

THE EFFECT OF PRENATAL YOGA ON PREGNANT WOMEN'S ANXIETY AND DISCOMFORT IN THE THIRD TRIMESTER

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ABSTRACT

Background: Pregnancy is a continuous process from conception to the beginning of labor. Physiological and psychological changes occur during the pregnancy process, these changes can cause discomfort in pregnant women such as dyspnea, insomnia, gingivitis, epulis, frequent urination, perineal pressure and discomfort, back pain, constipation, varicose veins, fatigue, Braxton Hicks contractions, leg cramps, ankle edema, mood swings and increased anxiety.

Objective: The purpose of this study was to determine the effect of prenatal yoga on anxiety and discomfort in pregnant women in the third trimester.

Methods: The research method was quantitative with an experimental approach with a One Group Pre-Test and Post-test Design research design. The population and sample were all pregnant women in the third trimester as many as 10 people with a total sampling technique. Statistical tests were conducted using the Wilcoxon test.

Results: There was an effect of prenatal yoga on anxiety in pregnant women (p-value 0.003), sleep quality (p-value 0.003), back pain (p-value 0.014) and edema (p-value 0.003) in pregnant women in the third trimester.

Discussion: Prenatal yoga may be recommended as a complementary intervention to help pregnant women manage anxiety and reduce physical discomfort during pregnancy, thereby supporting a healthier pregnancy outcome.

Keywords: third trimester pregnant women, prenatal yoga, anxiety, discomfort

1. Introduction

Pregnancy is a natural and physiological process. Every woman who has healthy reproductive organs and menstruates, and has sexual intercourse with a man with healthy reproductive organs, has a very high chance of becoming pregnant (Nelly & Amriani, 2021). During pregnancy, mothers will experience discomfort from the first trimester to the third trimester. This discomfort preoccupies the mother if she lacks knowledge and experience regarding pregnancy. Anxiety and stress begin to appear in the third trimester, when the mother's discomfort begins to increase and the delivery process approaches. During pregnancy, physiological and psychological changes occur (Puspasari, 2024). Causes of anxiety in pregnant women, especially in the third trimester, include fear of death, feelings of guilt, fear of the baby being born with a birth defect, pain, anxiety, preparation for parenthood, family finances, and the delivery process due to previous negative birth experiences. This anxiety occurs not only in primigravida pregnancies, but also in multigravida pregnancies, even with experience, anxiety can still arise (Natsir et al, 2024).

Physical, emotional, and mental changes can cause stress for women simply because they no longer have control over their bodies and feel worried and afraid of what will happen to them. Anxiety is a common feeling of fear and worry among pregnant women facing childbirth. Anxiety not only affects the mother's psychology but can also affect the development and growth of the fetus in the womb (Yuniza et al., 2021).

Anxiety is one of the causes of increased blood pressure, or hypertension. Hypertension is a contributing factor to the high maternal mortality rate in Indonesia. Anxiety during pregnancy can increase stress hormones in pregnant women, disrupting blood flow in the uterus and weakening uterine muscle contractions (Yuniza et al., 2021).

A study in China found that 5.3% of pregnant women experienced symptoms of depression, 6.8% experienced anxiety, 2.4% experienced physical discomfort, 2.6% experienced insomnia, and 0.9% experienced Post-Traumatic Stress Disorder (PTSD) compared to non-pregnant women. The prevalence of discomfort during pregnancy is around 3-17%, with 10% in developed countries and 25% in developing countries. In Indonesia, the incidence of discomfort during pregnancy is around 28.7% (Puspasari, 2024) .

Yoga has become a popular sport worldwide. Yoga, which combines postures, breathing, and meditation, is associated with the development of health and body awareness (I-Hui Lin et al, 2022) . Prenatal yoga is a type of exercise for the mother's body, mind, and mental health, and is very helpful in calming the mind during the third trimester (Yuniza et al, 2021) . The physical benefits of prenatal yoga include increasing energy, vitality, and endurance, relieving stress and anxiety, improving sleep quality, relieving muscle tension, and reducing common physical complaints during pregnancy such as back pain, pelvic pain, and swelling (Puspasari, 2024) .

