

Prenatal Yoga to Relief Back Pain among Pregnant Women

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A B S T R A C T

Back pain is a kind of discomfort that frequently develops during pregnancy, especially among pregnant women in late pregnancy or those with a history of back pain in previous pregnancy. Prenatal yoga can relief back pain discomfort since it promotes good posture and stretch the spine's central nervous system. This study aims to determine the effect of yoga exercise on back pain among pregnant women in the third trimester. This was a pre-experimental study with one group pretest posttest design. The current study involved 30 pregnant women in the third trimester, who were assigned into the treatment group (participated in prenatal yoga exercise) and the control group (did not participate in prenatal yoga exercise), consisting of 15 samples, respectively. The study instrument applied here was Faces Pain Scale-Revised a questionnaire (FPS-R). It was found that there was a significant effect of prenatal yoga exercise to relief back pain among pregnant women in the third trimester ($p < 0.05$). It can be concluded that prenatal yoga was beneficial for relieving back pain among pregnant women in the third trimester. Thus, prenatal yoga technique is considered an appropriate method for supporting the success of pregnancy.

Keluhan berupa nyeri di bagian punggung merupakan ketidaknyamanan yang sering terjadi pada kehamilan, terutama dengan usia kehamilan lanjut atau ibu hamil yang sebelumnya mempunyai nyeri di bagian punggung pada kehamilan sebelumnya. Keluhan di bagian punggung saat hamil tersebut bisa dikurangi dengan melakukan yoga prenatal yang bermanfaat untuk: menjaga bentuk postur tegak tubuh, meregangkan sistem saraf pusat di tulang belakang. Penelitian ini bertujuan untuk mengukur pengaruh prenatal yoga pada nyeri punggung yang di rasakan ibu hamil di trimester akhir. Penelitian ini menggunakan jenis pre-experimental dengan one group pretest posttest design. Penelitian ini melibatkan 30 ibu hamil trimester III yang terbagi menjadi 15 kontrol (tanpa pemberian senam prenatal yoga) dan 15 yang mendapatkan prenatal yoga. Instrumen penelitian menggunakan kuesioner Faces Pain Scale-Revised (FPS-R). Hasil dan kesimpulan signifikan menurunkan nyeri punggung pada ibu hamil trimester III ($p < 0,05$). Disimpulkan bahwa prenatal yoga pada ibu hamil trimester III bermanfaat untuk mengurangi nyeri punggung. Dengan demikian, teknik prenatal yoga dapat menjadi metode untuk mendukung keberhasilan dan keselamatan ibu hamil.

Introduction

Pregnancy is a natural condition for every woman. Changes that occur during pregnancy can be divided into three categories, namely physical, emotional, and physiological changes, which are due to changes in hormones during pregnancy (Jiang, Q., Wu, Z., Zhou, L., Dunlop, J. & Chen, 2015). Back pain is one of many discomforts that pregnant women experience, especially in the third trimester of pregnancy. Lumbosacral discomfort is a common symptom of back pain during pregnancy. Since a change in body posture and the center of gravity induce back pain, this discomfort typically gets worse

with age (Avin et al., 2018). Pregnant women may experience pain in the back due to improper posture since it causes the body to stretch and become more exhausted, especially in the spine area (P & R. Urip Purwono, 2018).

Back pain during pregnancy usually occurs due to bone stretching in the waist area as the gestational age increases. Frequent back pain occurs because the maternal point and balance change from its original state (Cunningham, F.G., Mac Donald, P.C., Gant, N.F., Leveno, K.J., Gilstrap, L.C. & G.D., 2010). If such back discomfort is not appropriately managed, it can have a negative impact on the quality of life of pregnant women. According to the course of gestational age, this condition may become a persistent injury or continually manifests in a worse condition (Suryani & Ina Handayani, 2018).

