

The Effectiveness of Prenatal Yoga on Back Pain Intensity of Third-Trimester Pregnant Women in Surakarta



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ABSTRACT

The third trimester is the period of pregnancy in the last three months. The adaptation process that occurs frequently during pregnancy causes discomfort for pregnant women, so it is necessary to do several things, from prevention to treatment. The most common discomfort for pregnant women is back pain. Pregnant women can experience back pain due to increased weight and spine. Overcome back pain by massaging the back, but it is not effective and prenatal yoga has never been done to treat back pain in the interviewed third-trimester pregnant women. This study aimed to assess the effectiveness of prenatal yoga on back pain in third-trimester pregnant women. This study was quasi-experimental with a pre-post test control group design. The experimental group received treatment or routine prenatal yoga classes for 2 weeks, a 45-minute duration. The sampling technique in this study was purposive. In implementing this research, respondents obtained as many as 30 respondents at the Banyuwangi Health Center. After prenatal yoga in the third trimester, pregnant women are 2.07, with a standard deviation of 0.799. The results showed an effect of prenatal yoga on the level of back pain in the intervention group before and after prenatal yoga was performed in the third trimester of pregnant women in Surakarta City in 2022 with a p-value of 0.001 ($p > 0.05$). The reduction in back pain was highest in the intervention group because the intervention group was given prenatal yoga. Prenatal yoga decreased the level of back pain in third-trimester pregnant women. Researchers recommend prenatal yoga as physical exercise for pregnant women.

Keywords: Prenatal Yoga, Back Pain, Pregnant.

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INTRODUCTION

Pregnancy is a process that starts from the stage of conception until the birth of the fetus, with a normal duration of 40 weeks or 280 days starting from the first day of the last menstruation.¹ Meanwhile, there is another explanation regarding pregnancy, namely the union or fertilization of the egg and spermatozoa, which is followed by implantation or nidation. If calculated from conception until the baby is born, a normal pregnancy lasts 40 weeks.²

There are various physical and psychological changes in pregnant women, especially in the second and third trimester, especially in the second and third trimesters. A number of these changes certainly cause discomfort in pregnant women. These changes include increased urination, insomnia, leg cramps, constipation, dyspnea, varicose veins, non-pitting edema, easy fatigue, gingivitis,

anxiety, Braxton Hicks contraction, and mood swings.³ The third trimester is the pregnancy period in the last three months. The adaptation process that occurs during pregnancy sometimes causes discomfort for pregnant women, so it is necessary to do several things, from prevention to treatment. In the third trimester of pregnancy, the discomfort was felt by 70% experienced back pain, 60% experienced shortness of breath, 60% experienced hemorrhoids, 50% experienced increased frequency of urination, 50% experienced striae gravidarum, and 40% experienced constipation, 20% had swollen feet, and 10% had leg cramps. From the existing percentage, back pain is one thing that happens to most pregnant women. Back pain itself can occur from pregnancy to postpartum.⁴

The prevalence of back pain during pregnancy is still high in the world, ranging from 48-90%. According to Australian

World Health Organization (WHO), the prevalence of back pain in pregnant women is around 70%. At the same time, in the UK and Scandinavia, it is reported that the prevalence of back pain in pregnant is around 50%. In Indonesia, the prevalence of pregnancy reaches 5,354,594 people.⁵ In Indonesia, the prevalence of pregnant who experience back pain is still high, namely back pain with moderate intensity felt by 68% of pregnant and low-intensity back pain felt by 32% of pregnant.⁶

The most common discomfort for pregnant is back pain. This can occur because the spine has shifted or the back muscles are under pressure, so the joints are depressed.⁷ Other factors cause back pain in pregnancy, namely weight gain, changes in body posture and redistribution of ligaments. According to Yoo et al. (2015), pregnant can experience back pain due to increased weight and spine physiology, where there

is an increase in spinal curvature and changes in body posture at the end of pregnancy. Physiological changes in the third trimester, one of which occurs in the musculoskeletal system, cause back pain.⁸ Around 50-72% of pregnant experience low back pain, but this complaint is still considered a common thing in pregnancy. More than two-thirds of pregnant women experience back pain, and almost one-fifth experience lower back pain. This pain increases as the pregnancy progresses and interferes with daily activities.⁸

