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# Factors Affecting Back Pain in Pregnant Women in the Third Trimester: Literature Review

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## Abstract

**Introduction:** Back pain is caused by pain in the lumbosacral area. The increase in intensity with increasing gestational age results from a shift in the center of gravity and changes in body posture. Back pain from sacroiliac/lumbar can be a long term back pain if not treated efficiently. **Material and Methods:** Literature review aims to examine more deeply about back pain in pregnant women in the third trimester, there were factors that influenced it by reviewing. Methods literature review by searching on Google Scholar and PubMed. The keyword criteria are "pregnancy", "back pain", "low back pain pregnancy factors", "back pain pregnant women activities". After the study was conducted, national articles 9 and 15 were obtained. **Results:** Factors that affect back pain in third trimester pregnant women can be classified from gestational age, age, parity, daily activities that affect back pain and body relaxation can reduce back pain. **Conclusion:** Review that has been conducted, it was found that the factors that influence back pain in pregnant women in the third trimester can be classified according to gestational age, age, parity, daily activities.

**Keywords:** Daily Activities, 3rd Trimester Of Pregnancy, Back Pain

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## 1. Introduction

Pregnancy is a developmental process in the fetus that can cause discomfort to the mother and disrupt her daily activities. Data from the Indonesian Ministry of Health in 2020 showed that the number of pregnant women in Indonesia reaches approximately 5,221,784 people. The pregnancy process itself involves various physiological changes, including physical changes, changes to the digestive and respiratory systems, and changes to the gastrointestinal tract, urinary, musculoskeletal, as well as circulation (Lailiyana et al., 2019).

During the adaptation process, mothers often experience discomfort, even though it is physiological, but it is still necessary to provide prevention and treatment for several discomforts in pregnant women entering the third trimester, such as back pain, which occurs in around 70% (Meilinda & Handayani, 2025). According to research conducted (Tanjung Rejeki & Fitriani, 2019), around 70% of pregnant women often experience pain in the waist area or low back pain (LBP) which may occur from the beginning of the trimester, and peaks when entering the second and third trimesters (Wulandari & Wantini, 2021).

Pain is a common problem during pregnancy, especially during the second and third trimesters. The phenomenon of pain is a complex issue. Definitions according to International Society for the Study of Pain that "an unpleasant sensory and emotional experience that results in actual or potential tissue damage." Pain causes a person to experience fear and anxiety, thereby increasing stress and experiencing drastic physiological changes during pregnancy. Pain and anxiety are synergistic and exacerbate each other (Purnamasari, 2019).

However, still most there are women who feel pain that is even worse than usual because of the influence of panic and stress which is called fear-tension-pain concept can be interpreted as meaning that fear causes tension or panic and causes muscles to become stiffer and experience pain (Meilinda & Handayani, 2025).

Back pain often felt in lumbosacral area. Sometimes there may be an increase in intensity simultaneously with increase in gestational age due to shifts in the center of gravity and changes in body posture during pregnancy. Signs of discomfort in pregnant women include pain in the lower back in the musculoskeletal system. This musculoskeletal adaptation, which needs to be considered, is the increase in body weight and the shift in the body's center of gravity due to as the uterus enlarges, relaxation and mobility are necessary. Increasing instability in the sacroiliac joints and increased lumbar lordosis cause pain. This indicates muscle shortening during the abdominal contractions. Start stretch causing an imbalance in the muscles around the pelvis and lower back, and will be felt in the upper part of the ligament (Purnamasari, 2019).

As a result of someone experiencing painful back sometimes from sacroiliac or

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lumbar causes disturbances in the back area and can have long-term effects on muscle balance and pelvic stability if not immediately restored after giving birth or postpartum (Purnamasari, 2019). Risk Low Back Pain in subsequent pregnancies is very high after there is a history Low Back Pain in previous pregnancies and is consistent with Low Back Pain in previous pregnancies (Omoke et al., 2021).