The results of the study (Sulistiyaningsih et al., 2020) using the Hamilton Anxiety Rating Scale (HARS) as a measure of anxiety showed a significant effect before and after prenatal gentle yoga with a sig value (-2 tailed) = 0.000 so that $0.000 < 0.05$ so that prenatal gentle yoga is effective in reducing the level of anxiety of primigravida pregnant women in the third trimester in facing childbirth. The results of the study (Yuniarti and Eliana, 2020) using the HARS instrument showed a decrease in anxiety, before the intervention anxiety was 19.67 and after the intervention decreased to 10.80, bivariate analysis obtained $p = 0.005 < 0.05$. Prenatal yoga exercises have an effect on the readiness of primigravida mothers in facing childbirth. The purpose of this study was to determine the effect of prenatal yoga on anxiety and discomfort in pregnant women in the third trimester.

2. Methodology

This research is quantitative, using experimental research methods. The research design used was a *One Group Pre-Test and Post-Test Design* , where the researcher conducted a *pre-test* before the intervention and then a *post-test* after the intervention (Sugiyono, 2022) . The population and sample were 11 pregnant women in their third trimester, using *total sampling* with statistical tests.

3. Results

Table 1. Distribution of frequency of anxiety of pregnant women before and after being given prenatal yoga (n=100)

Anxiety of pregnant women	n	%
Before		
No worries	2	18.2
Mild anxiety	9	81.8
Moderate anxiety	0	0
Severe anxiety	0	0
Panic/extreme anxiety	0	0
After		
No worries	11	100

Mild anxiety	0	0
Moderate anxiety	0	0
Severe anxiety	0	0
Panic/extreme anxiety	0	0

Based on table 1, it shows that the anxiety before being given prenatal yoga was mostly mild anxiety for 9 people (81.8%) and after being given prenatal yoga, all 11 people (100%) had no anxiety.

Table 2. Frequency distribution of the quality of pregnant women before and after being given prenatal yoga (n=100)

Sleep quality	n	%
Before		
Sleep well	2	18.2
Light sleep	9	81.8
Sleeping soundly	0	0
Sleep good bad	0	0
After		
Sleep well	11	100
Light sleep	0	0
Sleeping soundly	0	0
Sleep good bad	0	0

Based on table 2, it shows that the quality of sleep before being given prenatal yoga, the majority of people slept lightly, namely 9 people (81.8%), and after being given prenatal yoga, all of them slept well, namely 11 people (100%).

Table 3. Distribution of frequency of back pain in pregnant women before and after being given prenatal yoga (n=100)

Back pain	n	%
Before		
No pain	3	27.3
Mild pain	8	72.7
Moderate pain	0	0
Severe pain	0	0
Severe pain that the patient cannot control	0	0
After		
No pain	9	81.8
Mild pain	2	18.2
Moderate pain	0	0
Severe pain	0	0
Severe pain that the patient cannot control	0	0

Based on table 3, it shows that the back pain of pregnant women before being given prenatal yoga was mostly mild pain for 8 people (72.7%) and after being given prenatal yoga, the majority did not feel pain for 9 people (81.8%).

Table 4. Distribution of edema frequency in pregnant women before and after being given prenatal yoga (n=100)

Edema in pregnant women	n	%
Before		
Yes	2	18.2
No	9	81.8
After		
Yes	11	100
No	0	0

Based on table 4, it shows that the majority of pregnant women did not have edema before being given prenatal yoga, 9 people (81.8%) and after being given prenatal yoga, all 11 people (100%) did not have edema.

Table 5. Distribution of frequency of anxiety and discomfort of pregnant women in the third trimester (n=100)

	n	Mean	Standard Deviation	Minimum	Maximum
Anxiety (before)	11	1.82	405	1	2
Anxiety (after)	11	1.00	000	1	1
Sleep quality (before)	11	1.82	405	1	2
Sleep quality (after)	11	1.00	000	1	1
Back pain (before)	11	1.73	467	1	2
Back pain (after)	11	1.18	405	1	2
Oedema (before)	11	1.82	405	1	2
Oedema (after)	11	1.00	000	1	1

Based on table 5 shows that the average anxiety before 1.82 and after 1.00. average sleep quality before 1.82 and after 1.00, average back pain before 1.73 and after 1.18 and average edema before 1.82 and after 1.00.

