



EFFECTIVENESS OF PRENATAL YOGA IN REDUCING LOWER BACK PAIN AND SCIATICA IN PREGNANT WOMEN

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ABSTRACT

Pregnancy has physiological changes such as uterine enlargement, during this period the centre of gravity moves forward and this displacement causes the mother to adjust her standing position. Such posture will depend on muscle strength, weight gain, joint relaxation properties, fatigue and pre-pregnancy posture. Pregnant women are projected to have a prevalence of 50% of low back pain, in the first trimester, 40% to 70% in the second trimester. And 70%-80% in the third trimester. Projections of sciatica pain with prevalence rates range from 10% to 25% (Bryndal et al., 2020). This pain can interfere with daily activities such as standing, walking, sitting and sleeping. Yoga is non-pharmacological way to treat pain, and prenatal yoga is a classic form of yoga adapted to the physical needs of pregnant women. A useful method to reduce pregnancy pain and speed up labor during the third trimester. Yoga is also included in non-pharmacological complementary therapies that relieve pain. The purpose of this study was to determine the effectiveness of prenatal yoga in reducing low back pain and sciatica in third trimester pregnant women in the area of Karang Rejo Public Health Centre. The research method was a quasi-experiment with one group type and interrupted time series design. The sample of this study was 27 respondents, frequency intervention 2 times a week for 2 weeks. The tool used in data collection was a numeric scale observation sheet. The result of this study found a difference in pain before and after doing yoga viewed from the results of paired t-test with p-value=0.000 with an average difference of 5.41. There was an effectiveness felt by pregnant women before and after yoga, with the effectiveness value of 55%. Therefore, the benefits of yoga as complementary therapy can be felt by pregnant women in the health facility.

Keywords: lower back pain; pregnant women; prenatal yoga; sciatica

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INTRODUCTION

In physiological changes in the physical changes of pregnant women, some pregnant women experience discomfort as a perceived impact. Lower back pain is the most common complaint experienced by pregnant women in the third trimester of pregnancy. As a result, the enlarged abdomen causes frequent postural adjustments resulting in low back pain (LBP) lower back pain and this musculoskeletal disease is most commonly considered during pregnancy (Marshall et al., 2022) (Mustofa, 2023) (Shijagurumayum Acharya et al., 2019) (Bryndal et al., 2020). In addition, the discomfort that occurs in pregnant women is pelvic pain or pain sciatica (Sciatica Pain) (Aparicio et al., 2023) (Siddiq et al., 2020). Sciatica can be described as an inflammatory condition (Verma & Dhenge, 2020) that triggers mediators and precursors of inflammation such as prostaglandins, arachidonic acid, thromboxane, leukotriens, cytokines, neurofilaments, and immunological reactions in the nucleus pulposus that cause nerve dysfunction and cause pain (Silva et al., 2023).

Pregnant women are projected to have a prevalence of 50% of LBP in the first trimester, 40% to 70% in the second trimester, and 70% to 80% in the third trimester. About 50% of women whose LBP first became apparent during pregnancy still experienced pain a year after giving birth, and 20% began experiencing symptoms three years after giving birth. Between 20% and 90% of pregnant women experience LBP, most studies show a prevalence of more than 50% (Bryndal et al.,s 2020) projection of pain Scicatica with the prevalence rate ranging from 10% to 25%. This pain can interfere with daily activities such as when standing, walking, sitting or sleeping (Aparicio et al., 2023). Yoga is a non-pharmacological way to treat pain, and prenatal yoga is a classic form of yoga that is tailored to the physical needs of pregnant women. A useful method to reduce pregnancy pain and speed up labor during the third trimester. Yoga is also included in non-pharmacological complementary therapies that relieve pain (Gratz & Sola, 2022). The method to knowing the scale of lower back pain and sciatica before and after yoga then analysing the effectiveness of prenatal gentle yoga in reducing lower back and sciatic pain against pregnant mothers of third trimester. The purpose of this study was determined the effectiveness of prenatal yoga in reducing low back pain and sciatica in third trimester pregnant women in the area of Karang Rejo Public Health Centre.

METHOD

The research was conducted using experimental quasy, the characteristic of this type of research is that it uses causal relationships by involving a group of subjects. The type of quasi-experiment that will be used is interrupted time series design, which is a treatment with 2 interventions a week and completed in the 2nd week, a total of 4 yoga interventions. Researchers used only 1 group, One Group Pre Test—Posttest without a control group. In the design of this study, there is a pretest, before being given treatment so that the results of the treatment can be known to be more accurate, because it can be compared with the state before being given.Total respondnet for this study was 27 pregnant women using numeric rating scale kuesioner.