There are factors that influence back pain, such as the gestational age at which pain begins to appear, according to research conducted by (Bryndal et al., 2020) ., which usually occurs in 27 weeks, which is supported by reports of 20-28 weeks as the first period in which pain occurs. Maternal age generally will experience lower back pain between the ages of 20-24 years and will peak at over 40 years of age. In parity, it often occurs in multiparas and grandemultiparas who are at higher risk because the muscles have weakened and cause the muscles to fail to support the uterus or the uterus that has become larger, so many experience back pain (Fithriyah et al., 2020).

Activity daily can affects lower back pain and negatively impacts the ability of pregnant women to perform daily activities such as self-care, walking, sitting and engaging in sexual activity. Body relaxation existence Increased levels of physical activity should be particularly beneficial for pregnant women as it can provide benefits to fetal health, potentially through maintenance of fetal function. placental vascular, will be the result of physical activity during pregnancy. Apart from these factors, it was found that smoking also affects back pain, although not very significantly, because cigarettes themselves contain nicotine which can have an impact on the central nervous system by changing the perception of pain, which can cause painful musculoskeletal in other areas of the body (Manyozo et al., 2019).

This study aims to conduct a literature review study to prove and examine in more depth that back pain experienced by pregnant women in the third trimester is influenced by factors such as gestational age, age, parity, daily activities and body relaxation there is conformity with previous research by reviewing several studies.

## 2. Research Method

### Research Design, Setting, and Sample

The method used in writing this article is a Literature Review by searching for literature through electronic media using several databases such as Google Scholar and PubMed. The criteria for find search "pregnancy," "back pain," "factors contributing to low back pain in pregnancy," and "pregnant women's activities and back pain." After reviewing the articles, nine national articles and 15 international articles were found.

## 3. Results And Discussions

Lower back pain is often experienced by pregnant women as a complaint, especially entering the third trimester because the center of body balance shifts forward in line with the spine and the weight of the uterus is above the pelvic area, which causes the pelvis to

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shift forward so that the waist becomes more curved (Tampubolon & Fransysca, 2022). Lower back pain is more commonly felt by pregnant women, especially when entering the second and third trimesters and is a common complaint that is often felt so that it is estimated that around 70% of pregnant women complain of some form of back pain during pregnancy, childbirth and postpartum. (Purnamasari, 2019). During pregnancy, relaxation occurs in the pelvic joints, resulting in hormonal changes from estrogen, Progesterone and relaxin will be more involved. Estrogen itself causes connective tissue to soften, and joint capsules to relax, allowing pelvic joints to move.

Body posture in pregnant women in a way gradually definitely experience changes because the fetus will grow larger in the abdomen so that it can compensate for the increase in weight in pregnant women, then the shoulders are pulled back more and the bones are more curved, while the spinal joints feel more flexible causing back pain in some pregnant women. Symptoms of back pain will feel pain in the back or pelvic area, then in the buttocks and legs causing pregnant women to have difficulty walking.

According to (Tampubolon & Fransysca, 2022) who noted that back pain radiating down the leg to the knee in pregnancy and during the postpartum period is a symptom Low Back Pain in pregnant women. The authors suggest that it is caused by changes occurring in the pelvic area (relaxation of the pelvic ligaments), temporary painful pelvis also manifests itself in the distal lower limbs. Another study of pregnant women with low back pain identified factors contributing to the persistence of pain: decreased muscle endurance, measured for the back extensors and hip abductors, and increased hip joint motion. Back pain in pregnant women is influenced by several factors, including (Ferreira et al., 2021):

a. Gestational Age

According to (Tampubolon & Fransysca, 2022) stated that the pain typically occurs between 20 and 28 weeks of gestation, with the average gestational age estimated at 22 weeks. The onset of pain in a study conducted by (Tampubolon & Fransysca, 2022) typically occurred at 27 weeks, which she supports by reporting 20–28 weeks as the first period in which pain occurs. Previous research has found that lower back pain is more common in pregnant women who are starting to develop symptoms enter trimester III (Purnamasari, 2019).

According to (Manyozo et al., 2019) study found that lordosis and pain were highest in the third trimester of pregnancy. McCrory's study showed significant functional differences between pregnant and non-pregnant women. In all the cited postural studies, the greatest changes occurred in the third trimester of pregnancy and were accompanied by the greatest pain symptoms. Back pain in Pregnant women who enter the third trimester do too much and excessive physical activity, which usually means pregnant women spend more time taking care of the household and having to work, making the mother feel tired and lack sufficient rest (Fithriyah et al., 2020).