Table 6. The effect of prenatal yoga on anxiety and discomfort of pregnant women in the third trimester

	Ranks	N	Mean Rank	Sum of ranks	Sig. (2 Tailed)
Anxiety (after)	Negative Ranks	9 ^a	5.00	45.00	0.003
Anxiety (before)	Positive ranks	0 ^b	.00	.00	
	Ties	2 ^c			
	Total	11			
Anxiety ((after)	Negative Ranks	9 ^d	5.00	45.00	0.003
Anxiety (before)	Positive ranks	0 ^e	.00	.00	
	Ties	2 ^f			
	Total	11			
Back pain (after)	Negative Ranks	6 ^g	3.50	21.00	0.014
Back pain (before)	Positive ranks	0 ^h	.00	.00	
	Ties	5 ⁱ			
	Total	11			
Edema (after)	Negative Ranks	9 ^j	5.00	45.00	0.003
Edema (before)	Positive ranks	0 ^k	.00	.00	
	Ties	2 ^l			
	Total	11			

Table 6 shows that anxiety after prenatal yoga received a *negative rank* of 9 (which means 9 respondents experienced a decrease in anxiety), a *positive rank* of 0 (meaning no one experienced an increase in anxiety), and a *tie score* of 2 respondents (meaning 2 people had the same anxiety before and after doing prenatal yoga). Sleep quality after prenatal yoga received a *negative rank* of 9 (which means 9 respondents experienced an increase in sleep quality). *Positive ranks* of 0 (meaning no one experienced a decrease in sleep quality and *Ties values* of 2 respondents (meaning 2 people had the same sleep quality between before and after doing prenatal yoga). Back pain after prenatal yoga got a *negative ranks value* of 6 (meaning 6 people experienced a decrease in back pain). *Positive ranks* of 0 (meaning no one experienced an increase in back pain) and *Ties values* of 2 respondents (meaning 5 people had the same back pain between before and after doing prenatal yoga). Edema after prenatal yoga got a *negative ranks value* of 9 (meaning 9 did not experience edema). *Positive ranks* of 0 (meaning no one experienced edema) and *Ties values* of 2 respondents (meaning 5 people did not have the same edema between before and after doing prenatal yoga).

The results of the *Wilcoxon* test obtained a p value of 0.003 and $0.014 < \alpha 0.05$ so there is The effect of prenatal yoga on anxiety and discomfort of pregnant women in the third trimester (anxiety, sleep quality, back pain and edema).

4. Discussion

a. Anxiety of third trimester pregnant women

Based on Table 1, it shows that anxiety before being given prenatal yoga was mostly mild anxiety for 9 people (81.8%), and after being given prenatal yoga, all 11 people (100%) had no anxiety. Based on the results of the *Wilcoxon* test , a p-value of 0.003 was obtained, so there is the influence of prenatal yoga on maternal anxiety in the third trimester.

In the third trimester, anxiety about childbirth will arise. Questions and Concerns about whether a normal birth can be achieved, how to push, whether something will happen during labor, or whether the baby will be born safely will increasingly arise in the minds of pregnant women. To make mothers feel comfortable, alternative methods can be used during pregnancy and labor, as well as self-checks. One alternative method that can be used to increase comfort and reduce anxiety is prenatal yoga (Herdiani & Mutiara, 2023) .

The results of this study are in line with Faradhilla et al (2024) who showed that before prenatal yoga, 72% of pregnant women experienced anxiety, most of which were at moderate (33%) and severe (22%) levels. After the intervention, the anxiety rate decreased to 22%, and 78% of pregnant women no longer experienced anxiety. The average anxiety score decreased from 1.72 to 1.22, with a P value of 0.000 ($P < 0.05$), indicating a significant difference. The Odds Ratio (OR) value of 5.916 indicates a strong effect of yoga in reducing anxiety (Faradhila et al., 2024) .

