

The Relationship Between Pregnancy Exercise and Back Pain in Third Trimester Pregnant Women at Klinik Pratama Jaya in 2025

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ABSTRACT

The purpose of this study was to determine the relationship between pregnancy exercise and back pain among third trimester pregnant women at Klinik Pratama Jaya in 2025. Back pain is a common complaint during pregnancy, particularly in the third trimester, due to physiological and anatomical changes. As a non-pharmacological intervention, pregnancy exercise is believed to help alleviate discomfort, especially in the lower back region. This study aims to contribute empirical evidence regarding the effectiveness of pregnancy exercise in reducing back pain intensity during late pregnancy.

Materials and methods. This research employed a quantitative method with a cross-sectional design. The sample consisted of 35 third trimester pregnant women selected through total sampling. Data were collected using questionnaires assessing participation in pregnancy exercise (regular or irregular) and the intensity of back pain (mild, moderate, severe, very severe). The data were processed through stages including editing, coding, tabulation, and statistical analysis using the Chi-square test with a significance level of 0.05.

Results. Findings showed that 54.3% of respondents participated in pregnancy exercise regularly, while 45.7% did not. The majority of respondents reported mild pain (48.6%), followed by moderate and severe pain (22.9% each), and very severe pain (5.6%). The Chi-square test revealed a significant relationship between pregnancy exercise and back pain ($p = 0.002 < 0.05$), indicating that regular participation in pregnancy exercise is associated with reduced intensity of back pain.

Conclusions. Pregnancy exercise has a significant impact on reducing back pain in third trimester pregnant women. These findings suggest that pregnancy exercise should be promoted as a safe, effective, and low-cost strategy to improve maternal comfort and well-being during late pregnancy.

Keywords: Pregnancy exercise, back pain, third trimester, maternal health, Chi-square analysis

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INTRODUCTION

Background

Pregnancy is a period that begins with conception and ends with the birth of the baby, lasting approximately 280 days (9 months and 7 days or 40 weeks) from the first day of the last menstrual period (Febrianti & Aslina, 2019). It occurs when a woman has sexual intercourse during ovulation, or the fertile period. According to Ophie (2019), pregnancy is a process that begins with fertilization and ends with childbirth, involving the implantation of the fertilized egg in the uterine lining and its development into a fetus.

During pregnancy, women experience various physical and psychological changes, which may cause discomfort, especially in the third trimester. These discomforts may include insomnia, frequent urination, perineal discomfort, back pain, constipation, varicose veins, fatigue, leg cramps, and ankle edema (WHO, 2018). Such discomforts require therapeutic intervention. If not managed appropriately, they can lead to anxiety in pregnant women, highlighting the need for clear resources on how to address these issues (Habibah, 2020). One common discomfort in the third trimester is back pain (Rutsam, 2019 in Fitriani, 2018).

Back pain during pregnancy can be influenced by several factors such as hormonal changes—namely increased progesterone and relaxin levels—which lead to joint laxity, especially in the spinal column. The shift in the center of gravity as the pregnancy progresses also contributes to this condition (Maryani, T., 2018). Other factors include gestational age, maternal age, parity, and excessive physical activity (Arummega et al., 2022). Pain during pregnancy may lead to fear and anxiety, further increasing stress levels and triggering drastic physiological changes. Pain and anxiety are synergistic, exacerbating each other (Purnamasari & Widyawati, 2019).

Back pain negatively affects the quality of life of pregnant women by interfering with daily activities such as standing up after sitting, shifting positions in bed, sitting or standing for prolonged periods, dressing, and lifting or moving objects (Suryanti et al., 2021). According to Purnamasari & Widyawati (2019), 73.33% of pregnant women experience moderate pain, 10% experience mild pain, and 16.6% report severe pain. The prevalence of back pain during pregnancy ranges from 48–90%. Surveys in the UK and Scandinavia report that around 50% of pregnant women suffer from back pain, with rates as high as 70% in Australia (Maharani, 2019). In various regions in Indonesia, 60–80% of pregnant women report experiencing back pain. Fitriani (2019) noted that approximately 70% of pregnant women experience low back pain (LBP), which may begin in early pregnancy and peak in the second and third trimesters.

