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Analysis of Risk Factors for Low Back Pain in Mothers Pregnant in the Third Trimester at Anugerah Clinic Deli Serdang

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ABSTRACT

Back pain is a common complaint experienced by pregnant women, particularly in the later stages of pregnancy. It usually occurs in the lumbosacral area due to increased gestational age, parity, and physical activity that place pressure on the spine and surrounding muscles. This study aims to analyze the risk factors for back pain in pregnant women during the third trimester. This research is an analytical study with a cross-sectional design. The study was conducted at Anugerah Clinic Deli Serdang. The study population consisted of 52 participants, with a sample size of 35 respondents selected purposively. Data analysis was performed using univariate and bivariate methods with the Chi-Square test at a 95% confidence level ($\alpha = 0.05$). The results showed that age, occupation, parity, and physical activity had a significant effect on back pain among pregnant women in the third trimester at Anugerah Clinic Deli Serdang, with each p-value demonstrating statistical significance ($p = 0.005$; $p = 0.012$; $p = 0.001$; and $p = 0.039$), all below the 0.05 threshold. Further researchers are encouraged to examine additional factors that may influence back pain in third-trimester pregnant women, such as stress, posture, and lifestyle. A qualitative or mixed-methods approach could be employed to explore more deeply the experiences of both healthcare providers and patients.

Keywords: Risk Factors, Back Pain, Trimester III.

INTRODUCTION

Pregnancy is a physiological process that begins from conception and ends in childbirth, with a duration of about 280 days or approximately 40 weeks. This period is divided into three trimesters, each with its own typical changes experienced by pregnant women. The first trimester is characterized by hormonal changes that trigger nausea, vomiting, and weakness (Andayani, Rodiyah, & Purnomo, 2025). The second trimester is relatively more stable because complaints are reduced and fetal movement begins to be felt (Benson & Pernoll, 2023; Calbara & Budiono, 2023; Effendy & Masdar, 2023; Fatmarizka et al., 2023). In the third trimester, pregnant women often experience physical complaints such as shortness of breath and low back pain due to anatomical changes and the increasing burden of the fetus (Behrends, 2022). During pregnancy, mothers experience biological, psychological, and social changes that can affect body image and cause fears related to pregnancy disorders, especially when engaging in physical activity (Abdurachman, Hamdan, & Prameswari, 2023).

Physical activity in pregnant women, especially in the third trimester, plays an important role in maintaining the mother's health and comfort during pregnancy. The continuous growth of the fetus increases pressure on the spine and pelvic muscles, thus causing complaints of low back pain (Natalia & Faraswati, 2023). Excessive physical activity can exacerbate these complaints, cause fatigue, and increase the risk of muscle and ligament injury (Khan et al., 2021). On the other hand, light physical activity performed regularly, such as pregnancy

exercises, stretching, and walking, can strengthen the back muscles, increase flexibility, improve blood circulation, and reduce muscle tension that causes low back pain (Henigsman & Felman, 2024).

Low back pain is one of the most common complaints experienced by pregnant women, particularly in the third trimester. This complaint is generally felt in the lumbosacral area and is related to gestational age, parity, occupation, and physical activity that places excessive load on the spine (Wardani, Sari, & Perbawati, 2024). Structural changes in the pregnant woman's body, such as hyperlordosis, decreased muscle elasticity, and impaired blood flow, also trigger the onset of pain. If not managed properly, these complaints may persist into the postpartum period and even become chronic. Pain management can be conducted pharmacologically, for example through calcium supplementation, or non-pharmacologically, such as prenatal yoga, light exercise, posture correction, and relaxation techniques (Pratiwi & Fatimah, 2019).

Several studies have revealed the factors contributing to back pain in pregnant women. Arummega et al. (2022) reported that gestational age, maternal age, parity, and daily activity are the main factors related to trimester back pain. Meanwhile, Omoke et al. (2021), in a cross-sectional study of 478 pregnant women in Abakaliki, Nigeria, found that 28.9% experienced low back pain—especially in the third trimester—with mild to moderate intensity. Significant risk factors included a history of previous pain and delivering babies with high birth weight. However, only a small percentage of pregnant women reported their complaints to health workers, indicating low awareness of the importance of managing pain during pregnancy.