In prenatal yoga exercise movements, there is relaxation which is very useful for deepening breathing, reducing adrenaline, relieving body muscle tension, increasing endurance, improving blood flow, releasing endorphins, reducing stress and tension, and providing a sense of calm, comfort and peace so that the mother is better prepared to face childbirth (Herdiani & Mutiara, 2023) .

b. Sleep quality

Based on Table 2, it shows that the quality of sleep before being given prenatal yoga, the majority of people slept lightly, namely 9 people (81.8%), and after being given prenatal yoga, all of them slept well, namely 11 people (100%). Based on the results of the *Wilcoxon* test, a p-value of 0.003 was obtained, so there is a significant difference. The effect of prenatal yoga on the quality of maternal sleep in the third trimester.

The psychological changes experienced by pregnant women are often caused by excessive anxiety, worry, and fear without reason, ultimately leading to depression, which disrupts sleep quality. This stress causes muscles to tense, especially those in the birth canal, which become stiff and tight, disrupting the opening of the birth canal. Furthermore, pregnant women who experience sleep disturbances are slower to respond to stimuli and have difficulty concentrating (Kamalah, 2021) .

Sleep disorders in pregnant women in the third trimester are an important issue that needs to be studied because of their high prevalence and significant impact on maternal health and fetal development. (Khalifahani, 2021) . This condition not only impacts the mother's quality of life but also potentially increases the risk of serious pregnancy complications. Untreated sleep disorders can worsen the mother's mental and physical health, making interventions to improve sleep quality an urgent need (Aisyah & Prafitri, 2024) .

Sleep disturbances in pregnant women can manifest as a decrease in the percentage of slow wave sleep. Prenatal yoga practiced during pregnancy can help women focus on their pregnancy. Physiologically, relaxation exercises produce a relaxing effect that involves the parasympathetic nervous system in the central nervous system. One function of the parasympathetic nervous system is to reduce the production of adrenaline or epinephrine (the stress hormone) and increase the secretion of norepinephrine or norepinephrine (the relaxation hormone). This reduces anxiety and tension in pregnant women, resulting in a more relaxed and calmer state (Kamalah, 2021) .

This research is in line with the analysis of this research data using the Willcoxon statistical test ($\alpha = 0.05$). The results of the author's research show that before the implementation of gentle prenatal yoga exercises, 90% of 30 pregnant women in their third trimester had poor sleep quality, while after the implementation of gentle prenatal yoga exercises, the sleep quality of pregnant women improved and increased to 87%). The results of the Wilcoxon test $p = 0.000$, which means $p < 0.05$, namely H_0 is accepted, so there is an effect of gentle prenatal yoga exercises on the sleep quality of pregnant women in their third trimester at BPM Bidan Jumita, SST., M.Kes (Situmorang et al, 2022) .

The mechanism by which prenatal yoga improves sleep quality is that relaxation exercises in prenatal yoga can stimulate the parasympathetic nervous system in the central nervous system. One benefit of the parasympathetic nervous system is that it reduces the release of stress hormones (adrenaline or epinephrine) and increases the secretion of the relaxation hormones (norepinephrine or norepinephrine). When practicing yoga, the body experiences muscle stretching, which increases relaxation, improves blood circulation, and stimulates the production of endorphins (relaxation hormones). This will make pregnant women feel calm and relaxed, and improve sleep quality by reducing anxiety and tension (Laurensa & Rahayu, 2024).

c. Back pain

Based on Table 3, it shows that back pain in pregnant women before being given prenatal yoga was mostly mild pain for 8 people (72.7%), and after being given prenatal yoga, the majority did not feel pain for 9 people (81.8%). Based on the results of the

Wilcoxon test, a p-value of 0.014 was obtained, so there is a significant difference between the two. The effect of prenatal yoga on back pain in pregnant women in the third trimester.

During pregnancy, a woman will experience many anatomical and physiological changes that require her body to adapt to these conditions. These changes will affect the musculoskeletal system, which can cause pain, especially back pain (Purnamasari, 2019). Back pain is a condition most often felt by pregnant women, especially during the second and third trimesters of pregnancy. Nearly 70% of pregnant women complain of back pain and this continues into the postpartum period (Arummega et al, 2022). During pregnancy, hormonal changes and weight gain that occur affect the relaxation of joints in the pelvis and lower hips of pregnant women. This results in changes in the posture of pregnant women (Sehmbi & Bhatia, 2017).

