

Implications of Prenatal Gentle Yoga on Low Back Pain among Women in the Second and Third Trimesters of Pregnancy

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A B S T R A C T

Back pain during pregnancy is caused by changes in anatomical and hormonal structures. Anatomical changes occur because the role of the spine which is getting heavier to balance the body due to the enlargement of the uterus and fetus. Another cause is an increase in the relaxin hormone which causes the spinal ligaments to be unstable so that it is easy to clamp blood vessels and nerve fibers. This study was conducted by applying prenatal gentle yoga. Yoga movements were carried out for 60 minutes so as to reduce low back pain that is often experienced by pregnant women in the II and III trimesters. This was a Quasi-Experimental study with one group non-equivalent pre-test post-test design. The study samples of 30 women in the II and III trimesters of pregnancy who experienced back pain were selected through total sampling technique. The study was conducted from March to May 2022. The results of the study showed that there was a difference in the mean value before and after being given prenatal gentle yoga intervention in reducing low back pain among women in the II and III trimesters of pregnancy, with a p-value of $0.000 < 0.005$. It is recommended that prenatal gentle yoga can be implemented among pregnant women since yoga movements can help pregnant women in managing breathing, preparing for the delivery process and can reduce the symptoms of complaints that are often experienced by pregnant women.

Nyeri punggung selama kehamilan disebabkan karena perubahan struktur anatomis dan hormonal. Perubahan anatomis terjadi karena tulang belakang yang bertambah berat, untuk menyeimbangkan tubuh seiring membesarnya uterus dan janin. Penyebab lainnya yang terjadi yaitu peningkatan hormone relaksin yang menyebabkan ligamen tulang belakang menjadi tidak stabil sehingga mudah menjepit daerah pembuluh darah dan serabut syaraf. Penelitian ini dilakukan menerapkan prenatal gentle yoga dimana gerakan yoga dilakukan selama 60 menit sehingga dapat mengurangi nyeri punggung (low back pain) yang sering dirasakan pada ibu hamil trimester II dan III. Metode penelitian yang dilakukan menggunakan Quasi eksperimen dengan desain pretest posttest non equivalen one group. Teknik dalam pengambilan sampel pada penelitian ini adalah total sampling. Sampel pada penelitian ini adalah 30 ibu hamil trimester II dan III yang mengalami nyeri punggung. pengambilan sampel dilakukan pada bulan Maret sampai dengan Mei 2022. Hasil Penelitian terdapat perbedaan nilai rata-rata sebelum dan setelah diberikan intervensi prenatal gentle yoga dalam menurunkan low back pain pada ibu hamil trimester II dan III yaitu p-value $0,000 < 0,005$. Rekomendasi: Pemberian prenatal gentle yoga dapat dilakukan secara efektif dimana dengan Gerakan yoga tersebut dapat membantu ibu hamil dalam mengelola pernafasan, mempersiapkan diri dalam proses persalinan serta dapat mengurangi gejala keluhan yang sering dialami ibu hamil.

Introduction

Pregnancy is a natural process experienced by every woman to obtain offspring, Physiological and psychological changes in pregnancy occur due to an increase in the estrogen and progesterone hormones which cause changes in the body of pregnant women so as to make them feel discomfort, among others, in the musculoskeletal system which causes back pain complaints. Such complaints may disappear by doing physical activity of pregnancy exercise as well as prenatal gentle yoga as alternative non-pharmacological methods (Curtiz, Weinrib, and Katz, 2019)

Back pain is a pain that occurs in the lumbosacral area. The intensity increases with the increase in gestational age due to a shift in the center of gravity and changes in posture due to the enlarged weight of the uterus. Back pain in pregnancy occurs due to changes in anatomical and hormonal structures. Anatomical changes occur because the role of the spine which is getting heavier to balance the body due to the enlargement of the uterus and fetus. Another cause is an increase in the relaxing hormone which causes the spinal ligaments to be unstable so that it is easy to clamp blood vessels and nerve fibers (American Pregnancy Organization, 2014). The incidence of back pain during pregnancy is 48-90%. As many as 50% and 70% of pregnant women surveyed in the UK & Scandinavia and in Australia reported back pain, respectively (WHO, 2019)

Yoga is one kind of non-pharmacological therapy that can function to reduce back pain in the III trimester of pregnancy (Dewi, Suharyo, and R Runjati 2017). Yoga can also be performed as a practical effort in harmonizing the body, mind, and spirit. Yoga aims to form a firm posture, as well as to build flexible and strong muscles, and purify the central nerves found in the spine. Yoga in the Third trimester of pregnancy can reduce the complaints and discomforts often experienced by pregnant women during the III trimester of pregnancy, one of which is back pain (Inding and Ilmiati, 2016).

