



THE EFFECT OF PRENATAL YOGA ON BACK PAIN IN PREGNANT WOMEN IN THE THIRD TRIMESTER

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ABSTRACT

Back pain is a common occurrence in pregnant women and will increase when the mother enters the third trimester. One effort to reduce back pain experienced by pregnant women is to do prenatal yoga. Prenatal yoga can help pregnant women to stretch their joints and to relax the mother's body and mind during pregnancy. This study aims to determine the effect of prenatal yoga on back pain experienced by pregnant women in the third trimester. This type of research is Quasi-experimental design with a pre-test and post-test control group approach. The population in this study were 35 respondents of pregnant women in the third trimester at the Anugrah Surabaya Pratama Clinic, the research sample was 32 respondents. The sampling technique used purposive sampling. The Bourbannais pain scale was used as a research tool. Based on the results of the Wilcoxon Sign Rank Test, a p-value of 0.001 was obtained, which means that there is an effect of prenatal yoga on back pain in pregnant women in the third trimester. Based on the results of the Mann-Whitney U Test, a p-value of 0.007 was obtained, which means that there is a difference in the level of back pain scale in pregnant women in the third trimester at the Anugrah Surabaya Pratama Clinic. Further research is expected to be used as a reference for comparison by expanding the population and variables and replacing the comparison group with other better media.

Keywords: Back Pain, Pregnant Women, Prenatal Yoga

INTRODUCTION

Pregnancy is a very important event in the life of a woman and family¹. During pregnancy, women often experience many changes, both physical and psychological changes. These changes will continue to occur during the nine months of pregnancy, these conditions will always cause discomfort to the pregnant woman's physical condition, especially back pain².

Based on data from the Indonesian Ministry of Health in 2018, the number of pregnant women in Indonesia was recorded at 5,324,562 people. While in East Java in 2021, the number of pregnant women reached 592,735 people. Then for the city of Surabaya itself, based on the Surabaya Health Profile in 2022, the number of pregnant women reached 44,012 people. Pregnant women who experience back pain are found in several areas in Indonesia, up to now it has even reached 60-80%. There are 70% of pregnant women mostly in the third trimester who feel back pain due to changes in the muscles in the spine because they experience pulling or tension in the area. In addition, 30% of pregnant women experience back pain due to changes in body posture because the weight of the fetus is getting heavier. From 2007 to 2021, the coverage of health services for pregnant women in the third trimester in Indonesia

tended to increase, when compared to the coverage in 2020, the achievement in 2021 has reached the target of 88.8%. While in East Java it has reached 97.70%³. Based on data from the East Java Provincial Health Office in 2021, an increase in the number of Maternal Mortality Rates (MMR) in East Java was found compared to previous years, where the largest cause of maternal death was due to obstetric problems at 19% and non-obstetric at 68.18%. Obstetric problems include bleeding and hypertension during pregnancy, while one of the causes of these non-obstetric problems is the large number of cases of COVID-19 and other complaints that were not handled properly during pregnancy⁴.

Physical changes in pregnant women include weight gain. Drastic weight gain causes pregnant women to feel tired quickly, like to sleep, shortness of breath, edema in the legs and hands. Increased height of the uterine fundus accompanied by an enlarged abdomen, makes the body more forward. In an effort adjust to the excessive body weight so that the spine pushes backwards, encouraging a lordosis body posture. This causes the mother to feel sore in the waist, back, varicose veins and cramps in the legs⁵. This lower back pain will usually increase in intensity often with increasing gestational age. This pain is a result of the shift in the woman's center of gravity and her body posture⁶. As a result of the discomfort experienced, the level of stress in pregnant

women has a negative impact on the level of anxiety in pregnant women because various risk factors can occur due to excessive anxiety in pregnant women ⁶.

One of the treatments that can be done for back pain in pregnant women in the third trimester is exercise⁵. Some preventive measures that can be taken during pregnancy so that the mother and fetus are in a healthy condition and later a normal delivery process occurs are morning walks, aerobics, water gymnastics, static cycling, dancing, and yoga. Pregnancy gymnastics has several exercise methods, namely yoga, pilates, kegel, hypnotherapy ⁷. The benefits of doing prenatal gymnastics or moderate exercise are reducing physical complaints, reducing the weight of pregnant women, reducing complications during the labor process, shorter labor process time, faster recovery during postpartum, faster weight loss during postpartum ⁸.