Research conducted by Simanjuntak (2024) that the results of statistical tests showed a significant influence between the intensity of back pain in pregnant women before and after doing prenatal yoga with an average difference of 1.9 and a p-value <0.001. Based on the data above, it is concluded that prenatal yoga is effective in reducing back pain in pregnant women in the third trimester (Simanjuntak, 2024).

Yoga can increase muscle strength, making it particularly beneficial in preventing back pain. The yoga exercises in this study not only strengthened the shoulder, back, and leg muscle groups but also helped achieve proper body positioning, which can reduce back pain in pregnant women (Triziani & Susilawati, 2025). Prenatal yoga can reduce back pain by relaxing the muscles around the spine and increasing body flexibility. This reduces pain and improves body movement (Sari, 2021).

d. Edema

Based on table 4, it shows that the edema of pregnant women before being given prenatal yoga was mostly not as big as 9 people (81.8%), and after being given prenatal yoga, all of them did not have edema as much as 11 people (100%). The results of the *Wilcoxon* test obtained a p value of 0.003 < α 0.05 so there is The effect of prenatal yoga on edema in pregnant women in the third trimester.

Edema occurs in approximately 80% of pregnancies. Leg edema is a common form of edema in pregnancy. Edema can be an early symptom of a pathological condition or even an indicator of a serious chronic illness during pregnancy. Some conditions that can cause edema include chronic heart disease, kidney failure, joint disease, pregnancy, excessive salt intake, and physical exhaustion. Edema in pregnancy is triggered by changes in the hormone estrogen, which can increase fluid retention. This increased fluid retention is related to physical changes that occur in the third trimester of pregnancy, namely the increasing size of the uterus along with the increasing weight of the fetus and the gestational age. Furthermore, increased weight increases the burden on the legs to support the mother's body. This can lead to impaired circulation in the veins in the legs, which can lead to edema (Kirani & Maita, 2022).

Research by Palifiana & Khasanah (2022) that there is an effect of Prenatal Yoga on edema in pregnant women in the third trimester with a p-value of 0.004. Prenatal yoga is useful for improving poor blood circulation in pregnant women, poor blood circulation can cause swelling in the legs. By regularly doing pregnancy yoga, fluids that were previously retained in the legs can be removed through urine or sweat. Mothers who have never done pregnancy yoga have a greater degree of edema than mothers who have done pregnancy yoga during their pregnancy, this is because mothers who have done pregnancy yoga can do or repeat the movements they learned in yoga classes themselves, in contrast to mothers who have never done pregnancy yoga will not know how to deal with their edema (Palifiana & Khasanah, 2020).

5. Conclusion

There is an effect of prenatal yoga on anxiety in pregnant women (p-value 0.003), sleep quality (p-value 0.003), back pain (p-value 0.014) and edema (p-value 0.003) in pregnant women in the third trimester.

