THE EFFECT OF ANTENATAL YOGA ON LOW BACK PAIN IN THIRD-TRIMESTER OF PREGNANCY

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Abstract

Low back pain is pain that occurs in the lumbosacral region and would get worse with increasing the gestational age. The purpose of this study was to determine the decrease of the low back pain before and after doing antenatal yoga. The design of this study was quasy experiment study using unequal control groups, the group divided into experimental and control groups. The study was conducted at BPM Hj. Suharni Cermee Bondowoso, the number of respondent was 50 pregnant women that chosen using a purposive sampling technique. The instrument used an observation sheet. In this study yoga was performed 4 times in 2 weeks with a duration of 1 hour per session. Data analysis using the Paired T-Test. Statistical results showed the value of p = 0,000 <0.05. There is a significant effect of antenatal yoga to the low back pain scale in the third trimester of pregnant women.
Keywords: Low back pain, pregnant women, antenatal yoga.

INTRODUCTION

Pregnancy is the process of ovulation, zygote conception, implantation in the uterus, the formation of the placenta, until the development of the fetal until it is ready to be born. (Manuaba, 2010). During the pregnancy process, a mother must be able to adapt to changes that occur both physically and mentally. The imbalance of the hormones progesterone and estrogen greatly influences changes in the mother since the onset of the pregnancy (Sella, 2016). Frequent urination, striae gravidarum, hemorrhoids, vaginal discharge, constipation, shortness of breath, dizziness, headaches, and lower back pain are common problems in the third trimester of pregnancy (Evi, 2016). Back pain in pregnancy is a sensation of pain that occurs in the lumbosacral region. The wrong body position would force the body to stretch and cause fatigue, especially in the spine so that it would cause low back pain. (Official, 2017).

Several research on pregnant women in various regions in Indonesia stated that the prevalence of back pain in pregnant women reached 60-80%, while in East Java reached 65% of pregnant women (Mafikasari, 2014). One effort to treat low back pain is non-pharmacological therapy by providing relaxation such as yoga therapy (Herawati, 2017). Antenatal Yoga is the ability to cultivate the mind, with techniques for developing total personality both physically, psychologically and also spiritually (Mediarti, 2014). To get a healthy pregnancy it is advisable to practice yoga regularly 1-2 times a week (Sindhu, 2009).

In this study, yoga was performed 4 times in 2 weeks with a duration of 1 hour per session. Based on the phenomenon, researchers are interested in researching "The Effects of Antenatal Yoga on Low Back Pain in Trimester III of Pregnancy".

METHODS

This study used a Quasi Experiment design with a pretest-posttest with a control group. The sample was chosen using the purposive sampling technique. This technique was determine the sampling by determining specific characteristics and following the objectives of the study. The study population was third-trimester pregnant women who experienced low back pain in BPM Hj. Suharni Cermee, amounting to 50 people from all data in BPM Hj. Suharni was then divided into two groups, the experimental group of 25 respondents and 25 respondents for the control group. Antenatal Yoga is done 4 times in 2 weeks and each session is carried out for approximately 60 minutes. Data collection was carried out by dividing respondents into two groups then distributing numeric rating scale (NRS) observation sheets to each group, then measuring pain scale before and after doing antenatal yoga to the experimental group and also the control group but by not doing any intervention besides taking a deep breath for an hour.

RESULTS

1. Bivariate Data

a. Table 1 Data of low back pain in third trimester pregnant women before and after antenatal yoga in the experimental group at the first, second, third, and fourth meetings

Intervention 1-IV

No.	scale	Pain intensity before		Pain intensity after	
		N	%	N	%
intervention 1					
1.	0	-	-	-	-
2.	1	-	-	-	-
3.	2	-	-	-	-
4.	3	-	-	2	8%
5.	4	2	8%	9	36%
6.	5	8	32%	9	36%
7.	6	15	60%	5	20%
	Total	25	100%	25	100%
Paired T-Test : P-Value 0.000 < α (0,05)					
intervention II					
1.	0	-	-	-	-
2.	1	-	-	-	-
3.	2	-	-	4	16%

4.	3	4	16%	5	20%
5.	4	10	40%	13	52%
6.	5	8	32%	3	12%
7.	6	3	12%	-	-
	Total	25	100%	25	100%
	Paired T-Test : P-Value 0.000 < α (0,05)				
	intervention III				
1.	0	-	-	-	-
2.	1	-	-	4	16%
3.	2	6	24%	8	32%
4.	3	8	32%	10	40%
5.	4	8	32%	2	8%
6.	5	3	12%	1	4%
7.	6	-	-	-	-
	Total	25	100%	25	100%
	Paired T-Test : P-Value 0.000 < α (0,05)				
	intervention IV				
1.	0	-	-	5	20%
2.	1	4	10%	12	48%
3.	2	10	40%	8	24%
4.	3	8	32%	2	8%
5.	4	2	8%	-	-
6.	5	1	4%	-	-
7.	6	-	-	-	-
	Total	25	100%	25	100%
	Paired T-Test : P-Value 0.000 < α (0,05)				