Yoga is a sport that is not heavy but can make the body fitter and more flexible. Therefore, yoga is one of the recommended sports for everyone including pregnant women. Yoga can be done anywhere and anytime. There are so many benefits in taking yoga classes for pregnant women can help the body to stay strong, healthy and active during pregnancy. Then increase concentration and calmness before labor, help balance the body, reduce back pain,

prepare the pelvic area, improve communication with the baby, learn good breathing techniques, reduce complaints such as insomnia, reduce the risk of depression and premature birth, improve blood circulation ⁹.

Based on the results of previous research conducted by Muzzayana (2023), there was a significant effect of prenatal yoga on reducing complaints of discomfort in the third trimester of pregnancy, namely $p\text{-value} \leq 0.000$ (CI 95%). Wulandari, et al (2020) also studied the effect of prenatal yoga on back pain found before prenatal yoga was 5.11% and after prenatal yoga changed to 3.83% which means there was a decrease in back pain with a p value of $0.000 < 0.05$ (significance level). And based on research conducted by Nurhayati (2019) it was stated that regular yoga exercises during pregnancy can reduce or reduce discomfort in the third trimester of pregnancy compared to those who do not regularly do yoga exercises ¹⁰.

One of the efforts to reduce physical complaints of pregnant women in the third trimester before facing labor is by attending prenatal yoga classes. With prenatal yoga, it can reduce muscle tension in the body which can be marked by relaxation of the muscles around the back, stomach, legs and accompanied by regular breathing so that it can make the body more comfortable, calm and relaxed ¹¹.

METHOD

The experimental research design applied in this study is using a quasi-experiment with a pre-test and post-test control group approach. The time of this research has been carried out starting from the preparation of the proposal in October 2023 - January 2024, and in February - May 2024 research permits and data collection were carried out. This research was conducted at the Pratama Anugrah Clinic Surabaya. The population in this study was 35 people, all pregnant women in the third trimester who experienced back pain. With a sample size of 16 people for the experimental group and 16 people for the control group selected using Purposive

Sampling according to the inclusion and exclusion criteria using the Federer formula. The independent variable in the study was Prenatal Yoga and the dependent variable was back pain in pregnant women in the third trimester. The implementation of yoga for pregnant women is carried out 1 or 2 times a week. Prenatal yoga is carried out with a duration of 60 minutes with the guidance of a yoga trainer at the clinic and assisted by researchers. Data collection used the Bourbannais pain scale observation sheet. The calculation was carried out using SPSS For Windows software using data analysis, namely the normality test, *Wilcoxon Signed Rank Test* and *Mann Whitney U Test*.

RESULTS AND DISCUSSION

RESULTS

Respondent Characteristics

In this study, there were 32 pregnant women in the third trimester who were divided into two groups, namely 16 people in the experimental group and 16 people in the control group. The characteristics of the respondents are presented as follows:

Table 4.1 Frequency Distribution of Characteristics of Third Trimester Pregnant Women Experiencing Back Pain Based on Maternal Age, Gestational Age, and Parity in February-March 2024 at the Pratama Anugrah Clinic Surabaya

No.	Characteristics	Frequency (f)	Percentage (%)
1.	Maternal Age		
	<20 years	0	0
	20-35 years	31	96,9
	>35 years	1	3,1
	Total	32	100
2.	Gestasional Age		
	28 – 30 weeks	7	21,9
	31 – 33 weeks	11	34,4
	34 – 36 weeks	10	31,3
	37 – 39 weeks	4	12,5
	Total	32	100

3.	Parity		
	Primigravida	13	40,6
	Multigravida	19	59,4
	Total	32	100

Data source: Primary Data (2024)

Based on table 4.1, it can be explained that almost all pregnant women in the third trimester (96.9%) are aged 20 to 35 years and almost half of pregnant women in the third trimester who experience back pain are mothers with a gestational age of 31 - 33 weeks (34.4%), and most pregnant women in the third trimester have multigravida parity (59.4%).

Back Pain in Pregnant Women in the Third Trimester

Table 4.2 Distribution of frequency of back pain in pregnant women in the third trimester before and after intervention in the treatment group and control group.

