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The Relationship Between Prenatal Yoga and Sleep Quality Among Third-Trimester Pregnant Women at Juliana Dalimunthe Clinic, Percut Sei Tuan District, Deli Serdang Regency, 2025

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ABSTRACT

The study purpose was to determine the relationship between prenatal yoga and sleep quality among third-trimester pregnant women at Juliana Dalimunthe Clinic, Percut Sei Tuan District, Deli Serdang Regency, in 2025. Sleep disturbance is a common problem in the third trimester, often caused by hormonal changes, physical discomfort, and anxiety before childbirth. Prenatal yoga is a non-pharmacological intervention that combines physical movement, breathing control, and relaxation techniques to improve both physical and psychological well-being during pregnancy. This study was designed to assess whether prenatal yoga routines can enhance the sleep quality of expectant mothers.

Materials and methods.

This study used a quantitative analytic method with a cross-sectional design. The population consisted of all third-trimester pregnant women visiting Juliana Dalimunthe Clinic in 2025. A total of 30 respondents were selected using total sampling. Data were collected using a structured questionnaire assessing yoga frequency and the Pittsburgh Sleep Quality Index (PSQI). Data analysis was performed using the Chi-Square test at a significance level of $\alpha = 0.05$.

Results.
The study showed that 76.7% of respondents routinely performed prenatal yoga (>2 times per week), and 56.7% reported good sleep quality. The Chi-Square analysis obtained a p-value of $0.019 < 0.05$, indicating a significant relationship between prenatal yoga and sleep quality. Respondents who routinely practiced yoga experienced fewer sleep disturbances and better overall rest compared to those who did not practice regularly.

Conclusions.
There is a significant relationship between prenatal yoga and sleep quality among third-trimester pregnant women. Routine yoga practice effectively improves relaxation, reduces stress, and enhances both physical comfort and psychological stability during pregnancy. Integrating prenatal yoga into antenatal care programs is recommended to promote maternal health and sleep quality.

Keywords: Prenatal yoga; sleep quality; pregnancy; third trimester; maternal health

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INTRODUCTION

In the current era of maternal health awareness, the quality of sleep during pregnancy has become an important indicator of a mother's overall well-being and fetal development. Pregnancy is a natural process that involves various physiological, psychological, and hormonal changes in a woman's body. These changes often cause discomfort and sleep disturbances, especially during the third trimester, when the mother experiences increased body weight, abdominal enlargement, and frequent urination. Optimal sleep is essential for maintaining maternal health and ensuring the growth and development of the fetus (Yusuf & Rohmah, 2020). Sleep problems are common

among pregnant women worldwide. According to the World Health Organization (WHO, 2020), approximately 41.8% of pregnant women globally experience sleep disorders during pregnancy, and in the United States, around 78% of women report sleep disturbances in the third trimester. Poor sleep patterns can negatively affect both physical and psychological health, leading to fatigue, emotional instability, and a higher risk of complications during labor. These findings indicate that sleep disturbance during pregnancy is a global concern that requires effective, non-pharmacological interventions to improve maternal comfort and pregnancy outcomes.

In Indonesia, similar patterns have been observed. The Ministry of Health (Kemenkes RI, 2024) reported that most pregnant women experience discomfort and difficulty sleeping as pregnancy progresses due to physiological and anatomical changes. These include back pain, leg cramps, frequent urination, and shortness of breath. The National Sleep Foundation also revealed that 97.3% of women in the third trimester wake up several times during the night, while the prevalence of sleep disturbance in Indonesia is estimated at 64%, with a significant proportion of mothers reporting reduced sleep quality and fatigue during pregnancy (Safriani, 2021). Furthermore, maternal health remains one of Indonesia's national priorities. According to WHO (2021), the global Maternal Mortality Rate (MMR) reached 295,000 deaths, with the main causes being hypertension during pregnancy (pre-eclampsia and eclampsia), postpartum hemorrhage, infection, and unsafe abortion. In Indonesia, the Maternal Mortality Rate remains high, reaching 4,129 cases in 2023 (Kemenkes RI, 2023).

In North Sumatra, maternal deaths are still concerning, with the highest cases recorded in Asahan (15 cases), followed by Serdang Bedagai (14 cases), and Deli Serdang and Medan (12 cases) (Dinkes Sumut, 2020). These figures highlight the need to improve maternal health services and promote lifestyle interventions that enhance physical and mental well-being during pregnancy. One of the effective non-pharmacological methods to improve sleep quality and maternal comfort is prenatal yoga. Prenatal yoga combines physical movement, breathing exercises, and relaxation techniques that help mothers adapt to bodily changes, reduce anxiety, and improve sleep quality (Husin, 2013; Gustina & Nurbaiti, 2020).