Back pain can be managed through pharmacological and non-pharmacological therapies. Pharmacological options include non-steroidal anti-inflammatory drugs (NSAIDs), analgesics, and muscle relaxants (Lukman & Ningsih, 2018). Although pharmacological treatments are generally more effective, they are costly and carry potential side effects. Moreover, such treatments may impact the pregnancy, the fetus, and labor progression (Dewi Mayasari, 2020). Thus, non-pharmacological or complementary therapies are recommended, including distraction techniques, self-hypnosis, perception management, gentle back massages, warm baths, hot or cold compresses, and prenatal classes such as pregnancy exercise (Fajar Wati et al., 2021). Pregnancy exercise is a form of physical activity designed for pregnant women to improve flexibility in the pelvic muscles and ligaments. Regular exercise during pregnancy can reduce back pain. Moreover, pregnancy exercise stimulates the release of endorphins, which act as natural pain relievers (Kurniasih, 2019).

A preliminary survey conducted by the researcher on July 14, 2025, at Klinik Pratama Jaya, found that from March to June, 19 pregnant women (54.3%) participated in pregnancy exercises, while 16 women (45.7%) did not. Based on these findings, the researcher is interested in conducting a study titled "The Relationship Between Pregnancy Exercise and Back Pain in Third Trimester Pregnant Women at Klinik Pratama Jaya in 2025."

Problem Formulation. Based on the background described above, the research problem is: "Is there a relationship between pregnancy exercise and back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025?"

Research Objectives. **General Objective** To determine the relationship between pregnancy exercise and back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025.

Specific Objectives

- To analyze pregnancy exercise practices among third trimester pregnant women at Klinik Pratama Jaya in 2025.
- To assess the intensity of back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025.
- To determine the relationship between pregnancy exercise and back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025.

Research Benefits

For the Research Site

The results of this study can serve as a knowledge resource and strategy for midwives in providing maternal care and mother-friendly services.

For the Researcher

This study provides valuable knowledge and helps develop critical thinking skills, which can be applied to future scientific research.

For Respondents

The research increases awareness and motivation among pregnant women about the benefits of pregnancy exercise in managing back pain during the third trimester.

For Educational Institutions

The findings can serve as a reference material in the library, enriching student knowledge—especially for those conducting research related to pregnancy exercise.

METHOD

Conceptual Framework

A conceptual framework is a visual representation of the relationship between various variables, formulated by the researcher after reviewing existing theories and then developing a framework to support the study (Anggreni, 2022).

Research Variables and Operational Definitions

Research Variables

A variable is defined as a characteristic, trait, or measurement that a unit of observation possesses or acquires concerning a particular concept. Based on their functional relationship, variables are classified into dependent variables, which are influenced, and independent variables, which serve as the influencing factor.

Operational Definitions

Operational definitions convert theoretical or conceptual ideas into measurable research variables. This ensures that the variables can be clearly understood, measured, and observed. The operational definitions in this research include:

- **Pregnancy Exercise (Independent Variable)**
Pregnancy exercise refers to a series of systematic movements tailored to the condition of

pregnant women, intended to prepare them physically and mentally for childbirth (Utami, 2020).

Categories:

- Regular: 1
- Irregular: 0
- Back Pain Scale (Dependent Variable)
Back pain in pregnant women includes sensations of aching, soreness, tingling, stabbing pain, or discomfort, either localized or radiating to the limbs.

Categories:

- Mild Pain: 1
- Moderate Pain: 2
- Severe Pain: 3
- Very Severe Pain: 4

Hypotheses

A hypothesis is a temporary answer to the research problem, to be proven through collected data:

- H_a (Alternative Hypothesis): There is a relationship between the intensity of pregnancy exercise and back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025.
- H_o (Null Hypothesis): There is no relationship between the intensity of pregnancy exercise and back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025.

Research Design

This study uses a quantitative approach with a cross-sectional design and statistical analysis using the Chi-square test (Hastono, 2017). It is based on secondary data where the independent variable is pregnancy exercise and the dependent variable is back pain. The purpose is to determine the relationship between pregnancy exercise and back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025.

Research Location and Time

- Research Location:
The study will be conducted at Klinik Pratama Jaya in 2025, as the researcher found an adequate population and the location is easily accessible.
- Research Duration:
The data collection and research process will be carried out from July to December 2025.

Population and Sample

- Research Population:
The population includes all pregnant women attending pregnancy exercise sessions at Klinik Pratama Jaya, totaling 35 participants.
- Research Sample
This study uses total sampling, where the entire population that meets the criteria is used as the sample.