35 to 60 percent of pregnant women have back pain. It was found that 47–60% of pregnant women reported having back discomfort between the first and fifth months of their pregnancies (Putri & Kusumastusti, 2021). Furthermore, more than 50% of pregnant women in the United States, Canada, Iceland, Turkey, Korea, and Israel also reported having back pain (Suryani & Ina Handayani, 2018). The prevalence of spine pain during pregnancy in Indonesia was only obtained from the study conducted by Suharto 2001 which explained that 47% of 180 pregnant women involved experienced spine pain. In addition, it was estimated that 65% of all pregnant women in East Java Province had back pain (Hidayati, 2019).

Back pain is typically treated with pharmaceutical therapy, oral therapy, and non-pharmacological therapy. Yoga exercise is a type of non-pharmacological pain management (Hidayati, 2019). In fact, yoga is a practical way to unify the body, mind, and spirit. Such exercise has the benefit of helping to develop firm body posture, flexible and strong muscles, and support the spine's central nerve system (Bonura, 2014; Rahayu & A, 2021). In a previous study, pregnant women who practiced yoga throughout the third trimester of their pregnancy might experience fewer complaints, including back discomfort (Suryani & Ina Handayani, 2018). The initial goal of the study was to determine whether yoga has any impact in reducing back pain in expectant mothers.

Methods

The research design used in this study is quasi experimental with a pre-experimental approach (one group-pre-test-posttest design). The current study involved 30 pregnant women in the third trimester, who were assigned into the treatment group (participated in prenatal yoga exercise) and the control group (did not participate in prenatal yoga exercise), consisting of 15 samples, respectively. The population in this study was pregnant women in the third trimester who participated in prenatal yoga before the birth process. The samples were selected using purposive sampling technique based on inclusion criteria namely pregnant women in the third trimester, had back pain complaint, had performed prenatal yoga at least 4 times during pregnancy. Yoga during pregnancy was implemented to pregnant women at least 4 times assisted by a certified yoga instructor. Yoga movements performed included: warming up, janu sirsana, child pose, ardha uttanasana, virabhadrasana, happy baby pose. The study

instrument applied Faces Pain Scale-Revised a questionnaire (FPS-R) to assess the pain level. FPS-R is a pain intensity assessment tool that is considered the most effective and efficient to be applied in health researches and clinical settings. FPS-R is generally presented in the form of a horizontal line with the score range of 0-10. Each score indicates the intensity of pain experienced by the patient. The Mann-Whitney statistical test was applied to determine the difference, and Spearman's rho test was applied to determine the pre and post correlation. Statistical tests were conducted using IBM SPSS Version 23 Software. This study was approved by the ethics committee of the Faculty of Health Sciences, Jenderal Achmad Yani University, Yogyakarta, Indonesia (Number Skep/0253/KEPK/IX/2021).

Results

Table 1. Characteristics of Respondents

Characteristic	Treatment group		Control group	
	Frequency	Percentage	Frequency	Percentage
Age				
<20	0	0	2	13%
20-35	13	87%	12	80%
≥36	2	13%	1	2%
Total	15	100	15	100
Gravida				
Primigravida	10	67%	11	73%
Multigravida	5	33%	4	27%
Grand-multigravida	0	0	0	0
Total	15	100	15	100

Based on table 1, most of respondents in the treatment group aged 20-35 years 13 (87%), and were primigravida 10 (67%). On the other hand, most of respondents in the control group aged 20-35 years, 13 (87%), and were primigravida 11 (73%).

Table 2. Cross-Tabulation Results Regarding the Effect of Prenatal Yoga on Back Pain Level

Sample	Characterization			
	No Pain (%)	Mild pain (%)	Moderate pain (%)	Severe pain (%)
Control group	1 (3.3%)	4 (13.3%)	9 (6%)	1 (3.3%)
Treatment group	5 (16.6%)	10 (33.3%)	0 (0%)	0 (0%)

Table 2 presents the cross-tabulation results regarding the level of pain among all respondents. 9 respondents who did not participate in prenatal yoga (6%) experienced moderate back pain. In contrast, 10 respondents (33.3%) who participated in prenatal yoga only experienced mild back pain.

Table 3. Analysis Results through Non-Parametric Statistical Test of Mann-Whitney

Sample	P value
Control group (N=15)	0.000 < 0.05
Treatment group (N=15)	

The Mann Whitney test obtained a significance value of $p = 0.000 < 0.05$, which indicated a significant difference in pain level between pregnant women who participated in yoga and those who did not participate in yoga. Thus, yoga exercise was very effective for relieving the level of back pain.