According to the World Health Organization (2022), prenatal yoga has been recognized as a safe and beneficial complementary therapy that enhances maternal health and psychological well-being. Yoga promotes the release of endorphins, reduces muscle tension, and helps pregnant women achieve relaxation, leading to better sleep and reduced fatigue. Several studies have shown the effectiveness of prenatal yoga in improving sleep quality among pregnant women. Research by Nasution (2023) found that prenatal yoga significantly reduced back pain among third-trimester pregnant women ($p < 0.05$). Similarly, Sharfina et al. (2023) reported that mothers who regularly participated in yoga experienced fewer sleep disturbances and felt calmer before childbirth. These studies support the role of prenatal yoga as a holistic intervention that addresses both physical discomfort and psychological well-being during pregnancy.

In addition to its physiological benefits, prenatal yoga also contributes to emotional balance and mental stability. As pregnancy progresses, mothers often experience heightened anxiety and restlessness due to hormonal changes and anticipation of childbirth (Nurul, 2014). Yoga helps regulate breathing, reduces stress hormones, and enhances parasympathetic nervous system activity, which collectively improve sleep patterns and promote a sense of calm (Tia, 2014). Field observations at the Juliana Dalimunthe Clinic, located in Percut Sei Tuan, Deli Serdang Regency, indicate that many pregnant women, particularly in their third trimester, experience sleep disturbances and discomfort at night. Preliminary interviews with health workers showed that although some mothers were aware of prenatal yoga sessions, participation rates remained low due to limited motivation, lack of understanding, and irregular program schedules. Consequently, many pregnant women reported feeling fatigued, restless, and dissatisfied with their sleep quality. This condition underscores the importance of implementing and encouraging prenatal yoga activities as part of antenatal care programs at the clinic.

Based on these issues, this study aims to analyze the relationship between prenatal yoga and sleep quality among third-trimester pregnant women at the Juliana Dalimunthe Clinic, Percut Sei Tuan, Deli Serdang Regency in 2025. It is expected that the findings will provide evidence of the

importance of yoga exercises in improving the physical and emotional well-being of pregnant women, as well as contribute to maternal health promotion strategies at the local and national levels.

METHOD

3.1 Research Design

This research uses a quantitative approach. The type of research applied in this study is analytical research with a cross-sectional design, which aims to determine the causal relationship between the independent and dependent variables within the same observation period (Notoatmodjo, 2017). In this study, the independent variable is prenatal yoga, while the dependent variable is sleep quality in third-trimester pregnant women. The cross-sectional method is appropriate because the data for both variables are collected simultaneously from each respondent. This design allows researchers to observe relationships and statistical associations between the variables studied without manipulating the research environment (Hidayat, 2015). The results are expected to explain the extent to which prenatal yoga influences the sleep quality of pregnant women in their third trimester.

3.2 Research Location and Time

The study was conducted at the Juliana Dalimunthe Clinic, located in Percut Sei Tuan District, Deli Serdang Regency, North Sumatra Province. The location was selected because the clinic provides maternal and child health services, including antenatal care and yoga exercise programs for pregnant women. The research was carried out in July 2025, following the approval of the institution and research supervisor.

3.3 Population and Sample

The population in this study consisted of all third-trimester pregnant women registered at Juliana Dalimunthe Clinic during the year 2025, totaling 30 people. The sample in this study was determined using the total sampling technique, meaning all members of the population who met the inclusion criteria were included as respondents. According to Sugiyono (2018), total sampling is a technique in which the entire population is used as the research sample when the number of population members is relatively small. Therefore, all 30 pregnant women in their third trimester were selected as research respondents.

3.4 Data Types and Sources

This study used two types of data sources:
1. Primary Data: Primary data were obtained directly from respondents through structured questionnaires distributed to third-trimester pregnant women. The questionnaire contained questions related to yoga practice habits and sleep quality.
2. Secondary Data: Secondary data were collected from the clinic's medical records and relevant literature, such as reports from the Ministry of Health, WHO, and previous research related to prenatal yoga and sleep quality.

3.5 Data Collection Technique

Data collection in this research was conducted using a closed-ended questionnaire distributed directly to respondents who met the inclusion criteria. The questionnaire was divided into two main sections: demographic data such as age, education, and gestational age; and items measuring yoga activity and sleep quality using a Pittsburgh Sleep Quality Index (PSQI)-based indicator (Wulandari, 2022). Before data collection, respondents were given an explanation of the study objectives, confidentiality, and voluntary participation. Respondents who agreed signed an informed consent form before completing the questionnaire.