While previous studies have explored risk factors for low back pain in pregnant women, this study focuses specifically on third-trimester pregnant women at Anugerah Clinic in Deli Serdang, a primary healthcare facility with a high volume of antenatal visits. The novelty of this research lies in its localized context and the inclusion of variables such as occupation and physical activity intensity, measured using the Pregnancy Physical Activity Questionnaire (PPAQ), which provides a more detailed assessment of activity levels. Additionally, this study integrates both biomechanical and lifestyle factors, offering a comprehensive analysis tailored to the local population. The findings are expected to contribute to developing targeted interventions and educational programs for pregnant women in similar settings.

The urgency of this study is very high, considering that low back pain affects about 63% of pregnant women, particularly in the third trimester, and can reduce their quality of life. Biomechanical changes such as lumbar hyperlordosis, ligament relaxation, and shifting of the body's center of gravity cause excessive pressure on the spine, triggering prolonged pain. This condition not only results in physical discomfort but also decreases sleep quality, interferes with daily activities, increases psychological stress, and impacts the family's economic burden due to decreased productivity. Therefore, research on risk factors for low back pain in pregnant women is needed to support effective preventive interventions.

This research was conducted at Anugerah Clinic, Deli Serdang Regency, which provides health services for general patients and BPJS participants. This clinic was chosen because of the high number of third-trimester pregnant women visits—averaging 52 people per month—many of whom complain of low back pain. The lack of public knowledge about risk factors for low back pain in pregnant women was the main reason for selecting this research location. It is hoped that the study results can make a real contribution to improving the quality of maternal health services.

The results of a preliminary survey conducted by researchers on 10 third-trimester pregnant women at Anugerah Clinic showed that five experienced moderate low back pain and five others had severe pain. Complaints included dull pain in the lumbosacral area, often radiating to the buttocks or thighs, and causing muscle stiffness after standing or sitting for long periods. In severe cases, pregnant women also experienced a burning sensation, tingling, and pain resembling a pinched nerve. Postural changes due to hyperlordosis and ligament relaxation trigger tissue tension and blood circulation disorders. This condition is further aggravated by certain physical activities such as prolonged walking, climbing stairs, or changing sleeping positions, which reduce maternal comfort before delivery.

Based on this background, the problem formulation in this study concerns the risk factors associated with low back pain in pregnant women in the third trimester. The study's objectives include a general objective—to analyze the risk factors that affect low back pain—and specific objectives to examine the relationship between age, occupation, parity, and physical activity with the incidence of low back pain. The benefits of this research are expected to enhance knowledge for researchers, serve as an academic reference for Universitas Prima Indonesia, and assist students in understanding the risk factors for low back pain in pregnant women in the third trimester at Anugerah Clinic Deli Serdang.

METHOD

This research is a type of analytical study with a cross-sectional design. The cross-sectional design was chosen because it allowed researchers to measure the prevalence of low back pain in pregnant women in the third trimester while identifying relationships with independent variables, namely age, occupation, parity, and physical activity at a single observation time. This design is considered appropriate because it is practical, efficient, and can depict population conditions in a given period.

The location of the research was determined at the Deli Serdang Anugerah Clinic which is located at Jl. Sentosa Raya No. 94, Paya Geli Village, Sunggal District, Deli Serdang Regency. The research was carried out from January 2025 to July 2025, with data collection in April 2025. Prior to implementation, this research had received approval from the Research Ethics Committee of Universitas Prima Indonesia with number: 015/KEPK/UNPRI/III/2025, so that all research procedures were declared ethical and feasible.

The population of this study included all third trimester pregnant women who underwent pregnancy check-ups at the Anugerah Deli Serdang Clinic, with an average number of visits of around 52 people per month. The determination of the number of samples was carried out using the Slovin formula to obtain a representative sample size. The sampling technique used is purposive sampling, where respondents are selected based on criteria that have been determined by the researcher to suit the research objectives.