There are several things that pregnant women can do to reduce back pain without medication, namely relaxation, hot compresses, yoga exercises, aromatherapy, warm baths, music therapy, changing body positions, messages, and deep breathing exercises. Physical discomfort, increased abdominal size, and fetal movement often affect the mother's daily activities and can even interfere with her rest. In addition, mothers can also find it difficult to get a comfortable position.⁹

Prenatal yoga is an activity that includes breathing exercises as well as stretching. Pregnant may experience an imbalance that can result in back pain. Gentle stretches with a slight emphasis on balance and muscle flexibility will help relieve discomfort and relax muscles during pregnancy.⁴

In initial interviews with 10 third-trimester pregnant women conducted in August 2022 in Surakarta City, it was found that 8 pregnant women felt complaints of back pain. Pregnant women said to overcome their back pain by massaging their back, but it was not effective, and prenatal yoga had never been done to overcome back pain in the interviewed third-trimester pregnant. The involvement of primary health care services is to socialize prenatal yoga to pregnant women to get improved services so that it is not only for pregnant women; in theory, this is done to achieve the target. With yoga, this is done to improve service, increasing the visits of pregnant women to primary health care. In implementing prenatal yoga, the husband's involvement is very important to prepare for childbirth. This study aimed to assess the effectiveness of prenatal yoga on back pain in third-trimester pregnant women.

METHOD

This study is a quasi-experimental design with a pre-post-test control group design. The study was conducted in the city of Surakarta in 2022. The population in this study was 50 pregnant women of gestational age entering the third trimester. The samples used in this study were pregnant women with the following inclusion criteria: third-trimester pregnant women who participated in prenatal yoga in Surakarta City, physiologically pregnant without complications, who came at the time of data collection by the researcher and were willing to be respondents.

The study was approved by the Research Ethics Committee of Universitas Sebelas Maret, 122/UN27.06.11/KEP/EC/2022. The exclusion criteria for this study were pregnant women who stopped or dropped out of prenatal yoga classes and pregnant women who had a history of chronic diseases such as heart disease, diabetes mellitus, kidney failure and others. The sampling technique in this study is a purposive sampling technique. In the implementation of this study, 30 respondents were obtained who were divided into two groups, experimental and control. The experimental group received treatment or routine prenatal yoga classes for 2 weeks for 45 minutes at each session; prenatal yoga exercises were carried out with yoga facilitators already certified in prenatal yoga. Prenatal yoga classes were carried out by providing prenatal yoga training to the control group in groups. In contrast, the control group only received knowledge about the benefits of prenatal yoga in classes for pregnant women. The independent variable in this study was the provision of prenatal yoga, while the dependent variable was back pain for pregnant women, which could be measured using a questionnaire before and after being treated in each group; before being given education and prenatal yoga, pre-test and post-test measurements were carried out for the control group after the prenatal yoga class which lasted for 2 weeks.

Back pain in third-trimester pregnant women can be measured using the Oswestry Disability Index (ODI) questionnaire, translated from English to Indonesian, to measure disability in

low back pain. Oswestry Disability Index (ODI) consists of 10 questions with a score of 0 to 100, covering limitations in activity, sleep, social life, work, and personal care due to low back pain.¹⁰ The material used for the experimental group in this study was a standard operating procedure (SOP) to determine the prenatal yoga procedure to be performed. The control group will be given an explanation or education about the benefits of prenatal yoga for pregnant women through pregnancy classes. The data used are primary. The data collected and processed were then analyzed univariately and bivariate with the Wilcoxon Signed Rank Test and the Mann-Whitney Test with the help of the SPSS version 21.

RESULT

The average level of back pain in the intervention group before prenatal yoga was performed in the third trimester of pregnant women was 4.60, with a standard deviation of 0.828. Meanwhile, the average level of back pain in the intervention group after prenatal yoga was performed in third-trimester pregnant women was 2.07, with a standard deviation of 0.799. There was no effect of giving prenatal yoga to the control group in the first and second examinations on the level of back pain in third-trimester pregnant women in Surakarta City in 2022 (p-value 0.059).