3.6 Operational Definition of Variables

No.	Variable	Operational Definition	Measurement Method	Instrument	Scale
1	Prenatal Yoga	A structured set of movements combining physical postures (asana), breathing control (pranayama), and relaxation performed by pregnant women to enhance physical and mental well-being.	Interview	Questionnaire	Nominal (Routine / Not Routine)
2	Sleep Quality	The condition in which an individual's sleep produces freshness and physical recovery upon awakening, measured through the PSQI criteria.	Interview	Questionnaire	Nominal (Good / Poor)
3	Third Trimester Pregnancy	The final phase of pregnancy (≥ 28 weeks), characterized by physiological and psychological changes in preparation for childbirth.	Interview	Questionnaire	Ordinal (<36 weeks / ≥36 weeks)

3.7 Data Processing Techniques

The collected data were processed using several steps as suggested by Notoatmodjo (2017): Editing (verifying completeness), Coding (assigning numerical codes), Entry (inputting into statistical software), Cleaning (checking for errors), and Tabulating (organizing data into tables).

3.8 Data Analysis Techniques

Data analysis in this study was divided into two stages:
1. Univariate Analysis: Describes each variable using frequency and percentage distributions.
2. Bivariate Analysis: Performed to test the relationship between prenatal yoga and sleep quality using the Chi-Square test at $\alpha = 0.05$.

a) If p-value < 0.05 → significant relationship.
b) If p-value > 0.05 → no significant relationship.

This method was chosen because both variables are categorical and suitable for non-parametric testing (Sugiyono, 2018).

3.9 Ethical Considerations

This study complied with research ethics involving human participants, including informed consent, confidentiality, and the right to withdraw. Respondents were fully informed about the research objectives and confidentiality before participation. Ethical approval was obtained from the Midwifery Program Ethics Committee, STIKes Sehat Medan.

FINDING AND DISCUSSION

4.1 Overview of the Research Location

Juliana Dalimunthe Clinic is a maternal and child health facility located in Percut Sei Tuan District, Deli Serdang Regency, North Sumatra. The clinic provides services including antenatal care,

postnatal care, family planning, infant health services, and yoga exercise programs for pregnant women. The clinic operates daily from 08.00 to 21.00 WIB, while delivery and emergency services are available 24 hours. The clinic serves approximately 250 delivery patients annually and about 50 pregnant women who participate in prenatal yoga classes.

4.2 Respondent Characteristics

The study involved 30 respondents, all third-trimester pregnant women at Juliana Dalimunthe Clinic in 2025. Respondent characteristics are presented below.

Table 1. Frequency Distribution by Age

Age (Years)	Frequency	Percentage (%)
17–22	3	10.0
23–25	8	26.7
26–35	19	63.3
Total	30	100

Based on Table 1, the majority of respondents (63.3%) were between 26–35 years old, an age group considered optimal for pregnancy due to better physiological stability and adaptation ability.

Table 2. Frequency Distribution by Gestational Age

Gestational Age (Weeks)	Frequency	Percentage (%)
<36	18	60.0
≥36	12	40.0
Total	30	100

Most respondents (60%) were less than 36 weeks pregnant, indicating that they were approaching late pregnancy when sleep disturbances commonly intensify.

4.3 Univariate Analysis

Table 3. Distribution of Sleep Quality

Sleep Quality	Frequency	Percentage (%)
Good	17	56.7
Poor	13	43.3
Total	30	100

More than half of the respondents (56.7%) had good sleep quality, while 43.3% reported poor sleep quality.

Table 4. Distribution of Prenatal Yoga Activity

Yoga Activity	Frequency	Percentage (%)
Routine (>2 times/week)	23	76.7
Not Routine (<2 times/week)	7	23.3
Total	30	100

Most pregnant women (76.7%) routinely performed prenatal yoga, reflecting the growing awareness of yoga's benefits during pregnancy.

4.4 Bivariate Analysis

The bivariate analysis tested the hypothesis on the relationship between prenatal yoga (independent variable) and sleep quality (dependent variable) using the Chi-Square test at a significance level of $\alpha = 0.05$.

Table 5. Relationship Between Prenatal Yoga and Sleep Quality

Prenatal Yoga	Good Sleep	Poor Sleep	Total	p-value	Decision
Routine	15 (65.2%)	2 (28.6%)	17	0.019	Significant
Not Routine	8 (34.8%)	5 (71.4%)	13		
Total	23 (100%)	7 (100%)	30	0.019	Accepted

The Chi-Square test results showed a p-value of 0.019 < 0.05, indicating that there is a significant relationship between prenatal yoga and sleep quality among third-trimester pregnant women. This

means that mothers who routinely perform prenatal yoga tend to have better sleep quality compared to those who do not.