The inclusion criteria in this study included pregnant women who underwent antenatal care at the Anugerah Clinic, were in the third trimester (28–40 weeks), and were willing to participate as respondents. Meanwhile, the exclusion criteria included patients with a history of low back pain before pregnancy, pregnant women who did not meet the study requirements, and those who refused to be study subjects. With the determination of this criterion, it is hoped that the data obtained can be more valid and in accordance with the focus of the research.

Data collection was carried out with two types of data, namely primary data and secondary data. Primary data were obtained directly from respondents through a questionnaire that included independent variables (age, occupation, parity, physical activity) and dependent variables (low back pain in pregnant women in the third trimester). Secondary data was obtained from the Anugerah Clinic which included the number of visits for pregnant women, clinic profiles, and other relevant information. Data collection procedures include administrative preparation, socialization, provision of informed consent, respondent recruitment, instrument briefing, filling out questionnaires, to data verification and analysis.

The research instrument is in the form of a questionnaire consisting of several parts. The variables of age, occupation, and parity were measured with a simple question. For the physical activity variable, the Pregnancy Physical Activity Questionnaire (PPAQ) was used, a valid and reliable instrument consisting of 32–36 items covering household activities, work, sports, and transportation, with measurements in MET-hours per day or week. Meanwhile, low back pain in pregnant women in the third trimester was measured using the Numeric Rating Scale (NRS) with a range of 0–10, which is simple, sensitive, and often used in pregnancy research.

Before entering the analysis stage, the collected data is first processed through several stages, namely editing, coding, and tabulating. In the editing stage, the researcher checks the questionnaire or observation sheet to ensure that all the data is filled in completely so that it is ready to be processed accurately. The coding stage is carried out by coding each research variable, for example, the respondent's identity is replaced with serial numbers 01, 02, 03, and so on, which also serves to maintain the confidentiality of personal data. Furthermore, at the tabulating stage, the data is entered into a frequency distribution table, and the percentage is calculated so that the results of the analysis are presented more clearly and structured (Hermawan, 2019). After the processing stage is completed, data analysis is carried out through two steps, namely univariate and bivariate analysis. Univariate analysis aims to describe the characteristics of each research variable and is usually presented in the form of a frequency distribution table. Meanwhile, bivariate analysis was used to see the relationship between independent and dependent variables using the Chi-Square test at a significance level of 0.05. If the p-value < 0.05 then the null hypothesis is rejected, which means that there is a statistically significant relationship between the two variables. The results of bivariate analysis are presented in the form of cross-tabulation to facilitate interpretation (Sutriyawan, 2021).

RESULTS AND DISCUSSION

This research was conducted at the Anugerah Clinic located on Jl. Sentosa Raya No. 94, Paya Geli Village (Hamlet 13 Mulyorejo), Sunggal District, Deli Serdang Regency, North Sumatra Province, 20351. This clinic is located on the main Sunggal-Lubuk Pakam route so that it has a strategic location and is easy to reach by the public, both by private vehicle and public transportation. This position strengthens the role of Anugerah Clinic as one of the first level health facilities known and used as a reference in obtaining basic health services.

As a primary clinic, Anugerah Clinic provides a variety of medical services such as general examinations, maternal and child health services (KIA), immunizations, and light to moderate treatments. This clinic also has supporting facilities in the form of a comfortable waiting room, a doctor's consultation room, and a clean and neatly organized medical

procedure room. This facility is designed to provide comfort and trust for patients during the healthcare process.

Services at Anugerah Clinic are supported by health workers consisting of general practitioners, nurses, midwives, and administrative staff who have competence and experience in their fields. In addition, the services provided are known to be friendly and responsive, thus creating a good relationship between the clinic and the surrounding community. The clinic is also an official partner of the BPJS Kesehatan and BPJS Employment programs, which expand access to health services for lower-middle-income people.