The results of this study align with research conducted by Fitriani on the effect of prenatal yoga on reducing back pain in TM III pregnant women, which stated that in the control group, the average back pain in the first measurement was 5.18 and back pain in the first measurement was 5.18. second is 5.04. The results of statistical tests obtained a p-value of 0.078, so it can be concluded that there is no effect of not doing prenatal yoga in the control group.¹¹ The same study was conducted by Hidayatullah (2018), who also said there was no significant change in the complaints of back pain felt by pregnant women with TM III in the first and second measurements of the control group with statistical test results of a p-value of 0.187.

DISCUSSION

According to the theory, pregnant women experience pain, which is influenced



Figure 1. (a),(b) Pregnant women while doing yoga.

by several factors, namely age, poor health conditions, psychological and psychosocial problems, degenerative arthritis, smoking, sitting or standing for hours, and obesity. You can do sports, hot and cold compresses, improve posture, and consult to treat back pain.

According to the researcher's analysis in this study, there was no significant change in back pain during the first and second examinations in the control group. This happened because in the control group, there was no intervention given to the mother to reduce back pain. Pregnant women who experience back pain can be affected by excessive bending can be affected by excessive or strenuous physical activity such as doing housework, which can cause fatigue, lack of rest, and the mother's stomach getting bigger. This condition causes pregnant women to feel uncomfortable, and back pain occurs with different intensities. In the third trimester, the posture of pregnant women becomes more lordotic due to the enlargement of the uterus. In this condition, pregnant women should do activities or sports during pregnancy to help relax the muscles in the mother's back. However, in the control group, no special activities or exercises were carried out to help reduce maternal back pain, such as not doing sports during pregnancy, such as pregnancy exercises or yoga exercises.

This will not change the complaints and condition of the mother, so in this study, in the control group, there was no good effect or significant change in back pain between the first and second measurements. The

results showed an effect of prenatal yoga on the level of back pain in the intervention group before and after prenatal yoga was performed in the third trimester of pregnant women in Surakarta City in 2022 with a p-value of 0.001 ($p > 0.05$). It is clear from these data that there is a decrease in the pain score of pregnant women who do prenatal yoga for 4 consecutive weeks. The practice of yoga is accompanied by a midwife so that mothers get explanations and movements that are precise and correct under the guidance of midwives implementing prenatal yoga.

In this study, yoga movements focused on reducing discomfort in the back and waist area, including breathing techniques, warm-up movements, side stretches, twist poses, child poses, downward dog poses, and cat and cow poses. Relaxation techniques and movements by controlling the mother's breath, such as soft and gentle breaths and *sitkari* breath, which is very useful when practicing yoga or if cramps occur in the mother's body while at home. Applying this breathing technique will make the mother much more comfortable and relaxed during her pregnancy or dealing with her discomfort in the third trimester.

This will not change the complaints and condition of the mother, so in this study, in the control group, there was no good effect or significant change in back pain between the first and second measurements. The results showed an effect of prenatal yoga on the level of back pain in the intervention group before and after prenatal yoga was performed in the

third trimester of pregnant women in Surakarta City in 2022 with a p-value of 0.001 ($p > 0.05$).

This study is in line with research conducted by the researcher, which showed that before being given prenatal yoga, the mean score (mean back pain scale) was 4.69; the median (middle value) was 5.00; the mode (often a back pain scale) is 5; the standard deviation is 1.138; the minimum pain scale value is 3, and the maximum pain scale value is 7. Meanwhile, after being given prenatal yoga, the average value (mean back pain scale) is 2.50; the median (middle value) is 3.00; the mode (often a back pain scale) is 3; the standard deviation is 1.155; The pain scale value is at least 1, and the maximum pain scale is 4. Based on the table, the p-value value was 0.000 < 0.05 .

Regarding the effect of prenatal yoga on reducing back pain in TM III pregnant women, we stated that the average effect of the back pain scale on pregnant women by doing prenatal yoga was 0.367, with the standard deviation of the statistical test results of 0.615. Pair dependent T test obtained a significant value of 0.003, smaller than 0.05, so it can be concluded that there is an effect of prenatal yoga on reducing back pain in the third trimester of pregnant women at Krakatau Clinic Bandar Lampung Lampung Province in 2019 and the minimum effect of prenatal yoga is 0.137 and the maximum effect of prenatal yoga is 0.596.