References

- Aisyah & Prafitri. (2024). *Detecting Anxiety in Pregnant Women: Exploring the Causes of Each Trimester*. Pekalongan: NEM Publisher.
- Arummega et al. (2022). Factors Affecting Back Pain in Third Trimester Pregnant Women: Literature Review. *Oxytocin. Journal of Midwifery*, 9(1), 14–30. <https://doi.org/10.35316/Oksitosin.V9i1.1506>.
- Faradhila, AF, Limbong, MM, Rimanda, A., & Widyasari, R. (2024). The Effect of Prenatal Yoga on Anxiety Levels of Third Trimester Pregnant Women in Depok City. *Innovative Research Journal (JUPIN)* DOI: <https://doi.org/10.54082/Jupin.810> Vol. 4, No. 4, November 2024, pp. 2077-2084, 4 (4), 2077–2084. <https://doi.org/10.54082/jupin.810>
- Herdiani & Mutiara. (2023). The Effect of Prenatal Yoga on the Anxiety of Primigravida Pregnant Women at the Kepahiang Market Community Health Center. *Journal of Midwifery*, 12 (1), 57–65. <https://doi.org/10.47560/keb.v12i1.490>
- I-Hui Lin et al. (2022). Efficacy of Prenatal Yoga in the Treatment of Depression and Anxiety during Pregnancy: A Systematic Review and Meta-Analysis. *Int J Environ Res Public Health*. 2022 Apr 28;19(9):5368. Doi: 10.3390/Ijerp19095368.
- Kamalah, R. (2021). The Effect of Prenatal Yoga on Improving Sleep Quality in Pregnant Women in the Third Trimester. *Smart Midwife Journal*, 2 (1), 186–198. <https://doi.org/10.30737/jubitar.v2i1.1650>
- Khalifahani. (2021). *The Relationship Between Mothers' Knowledge Levels About Breastfeeding and Complementary Feeding and the Risk of Stunting in Pondok Kelapa Village, East Jakarta*. Jakarta: Binawan University.
- Kirani & Maita. (2022). Oedema in the Feet of Pregnant Women in the Third Trimester by Soaking in Warm Water Mixed with Galangal at Bpm Hj. Murtinawita, Sst, Pekanbaru City, 2021. *Current Midwifery Journal*, 2 (1), 75–80. <https://doi.org/10.25311/jkt/vol2.iss1.593>
- Laurensa & Rahayu. (2024). The Effect of Prenatal Yoga on Sleep Quality of Pregnant Women. *Udayana Medical Health Journal* Vol.11 No.01 April 2025 Page 38 DOI: <https://doi.org/10.47859/Jmu.V11i01.545>, 14 (1), 9–15. <https://doi.org/10.35874/jib.v14i1.1334>
- Natsir et al. (2024). The Effectiveness of Yoga Exercises. *Makassar Health Polytechnic Health Media* Vol. XIX No. 2 December 2024 DOI: <https://doi.org/10.32382/Medkes.V19i2>, XIX (2), 171–175.
- Nelly & Amriani. (2021). *Textbook of Midwifery Care in Pregnancy*. Bina Pustaka. Jakarta.
- Palifiana & Khasanah. (2020). *The Effectiveness of Prenatal Yoga on Reducing the Inconvenience in the Third Trimester of Pregnancy at Asih Waluyo Jati Clinic*. 11 (1), 47–61.
- Purnamasari. (2019). Lower Back Pain in Pregnant Women in the Second and Third Trimesters. *Journal of Midwifery and Public Health*, 1(1), 9. <https://doi.org/10.25157/Jmph.V1i1.2000>.
- Puspasari. (2024). The effect of prenatal yoga on discomfort in pregnant women in the third trimester at the JNC clinic in Metro City. *Wira Buana Health Journal* Volume 8 No 2, September 2024 p-ISSN: 2541-5387(p), e-ISSN: 2747-2795, 8 (2), 167–186.
- Sari. (2021). Back pain in the third trimester: The influence of gestational age and body weight.

Journal of Midwifery Research, 9(2), 78–85 .

- Sehmbi & Bhatia. (2017). Low Back Pain in Pregnancy: Investigations, Management, and Role of Neuraxial Analgesia and Anaesthesia: A Systematic Review. *Gynecologic and Obstetric Investigation*, 82(5), 417–436. <https://doi.org/10.1159/000471764> .
- Simanjuntak. (2024). The Effectiveness of Prenatal Yoga Classes on Back Pain in Third Trimester Pregnant Women. *Journal of Advanced Nursing and Health Sciences* 2022; 3(2): 19-24 , 3 (2), 415–421. <https://doi.org/10.53801/ijms.v3i2.157>
- Situmorang et al. (2022). The Effect of Prenatal Gentle Yoga on Sleep Quality of Pregnant Women in the Third Trimester at Bpm Jumita, S.St., M.Kes. *Journal of Midwifery* , 10 (1), 48–57. <https://doi.org/10.37676/jm.v10i1.2318>
- Sugiyono. (2022). *Quantitative, Qualitative, and R&D Research Methods* . Bandung: Alfabeta.
- Triziani & Susilawati. (2025). Effectiveness of Prenatal Yoga on Back Pain in Pregnant Women in the Third Trimester at the Ratna Komala Pratama Clinic in Bekasi in 2023. *Journal of Social and Technology (SOSTECH) Volume 5, Number 8, August 2025 p-ISSN 2774-5147 ; e-ISSN 2774-5155* , 5 (8).
- Yuniza et al. (2021). The Effect of Prenatal Yoga on Pregnant Women in the Third Trimester in Plaju District. *Sriwijaya Nursing Journal, Volume 8 Number 2, July 2021, p-ISSN 2355-5459, e-ISSN 2684-9712* .