From a social and geographical perspective, Paya Geli Village and Mulyorejo Hamlet are suburban areas with a fairly high population density and have good access to public facilities such as highways, transportation, and other public service networks. This condition makes Anugerah Clinic a strategic primary health service center in the Sunggal District area. In addition to its medical functions, the clinic is also active in social activities such as health education, free childbirth, and mass circumcision, which further strengthens its existence in the community.

Anugerah Clinic provides comprehensive services for pregnant women, childbirth, and postpartum women. During pregnancy, the mother can undergo a pregnancy check-up (ANC) according to the trimester: twice in the first trimester to ensure the pregnancy is normal and early detect risks, once in the second trimester for evaluation of fetal growth and the mother's condition, and three times in the third trimester, even intensively every 2–4 weeks or more before labor to monitor the final developments and prepare for the birth. The clinic is equipped with 2D and 4D ultrasound facilities and modern diagnostic equipment to help with early detection of complications. In addition, the obstetrics team provides essential education to reduce low back pain, including posture guidance, light stretching, and prenatal massage, which is crucial especially in the final trimester. After giving birth, mothers also receive scheduled postpartum services according to standards to ensure postpartum recovery and breastfeeding support.

1. Univariate Analysis

Based on the results of the study, the variables of age, occupation, parity, physical activity, and low back pain in pregnant women in the third trimester that the majority of respondents, namely 13 people (37.1%), were in the age range of 20-35 years. Meanwhile, the number of respondents under 20 years old and over 35 years old is the same, 11 people (31.4%) each. In terms of employment status, most of the respondents were not working, namely 19 people (54.3%), while 16 people (45.7%) were recorded as having jobs.

Judging from the parity condition, there were 12 respondents (34.3%) who were in the nullipara category (first pregnancy) and the same number was also recorded for the primipara category (having one child). The respondents in the multipara category (having two to four children) amounted to 11 people (31.4%), and no respondents were found in the multipara group (having more than four children).

Regarding physical activity, as many as 22 respondents (62.9%) underwent physical activity that was classified as strenuous, while 13 respondents (37.1%) underwent moderate-intensity activities. In terms of complaints of low back pain in pregnant women in the third trimester, as many as 19 respondents (54.3%) reported pain with moderate intensity, and another 16 respondents (45.7%) experienced low back pain with severe or severe intensity.

2. Bivariate Analysis

1. The Effect of Age on Low Back Pain in Pregnant Women in the Third Trimester

The results of the study data processing showed that there was an influence of age on low back pain complaints in pregnant women in the third trimester, which is shown in the following table.

Table 1. The Effect of Age on Low Back Pain in Pregnant Women in the Third Trimester at Anugerah Deli Serdang Clinic

No	Age	Low Back Pain in Pregnant Women in the Third Trimester				Sum		*p-value*
		moderate pain		Severe/Severe Pain				
		f	%	f	%	f	%	
1.	< 20 years old	6	54,5	5	45,5	11	100,0	0,005
2.	20 – 35 years old	11	84,6	2	15,4	13	100,0	
3.	> 35 years old	2	18,2	9	81,8	11	100,0	

Source: Primary Data Processed, 2025

Based on the information presented in the table, it can be identified that of the 11 respondents in the age range < 20 years, the majority reported moderate-intensity pain as many as 6 people (54.5%), the minority reported severe/severe pain as many as 5 people (45.5%). Of the 13 respondents in the age range of 20–35 years, the majority reported moderate-intensity pain as many as 11 people (84.6%), the minority reported severe/severe pain as many as 2 people (15.4%). Of the 11 respondents in the age range of > 35 years, the majority reported severe/severe pain as many as 9 people (81.8%), the minority reported moderate intensity pain as many as 2 people (18.2%).

Based on the results of the statistical test with chi-square, a p-value of 0.005 < 0.05 was obtained, which showed a significant influence between age variables on low back pain in pregnant women in the third trimester at the Anugerah Deli Serdang Clinic.

2. The Effect of Work on Low Back Pain in Pregnant Women in the Third Trimester

Based on the results of the research data processing, the effect of work on low back pain in pregnant women in the third trimester can be seen in the following table.