Discussion

The Effect of Prenatal Yoga on Sleep Quality

Based on the results of the hypothesis test, it was found that the prenatal yoga variable has a positive and significant effect on sleep quality among third-trimester pregnant women at Juliana Dalimunthe Clinic. This result indicates that the more frequently pregnant women perform prenatal yoga, the better their quality of sleep becomes. Prenatal yoga is a relaxation-based physical activity that integrates asana (body postures), pranayama (breathing techniques), and dhyana (meditation) to harmonize physical and psychological balance (Husin, 2013). The regular practice of yoga helps reduce stress, improve circulation, and lower muscle tension, especially in the back, hips, and legs—areas that commonly cause discomfort and hinder sleep during late pregnancy. In addition, yoga enhances the function of the parasympathetic nervous system, which induces relaxation and lowers the production of stress hormones such as cortisol. As a result, mothers experience better sleep onset, deeper sleep cycles, and reduced night awakenings. This finding is in line with research conducted by Nasution (2023), who found that prenatal yoga can significantly reduce lower back pain and anxiety, improving rest quality among pregnant women. Similarly, Sharfina et al. (2023) found that regular yoga participants reported fewer sleep disturbances and felt calmer approaching labor. Physiologically, improved sleep quality is linked to the regulation of breathing and heart rate, as achieved through rhythmic yoga breathing exercises. Psychologically, yoga provides emotional balance and reduces anxiety, which are major contributors to insomnia during pregnancy. Therefore, regular prenatal yoga practice effectively improves sleep quality and supports maternal health in the third trimester.

The Effect of Prenatal Yoga on Physical Well-being

The results of the study also show that prenatal yoga contributes to enhanced physical well-being among third-trimester pregnant women. Pregnant women who practiced yoga more than twice a week reported lower levels of fatigue, improved flexibility, and fewer muscle cramps compared to those who did not practice regularly. Prenatal yoga strengthens the pelvic floor muscles, improves body alignment, and enhances blood flow to vital organs, all of which are important for maintaining comfort in late pregnancy (Tia, 2014). According to WHO (2022), yoga is one of the recommended non-pharmacological interventions that help prevent pregnancy-related discomforts, such as back pain and shortness of breath. These results support the statement of Gustina and Nurbaiti (2020), who emphasize that yoga helps pregnant women adapt to physical changes by combining postural exercises and relaxation. Thus, yoga not only enhances physical comfort but also prepares the body for labor through improved breathing control and endurance.

The Effect of Prenatal Yoga on Psychological Well-being

Prenatal yoga also has a significant impact on psychological well-being. Based on observations and interviews, respondents who practiced yoga regularly reported feeling more relaxed, emotionally stable, and optimistic about childbirth. These results indicate that yoga provides not only physical benefits but also mental and emotional relaxation. According to Nurul (2014), psychological stress and anxiety commonly increase during the third trimester due to hormonal changes and fear of childbirth. Yoga helps reduce these feelings by encouraging mindfulness and concentration through controlled breathing and meditation. The practice allows mothers to focus inwardly, releasing tension and fostering a calm mindset before delivery. This finding aligns with Wulandari (2022), who found that mothers who performed yoga experienced reduced anxiety and improved mood stability. It suggests that the relaxation achieved through yoga directly affects hormonal balance, particularly by increasing serotonin levels associated with happiness and calmness. Therefore, prenatal yoga is an effective method for improving both emotional regulation and sleep quality in pregnant women.

The Effect of Sleep Quality on Maternal Health

The improvement in sleep quality among pregnant women who participated in yoga has a direct impact on their overall maternal health. Adequate sleep contributes to better blood circulation,

energy balance, and immune system function. Conversely, poor sleep quality can increase the risk of hypertension, preeclampsia, and preterm labor (Kemenkes RI, 2024). Mothers who experience good-quality sleep are also better prepared for labor, both mentally and physically. According to Yusuf and Rohmah (2020), pregnant women with sufficient sleep demonstrate more stable vital signs and better stress management, which leads to positive pregnancy outcomes. Therefore, promoting good sleep through yoga not only enhances maternal comfort but also supports fetal development and safe delivery.