Pain Scale	Treatment Group				Control Group			
	Pretest		Posttest		Pretest		Posttest	
	f	%	f	%	f	%	f	%
No Pain	0	0	7	43,8	0	0	1	6,3
Mild Pain	1	6,3	6	37,5	5	31,3	5	31,3
Moderate Pain	14	87,5	3	18,8	7	43,8	10	62,5
Severe Pain	1	6,3	0	0	4	25	0	0
Total	16	100	16	100	16	100	16	100
Mean	3,00		1,75		2,94		2,56	
Minimum	2,00		1,00		2,00		1,00	
Maximum	4,00		3,00		4,00		3,00	
SD	0,365		0,775		0,630		0,771	

Data source: Primary Data (2024)

Based on table 4.2 in the group given prenatal yoga intervention, the results obtained were that before the intervention, almost all respondents (87.5%) had a moderate pain scale. However, after the intervention, the results showed that most respondents (43.8%) had a no pain scale. While in the control group before being given the pregnancy exercise intervention, the results showed that most respondents (43.8%) experienced back pain with a moderate pain scale. However, after the intervention, the results showed that most respondents (62.5%) had a moderate pain scale.

The Effect of Intervention on Back Pain in Pregnant Women in the Third Trimester in the Treatment Group and Control Group

Table 4.3 Analysis table of the effect of intervention on back pain in pregnant women in the third trimester in the treatment group and control group

Treatment Group				Wilcoxon Sign Rank Test	Control Group				Wilcoxon Sign Rank Test
Pretest		Posttest			Pretest		Posttest		
Mean	SD	Mean	SD		Mean	SD	Mean	SD	
3,00	0,365	1,75	0,775	0,001	2,94	0,630	2,56	0,771	0,000

Source : Primary Data, February – March 2024

Based on table 4.3, it can be seen that the results of the Wilcoxon Sign Rank Test statistical test showed a significant value obtained in the treatment group p-value = 0.001, namely (p <0.05), which means that there is an influence on the provision of prenatal yoga intervention. While in the control group, a significant value was obtained p-value = 0.000, namely (p <0.05), which means that there is also an influence on the provision of pregnancy exercise intervention on back pain in pregnant women in Trimester III.

Differences in Back Pain in Pregnant Women in the Third Trimester in the Treatment Group and Control Group

Table 4.4 analysis of differences in back pain in pregnant women in the third trimester in the treatment group and the control group

Group	SD	Mean Rank	p-value
Treatment Group with Prenatal Yoga Intervention	0,775	20,91	0,007
Control Group with Pregnancy Exercise Intervention	0,771	12,09	

Source : Primary Data, February-March 2024

Based on table 4.4, it shows that there is a significant difference between prenatal yoga and prenatal exercise interventions. The decrease in back pain levels in pregnant women in the third trimester was higher in those given prenatal yoga interventions compared to prenatal exercise, this can be seen from the mean rank value listed in table 4.4. The results of the Mann-Whitney U-Test showed a p-value = 0.007, which is <0.05. Based on these results, it is known that there is a significant difference between the treatment group after receiving prenatal yoga intervention and the control group after receiving prenatal exercise intervention.

DISCUSSION

Based on the results of the identification of back pain in pregnant women in the third trimester conducted at the Pratama Anugrah Clinic in Surabaya in the treatment group before the intervention, most respondents experienced moderate pain and after the intervention, most respondents experienced a decrease to a scale of no pain. While in the control group before the pregnancy exercise intervention, the most respondents experienced a moderate pain scale and after the intervention, most respondents had a moderate pain scale and 1 person had a scale of no pain.

Based on a statement from the Ministry of Health (2024), back pain will be experienced by women aged between 20 - 24 years and at its peak will be experienced by mothers who are >40 years old. According to another study (Mardiana, 2021) it was found that the results of respondents who experienced back pain were aged >20 years³⁵. According to research conducted by (Cahyani, 2019), it was found that gestational age is one of the factors that influences lower back pain, because the size and weight of the uterus increases with age³⁶.

