

THE EFFECT OF PRENATAL YOGA ON REDUCING LOW BACK PAIN IN SECOND AND THIRD TRIMESTER PREGNANT WOMEN

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ABSTRACT: PENGARUH PRENATAL YOGA DALAM MENGURANGI LOW BACK PAIN PADA IBU HAMIL TRIMESTER II DAN TRIMESTER III

Latar Belakang: Prevalensi *low back pain* (LBP) pada ibu hamil mencapai 50–80%, menjadikannya salah satu masalah kesehatan yang signifikan karena berpengaruh terhadap kualitas hidup dan aktivitas sehari-hari. Di Indonesia 20% ibu hamil mengalami *low back pain* dengan tingkat nyeri ringan, 50% nyeri sedang, dan 30% nyeri berat. Dampak apabila LBP tidak segera diatasi hingga masa postpartum. Prenatal yoga merupakan salah satu metode non-farmakologis yang direkomendasikan untuk mengatasi keluhan muskuloskeletal pada ibu hamil, termasuk LBP. Tujuan penelitian ini yaitu diketahui pengaruh prenatal yoga dalam mengurangi *low back pain* pada ibu hamil trimester II dan trimester III.

Metode: Jenis penelitian ini adalah kuantitatif. rancangan menggunakan *quasy eksperimental*, yaitu dengan pendekatan *pre-post test control grup design*. Populasi dalam penelitian ini terdiri dari ibu hamil yang berada pada trimester II dan III dan terdaftar sebagai sasaran pada bulan maret di Puskesmas Way Kandis, dengan jumlah sampel sebanyak 32 orang, menggunakan teknik sampling *purposive sampling*. Uji statistik menggunakan uji *Uji T Independen*.

Hasil: Rata-rata skala nyeri *low back pain* pada kelompok intervensi *pretest* 50,63 yaitu skala nyeri sedang dengan standar defiasi 11,236 yang menunjukkan bahwa sebagian besar peserta memiliki skor nyeri yang mendekati rata-rata, dan pada nilai *posttest* 35,6 yaitu skala nyeri ringan dengan standar defiasi 8,921. Sedangkan rata-rata skala nyeri *low back pain* pada kelompok kontrol *pretest* 52,50 yaitu skala nyeri sedang dengan standar defiasi 10 dan *posttest* 51,25 yaitu skala nyeri sedang dengan standar defiasi 9,574. Hasil uji statistik diperoleh $p\text{-value} = 0,000$ ($p\text{-value} < \alpha (0,05)$).

Kesimpulan: Adanya pengaruh prenatal yoga terhadap *low back pain* pada ibu hamil trimester II dan trimester III di Puskesmas Way Kandis Tahun 2025.

Saran: Diharapkan bagi tenaga kesehatan agar dapat meningkatkan pengetahuan tentang manfaat prenatal yoga dalam mengurangi *low back pain* pada kehamilan.

Kata Kunci : *low back pain* , nyeri, prenatal yoga

ABSTRACT

Background: The prevalence of low back pain (LBP) in pregnant women reaches 50–80%, making it a significant health problem as it affects quality of life and daily activities. In Indonesia, 20% of pregnant women experience mild LBP, 50% moderate LBP, and 30% severe LBP. If left untreated, LBP can persist into the postpartum period. Prenatal yoga is one of the recommended non-pharmacological methods to address musculoskeletal complaints in pregnant women, including LBP. The purpose of this study is to determine the effect of prenatal yoga in reducing low back pain among pregnant women in the second and third trimesters.

Methods: This study used a quantitative method with a quasi-experimental design, employing a pre-post test control group approach. The population consisted of pregnant women in their second and third trimesters who were registered as participants in March at Way Kandis Primary Health Care. A total sample of 32 respondents was selected using purposive sampling. Statistical analysis was conducted using the independent *t*-test.

Results: The mean low back pain score in the intervention group at pretest was 50.63 (moderate pain) with a standard deviation of 11.236, indicating that most participants had pain scores close to the mean. At posttest, the mean score decreased to 35.6 (mild pain) with a standard deviation of 8.921. In the control group, the mean pretest score was 52.50 (moderate pain) with a standard deviation of 10, and the posttest mean score

was 51.25 (moderate pain) with a standard deviation of 9.574. The statistical analysis showed p -value = 0.000, ($p < \alpha = 0.05$).

Conclusion: There is a significant effect of prenatal yoga on reducing low back pain in second and third trimester pregnant women at Way Kandis Primary Health Care in 2025.