RESULTS

Table 1.

Distribution of Respondent Characteristics

Table 1, it is known that the distribution of respondent characteristics includes 22.25% of the age of 20-25 years old, 55.5% of 26-30 years old and 22.25% of 31-35 years old. Respondents'

Variable	f	%
Age		
20 - 25 years old	6	22,25
26 – 30 years old	15	55,5
31 – 35 years old	6	22,25
Sum	27	100
Education		
JUNIOR	4	14,8
SMA	8	29,6
College	15	55,6
Sum	27	100%
Work		
Not Working	19	70,4
Work	8	29,6
Sum	27	100%
Parity		
Primigravida	10	37
Multigravida	17	63
Sum	27	100%

education distribution recorded 4 junior high school graduates (14.8%), high school graduates 8 people (29.6) and college graduates as many as 15 people (55.6%). The most respondents were a housewife with 19 people, which was 70.4% and working mothers, 8 people, equal to 29.6 percent. Respondents who participated in yoga with primipara were 10 respondents (37%) and multipara 27 respondents (63%).

Table 2.

Paired T Test Results

Variable	Mean	SD	Sig	P value
Before Yoga	7,63	1.334	0,68	0,000
After Yoga	2,22	1.118	0,36	

Table 2, the average result of the NRS pain scale measurement in the first measurement is 7.63, which means that it is severe pain, with a standard deviation of 1.334. In the second measurement, the average was 2.22 which means mild pain with a standard deviation of 1.118. The results of the statistical test obtained a P value of 0.000 ($p\text{ value} = <0.005$), so it was concluded that there was an effectiveness of prenatal yoga in reducing low back pain and *sciatica* before and after the intervention.

Table 3.

Multiple Linear Regression

Based on the multiple linear regression multivariate test in table 2, it was shown that the

Outcome	B	Std	95% Confident interval		Sig
			Lower limit	Upper limit	
Output					
Constant	-1.807	2.474	-6.952	3.338	.473
Parity	.103	.249	-.414	.621	.683
Work	-.217	.347	-.939	.506	.540
Gestational Age	-.012	.058	-.133	.108	.832
Pain Before	.478	.175	.113	.843	.013
Adjuster R2 = 55%					
n observations = 27					

effectiveness of prenatal yoga in reducing low back pain and *sciatica* in pregnant women in the third trimester had a decrease score of (b=1.807), with a p-value of 0.013 meaning a $p<0.005$ value, so there was an effectiveness of pain intercity felt by the respondents compared to before the intervention. The percentage of yoga administration had an effectiveness in reducing low back pain and *sciatica* by 55%.

DISCUSSION

Some women may experience back pain in the early stages of pregnancy due to hormonal changes and postural changes that may not be used to (Arummega et al., 2022) In this adaptation, you can do the stretching of the body, which is yoga (Haslin et al., 2023). Yoga is a combination of "Asana" and "Pranayama" as a complement to stretching to start sequence In yoga, this treatment is to relax muscles and make pregnant women more ready to do yoga. This relaxation can also reduce anxiety over the pain experienced. (Yulianti et al., 2018). Prenatal gentle yoga is a practical effort to harmonize body, mind, and soul, where the benefits of yoga form a firm body posture, as well as building flexible and strong muscles, purifying the central nerve that is found in the backbone to the legs (Lucin & Resmaniasih, 2022). (Prenatal et al., 2022)

The results of this study obtained results that were in accordance with the measurement of the pain scale Numeric Rating Scale (NRS) measured by normality test Shapiro Wilk at the first

measurement 0.68 (P value >0.05), after yoga it becomes 0.36 (P value >0.05). In the test Paired T Test Obtained Mean Before yoga, which was 7.63, with a standard deviation of 1.334 there was a second measurement obtained Mean 2.22 with a standard deviation of 1.188. The results of the statistical test obtained a P value value 0,000 (p value = <0.005), it was concluded that there was an effectiveness of prenatal yoga in reducing low back pain and Scicatica before and after the intervention. This analysis is in line with research conducted by Wariyah and Khairiah (2023) in his research entitled The Effectiveness of Prenatal Yoga on Back Pain in Pregnant Women in the Third Trimester in the Working Area of the Tegalsari Health Center, Karawang Regency, in 2023, obtained a value of $p=0.000$ less than the value of $p>0.05$, meaning that prenatal yoga is effective in reducing back pain in pregnant women in the third trimester. At Fontana Carvalho et al., (2020) states the value of $P=0.03$ in the journal *Edizioni Minerva Medica* entitled Effect of lumbar stabilization and muscular strectcing on pain, disabilities, postural control and muscle activion in pregnant woman with low back pain. The results of this study are also in line with the theory in the prenatal yoga book Aprilia, 2023 which thoroughly explores the benefits of prenatal yoga movements for pregnant women. Previous research on the effect of prenatal yoga on the reduction of complaints of pregnant women by Frafitasari, (2023) Women during the 9 months of pregnancy will experience many changes, both physical changes and psychological changes.

