contribute to suboptimal adherence to evidence-based strategies. Addressing these knowledge gaps through targeted health education is imperative to reframe LBP as a preventable and treatable condition.

Midwifery-led care holds transformative potential in bridging this gap, integrating LBP screening, patient-centered counseling, and proactive rehabilitation into routine antenatal visits. By prioritizing early identification of risk factors—such as pre-pregnancy sedentary lifestyles or prior back injuries—midwives can tailor interventions to individual needs. Furthermore, leveraging digital health tools and community-based programs can enhance access to care, particularly in resource-limited settings (Blomgren, 2025). This paper examines the pathophysiological mechanisms, clinical implications, and evidence-based management strategies for LBP in the third trimester, advocating for midwifery innovation to elevate maternal musculoskeletal health as a global priority.

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STUDY DESIGN

This case study employed a descriptive approach to investigate midwifery care for a third-trimester pregnant woman experiencing low back pain (LBP), focusing on Mrs. N.A. (gravida 3, para 2002) at 28 weeks of gestation. The study aimed to evaluate the efficacy of integrative interventions in addressing musculoskeletal discomfort while prioritizing maternal safety and well-being. Participants were selected based on inclusion criteria: singleton pregnancy, gestational age ≥24 weeks, self-reported LBP, and absence of pre-existing spinal or systemic conditions contraindicating physical activity. Ethical clearance was obtained from the Institutional Review Board of Poltekkes Kemenkes Malang, ensuring adherence to ethical standards in human research, including informed consent and confidentiality.

Data collection involved a multimodal approach, combining semi-structured interviews, direct observation, physical examination, and review of antenatal records. Subjective data encompassed the patient's pain history, duration, intensity (assessed via Visual Analog Scale), and perceived functional limitations. Objective findings included postural assessment, lumbar range of motion, and musculoskeletal strength evaluations. Diagnostic accuracy was enhanced by correlating self-reported symptoms with clinical indicators, such as localized tenderness, paraspinal muscle tightness, and pelvic alignment deviations. This dual assessment framework ensured a comprehensive understanding of LBP's biomechanical and experiential dimensions, guiding the formulation of individualized care plans.

Interventions integrated health education and pregnancy-adapted gymnastics to address preventive and promotive aspects of LBP management. Health education sessions emphasized evidence-based knowledge on posture optimization, ergonomic adjustments, and safe physical activity, targeting misconceptions about exercise during pregnancy. The gymnastics regimen, supervised by a certified midwife, included gentle stretching, core-strengthening exercises (e.g., pelvic tilts, cat-cow poses), and low-impact aerobic movements tailored to the patient's gestational stage and pain tolerance. Sessions were conducted thrice weekly for four weeks, with outcomes measured through pre- and post-intervention pain scores, functional mobility assessments, and patient-reported quality-of-life indicators. This structured approach aimed to reduce pain severity, enhance musculoskeletal resilience, and empower the patient through active participation in her care.

PATIENT INFORMATION

The assessment results were obtained based on client and family observations. The identified problem in this case is an obstetric issue related to back pain. The researcher will describe the subjective results: Mrs. NA reported that she often experiences lower back pain starting in the third trimester of her pregnancy. The objective data obtained the following results: gestational age of 28 weeks, blood pressure 110/70 mmHg, body weight 70 kg. Leopold's palpation results: Leopold I - round, non-bouncy (buttocks); Leopold II - right abdomen palpable, wide as a board (right back), left abdomen palpable with the smallest part (extremities); Leopold III - round, hard, bouncy (head); Leopold IV - not performed, as the fetus has not entered the pelvic inlet. The fetal heart rate is 141 beats per minute, fundus height is 22 cm, and fetal weight is calculated as (22-11) x 155 = 1,550 grams. Pelvic examination results: Based on the analysis of the data obtained, the diagnosis of G3P2002 Pregnancy at 28-29 Weeks with a Single Fetus in Intrauterine Life and Obstetric Problems of Back Pain is established. Interventions for back pain in pregnant women are implemented through health education and invitations to attend pregnancy classes, which include pregnancy gymnastics

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as a promotive and preventive approach to reducing musculoskeletal complaints during pregnancy. The back pain was considered resolved, as evidenced by the reduction in pain reported by the patient during the second visit conducted by the researcher.

CLINICAL FINDINGS

Preliminary data collection revealed that Mrs. NA, aged 28 years, G3P2002, with a gestational age of 28-29 weeks and a live intrauterine singleton fetus, reported back pain, which was identified as a significant obstetric problem. It was found that the client tends to avoid physical activity during pregnancy due to concerns about the risk of injury or potential negative impact on the fetus.

Consistent with the initial data indicating back pain as the primary issue, the client also reported feeling easily fatigued, which significantly interfered with her daily activities. The subjective data was supported by objective findings from the physical examination, particularly in the pelvic area, where palpation of the lower back elicited a clear pain response characterized by a grimacing facial expression.