Prenatal Gentle Yoga is part of one of the effective exercises that can reduce pregnancy back pain. Furthermore, Yoga also teaches relaxation, breathing, and body position techniques to improve balance, strength and reduce pain. Yoga movements are emphasized more on breathing techniques that aim to make the body relaxed so as to increase oxygen intake to the brain and into the body system (Aprilia and Richmond, 2019). Prenatal Gentle Yoga will inhibit the increase in sympathetic nerves, so that the hormones that cause deregulation of the body can be reduced in levels. The parasympathetic nervous system, which has a work function opposite to the sympathetic nerve, will slow down or weaken the work of the internal apparatus of the body. As a result, there is a decrease in heart rate, breath rhythm, blood pressure, muscle tension, metabolic rate, and the production of stress-causing hormones. As levels of stress-causing hormones decrease, the whole body begins to function at a healthier level with more energy for healing, restoration and rejuvenation. Thus, pregnant women will feel relaxed along with the decrease in anxiety symptoms (Amalia, 2014).

Based on data obtained from the MAMIYO Clinic as a clinic that serves maternal and child health in Mataram city, there were 350 out of a total of 450 pregnant women (77%) who performed prenatal gentle yoga in 2021. One of the patients who performed prenatal gentle yoga had many complaints due to physical changes in pregnancy. This made her often experience discomforts during pregnancy,

namely pain in the extremities, back pain due to changes in body shape, and she often felt tightness and more difficult to move. Based on the background, it is expected that the provision of Prenatal gentle yoga can manage the mother's breathing, control complaints that are often experienced, optimize the position of the fetus and reduce back pain by forming posture in accordance with its function, and balance body functions so as to relieve pain.

Methods

This was a quasi-experimental study with a one group non-equivalent pre-test post-test design. This kind of study will produce conclusions by comparing data before and after the intervention. The population in this study involved all women in the II and III trimesters of pregnancy who visited the Mamiyo Clinic in Mataram City in February - April 2022 as many as 30 pregnant women. The study samples were selected through total sampling technique. Prenatal gentle yoga was performed once every 2 weeks for 3 months. Activities were carried out in groups and private classes in accordance with the requests of pregnant women at the Mamiyo clinic in Mataram City. Low back pain experienced by pregnant women will be assessed using a standard questionnaire, namely the Numeric Rating Scale (NRS) measurements taken before and after prenatal gentle yoga. The Numeric Rating Scale (NRS) pain scale is a pain scale used to assess pain in adults. The numerical grading scale is used instead of a word description tool. In this case, the patient assessed the pain by using a scale of 0-10. Scales are typically used when assessing pain intensity before and after an intervention. The analytical test used in this study was a paired t-test. Before the paired t-test was conducted, a data normality test was performed. The normality test obtained a sig value or p value before and after the intervention of 0.137 < 0.005 which meant that the data were normally distributed (Parametric Test). The study had obtained an Ethical Clearance No. 070.1/15/KEP/2022 at NTB Hospital.

Results

Table 1. Frequency Distribution of Characteristics of Women in the II and III Trimesters of Pregnancy

Characteristic	F	%
Age		
At-risk	1	3.3
No Risk	29	96.7
Total	30	100.0
Level of Education		
Low	9	30.0
High	21	70.0
Total	30	100.0
Parity		
Primigravida	21	70.0
Multigravida	9	30.0
Total	30	100.0

Source: primary data, June 2022

Table.1 showed that 1 respondent (3.3%) was in the at-risk age and 29 respondents (96.7%) were in the non-risk age. Regarding the characteristics by the level of education, 9 respondents (30%) had low level of education and 21 respondents (70%) had a high level of education. Furthermore regarding

characteristics by parity, 21 respondents (70%) were primigravida women and 9 respondents (30%) were multigravida women.