Suggestions: It is recommended that healthcare workers increase awareness and provide education about the benefits of prenatal yoga in reducing low back pain during pregnancy.

Keywords: : low back pain, pain, prenatal yoga

INTRODUCTION

Pregnancy is a natural process that triggers various changes in a mother's body, both physically and psychologically. One of the most common complaints experienced by pregnant women during the second and third trimesters is lower back pain (LBP). This pain occurs as a result of postural changes, weight gain, and alterations in the musculoskeletal system. These occur due to the enlargement of the uterus, which compensates for the anterior position shift to align with gravity toward the lower extremities, causing tension in the muscles, ligaments, and nerve fibers supporting the spine (Irianti, B., et al., Husin, F. (ed). 2014). Previous studies have shown that around 50–80% of pregnant women experience LBP during pregnancy, which can affect their quality of life and daily activities.

In various countries, more than 50% of pregnant women in the United States, Canada, Iceland, Turkey, Korea, and Israel experience back pain. Meanwhile, in regions such as North America, Africa, the Middle East, Norway, Hong Kong, and Nigeria, the prevalence of low back pain in pregnant women is even higher, ranging from 21% to 89.9%. An online survey conducted by the University of Ulster in 2014 involving 157 pregnant women who completed questionnaires found that 70% had experienced back pain (Pangaribuan et al., 2023). Another study conducted in Indonesia revealed that 20% of pregnant women experienced mild low back pain, 50% experienced moderate pain, and 30% experienced severe pain accompanied by additional symptoms (Purnamasari, 2019). This finding aligns with a study conducted in Bandar Lampung, where out of 120 pregnant women registered at the Krakatau Health Clinic, 30 were in their third trimester, and 20 of them (66.7%) reported upper or lower back pain (Gustiani et al., 2023).

The risk factors for low back pain in pregnant women include a history of LBP prior to pregnancy, back pain during menstruation, and chronic lower back pain. The risk of LBP tends to increase along with maternal weight gain. This condition can lead to sacroiliac joint instability and increased lumbar

lordosis, which in turn causes pain (Ermasari & Rudi Winarno, 2024).

If back pain during pregnancy is not treated until the postpartum period, it may result in long-term disturbances in muscle balance and pelvic stability. Furthermore, the risk of experiencing LBP in subsequent pregnancies is higher, especially among mothers who had back pain in previous pregnancies (Nur Arummega et al., 2022).

Many women consider lower back pain (LBP) a normal condition during pregnancy. However, only about 50% of those experiencing LBP seek medical help. Generally, LBP has a good functional prognosis, and most women recover within a few months after giving birth. Various treatment methods can be used to alleviate LBP, including physiotherapy, stabilization belts, nerve stimulation, medication, acupuncture, massage, relaxation techniques, yoga, and herbal therapy (Saraha et al., 2021).

Prenatal yoga is one of the recommended non-pharmacological methods to address musculoskeletal complaints in pregnant women, including LBP. Practicing prenatal yoga helps expectant mothers focus on regulating their breathing rhythm while creating a sense of comfort, safety, and calmness during exercise. Several studies have revealed that pregnant women who practice prenatal yoga regularly tend to experience reduced back pain intensity and improved overall well-being.

Research has shown that prenatal yoga is effective in reducing back pain among pregnant women in their second and third trimesters. A study by Rahmawati et al. (2021) found that prenatal yoga significantly helped reduce lower back pain among pregnant women, where 70% of participants at Nadya Prenatal Yoga Malang reported decreased lower back pain. Similarly, another study supported this finding, showing reduced pain intensity after prenatal yoga intervention, with 93.3% of the 30 respondents experiencing decreased LBP pain levels (Siagian et al., 2024).

Although specific data on the prevalence of back pain among pregnant women at the Way

Kandis Health Center are not yet available, a preliminary survey conducted by researchers found that out of 120 recorded pregnant women, 72 (60%) reported experiencing low back pain, while 48 (40%) did not report any back pain during pregnancy.

Implementing a prenatal yoga program at the Way Kandis Health Center could be a strategic step in reducing back pain complaints among pregnant women. In addition to providing physical benefits, this program may also enhance maternal mental and emotional well-being, better preparing them for childbirth.