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Women in the second trimester (adjusted OR 1.83, p=.12) and third trimester (adjusted OR 2.35, p=.03) had a higher likelihood of experiencing Low Back Pain compared to women in the third trimester. These results further agree with the findings of other studies on Low Back Pain in pregnancy by (Ferreira et al., 2021), Low Back Pain as an effect of changes on system musculoskeletal including postural changes, increased load on the spine due to fetal growth and excessive lordosis that exerts physical forces on the spinal joints and causes dysfunction (Manyozo et al., 2019). According to (Bryndal et al., 2020) women with low back pain and leg pain accompanied by cramps experience moderate disability according to the ODI score, and those who are treated in the third trimester are more lots disability compared to those treated in the first and second trimesters. These findings support the idea that disability is higher in the third trimester than in other trimesters due to spinal overload.

Physical abilities decline in the last trimester of pregnancy. A pregnant woman with problems back pain is even more limited in its activities. Several studies have shown a relationship between high pain intensity and decreased functional ability (Bryndal et al., 2020)

b. Age

On generally painful lower back pain will begin to be experienced by women aged between 20 and 24 years, reaching a peak at over 40 years of age. This study agrees with (Meilinda & Handayani, 2025). that the age and education of the respondents obtained are seen, with the majority being between 20 and 35 years old, and most having a high school education, so that make it easier in accept information which given. Further testing is needed if there are more comorbidities among younger women or the distribution of women is different. Unemployed can explained these results, but did not find statistically significant differences between age groups. Therefore, painful lower back on pregnancy must be understood in a broader context such as in patients with chronic pain.

c. Parity

Research shows that multiparous and grandemultiparous mothers experience back pain and are at greater risk than primiparous mothers because their muscles are weaker, causing them to fail to support the uterus, or the uterus to enlarge. Without support, the uterus appears saggy, and the back becomes more prominent elongated the curve. Weaknesses in Muscle weakness in the abdominal area is generally experienced by grandemultipara (Fithriyah et al., 2020).

According to research by (Pangaribuan et al., 2023)., there is a significant relationship between parity and back pain during pregnancy. The more frequently and repeatedly a woman pregnancies and deliveries, the greater the risk compared to women who have not had children primipara. High parity increases the risk of back pain. The

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more pregnancies and childbirths a woman has, the greater the risk of back pain.

d. Daily Activities

On mother pregnant shows relevant results that low back pain intense has a high prevalence and causes significant limitations in the daily activities of pregnant women, and it is important to identify women who are more susceptible to this condition. This should be addressed with a healthcare professional to be aware of the presence of this condition discomfort in musculoskeletal problems during pregnancy, especially low back pain, and should consider addressing these issues especially during routine prenatal/ANC consultations. Pathological changes can be characterized by increased pain during movement (motion pain), and pressure pain (pressure pain), errors postures, such as sitting, standing, and walking. Pain will be reduced when used to lie down. This study is consistent with research (Omoke et al., 2021) that some household chores such as sweeping, mopping, cleaning, fetching and carrying buckets of water, splitting and cooking with firewood, caring for children, and so on, usually put pressure on the lower back area, and with changes in body load and mechanics during pregnancy, it can easily settle and make things worseLow Back Pain. There is no mechanism for the division of household labor and the need for one is often obscured by the cultural background of gender roles.

According to research (Gweha et al., 2024) it is no coincidence that the prevalence low back pain higher levels were observed and found in a group of housewives because in their own homes where women are more exposed to long working hours including caring for children small children, frequent lifting and carrying of heavy loads, performing tasks in uncomfortable positions, and using inadequate tools. Furthermore, the work of housewives may be underrecognized or under-appreciated, resulting in an environment of frustration and complex emotional states. Painful back lower impact negative on pregnant women's ability to perform daily activities such as self-care, walking, sitting, and engaging in sexual activity. These functional limitations are also associated with reduced quality of life and decreased productivity among pregnant women. Our results are consistent with findings from Pakistan, the United States, and Brazil, where women also reported poor quality of life, limited daily functional activities, and related disabilities due to pregnancy low back pain pregnancy-related. Similar results were also reported by who reported that approximately 73% of pregnant women in Norway experienced mobility problems due to low back pain (Manyozo et al., 2019).