Table 2. The Effect of Work on Low Back Pain in Pregnant Women in the Third Trimester at Anugerah Deli Serdang Clinic

No	Work	Low Back Pain in Pregnant Women in the Third Trimester				Sum		*p-value*
		moderate pain		moderate pain				
		f	%	f	%	f	%	
1.	Work	5	31,3	11	68,7	16	100,0	0,012
2.	Not Working	14	73,7	5	26,3	19	100,0	

Source: Primary Data Processed, 2025

Based on the information presented in the table, it can be identified that of the 16 respondents who were recorded as having a job, the majority reported severe/severe pain as many as 11 people (68.7%), the minority reported moderate intensity pain as many as 5 people (31.3%). Of the 19 respondents who did not work, the majority reported

moderate-intensity pain as many as 14 people (73.7%), the minority reported severe/severe pain as many as 5 people (26.3%).

Based on the results of the statistical test with *chi-square, a* p-value *of 0.012 < 0.05 was obtained, which showed a significant influence between work on low back pain in pregnant women in the third trimester at the Deli Serdang Anugerah Clinic.*

3. Effect of Parity on Low Back Pain in Pregnant Women in the Third Trimester

The results of the study data processing showed that parity had an effect on low back pain in pregnant women in the third trimester of pregnancy, as shown in the following table.

Table 3. The Effect of Parity on Low Back Pain in Pregnant Women in the Third Trimester at Anugerah Deli Serdang Clinic

No	Paritas	Nyeri Pinggang pada Ibu Hamil Trimester III				Jumlah		*p-value*
		Nyeri Sedang		Nyeri Sedang				
		f	%	f	%	f	%	
1.	Nullipara	8	66,7	4	33,3	12	100,0	
2.	Primipara	10	83,3	2	16,7	12	100,0	0,001
3.	Multipara	1	9,1	10	90,9	11	100,0	

Source: Primary Data Processed, 2025

Based on the information presented in the table, it can be identified that of the 12 respondents who were in the nullipara category (first pregnancy), the majority reported moderate-intensity pain as many as 8 people (66.7%), the minority reported severe/severe pain as many as 4 people (33.3%). Of the 12 respondents who were in the primipara category (1 child), the majority reported moderate-intensity pain as many as 10 people (83.3%), and the minority reported severe pain with severe/severe intensity as many as 2 people (16.7%). Of the 11 respondents in the multipara category (2-4 children), the majority reported severe/severe pain as many as 10 people (90.9%), the minority reported moderate intensity pain as many as 1 person (9.1%).

Based on the results of the statistical test with chi-square, a p-value of 0.001 < 0.05 was obtained, which showed a significant influence between parity on low back pain in pregnant women in the third trimester at the Anugerah Deli Serdang Clinic.

4. The Effect of Physical Activity on Low Back Pain in Pregnant Women in the Third Trimester

The results of the study data processing showed that physical activity had an effect on low back pain in pregnant women in the third trimester of pregnancy, which is shown in the following table.

Table 4. The Effect of Physical Activity on Low Back Pain in Pregnant Women in the Third Trimester at Anugerah Deli Serdang Clinic

No	Physical activity	Low Back Pain in Pregnant Women in the Third Trimester				Sum		*p-value*
		moderate pain		moderate pain				
		f	%	f	%	f	%	
1.	Keep	10	76,9	3	23,1	13	100,0	0,039
2.	Heavy	9	40,9	13	59,1	22	100,0	

Source: Primary Data Processed, 2025

Based on the information presented in the table, it can be identified that of the 13 respondents who underwent moderate physical activity, the majority reported moderate intensity pain as many as 10 people (76.9%), the minority reported severe/severe pain as many as 3 people (23.1%). Of the 22 respondents who underwent physical activity that was classified as severe, the majority reported severe/severe pain as many as 13 people (59.1%), and the minority reported moderate intensity pain as many as 9 people (40.9%).