The changes that occur often cause discomfort and complaints to pregnant women. Physical changes that occur can be in the form of respiratory problems, sleep disturbances, gingivitis and redness of the gums, frequent urination, discomfort in the perineum, back pain, constipation, varicose veins, easy tiredness, false contractions, leg cramps, ankle edema. This study aims to determine the effect of complementary therapy of pregnancy/prenatal yoga on the reduction of complaints experienced by mothers during the pregnancy process. In his research, he used an analytical survey, with an observation design Cross Sectional. The sampling technique uses Purposive Sampling. The sample size was 49 respondents. The statistical analysis used is the Linear Regression Test. Based on the results of statistical tests, more than two complaints of pregnant women can be reduced by the number of frequencies of mothers who often do prenatal yoga, which is as many as 48% of respondents with $(p) < (0.005)$. So that there is an influence of prenatal yoga on the reduction of complaints in pregnant women. It is recommended for pregnant women to empower themselves in practicing Prenatal Yoga to achieve a healthy and comfortable pregnancy and delivery (Alsayla et al., 2020). Prenatal gentle yoga and relaxation exercises can reduce complaints that arise in pregnancy, and can help make mothers calmer and more relaxed during pregnancy, as well as help prepare mothers to face their labor to be calmer, easier and smoother (Ariyanti et al., 2021). When practicing yoga, deep breathing improves the amount of oxygen that reaches the brain, which helps relieve symptoms of pain, such as psychological illnesses and anxiety, low back pain and sciatica as well (Priyanka & Sajjan, 2021) (Darwitri & Rahmadona, 2022) (Gustina & Nurbaiti, 2020)

European guidelines recommend that low back pain and pelvic pain, can be managed by providing information and patients are advised to maintain good posture, encouraged to continue normal daily activities and work as much as possible and given appropriate individual exercises to achieve balance in posture even during pregnancy (Hu et al., 2020). Recently, there has been an increase in awareness and understanding of the practice of yoga among the global population. Complementary therapy (Complementary and alternative medicines (CAM)) As a support for healthy pregnant women who are recommended to involve the mind and body exercises, this category is such as massage therapy, yoga, chiropractic and meditation. CAM has been widely carried out in several American and

Middle Eastern countries such as Jordan (75%), Iran (22.3%) and Palestine (40%) (Quzmar et al., 2021). The researchers assumed that prenatal yoga was effective as a nonpharmacological alternative, based on the results of the posttest of reduced pain, and the researchers conducted interviews with respondents. Respondents gave feedback to the researchers, that respondents felt that their bodies were lighter in carrying out daily activities because the pain they felt before had been greatly reduced. Even respondents who have given birth feel that their bodies are more ready to undergo the postpartum period and their breastfeeding is more intense, because the yoga movements taught are not only beneficial for pregnant women, but also useful during childbirth, the postpartum period is also as a breastfeeding mother.

Based on the multivariate test, multiple linear regression shows that the effectiveness of prenatal yoga in reducing low back pain and Sciatica in the third trimester of pregnant women there was a decrease score of (b=1,807), with a value of p-value 0.013 means a value of $p < 0.005$, so there is an effectiveness of pain intensity felt by the respondents compared to before the intervention. The percentage of yoga administration has the effectiveness of reducing low back pain and Sciatica by 55%. In line with research (Holden et al., 2019) stated that the effectiveness felt by the respondents reached 95% of the interval 5.1-2.1.

CONCLUSION

Based on the results of the research and analysis of the effectiveness of prenatal yoga in reducing low back pain and sciatica in pregnant women in the third trimester at the Karang Rejo Health Center, the following conclusions can be drawn: Based on the study, the average intensity of low back pain and sciatica before treatment was 7.63 and after treatment was 2.22, there was a decrease from severe pain to mild pain in terms of numbers. There is a sense of effectiveness in reducing low back pain and sciatica in pregnant women in the third trimester in the Karang Rejo Health Center area.

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