According to another study conducted by (Yazir, 2022) found that maternal parity is one of the factors that affect back pain in pregnant women. Another study (Molina

García et al., 2019) indicated that women with high parity and repeated pregnancies tend to cause excessive stress on the ligaments and muscles around the back, which contributes to back pain³⁷.

So based on the description above, according to the researcher, there is no gap between theory and fact. Pregnant women in Trimester III need action to reduce the level of pregnancy discomfort, especially back pain that has been experienced. Prenatal yoga and pregnancy gymnastics can be the main choice in an effort to reduce the level of back pain in pregnant women because they have movements that can reduce tension and relax the muscles in the pregnant woman's body. Factors that influence the success of the level of back pain reduction experienced by pregnant women in Trimester III are the mother's age, the mother's gestational age and the parity of the pregnant woman.

Based on the results of the analysis of the effect of intervention on back pain in pregnant women in Trimester III in the treatment group and the control group, it was found that the pain scale in each group decreased after the intervention. This is proven by the Wilcoxon Signed Rank Test, which shows that Prenatal Yoga and Pregnancy Exercise have an effect on back pain in pregnant women in Trimester III.

The etiology of low back pain in

pregnancy is often thought to be due to mechanical, hormonal or body changes in pregnancy, reduction of the plantar arch, knee hyperextension and pelvic anteversion. These changes put pressure on the lumbar lordosis. Compression of the great vessels by pregnancy can cause low back pain, especially in late pregnancy. Ligamentous laxity by the hormone relaxin makes the lumbar spine and hip joints less stable and more susceptible to pain⁴⁰.

So according to researchers, the effect of prenatal yoga and pregnancy exercise interventions shows a decrease in the level of back pain experienced by pregnant women in the third trimester. This decrease in back pain is caused by physical activity, especially yoga, combining a number of poses (asanas) to promote increased range of motion of joints, flexibility, muscle strength, balance, concentration, and self-confidence. A series of breathing exercises in yoga facilitate introspection and mental relaxation. While pregnancy exercise has benefits in strengthening the abdominal muscles and reducing muscle and ligament tension in the back and pelvic areas so that it can prevent excessive tension on the pelvic ligaments.

Based on the results of the analysis of differences in lower back pain in pregnant women in the third trimester in the treatment group and the control group, there was a

significant difference in the level of lower back pain scale experienced by pregnant women in the third trimester after being given prenatal yoga and pregnancy exercise interventions with the results of the Mann-Whitney U Test.

There was a difference in the mean score of lower back pain between the prenatal yoga group and the pregnancy exercise group. The delta value of the lower back pain score in the prenatal yoga treatment group was higher than the pregnancy exercise group, which means that prenatal yoga is more effective in reducing complaints of lower back pain in pregnant women in the third trimester.

Previous research conducted by (Rahayu et al., 2022) stated that prenatal yoga in pregnancy is useful in reducing labor pain and anxiety, as well as relieving lower back pain. Prenatal yoga is more effective than walking or other standard exercises. Yoga is recommended for treating lower back pain and pelvic pain related to pregnancy⁴⁴

So based on the description above and the results of the study, it is known that there is no gap between the theory and the results of the study. Prenatal yoga is more effective in relieving lower back pain compared to pregnancy exercises. Prenatal yoga trains pregnant women to be able to practice movements to overcome lower back pain

including bitilasana/cat stretching posture, janushirsasana, trikonasana, prasarita padottanasana/pyramid posture. Prenatal yoga is not only healthy physically, but also mentally where at the beginning of prenatal yoga there is a stage of concentration, and at the end relaxation is given.

CONCLUSION

Based on the results of the study that has been conducted with the title The Effect of Prenatal Yoga on Back Pain in Pregnant Women in Trimester III at the Pratama Anugrah Clinic in Surabaya with all pregnant women who were respondents. Several conclusions are that most of the respondents in Trimester III pregnant women in the group given prenatal yoga intervention experienced a greater decrease in pain scale compared to the control group given pregnancy exercise intervention. Then there is an effect of Prenatal yoga intervention in reducing the level of back pain in pregnant women in Trimester III. Prenatal Yoga is more effective in reducing the level of back pain in pregnant women in Trimester III. For further researchers, it is hoped that this study will be useful as a reference source for further researchers and can be used as a guide to conduct research with the same title but using different methods so that a more specific picture of its influence is obtained.

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