Based on the results of the statistical test with *chi-square, a* p-value *of 0.039 < 0.05 was obtained, which showed a significant influence between physical activity on low back pain in pregnant women in the third trimester at the Anugerah Deli Serdang Clinic.*

Effect of Age on Low Back Pain in Pregnant Women in the Third Trimester

Based on the results of the study, it was shown that age had a significant effect on low back pain in pregnant women in the third trimester at the Anugerah Deli Serdang Clinic, p=0.005<0.05.

In a study by Berber & Satılmış (2020) on 400 pregnant women, it was found that the prevalence of low back pain reached 75.3%, especially felt during the third trimester, the analysis showed that one of the risk factors was the mother's age; The older the gestational age, the higher the likelihood of pain complaints. Although there are many other variables such as previous pain history or weight, the data support that age is one of the important components related to musculoskeletal disorders during pregnancy.

Age is one of the factors that affect the onset of low back pain in pregnant women. The ideal age range for pregnancy is 20–35 years, because at this age the reproductive organs and pelvis are well developed so that they are better prepared to support pregnancy, have a lower risk of complications, and have healthy reproductive conditions. This is related to the biological and psychological readiness of pregnant women. On the other hand, pregnant women aged < 20 years are at risk of low back pain because their reproductive function is not fully mature, while at > age of 35 years of pregnancy is classified as high risk and more prone to cause low back pain complaints (Ramadhini & Dewi, 2021).

According to the researchers, the results of this study show that low back pain in pregnant women in the third trimester is influenced by the age of the mother at the Anugerah Deli Serdang Clinic. The majority of respondents who experienced moderate to severe low back pain were in the age group of 20–35 years, which although it is the ideal age to get pregnant, is still susceptible to physical complaints due to body changes during pregnancy. Hormonal changes, weight gain, and pressure on the spine are the main causes of these complaints. Pregnant women at this age are generally still physically and socially active, so dense daily

activities also aggravate low back pain. These results show the importance of education about proper posture, stretching exercises, and support from health workers so that pregnant women feel more comfortable and healthy during pregnancy.

The Effect of Work on Low Back Pain in Pregnant Women in the Third Trimester

Based on the results of the study, it was shown that work had a significant effect on low back pain in pregnant women in the third trimester at the Anugerah Deli Serdang Clinic, $p=0.012<0.05$. In a large cohort study in Brazil (Pelotas Birth Cohort) by Caputo et al. (2021), it was found that high work activities during pregnancy such as long standing, heavy lifting and long daily work durations increased the risk of LBP (low back pain) by up to 27% in pregnant women. In contrast, recreational activities actually reduce the risk of LBP by 16%. These results confirm that the type and intensity of work during pregnancy has a direct impact on low back pain. Screening research on pregnant workers in Indonesia by Salari et al. (2023) revealed that around 58.7% of pregnant workers experienced musculoskeletal discomfort, and 62.1% of them reported pain in the lower waist. Physical loads such as standing for long periods of time, lifting heavy objects, as well as hormonal changes and weight gain during pregnancy put additional pressure on the lower back area. In addition, environmental factors such as working temperature also shorten tolerance to the work performed, suggesting that working conditions greatly affect low back pain complaints.

Most of the third trimester pregnant women who experience low back pain are those who spend a lot of time sitting. The results of the cross-tabulation showed that both working mothers and housewives can experience moderate pain. As the abdominal load increases, mothers tend to reduce strenuous activities and sit more often, even though sitting positions for too long actually worsen low back pain complaints. Carrying out daily activities by balancing sitting, standing, and lying time can actually help reduce the pain (Prananingrum, 2022).

One of the reasons why pregnant women do not make antenatal care visits according to standards is the work factor. Pregnant women who work generally spend more time on work activities so they have less opportunity to do pregnancy checkups. On the other hand, pregnant women who do not work have more flexibility to carry out daily activities as well as come to health facilities to check their pregnancy (Irnawati et al., 2024).