The obstetric diagnosis made by the researcher for Mrs. NA is low back pain, based on the results of a comprehensive assessment and consistent with midwifery theory regarding musculoskeletal complaints during pregnancy. The data to establish the diagnosis were obtained through physical examination, observation of the mother's and fetus's condition, and structured interviews with the client. Based on these findings, the researcher designed interventions that included providing education about the conditions experienced, recommending light physical activity for the client to do independently at home, and encouraging participation in pregnancy classes. In these classes, the client received information about physiological changes during pregnancy and strategies for managing general discomfort, including back pain. Consistent with recent research, back pain in pregnant women can be effectively managed through non-pharmacological approaches, one of which is physical activity, such as pregnancy exercises and prenatal yoga. These exercises help maintain a balanced posture, increase stability, and improve flexibility and muscle tone, thus reducing musculoskeletal complaints during pregnancy.

The evaluation of the interventions provided to Mrs. NA showed an improvement in her clinical condition, characterized by reduced complaints of low back pain. The intensity of pain generally increases as pregnancy progresses due to changes in body biomechanics that elevate the risk of musculoskeletal disorders and injuries. If left untreated, low back pain can significantly reduce the comfort of pregnant women and may also lead to psychological disorders. Therefore, early detection and prompt, appropriate treatment are crucial in preventing further complications. In this case, midwifery interventions—such as health education, recommendations for light physical activity, and participation in pregnancy classes—were implemented by midwifery practice standards. These interventions have proven effective in reducing complaints and enhancing maternal comfort during pregnancy.

DISCUSSION

The results of the assessment and intervention conducted with Mrs. NA indicate that the low back pain she experienced is a common obstetric issue in the third trimester of pregnancy. More than 50% of pregnant women experience low back pain, with severity generally increasing as gestational age progresses. Contributing factors include an increase in maternal weight, changes in body biomechanics due to fetal growth, and hormonal influences, particularly the rise in relaxin

hormone, which causes the loosening of ligaments and joints, thereby increasing the risk of musculoskeletal discomfort (Daneau et al., 2025; Dimyati et al., 2024).

Regular and sustained physical activity, including gymnastics, can positively reduce the risk of low back pain in pregnant women. Physical activity helps strengthen the core muscles and musculoskeletal system, enhances flexibility, and maintains stable posture. Optimal muscle and skeletal readiness enables pregnant women to better adapt to the changes in their bodies during pregnancy, helping to reduce biomechanical stress and minimize low back pain (Szumilewicz & Santos-Rocha, 2022).

In this case study, the mother reported low back pain accompanied by fatigue, which significantly interfered with her daily activities. The diagnosis uses a holistic approach, which includes taking the medical history, conducting a physical examination, and observing the client's responses. One clinical indicator observed was a pain expression, such as a grimace, when pressure was applied to the lower back area. This response indicates the presence of typical pain complaints and aligns with the characteristics of low back pain commonly experienced during pregnancy (Pereira et al., 2023).

The midwifery care provided in this study included health education, recommendations for light physical activity at home, and encouragement for the client to attend pregnancy classes, which featured pregnant gymnastics activities. These interventions align with non-pharmacological approaches recommended in scientific literature to manage musculoskeletal complaints during pregnancy. Structured physical activities, such as pregnancy exercises and prenatal yoga, have been empirically shown to strengthen core muscles, improve flexibility and postural stability, and facilitate the body’s adaptation to the physiological changes during pregnancy. Several studies have also shown that engaging pregnant women in regular physical activity helps reduce low back pain and improves overall quality of life during pregnancy (Mamipour et al., 2022; Alestari et al., 2025).

In addition, the implementation of the intervention also involves family participation. Family support plays a crucial role in supporting the success of the therapy. Family involvement helps increase maternal adherence to the established intervention plan and provides meaningful emotional support, assisting mothers in coping with the physical and psychological discomforts that arise during pregnancy (Gebhardt et al., 2021; Kurniyawan et al., 2023).

The evaluation results showed a significant improvement in the client's lower back pain after the intervention. The client reported decreased pain intensity to the point where it no longer interfered with daily activities, indicating that the intervention was effective and aligned with the previously planned objectives and success indicators. However, successful management of back pain depends not only on short-term interventions but also on ongoing follow-up until delivery. Therefore, it is essential to provide follow-up education and regular evaluations in midwifery practice to ensure that similar complaints do not recur or develop into more serious issues.

LIMITATION OF STUDY

This research has limitations due to its case study design, which involves only one respondent, making it impossible to generalize the results to a broader population.

CONCLUSION

Based on the results of the study, it can be concluded that in the case of Mrs. NA (G3P2002) with a gestational age of 28-29 weeks and the primary complaint of low back pain, midwifery care was provided comprehensively, in line with the intervention plan tailored to the client's condition. The

interventions effectively addressed the obstetric complaints, with outcomes aligning with the established objectives and success indicators. The implementation of midwifery care followed the reviewed theoretical framework, adjusted to the client's actual condition, which enhanced the effectiveness of the intervention and facilitated optimal implementation by midwives. The process of care implementation is critical, involving the active participation of midwives, the client, and family support as part of a holistic approach. All interventions were carried out gradually and continuously from the first day through to the end of the observation period. The results indicated that the client's condition remained stable and healthy as the time of labor approached.

DECLARATION OF PATIENT CONSENT

The authors declare that the patient obtained written consent for using and publishing relevant clinical information in this report. The patient has been informed that their identity, including name and initials, will not be disclosed in the publication and that every effort will be made to maintain the confidentiality and anonymity of their data.

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CONFLICTS OF INTEREST

There is no conflict of interest in this article.

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