As one of Indonesia's public healthcare facilities, the Way Kandis Health Center plays an important role in providing education and health services for pregnant women. However, studies on the effectiveness of prenatal yoga in reducing lower back pain (LBP) among pregnant women in this area are still limited. Therefore, this study aims to evaluate the effect of prenatal yoga on reducing LBP among pregnant women in their second and third trimesters at the Way Kandis Health Center in 2025. The results of this study are expected to contribute to the development of maternal health service strategies, particularly in implementing prenatal yoga as a non-pharmacological method to alleviate lower back pain (LBP). Furthermore, this yoga-based intervention can serve as an effective and safe therapeutic reference for healthcare professionals in providing non-pharmacological recommendations for pregnant women.

This study used a quantitative method with a quasi-experimental design, employing a pre-post test control group approach. The population consisted of pregnant women in their second and third trimesters who were registered as participants in March at Way Kandis Primary Health Care. A total sample of 32 respondents was selected using purposive sampling.

The instrument used in this study was the Visual Analog Scale (VAS). The researcher conducted interviews and assessed the respondents' pain levels during the pre-test, which was carried out before the prenatal yoga intervention began, and during the post-test after the intervention was completed over a period of two weeks. The Prenatal Yoga intervention was administered for two weeks, with two sessions per week, each lasting 60 minutes. Statistical analysis was performed using the independent t-test.

RESEARCH RESULTS

Univariate Analysis

Based on Table 1, it can be seen that in the intervention group, the average pain scale of low back pain before performing Prenatal Yoga was 50.63, which indicates moderate pain, with a standard deviation of 11.236, showing that most participants had pain scores close to the average, with a minimum value of 30 and a maximum value of 70. Meanwhile, the average pain scale of low back pain after performing Prenatal Yoga was 35.63, which indicates mild pain, with a standard deviation of 8.921, a minimum value of 20, and a maximum value of 50.

RESEARCH METHODS

Table 1

The Average Pain Scale of Low Back Pain in Second and Third Trimester Pregnant Women Before and After Performing Prenatal Yoga in the Intervention Group at Way Kandis Health Center in 2025

Variable	Group	n	Mean	SD	Min-Max
Pain Scale <i>Pretest</i>	Intervensi	16	50,63	11,236	30-70
Pain Scale <i>Posttest</i>	Intervensi	16	35,63	8,921	20-50

Table 2

The Average Pain Scale of Low Back Pain in Second and Third Trimester Pregnant Women Before and After in the Control Group at Way Kandis Health Center in 2025

Variable	Group	n	Mean	SD	Min-Max
Pain Scale <i>Pretest</i>	Control	16	52.50	10	30-70
Pain Scale <i>Posttest</i>	Control	16	51,25	9,574	30-70

Based on Table 2, it can be seen that in the control group, the average pain scale of low back pain before routine pregnancy check-ups was 52.50,

indicating moderate pain, with a standard deviation of 10, a minimum value of 30, and a maximum value of 70. Meanwhile, the average pain scale of

low back pain after routine pregnancy check-ups was 51.25, also indicating moderate pain, with a standard deviation of 9.574, showing that most participants had pain scores close to the average, with a minimum value of 30 and a maximum value of 70.

Bivariate Analysis

Based on Table 3, it can be seen that the results of the independent t-test (independent

samples test) for the measurement of low back pain scale in the intervention and control groups obtained a p-value of 0.000 ($p\text{-value} < \alpha = 0.05$), and the mean difference between the posttest results of the intervention and control groups was 15.625. This indicates that there is a significant effect of prenatal yoga on low back pain among second and third trimester pregnant women at the Way Kandis Health Center in 2025.

Table 3
The Effect of Prenatal Yoga on Low Back Pain in Second and Third Trimester Pregnant Women at Way Kandis Health Center in 2025

Variable	Mean	n	Mean different	Std Error	P-Value
LBP Pain Scale Posttest – Intervention Group	35,63	16	15,625	3,272	0,000
LBP Pain Scale Posttest – Control Group	51,25	16			

DISCUSSIONS

The results of the study showed that in the intervention group, the average low back pain (LBP) scale among pregnant women in the second and third trimesters before performing prenatal yoga was 50.63 (moderate pain category) with a standard deviation of 11.236, while after performing prenatal yoga it decreased to 35.63 (mild pain category) with a standard deviation of 8.921. This decrease indicates the effectiveness of prenatal yoga in reducing the intensity of lower back pain. Most participants experienced a significant reduction in pain, although there were differences in individual responses.