The researcher concluded that the results of this study indicated the influence of work on low back pain in pregnant women in the third trimester at the Deli Serdang Anugerah Clinic. The data shows that most pregnant women who work experience low back pain in the severe category, while pregnant women who do not work feel more pain at a moderate level. This condition can be explained through additional physical burdens that must be borne by working pregnant women, such as standing for too long, heavy activities, lack of rest time, and work stress that can worsen musculoskeletal complaints. In contrast, mothers who are not working have more opportunities to rest and flexibly manage daily activities, so the pressure on the waist tends to be lighter. These findings emphasize the importance of special attention for pregnant women who are actively working, especially in the form of education about work ergonomics, stress management, and the need for support for a work environment that is friendly to pregnancy conditions.

Effect of Parity on Low Back Pain in Trimester III Pregnant Women

Based on the results of the study, it was shown that parity had a significant effect on low back pain in pregnant women in the third trimester at the Anugerah Deli Serdang Clinic,

p=0.001<0.05. A longitudinal study conducted by Backhausen et al. (2020) on 566 women during pregnancy revealed that multiparity is one of the significant predictors of moderate to severe low back pain (pre-pregnancy LBP, multiparity, and low education level are the main factors), previous pregnancy experiences make the mother's risk of experiencing low back pain higher than first-time pregnant women. In a study by Conder et al. (2020) using photogrammetry methods involving 30 pregnant women (nullipara and parity 1–2), it was found that changes in posture occur with pregnancy. Although there was no significant difference between the nullipara and low parity groups in postural parameters, the correlation between pain intensity and spinal shape changes was more common in the previously childbearing group, although parity did not directly increase pain, biomechanical changes due to previous pregnancies becoming more impactful on low back pain. It is different with the research of Fiana et. al (2022) on 63 pregnant women at the Kedaton Health Center, Bandar Lampung City, showed a correlation between the intensity of low back pain and the number of previous pregnancies. However, this study implies that parity could potentially affect the way individuals cope with pain, even if it does not directly increase the intensity of complaints.

Parity refers to the number of pregnancies that produce fetuses with a ⩾ age of 20 – 28 weeks that are able to survive outside the womb, where twin births remain counted as one parity. The classification consists of nulipara (never given birth), primipara (give birth once), multipara (give birth twice or more), and grandemultipara (give birth five or more). Some studies have shown that mothers with high parity have a greater risk of developing low back pain, as repeated pregnancies and weakened support muscles cause an excessive biomechanical load on the spine during the third trimester. In addition, multipara tend to experience heavier physical discomfort and psychological stress due to previous pregnancy experiences, thus affecting quality of life during late pregnancy. By understanding the influence of parity, medical personnel can adjust prevention and intervention strategies such as muscle strengthening and ergonomics education, to minimize discomfort for pregnant women in the third trimester (Dewi et al., 2020).

According to the researchers, the results of this study show that low back pain in pregnant women in the third trimester is closely related to parity at the Anugerah Deli Serdang Clinic. Pregnant women who have had previous pregnancy experiences, especially those in the primipara (having one child) and multipara (having two to four children) categories, tend to experience lower back pain complaints more often than mothers who are pregnant for the first time (nullipara). This condition is very likely to occur because the body of mothers who have gone through previous pregnancy and childbirth undergo various adjustments, including stretching of muscles, loosening of ligaments, and changes in the structure of the spine and pelvis. The accumulation of these changes makes the lower back area more sensitive and susceptible to pressure, especially when the gestational age enters the third trimester where the burden on the fetus is getting heavier. Mothers with previous children generally have additional responsibilities at home, such as caring for the child, doing household chores, and other physical activities that can increase muscle fatigue and worsen pain. Mentoring and support during pregnancy not only helps to improve maternal comfort, but also contributes to overall pregnancy health.