Measurement Aspects

- Pregnancy Exercise
Measured using a questionnaire with yes/ no options:
 - "Yes" answers are scored 1

- “No” answers are scored 0
The maximum score is 9 and the minimum score is 0. The category is determined using Sudjanah's method:

Formula:

$P = \text{Class Width}$

$\text{Range} = \text{Highest Score} - \text{Lowest Score}$

$P = 5$

Exercise Category:

- Regular: Score 6–9
- Irregular: Score 0–5
- Back Pain Level:
Measured using a visual observation pain scale:
 - 0 = No pain
 - 1–3 = Mild pain
 - 4–6 = Moderate pain
 - 7–9 = Severe pain
 - 10 = Very severe pain

Data Collection

- Primary Data:
Primary data are obtained directly from respondents using a questionnaire. Before data collection, participants are informed about the purpose of the study and asked to provide informed consent. The researcher will guide respondents on how to complete the questionnaire and offer clarification as needed.
- Secondary Data:
Secondary data are sourced from maternal visit records at Klinik Pratama Jaya in 2025.

Data Processing and Analysis Techniques

- Data Processing
Once all data have been collected, the following steps are undertaken:
 - Editing: Reviewing and correcting data to ensure accuracy and quality.
 - Coding: Assigning codes to questionnaire responses to facilitate computerized processing.
 - Tabulation: Organizing data into frequency distribution tables for easier analysis and interpretation.
 - Processing: Data entry and preparation for analysis after coding is completed.
- Data Analysis:
The analysis will include univariate and bivariate techniques:
 - Univariate analysis describes individual variables using frequency distributions.
 - Bivariate analysis assesses the relationship between independent and dependent variables using the Chi-square test at a 95% confidence level ($P < 0.05$). Results will be discussed by comparing them with previous theories and studies (Hastono, 2018).

FINDING AND DISCUSSION

Research Findings

This chapter presents the results of the study titled “The Relationship Between Pregnancy Exercise and Back Pain in Third Trimester Pregnant Women at Klinik Pratama Jaya in 2025,” involving 35 pregnant women as respondents. The analysis includes both univariate and bivariate statistical methods.

Univariate Analysis

This analysis is used to describe the characteristics of each variable studied.

Table 1 - Frequency Distribution of Pregnancy Exercise Participation

Pregnancy Exercise	Frequency	Percentage
Regular	19	54.3%
Irregular	16	45.7%
Total	35	100%

The table shows that most of the respondents (54.3%) performed pregnancy exercise regularly, while 45.7% did so irregularly.

Table 2 - Frequency Distribution of Back Pain Scale

Back Pain Scale	Frequency	Percentage
Mild Pain	17	48.6%
Moderate Pain	8	22.9%
Severe Pain	8	22.9%
Very Severe Pain	2	5.6%
Total	35	100%

The highest number of respondents experienced mild pain (48.6%). Moderate and severe pain were each reported by 22.9% of participants, while only 5.6% experienced very severe pain.

Bivariate Analysis

This analysis was conducted to examine the relationship between pregnancy exercise (independent variable) and back pain (dependent variable) using the Chi-square test.

Table 3 - Cross Tabulation of Pregnancy Exercise and Back Pain Scale

Pregnancy Exercise	Mild Pain	Moderate Pain	Severe Pain	Very Severe Pain	Total
Regular	10 (52.6%)	8 (42.1%)	1 (5.3%)	0 (0%)	19
Irregular	7 (43.8%)	0 (0%)	7 (43.8%)	2 (12.5%)	16
Total	17	8	8	2	35

Chi-square Test Result:

- Degree of Freedom: 3
- Significance (2-tailed): 0.002

The results indicate that most pregnant women who exercised regularly experienced mild or moderate pain. In contrast, those who did not exercise regularly had a higher percentage of severe and very severe pain.

Since the p-value (0.002) is less than the significance level (0.05), the result is statistically significant. Thus, the null hypothesis is rejected, and the alternative hypothesis is accepted.

Conclusion: There is a significant relationship between pregnancy exercise and back pain among third trimester pregnant women at Klinik Pratama Jaya in 2025.

Discussion

Univariate Analysis

Pregnancy Exercise and Back Pain

Based on Table 4.1, it can be seen that among third trimester pregnant women at Klinik Pratama Jaya in 2025, the majority who participated in pregnancy exercise did so regularly, accounting for 54.3%, while the minority, 45.7%, did not exercise regularly.

These findings are in line with a study conducted by Eichi Septiani (2020) entitled "The Relationship between Pregnancy Exercise and Back Pain in Third Trimester Pregnant Women", which found that 55.6% of participants who did not perform pregnancy exercises experienced back pain, while only 44.4% of those who exercised regularly experienced the same.