According to (Popajewski et al., 2024) research from that the position of Lordosis and kyphosis increased insignificantly with progress based on the results patients with more pronounced postural changes experienced slightly more intense pain, but the difference was not statistically significant. This suggests an increased

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impact of pain on daily activities such as walking, standing, and sitting. Various activity physique frequent daily activities such as work, activities at home, or leisure time, such as rest and exercise. More strenuous activities such as work and exercise can cause pain (Fithriyah et al., 2020).

Clinical picture which involves severe and persistent lower back pain to the point where the woman experiences difficulty carrying the baby and significant loss of height associated with vertebral fragility fractures. This has a negative impact on the mother infant relationship due to the limitations of daily activities and associated pain, and this condition is a significant cause of long-term disability. Early diagnosis and treatment of these cases are crucial for preventing fractures and improving the patient's quality of life.

The physical abilities of pregnant women were evaluated in six domains: bathing, dressing, toileting, transferring, continence, and feeding. It was found that all pregnant women who participated in the study were able to perform all activities independently, and the pregnant women's scores with Low Back Pain significantly lower. Previous studies reported that back pain negatively impacts the daily activities of pregnant women.

e. Body Relaxation

Increased physical activity is especially beneficial for pregnant women. This is because it offers health benefits. Fetal health through maintaining placental vascular function is a result of physical activity during pregnancy. Physical exercise can improve self-esteem and body image satisfaction, as well as reduce the risk of developing depression, both postpartum and antenatally (Chowdhury & Chakraborty, 2021). Some of these complaints resolve spontaneously, while others can develop into chronic pain. According to (Bryndal et al., 2020) observe the problem Postpartum period in women who continue to suffer from pain in the lumbosacral spine radiating to the lower extremities and knees, which is then reflected in the medical approach. Regular pre-pregnancy physical activity reduces the occurrence of low back pain during pregnancy, while strenuous work increases the risk. Performing stabilizing exercises is beneficial for pregnant women who suffer from low back pain and pelvis so that physical activity during pregnancy can prevent future lower back and pelvic pain from occurring in subsequent pregnancies.

Another study found that exercise during pregnancy reduced low back pain and pelvic girdle pain by more than 20%. However, due to low statistical power, the effect on low back pain did not reach statistical significance, and women would be at risk of experiencing this if they were unemployed. Effect sports protection Low back pain during pregnancy is understandable. Exercise improves muscle strength and endurance and appears to be more effective in preventing new episodes of low back pain when it

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becomes a habit. Prenatal massage can reduce discomfort and pain in the back area during pregnancy, because reduce fatigue and make the body feel more energetic by removing metabolic products in the lymphatic system as well as system circulation. Discomfort on woman Pregnancy often feels like cramps, muscle tension, and stiffness in each muscle can be reduced after massage. This helps improve circulation and makes it easier for the heart and blood pressure to work, making pregnant women feel more refreshed. Furthermore, the endorphins produced during massage can help mothers feel more relaxed during pregnancy (Fithriyah et al., 2020).

Endorphin massage that is treatment with non-pharmacological which can Relieve back pain in pregnant women in the third trimester. Midwives are expected to provide services by providing midwifery care to pregnant women especially those who have entered the third trimester with complaints of back pain so that they can be advised to do endorphin massage techniques to reduce back pain (Hu et al., 2020). In pregnant women who perform endorphin massage techniques, according to (Backhausen et al., 2019) there are fundamental limitations to the adapted aerobic exercise program. stretching, strengthening, relaxation and breathing exercises performed under the supervision of a physiotherapist, but they only assessed subjective parameters to assess pain levels before and after the intervention and did not explore physical tests used in clinical evaluations(Ferreira et al., 2021). Compared with general exercise, core stability exercises were more effective in reducing pain and improving physical function in patients with Low Back Pain chronic in the short term. Manual therapy with exercise shows that combine various form better than manual therapy (Hu et al., 2020).