Based on table 1 before doing yoga exercises there were 15 respondents (60%) with a pain scale of 6, and after doing yoga exercises there was a decrease in the pain scale including 9 respondents (36%) with a pain scale of 4 and 5. The results obtained in calculations or test statistics obtained ρ-value is equal to 0.000 <α (0.05) in the intervention I experimental group. Whereas in the intervention II there were 3 respondents (12%) with a pain scale of 6, and 10 respondents (40%) with a pain scale of 4, after performing an antenatal yoga there was a decrease in the pain scale, 13 respondents (52%) were on a scale of 4. The statistical test obtained ρ-value 0,000 <α (0.05). In the intervention III there were 8 respondents (32%) with a pain scale of 3 and 4, and after doing yoga exercises, there was a decrease in the pain scale ie there were 10 respondents (40%) on a scale 3. The statistical tests were obtained ρ-value 0.000 <α (0.05). Then in intervention IV, there were 10 respondents (40%) with a pain scale of 2, and after doing yoga exercises there was a decrease in the pain scale ie there were 12 respondents (48%) on a scale 1. The results of statistical test obtained ρ- value 0,000 <α (0.05) in the intervention groups I, II, III, and IV in the experimental group. Based on the data, it can be concluded that H0 is rejected and H1 is accepted which means there is a significant influence before and after an intervention.

b. Pain scale reduction data in the control group before and after observation

Tabel 2 Data *low back pain* in the trimester III in the control group based on observation I, II, III, and IV

No.	Scale	Pain Level Before		Pain Level After	
		N	%	N	%
Observation I					
1.	0	-	-	-	-
2.	1	-	-	-	-
3.	2	-	-	-	-
4.	3	-	-	-	-
5.	4	3	12%	-	-
6.	5	19	76%	24	96%
7.	6	3	12%	1	4%
	Total	25	100%	25	100%
Paired T-Test : P-Value 0,664> α (0,05)					
Observation II					
1.	0	-	-	-	-
2.	1	-	-	-	-
3.	2	-	-	-	-
4.	3	-	-	-	-
5.	4	-	-	3	12%
6.	5	21	84%	19	76%
7.	6	4	16%	3	12%
	Total	25	100%	25	100%
Paired T-Test : P-Value 0.161 > α (0,05)					
Observation III					
1.	0	-	-	-	-
2.	1	-	-	-	-
3.	2	-	-	-	-
4.	3	-	-	-	-
5.	4	2	8%	-	-
6.	5	20	80%	24	96%
7.	6	3	12%	1	4%
	Total	25	100%	25	100%
Paired T-Test : P-Value 1,000 > α (0,05)					
Observation IV					
1.	0	-	-	-	-
2.	1	-	-	-	-
3.	2	-	-	-	-
4.	3	-	-	-	-
5.	4	1	4%	4	16%
6.	5	22	88%	20	80%
7.	6	2	8%	1	4%
	Total	25	100%	25	100%

Paired T-Test : P-Value 0.053 > α (0,05)

Table 2 shows that there was no significant effect on third-trimester pregnant women on the first observation. This can be seen that the paired t-test result was the P-Value 0.664> α (0.05) so that H1 was rejected H0 was accepted. In the second observation, the paired T-Test value: P-Value 0.161> α (0.05) was obtained. At the third observation, obtained values: P-Value 1,000> α (0.05). At the fourth observation, a P-Value of 0.053> α (0.05) was obtained. It can be seen that H1 was rejected H0 was accepted so there is no significant effect on the control group.

c. The difference in pain scale before and after treatment in both group

Table 3 The *low back pain* scale in the experimental and control groups

		95% Confidence Interval of the Difference		
No.	Groups	Lower	Upper	Sig. (2-Tailed)
1.	Experiment	.89502	1.74498	0.000
2.	Control	.00555	.31445	1.000

Table 3 above shows that in the experimental group the value of lower .89502 is obtained while the upper value is 1.74498. Then get ρ-value = 0,000 <α (0.05) so that H1S is accepted and H0 is rejected, which means there is a significant effect on low back pain in third-trimester pregnant women in the experimental group. Whereas in the control group, the lower value of .00555 was obtained while the upper value of .31445 showed ρ-value = 1,000> α (0.05) which means that there was no significant effect on low back pain in third-trimester pregnant women in the control group.

DISCUSSION

1. Analysis of the Effect of the Antenatal Yoga Intervention

   a. Analysis of the difference in low back pain scale before and after Antenatal Yoga in the experimental group

   Based on the results of statistical tests show that back pain after antenatal yoga measures in third-trimester pregnant women at BPM Hj. Suharni Cermee Bondowoso with 25 respondents during four treatments obtained ρ-value = 0.000 <α (0.05) so that H1 is accepted and H0 is rejected. This study is in line with research conducted by

Devi, (2014) that yoga exercises in the third trimester of pregnancy can reduce complaints of pregnant women during the third trimester including low back pain. Meanwhile, according to Lebang, (2015) yoga exercises have aim to prepare pregnant women physically, mentally and spiritually until the delivery process. This is supported by research conducted by Octavia (2018), almost half of respondents who experienced low back pain with a scale of 2 were 44.4%, amounting to 20 respondents, then after yoga exercises, almost half of respondents were on a scale of 48.9 % of 22 respondents. The paired t-test showed that ρ-value = 0.001 <α (0.05) so that H1 was accepted and H0 was rejected.