Effect of Physical Activity on Low Back Pain in Pregnant Women in the Third Trimester

Based on the results of the study, it was shown that physical activity had a significant effect on low back pain in pregnant women in the third trimester at the Anugerah Deli Serdang Clinic, p=0.039<0.05. Research conducted by Susanti & Putri (2020) evaluated the impact of prenatal gymnastics on low back pain in pregnant women in the third trimester. The results showed a significant decrease in pain levels, VAS scores decreased from an average of 6.8 to 3.4 after four weeks of regular exercise compared to the control group that experienced almost no change. These findings prove that light exercise programs such as pregnancy exercises can be an effective non-pharmacological intervention to reduce low back pain in pregnant women. In a study by Ani et al. (2023) at the Sukawati I Health Center involving pregnant women in the third trimester, this study tested the effect of pregnancy exercises on reducing low back pain. The findings of the study showed that the group that routinely performed gymnastics experienced a significant reduction in pain compared to the condition before the intervention, where the majority of respondents experienced a shift in pain level from the severe category to mild or moderate. Research by Fauziah et al. (2024) at the Cianjur Family Clinic found that prenatal exercises such as pregnancy yoga and counter-pressure techniques succeeded in reducing the level of low back pain. This intervention was shown to reduce pain intensity more effectively than the control group that did not do the exercise.

According to the WHO definition, physical activity is any form of body movement performed by skeletal muscles and requires the use of energy, including daily activities such as walking, working, and light exercise (WHO, 2021). The subcategory of physical activity, namely "exercise", is defined by ACOG as planned, structured, and repetitive body movements with the aim of improving fitness (ACOG, 2020). Excessive or inappropriate physical activity during pregnancy, especially in the third trimester, can exacerbate low back pain due to biomechanical changes in the body such as increased fetal weight, shifting of the center of gravity, and loosening of ligaments that increase the load on the spine. Strenuous activities such as lifting objects, standing for too long, or repetitive physical work put excessive pressure on the lower back and pelvic muscles, while structured light activities such as pregnancy exercises or stretching have been shown to be effective in reducing pain complaints by improving postural stability and muscle flexibility (Putri et al., 2022).

In contrast, regular physical activity in third trimester pregnant women such as walking, pregnancy exercises, prenatal yoga, and core strengthening exercises, has been shown to be effective in reducing the intensity of low back pain and improving functionality, thanks to improved lumbopelvic stability and muscle flexibility. Pregnant women who do physical activity have a significant reduction in pain and disability related to low back pain compared to those who are inactive. Physical activity helps stabilize the fetal load, reduce excess pressure on the spine, improve posture through strengthening core muscles, and improve blood circulation which reduces stiffness and pain (ACOG, 2020).

According to the researcher, the results of this study revealed that low back pain in pregnant women in the third trimester was influenced by physical activity at the Anugerah Deli Serdang Clinic. Researchers assessed that physical activity played a significant role in the occurrence of low back pain complaints in pregnant women in the third trimester at the clinic. Pregnant women who do strenuous physical activity, such as standing for too long, lifting things, walking long distances, or doing energy-draining household chores, complain more of

lower back pain with higher intensity compared to pregnant women whose physical activity is moderate or light. During the third trimester, the body experiences weight gain, changes in the center of gravity, as well as loosening of joints and ligaments due to the influence of hormones, which naturally increase the load on the lower back. When this load is aggravated by excessive physical activity, the risk of muscle tension, spinal fatigue, and pressure on the nerves becomes greater, which ultimately triggers low back pain. Providing information about the types of activities that are safe, the importance of getting enough rest, and light physical exercise such as pregnancy exercises or stretching muscles regularly can help relieve pressure on the waist and improve the comfort of pregnant women during pregnancy.

CONCLUSION

The study at Anugerah Clinic Deli Serdang found that age, occupation, parity, and physical activity all significantly affected low back pain in third-trimester pregnant women. Women aged 20–35 years were most vulnerable (p=0.005) due to physical and hormonal adjustments during pregnancy. Employment status also showed a significant correlation (p=0.012), with working mothers reporting more severe pain as a result of prolonged standing or lifting heavy loads. Multiparous women were more prone to low back pain (p=0.001) because of cumulative biomechanical changes and increased physical demands from previous pregnancies. Furthermore, high-intensity physical activity (p=0.039) exacerbated pain symptoms. Future research should explore preventive interventions, ergonomic education, and tailored physical activity programs to mitigate low back pain among working and multiparous pregnant women.

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