The effects of exercise on low back pain chronic adds to the evidence that some types of exercise appear to have similar and better effects than others. A cochrane review on practice in several disturbance musculoskeletal chronic conclude that activity physical therapy and exercise are interventions with few side effects that can improve pain and physical function, and consequently, quality of life. However, a recent review showed that there is low-quality evidence that pilates, resistance training, and aerobic exercise are the most effective treatments. Furthermore, it included results on less studied types of exercise such as aquatic training, walking, Traditional Chinese Exercise, and sling exercises, all of which also showed consistency with previous results that no type of exercise appears to be more beneficial than others (Grooten et al., 2022).

According to research from (Lailiyana et al., 2019) that the recommended maximum exercise time for pregnant women is 30 minutes, considering fatigue very influential on pregnancy . Back exercise It's recommended to do this regularly because it can help joints and tissues in the body feel more flexible and balanced, as lower back pain is quickly treated. The duration of the exercise is approximately 15-60 minutes for

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all types. The modulation on will betained with reduce excitability (eg cooling), then help smooth metabolism causing substances in pain between other bradykinin, prostaglandins, as well as histamine is in the inactivation phase. According to (Fitriani, 2019), regarding Kinesio tapping it can help stabilize and support soft tissue structures found in the body, such as muscles, tendons, ligaments, and joints, that are injured or painful. It ensures smooth blood and lymph flow, allowing for pain-free active movement and speeding up the healing process naturally and effectively. Kinesio tapping it self can help widen especially the circulation with carry to the muscles, so that they contract maximally. Research also shows that prenatal exercise increases the benefits especially maintain as well as improving physical health in pregnant women, then improving blood circulation, reducing complaints such as cramps or aches in the body of pregnant women, and preparing breathing, as well as pelvic muscle activity to face the labor process (Fitriani, 2019).

Exercise with method tilting the pelvic area which is usually called pelvic this exercise is easy to do at home. It's not recommended to do this exercise lying down to avoid supine hypertensive syndrome. The goal is to strengthen the abdominal muscles and gluteus maximus muscles, improve posture (reduce hyperlordosis) and relieve back. Doing methods such as Pilates is already well known in various countries and has been proven to be effective. Maintain fitness especially for pregnant women and help make things easier during process her delivery. Movements This method focuses more on muscles that are useful for fitness by reducing lower back pain which is beneficial during the labor process (Meilinda & Handayani, 2025).

Pregnancy yoga can also provide balance for the body, mind, and personality, so it's recommended to practice it with energy, strength, and clarity of purpose. Pregnant women are encouraged to practice it regularly, about two to three times a week, to help maintain elasticity and strength in the pelvic ligaments, hips, and leg muscles, thereby reducing pain during labor and creating space for the birth canal (Fitriani, 2019).

The high prevalence of Low Back Pain reported in pregnant women is explained, among other things, by the mechanical overload they endure woman during pregnancy, change hormonal redistribution of body water, increased blood viscosity due to fibrinolysis deficit, relative ischemia of spinal structures, changes in body posture, and the occurrence of compartment syndrome.

A number of explanation which Studies have shown that smoking alters the pH and perfusion of the intervertebral discs, while weakening the paravertebral muscles that support the spine, which can lead to decreased resistance to stress and delayed healing. Nicotine can also affect the central nervous system, altering pain perception, which may explain musculoskeletal pain in other areas of the body.

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## 4. Conclusion

Based on the Literature Review that has been conducted, it was found that the factors that influence back pain in pregnant women in the third trimester can be classified according to gestational age, age, parity, daily activities that influence back pain and body relaxation can reduce back pain. It was found that mothers who smoke can temporarily weaken the paravertebral muscles that provide support. On spine, causing back pain but this is not very significant. Suggestions for literature review furthermore it is hoped that it can be used data base which is more from international articles and national articles, then adjust the article to be relevant to the title used and use articles that are less than 10 years old so that the references used are more update or latest.

## 5. Compliance with ethical standards

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### Disclosure of conflict of interest

There is no potential for any stakeholder to have a conflict of interest in this research.

### Statement of informed consent

In our capacity as writers, every action we perform constitutes a joint agreement or consent.

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