Table 2. Distribution of the Level of Low Back Pain among Women in the II and III Trimesters of Pregnancy before Prenatal Gentle Yoga

Variable	Pre-test		Post-test	
	F	%	F	%
Low Back Pain				
No Pain	0	0.0	13	43.3
Mild Pain	1	3.3	17	56.7
Moderate Pain	10	33.3	0	0.0
Severe Pain	19	63.3	0	0.0
Total	30	100.0	30	100.0

Source: primary data, June 2022

Table 2 shows the level of low back pain among women in the II and III trimesters of pregnancy before the prenatal gentle yoga intervention. There was no respondent in the category of no pain, 1 respondent (3.3%) was in the category of mild pain, 10 respondents (33.3%) were in the category of moderate pain, and 19 respondents (63.3%) were in the category of severe pain. Meanwhile, after the prenatal gentle yoga intervention, there were 13 respondents (43.3%) in the category of no pain, 17 respondents (56.7%) were in the category of mild pain, and none of the respondents experienced moderate pain and severe pain.

Table 3. Mean Difference of the Level of Low Back Pain among Women in the II and III Trimesters of Pregnancy Before and After Prenatal Gentle Yoga

Group	N	Mean±SD	95% Confidence Interval		p-value
			Min	Max	
			Prenatal Gentle Yoga		
Pre-test	30	6.96±1.93	5.245	6.820	0.000
Post-test	30	0.93±0.90			

Source: primary data, June 2022

Table 3 presented that before prenatal gentle yoga intervention, the mean level of low back pain was 6.96 and after prenatal gentle yoga intervention, it was 0.93. Such finding indicated that there was a decrease in the level of low back pain 6 times after being given prenatal gentle yoga among women in the II and III trimesters of pregnancy. The results of the paired t-test analysis test showed a significant difference or change before and after prenatal gentle yoga intervention. The probability value/p-value of the paired t-test was 0.000, which meant that there was a difference between before and after treatment, namely the prenatal gentle yoga intervention among women in the II and III trimesters of pregnancy with a p-value of $0.000 < 0.05$.

Discussion

The level of low back pain among respondents after being given prenatal gentle yoga was mostly decreased compared to before prenatal gentle yoga. This is because pregnant women were more disciplined in attending yoga classes and were able to empower themselves as early as possible by training the back and pelvic muscles so as to reduce the symptoms of discomfort experienced during pregnancy by doing yoga classes 24 times for 3 months (Cunningham, 2012). Such back pain complaints can disappear by performing gradual or little-by-little physical movements until the recommended stage

is reached and it is expected that the joint complaints will be relieved. Exercise performed more than two weeks will be more meaningful than exercise in a short period of time (Davidson et al., 2019)

Prenatal gentle yoga effectively provides benefits for pregnant women. Many studies have proven that performing prenatal gentle yoga had advantages for pregnant women, for example a study conducted by (Beddoe et al. 2018) which found a significant decrease in anxiety after prenatal gentle yoga in the intervention group. Furthermore, a study conducted by (Field et al., 2013) which assessed the levels of depression, anxiety, anger, back and leg pain showed that the complaints were relieved after the first session of prenatal gentle yoga. This study compared two groups, namely pregnant women who did prenatal gentle yoga and pregnant women who only received social support. The results of this study revealed that the group who received prenatal gentle yoga experienced a decrease in the levels of depression, anxiety, anger, back pain, and legs when compared to the group that only received social support. Moreover, a study conducted by (Satyapriya et al., 2013) presented that prenatal gentle yoga could reduce the level of anxiety experienced by pregnant women. In fact, pregnant women experience of pain is influenced by several factors, namely age, poor health conditions, psychological and psychosocial problems, degenerative arthritis, smoking habit, sitting or standing for hours, and obesity. To cope with back pain, women may perform exercise, apply hot and cold compresses, correct their body postures and make a consultation. Exercise treatment can be performed through prenatal gentle yoga.

Conclusion

There was a difference in mean values before and after being given prenatal gentle yoga intervention and it was found effective in reducing low back pain among women in the II and III trimesters of pregnancy.

Recommendations

The provision of prenatal gentle yoga exercises must be carried out continuously since such yoga movements can help pregnant women in managing breathing, preparing for the delivery process and can reduce the symptoms of complaints that are often experienced by pregnant women. Yoga practice is very important since it is safe and not too aggressive and can make pregnant women feel comfortable through stiff relief and body stretching.

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