Back Pain

Based on Table 4.2, the scale of back pain among third trimester pregnant women at Klinik Pratama Jaya in 2025 shows that the majority experienced mild pain (48.6%), followed by moderate pain (22.9%), severe pain (22.9%), and a minority with very severe pain (5.6%).

A study by Aisyiyah (2018) reported that 58.6% of participants experienced moderate back pain, while 17.2% experienced severe pain. This supports the conclusion that prior to engaging in pregnancy exercise, most respondents experienced moderate levels of back pain.

Furthermore, a study by Uun Kurniasih (2019) showed that in the control group (no intervention), the majority experienced moderate pain (50%) and severe pain (42%), while in the intervention group (those who performed pregnancy exercises), most participants experienced mild pain (50%) and moderate pain (50%) after the program.

Bivariate Analysis

Based on the results of the Chi-square analysis, the relationship between pregnancy exercise and back pain among third trimester pregnant women at Klinik Pratama Jaya in 2025 showed a significance level of (α) = 0.005, with degrees of freedom (df) = 1. The calculated p-value was 0.002,

which is less than the significance threshold (0.005), thus the null hypothesis is rejected and the alternative hypothesis is accepted. This indicates a significant relationship between pregnancy exercise and back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025.

Pregnancy exercise is a physical activity performed by pregnant women to prepare for childbirth by improving breathing techniques, body posture, and strengthening muscles. Besides promoting physical fitness and well-being, pregnancy exercise has significant benefits, including reducing muscle tension that can lead to lower back pain. As the uterus enlarges during pregnancy, the center of gravity shifts forward, requiring pregnant women to adjust their standing posture. This shift forces reliance on muscle strength and results in joint relaxation, weight gain, fatigue, and altered posture. Poor posture places additional strain on the spine, leading to discomfort or back pain (Sagitarini, 2019).

This result aligns with the findings of Miratu Megasari (2020), who conducted a study using primary data analyzed with the Chi-square test. The p-value in that study was 0.000, which is less than $\alpha = 0.05$, indicating a significant relationship between pregnancy exercise and back pain at RB Fatmawati in 2015. The odds ratio (OR) was 2.600, meaning that pregnant women who did not engage in pregnancy exercise were 2.6 times more likely to experience back pain compared to those who exercised regularly.

In that study, among 125 respondents:

- 103 (82.4%) did not participate in pregnancy exercise
- 22 (17.6%) did

The study concluded that there was a significant relationship between pregnancy exercise and the intensity of back pain among pregnant women in the Kuta Bumi Public Health Center area in 2020, as the p-value was 0.000 (< 0.05), leading to rejection of the null hypothesis.

Similarly, a study conducted at the Independent Midwife Practice of Desi Fitriani in Baturaja, Ogan Komering Ulu District in 2020 found a significant relationship between pregnancy exercise and back pain among third trimester pregnant women. Among 45 respondents, 18 (40%) experienced back pain, while 27 (60%) did not. Of these, 13 (55.6%) had not performed pregnancy exercises, while 17 (44.4%) had. The findings confirmed a clear association between participation in pregnancy exercise and reduced back pain during the third trimester.

CONCLUSIONS

Conclusion

Based on the research findings regarding the relationship between pregnancy exercise and back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025, the following conclusions can be drawn:

- The majority of respondents (54.3%) participated in pregnancy exercise regularly, while 45.7% did not participate regularly.
- The scale of back pain experienced by third trimester pregnant women showed that 48.6% experienced mild pain, 22.9% experienced moderate pain, another 22.9% experienced severe pain, and 5.6% experienced very severe pain.
- The results of the Chi-square test indicated a significant relationship between pregnancy exercise and back pain in third trimester pregnant women. With a significance level ($\alpha = 0.05$ and degrees of freedom (df) = 1, the test result showed a p-value (2-tailed) of 0.002, which is less than 0.05. Therefore, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted. This confirms that there is a significant relationship between

pregnancy exercise and back pain among third trimester pregnant women at Klinik Pratama Jaya in 2025.

Recommendations

- For Respondents

This study is expected to provide valuable information and motivation to pregnant women about the benefits and relationship between pregnancy exercise and reduced back pain during the third trimester.

- For Klinik Pratama Jaya

The results of this study may serve as input and consideration for health practitioners and educators to inform and educate pregnant women about the importance of pregnancy exercise in reducing back pain during late pregnancy.

- For Future Researchers

This study contributes to the enhancement of knowledge, insight, and experience for the researcher in applying academic concepts, particularly in understanding the relationship between pregnancy exercise and back pain in third trimester pregnant women at Klinik Pratama Jaya in 2025.

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