The Effect of Prenatal Yoga Frequency on Sleep Disturbances

This study also revealed that frequency of yoga practice plays a crucial role in improving sleep quality. Pregnant women who practiced yoga more than two times per week were significantly more likely to report better sleep quality compared to those who practiced less frequently. The benefits of yoga accumulate through consistent practice, as repeated breathing and relaxation exercises help regulate circadian rhythms and reduce physiological stress responses. Tia (2014) explains that yoga's consistent practice contributes to increased melatonin secretion, which aids sleep regulation. This finding is consistent with WHO (2022) and Wulandari (2022), which highlight that regular physical and relaxation-based exercises improve sleep patterns and reduce insomnia symptoms. Hence, the recommendation is for pregnant women to participate in structured yoga sessions at least twice a week to maintain optimal benefits.

The Effect of Prenatal Yoga on Quality of Life During Pregnancy

In addition to its direct effects on sleep, prenatal yoga positively influences the quality of life of pregnant women. Respondents who practiced yoga regularly reported feeling more energetic, motivated, and socially connected, as yoga classes often involved group interactions that fostered emotional support. This aligns with research by Safriani (2021), who noted that yoga encourages a sense of community and emotional stability among pregnant women. Yoga practice also promotes mindfulness and self-awareness, helping mothers embrace their pregnancy with positivity and gratitude. Thus, yoga not only addresses physical discomfort but also supports the holistic well-being of expectant mothers, enhancing both mental and social aspects of maternal health.

Summary of Discussion

From the overall analysis, it can be concluded that prenatal yoga significantly influences the sleep quality, physical comfort, psychological stability, and overall well-being of third-trimester pregnant women. The results support the importance of integrating prenatal yoga as part of maternal health services. Regular yoga practice should be encouraged as a preventive and promotive health measure in maternity care to enhance maternal sleep quality and prepare mothers for safe childbirth. These findings reinforce previous studies (Husin, 2013; Nasution, 2023; Sharfina et al., 2023) and align with WHO (2022) recommendations that emphasize the role of yoga as a safe, effective, and non-pharmacological intervention to improve maternal quality of life.

CONCLUSIONS

This study aims to determine the relationship between prenatal yoga and sleep quality among third-trimester pregnant women at Juliana Dalimunthe Clinic, Percut Sei Tuan, Deli Serdang Regency, in 2025. Based on the results of data analysis and hypothesis testing that have been conducted, the following conclusions can be drawn:

1. Prenatal yoga has a positive and significant relationship with sleep quality among third-trimester pregnant women. Pregnant women who routinely participate in prenatal yoga exercises—more than twice per week—tend to have better sleep quality compared to those who do not.
2. The findings demonstrate that regular prenatal yoga practice contributes to improved physical comfort, reduced muscle tension, and enhanced relaxation. These effects help mothers fall asleep more easily, sleep more deeply, and experience fewer sleep disturbances.
3. The frequency and consistency of yoga practice are key determinants of sleep quality improvement. The more consistent the yoga sessions, the greater the physiological and psychological benefits gained by pregnant women.

4. This study also supports the idea that yoga provides psychological benefits, such as reducing anxiety, stress, and restlessness during late pregnancy, thereby improving the overall well-being and emotional stability of expectant mothers.
5. The overall conclusion of this study is that prenatal yoga plays an essential role in maintaining maternal health, improving sleep quality, and supporting physical and emotional readiness for childbirth.

Recommendations

Based on the conclusions above, several recommendations can be made:

1. For Juliana Dalimunthe Clinic
   It is recommended that the clinic continues and expands its prenatal yoga program as a regular maternal health service. Midwives and healthcare staff should encourage pregnant women—especially those in their third trimester—to participate in routine yoga sessions to help improve sleep quality and psychological well-being.
2. For Pregnant Women
   Pregnant women are encouraged to practice prenatal yoga regularly, at least twice per week, under professional guidance. Routine participation will help alleviate discomfort, improve relaxation, and prepare both body and mind for a smooth delivery process.
3. For Health Workers and Midwives
   Midwives and health educators should integrate yoga-based relaxation education into antenatal care counseling. This non-pharmacological intervention is simple, cost-effective, and beneficial for managing sleep disorders and anxiety during pregnancy.
4. For Future Researchers
   Future research can expand this study by involving larger populations and exploring additional variables such as stress levels, anxiety scores, or hormonal profiles that may mediate the relationship between yoga and sleep quality. It is also recommended to use longitudinal designs or physiological measurements (e.g., heart rate variability, cortisol levels) for more objective analysis.
5. For the Academic Community
   The results of this study can serve as a reference in maternal and child health research, particularly in non-pharmacological interventions for improving maternal well-being. This study also bridges theory and practice by demonstrating the real-world application of yoga therapy in clinical maternal health care.

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