According to prenatal theory, yoga is an activity that includes breathing exercises and stretching. Pregnant women may experience an imbalance that can result in back pain. Gentle stretches with a slight emphasis on balance and muscle flexibility will help relieve discomfort and relax muscles during pregnancy.⁴ One of the efforts health workers can make in preventing or treating back pain in pregnant women is exercise. There are several preventive measures during pregnancy so that the mother and fetus are in good health, and later, a normal delivery process will occur, namely morning walks, static cycling, aerobics, water exercise, dancing, and yoga. Pregnancy exercise has several methods, including yoga, pilates, kegels, and hypnotherapy.³

According to the analysis of researchers

in the study, there was a decrease in back pain before and after prenatal yoga by a difference of 2. Statistically, prenatal yoga also reduced back pain. Prenatal yoga is a practical effort to align the body, mind, and spirit, which is beneficial for yoga to form firm postures and build flexible and strong muscles, purifying the central nervous system in the spine. Prenatal yoga performed in the third trimester of pregnancy can reduce the complaints felt by pregnant women during the third trimester, one of which is back pain.

The effect of prenatal yoga on reducing back pain in third-trimester pregnant women in this study follows one of the benefits of prenatal yoga, which can help relax the muscles around the spine. In addition, prenatal yoga also forms a body like a triangle, which is believed to be able to stretch the muscles of the hips, spine, and groin so that it can relieve back pain, pelvic pain, and neck pain. This is evident from the results of this study, which state that prenatal yoga reduces back pain in third-trimester pregnant women. Respondents were 14 pregnant women in the third trimester who experienced low back pain. The effect test with the yoga treatment before the intervention obtained a mean \pm SD 4.14 \pm 1.127 with $p=0.000$, while after the intervention, the mean was 2.71 \pm 1.204 with $p=0.000$ ($p<0.05$). This means a significant effect exists between the average pain intensity before and after yoga. So, it can be concluded that yoga reduces the intensity of low back pain in third-trimester pregnant women.

The same study was also conducted by Annisa, which also stated that there was a difference of 2.16 in the reduction of back pain in TM III pregnant women between the intervention group and the control group, with a p -value of 0.001.¹²

According to theory, back pain is one of the most common discomforts during pregnancy. Back pain can occur due to pressure on the back muscles or a shift in the spine, causing pressure on the joints.¹³ Other factors that can influence the incidence of back pain complaints during pregnancy are changes in body posture, weight gain and redistribution of ligaments. Back pain experienced by pregnant women is caused by increased body weight and spinal physiology. The

presence of spinal curvature in pregnant women increases towards the end of pregnancy and changes in body posture.¹⁴ Efforts that can be made to reduce back pain are to do prenatal yoga. Prenatal yoga or exercise yoga in pregnancy is one type of modification of hatha yoga adapted to the condition of pregnant women.

The purpose of prenatal yoga is to prepare pregnant women physically, mentally, and spiritually for the birth process. With careful preparation, mothers will be more confident to give birth smoothly and comfortably. The researcher assumed that in this study, there were differences in back pain between the control and intervention groups. It can be seen in the results of this study that the reduction in back pain was highest in the intervention group because the intervention group was given prenatal yoga treatment, while the control group was not given prenatal yoga treatment because it was based on the purpose of this study. It was to compare the 2 intervention groups and the control group. If both groups were given prenatal yoga, researchers could not see the difference in reducing back pain and whether this yoga was indeed effective in reducing back pain in pregnant women. In the control group, there was no change in back pain during the first and second examinations. At the same time, the control group was not given prenatal yoga treatment because this study aimed to compare the 2 intervention groups and the control group.

CONCLUSION

Based on the research results, third-trimester pregnant women experiencing decreased back pain after doing prenatal yoga are 100% very satisfied; there is a difference in the level of low back pain before and after practicing prenatal yoga in pregnant women (p -value 0.001). It is hoped that pregnant women can practice prenatal yoga with the assistance of midwives and exercise regularly at home during this pregnancy period. Prenatal yoga affects reducing back pain levels in third-trimester pregnant women. Researchers recommend prenatal yoga as a physical exercise for pregnant women that can be done in classes for pregnant women. Further research that discusses

the effects of prenatal yoga on other pregnant

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CONFLICT OF INTERESTS

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