Based on the description above the researchers argue that antenatal yoga can reduce back pain in third-trimester pregnant women. However, it must be done with good and right SOP so the benefits of this intervention will be maximum, and pregnant women feel comfortable without significant physical complaints. By following the steps taught by researchers, pregnant women can do antenatal yoga at home 1-2x in one week.

b. Analysis of the difference in the low back pain scale of the control group

Statistical test results obtained a P-value 1,000 which means p> 0.05 then the conclusion H0 is accepted H1 is rejected, there is no significant effect before and after observation in the control group. After being observed 4 times in 2 weeks in the control group, the lower p value was .00555, while the upper value was .31445, ρ-value = 1,000> α (0.05). In the fourth observation, there was a decrease in pain scale, namely, 3 respondents who were on a scale of 4, 1 respondent was previously on a scale of 6 and then decreased on a scale of 4, 2 other respondents were previously on a scale of 5 and then decreased on a scale of 4. However, the 3 respondents when viewed from the pain scale on the observation sheet (Numeric Rating Scale) remained on the moderate pain scale which means there was no significant effect on low back pain in third-trimester pregnant women in the control group compared with the experimental group. The existence of a slight decrease was because of there are things that affect pain in these respondents such as the use of pharmacological therapy.

Low back pain in pregnant women is influenced by changes in posture, which is caused by weight gain during pregnancy, causing an imbalance of muscles around the pelvis and causing pain in the lower back (Ummah, 2012). Low back pain causes interfere in women's daily activities, as usual, back pain that occurs constantly would cause prolonged pain, back pain in postpartum and chronic back pain that would be

difficult to cure. Low back pain in pregnant women is physiological, but if it is not treated it can turn into pathology. Then the right treatment is needed (Fraser, 2009). This is in line with Katonis's research (2011) that stated if low back pain is not treated it will continue to disrupt the activity, and injury may occur and worse, it depend on the gestational age.

c. Analysis of the low back pain scale before and after the intervention in the experimental group and the control group.

Based on the SPSS test results, the observations of low back pain scale before and after interventions was 4 times. All the results of the study were combined between post-experimental and post-control to find out if there were differences in the scale of low back pain. The results of this study, showed that the comparison of the scale average before and after in the experimental and control groups was different significanly, it can be seen in P.Value the two research groups showed the probability value in this study was $\rho = 0.000$ in the experimental group ($\alpha = <0.05$). In conclusion, Ha is accepted and H0 is rejected, which means there is a significant difference between the experimental group and the control group of low back pain scale in pregnant women in BPM Hj. Suharni Cermee Bondowoso.

According to researchers, the initial state (before being given an intervention) in the experimental group and before being observed in the control group the pain scale is on the same scale that is moderate (4-6), after the intervention in the experimental group 2 times a week there is a significant decrease of the low back pain scale. Whereas, in the control group there was no significant decrease, and on observations I and III there was an increase in pain scale. This is in line with the Official study (2017) that the T-Test shows the value of p = 0,000 (<0.05). This indicates that there is a significant effect of yoga on the decrease in intensity of low back pain in pregnant women. The results of this study are strengthened by the results of Rafika's study, (2018) with a sample of 32 third trimester pregnant women consisting of 16 people as an intervention group and 16 people as controls taken by consecutive sampling technique. SPSS test shows $p = 0.000 < \alpha = 0.05$ which indicates a significant difference between the average physical complaints of the control group and the intervention group. The results of this study determine that yoga is an alternative therapy in dealing with low back pain in pregnancy.

CONCLUSIONS AND RECOMMENDATIONS

a. Conclusion

There is a significant of antenatal yoga on low back pain before and after intervention in the experimental group.While, in the control group, there is not effect of antenatal yoga on low back pain before and after observation in the control group. There are differences in the effect of antenatal yoga on low back pain in the experimental and control groups.

b. Suggestions

In Educational Institutions, this study can be used as a reference to enrich student knowledge about the benefits of yoga. For the Nursing Professional, this research is expected to be an alternative of the non-pharmacological therapy in reducing low back pain in pregnancy. This research is expected to be able to broaden the respondents' insights regarding antenatal yoga as a non-pharmacological treatment that can be performed for mothers who experience low back pain. This research is also expected to be considered by other health workers in health services to provide non-pharmacological treatment. The results of this study are expected to be a new experience in the field of nursing research specifically related to non-pharmacological treatment for Low Back Pain according to procedures and rules.

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