Theoretically, this finding is consistent with Saraha et al. (2021), who stated that LBP is a musculoskeletal disorder characterized by pain or stiffness in the lumbar region caused by postural changes. According to Nur Arummega et al. (2022), back pain in pregnant women is influenced by gestational age, with the peak of complaints occurring in the third trimester due to increased lordosis caused by fetal growth. Situmorang (2020) emphasized that prenatal yoga is a body and mind exercise that helps loosen joints, improve posture, and calm the mind of pregnant women. Therefore, prenatal yoga plays an important role in reducing back pressure and improving body balance.

This study is also supported by Wulandari et al. (2020), who found a decrease in lower back pain after the implementation of prenatal yoga, with the average pain score dropping from 5.11 to 3.83. These findings strengthen the results of this study, confirming that prenatal yoga significantly reduces pain levels. In addition to exercise factors, the

effectiveness of prenatal yoga can also be influenced by age, stage of pregnancy, occupation, and previous pain experience. Respondents in the third trimester or those working outside the home tended to experience higher levels of pain due to increased body load and physical activity.

Meanwhile, in the control group, the average pain scale before routine antenatal check-ups was 52.50 and after two weeks was 51.25, both within the moderate pain category. The absence of significant reduction indicates that without physical intervention, back pain tends to persist. According to Saraha et al. (2021), this occurs due to biomechanical factors such as a shift in the body's center of gravity as a result of fetal weight gain. In addition, the increase in the hormone *relaxin* during pregnancy causes softening of the ligaments and pelvic joints, which can lead to instability and back pain. Nur Arummega et al. (2022) also stated that regular physical activity before pregnancy can help reduce the risk of LBP.

Based on the dependent and independent t-test results, a p-value of 0.000 ($p < 0.05$) was obtained, indicating a significant effect of prenatal yoga on reducing lower back pain among pregnant women in the second and third trimesters at Way Kandis Health Center in 2025. The findings of Kumalasari et al. (2024) and Jayanti & Mayasari (2024) further support this result, showing that prenatal yoga promotes body relaxation, improves blood circulation, and stimulates the release of endorphins, which act as the body's natural analgesics. Pregnant women who received prenatal yoga treatment experienced a reduction in physical complaints compared to those who did not

practice prenatal yoga. This is because the body becomes more relaxed through stretching, allowing blood circulation to function properly and stimulating the production of endorphins. Pasaribu et al. (2020) explained that endorphins can be released through meditation and deep-breathing activities such as those practiced in yoga.

According to the researcher, the effect of prenatal yoga on low back pain among pregnant women in the second and third trimesters may be attributed to several factors, including increased flexibility of the back and pelvic muscles, strengthening of the back and abdominal muscles, improved posture, and relaxation. By practicing prenatal yoga, pregnant women can enhance the flexibility and strength of the muscles that support the spine, thereby reducing pressure on the lower back and alleviating low back pain. In addition, regularly performed prenatal yoga can help reduce stress and anxiety, which may exacerbate low back pain symptoms. Stress reduction influences the release of endorphins, which can help decrease LBP.

Overall, prenatal yoga has been proven effective in reducing lower back pain through improved muscle flexibility, better posture, and reduced stress and muscle tension. Although two respondents showed no change, this may be due to differences in physical condition, pain severity, and consistency in performing the exercises. Therefore, prenatal yoga can be recommended as a safe and effective non-pharmacological therapy for pregnant women to help alleviate LBP and improve quality of life during pregnancy.

CONCLUSION

The average low back pain scale in the intervention group before performing prenatal yoga was 50.63, categorized as moderate pain. Meanwhile, the average low back pain scale after performing prenatal yoga was 35.63, categorized as mild pain. The average low back pain scale among second and third trimester pregnant women in the control group was 52.50 before and 51.25 after, both categorized as moderate pain. There was a significant effect of prenatal yoga on low back pain among second and third trimester pregnant women at Way Kandis Health Center in 2025 ($p\text{-value} = 0.000$, $p\text{-value} < \alpha (0.05)$).

SUGGESTION

The results of this study can serve as a basis for developing and integrating Standard Operating Procedures (SOPs) for prenatal yoga as part of maternal health programs aimed at reducing low

back pain and improving pregnant women's quality of life. The center can also enhance awareness and knowledge among pregnant women about the benefits of prenatal yoga through continuous health promotion and education activities. This study can enrich campus library references related to prenatal yoga and inspire further research with larger samples and longer intervention periods. Pregnant women are encouraged to consider prenatal yoga as a safe and effective non-pharmacological method to reduce low back pain and improve well-being during pregnancy. Moreover, future studies are recommended to explore additional influencing factors and apply different research methods to strengthen the evidence on the effectiveness of prenatal yoga in maternal care.

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