Discussion

Discomfort in lumbar region is referred to as back pain. Back pain is a frequent condition, especially among pregnant women with preexisting medical history. Another possibility is that it can be experienced for the first time in pregnancy. Back pain is very common discomfort in pregnancy, thus

described as one of the minor discomforts in pregnancy. Pregnant women will experience an increase in weight distribution to the breast and stomach which leads to changes in spinal curvature and lower back pain (Crow et al., 2015).

A non-pharmacological therapy that can relief back pain is yoga. Yoga is a practical approach to balancing the mind, body, and soul. Its benefits include improving posture, developing flexible and strong muscles, and supporting the spine's central nervous system. Prenatal yoga as a form of preparation for labor can be very helpful since it teaches a woman to recognize cues from her body and maximize her potential natural (Curtis, K., Weinrib, A. & Katz, 2012).

Based on the study findings presented in table 3 and table 4 through non-parametric statistical tests of Spearman Rank and Mann Whitney, the study hypothesis can be accepted. The more often pregnant women participate in prenatal yoga, the more the pain level will decrease. Such finding is in line with a study conducted by Curtis, K., Weinrib, A. & Katz (2012) which found that the pain scores were considerably lower in the experimental group (practiced yoga) than in the control group (did not practice yoga) in deliveries, despite the fact that pain scores grew with time in both groups. Additionally, the study finding demonstrated that women who participated in the yoga intervention experienced considerably shorter labor duration overall and throughout the initial stage of labor (Rahayu & Ariningtyas, 2022).

The pain of labor can be intense, followed by tension, anxiety, and fear which can worsen the maternal condition. Many women wish to experience normal labor without any medication, or invasive methods such as an epidural. Currently, women turn to complementary therapies to help reduce pain intensity during delivery and improve the delivery experience (Smith C, Hancock H, Black-Mortimer J, 2007). As women look for alternatives to conventional medical techniques such as analgesics and anesthetics, which can be invasive and occasionally have negative side effects for both mother and baby, relaxation therapy for pain management in labor is also growing in popularity (Smith C, Hancock H, Black-Mortimer J, 2007).

Yoga is a relaxation technique to relief. Yoga relaxation method might encourage the body to release substances that block pain namely endorphins and encephalitis. Yoga can relief pain by relaxing endometrial muscles that experience spasm and ischemia due to increased prostaglandins resulting in vasodilation of blood vessels (Eni et al., 2018). This causes an increase in blood flow to area that experience spasm and ischemia so as to relief pain experienced. In addition, yoga can change the pattern of acceptance of pain to a more calming phase so that the body can gradually recover from its main discomfort of pain (Rafika, 2018). Routine movements in yoga can also change blood circulation to become smooth so as to ease pain. Yoga can be practiced for 30 minutes, two to three times each week (Tharida & Yoga, 2022).

The results of the study conducted by Balnthakodi et al (2018) revealed that yoga was a medicine for mind and body that was non-invasive, easy to learn, and effective in relief back pain. Yoga is also beneficial at easing the uncomfortable side effects of pregnancy and childbirth. Yoga is practiced by about 35% of women between the ages of 28 and 33, making it crucial to assess how it affects labor and

delivery outcomes as well as how well women manage stress, anxiety, pain, and discomfort (C Bolanthakodi, C Raghunandan, A Saili, S Mondal, 2018).

Conclusions

It can be concluded that prenatal yoga was beneficial for relieving back pain among pregnant women in the third trimester. Thus, prenatal yoga technique is considered an appropriate method for supporting the success of pregnancy. Furthermore, there was a difference in pain levels between pregnant women who performed yoga exercise and those who did not perform yoga exercise. Yoga was very effective for relieving the pain level of pregnant women. Health workers can use simple yoga movements to relieve back pain among pregnant women such as janu sirsana, child pose, ardha uttanasana, virabhadrasana, and happy baby yoga pose.

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