

Original Research

Back Pain Intensity in Third Trimester Pregnant Women Participating in Prenatal Yoga

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ABSTRACT

Background: Back pain is one of the most common complaints experienced by pregnant women in the third trimester due to changes in posture, weight gain, and the effects of estrogen and progesterone hormones, which cause ligament and joint relaxation. This condition can reduce the comfort and quality of life of pregnant women. Prenatal yoga is a gentle relaxation and stretching exercise designed to increase flexibility, improve posture, and reduce muscle tension. This study aims to determine the response to back pain in pregnant women in their third trimester who participate in prenatal yoga in the Wedi Community Health Center working area.

Methods: This study used a descriptive approach with total sampling technique. The study population consisted of all pregnant women in their third trimester who experienced lower back pain in the working area of the Wedi Community Health Center in Klaten Regency in 2022, totaling 42 people, all of whom were included in the sample. The research instrument used a Numeric Rating Scale (NRS) checklist to measure pain levels. Data were analyzed descriptively using frequency distribution and percentages.

Results: Before participating in prenatal yoga, most pregnant women experienced moderate pain on a scale of 5, with 19 respondents (45.2%), while after participating in prenatal yoga, the pain decreased to a scale of 2 in 16 respondents (38.1%).

Conclusion: Prenatal yoga has been proven to help reduce the intensity of back pain in pregnant women in their third trimester safely and effectively. It is recommended that health workers develop prenatal yoga classes in health care facilities as a promotional and preventive measure to improve the comfort and well-being of pregnant women.

ARTICLE HISTORY

Received: March 27, 2023

Accepted: January 15, 2025

KEYWORDS

Back pain; prenatal yoga; pregnant women; third trimester

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Cite this as: Fridawati, R., Astuti, K. E. W., & Satiyem. (2024). Back Pain Intensity in Third Trimester Pregnant Women Participating in Prenatal Yoga. *Jurnal Kebidanan dan Kesehatan Tradisional*, 9(2), 71-78. <https://doi.org/10.37341/jkkt.v9i2.663>

INTRODUCTION

Lower back pain is a common complaint among pregnant women, especially in the third trimester of pregnancy. The International Association for the Study of Pain (IASP) defines lower back pain as discomfort in the area between the last thoracic vertebra (T12) and the first sacral vertebra (S1) (Guyton, 2019; Rinta, 2017). This pain occurs due to

anatomical and physiological changes in the pregnant woman's body, including enlargement of the uterus and weight gain, which cause the muscles and joints to work harder (Tyastuti, 2016). This condition can reduce the daily activities and quality of life of pregnant women if not treated properly.

Globally, the incidence of back pain in pregnant women is relatively high. Studies in Europe, America, Australia, and Asia show that approximately 70–86% of pregnant women experience back pain during pregnancy (Gutke, 2017). In various countries, including China, Taiwan, and Africa, the prevalence of back pain increases with gestational age, from 16% in the first trimester to more than 90% in the third trimester (Kristiansson, 2015). In Indonesia, the Ministry of Health (2018) reports more than five million pregnant women each year, with an increase in pregnancy service coverage reaching 88.54% nationally and 97.13% in Central Java (Ministry of Health, 2020). However, non-pharmacological pain management for pregnant women is still suboptimal.

Various methods are used to address back pain during pregnancy, both pharmacologically and non-pharmacologically (Sinclair, 2014). Non-pharmacological approaches are considered safer because they do not involve medications that can affect the fetus. One recommended method is prenatal yoga, which is a relaxation exercise that combines breathing, stretching, and meditation to strengthen the body and improve physical and emotional balance during pregnancy. Prenatal yoga helps pregnant women flex their joints, improve posture, practice breathing, and improve sleep quality (Aprilia, 2020).

Previous studies have shown that prenatal yoga can reduce physical discomfort during pregnancy. Gustina (2020) reported that four weeks of prenatal yoga training reduced lower back pain complaints in pregnant women by 46.9%. Another study by Nurhayati (2019) also proved that regular yoga practice is effective in reducing third trimester complaints compared to mothers who do not practice yoga regularly. These results indicate that prenatal yoga has great potential as a simple, inexpensive, and effective intervention to reduce back pain in pregnant women.

Preliminary study results at the Wedi Community Health Center in Klaten Regency showed that of the 42 pregnant women in their third trimester who participated in prenatal yoga, most still experienced back pain of varying severity. This indicates that there has not been much research describing the back pain response of pregnant women descriptively after participating in prenatal yoga in that region. Therefore, this study was conducted to determine the response to back pain in third-trimester pregnant women participating in prenatal yoga in the Wedi Community Health Center working area as an effort to provide scientific information on the effectiveness of prenatal yoga in supporting the comfort of pregnant women.

MATERIALS AND METHODS

This study used a quantitative descriptive design with a cross-sectional approach. The researcher chose this design because the aim was to describe the phenomenon of back pain in third trimester pregnant women participating in prenatal yoga without directly intervening in the variables being studied. A cross-sectional approach was used so that data could be collected at one time, thereby providing an objective picture of back pain conditions at the time of the study (Notoatmodjo, 2018). This design was considered appropriate because it was able to describe the actual level of pain experienced by pregnant women in the study area.

The study was conducted at the Wedi Community Health Center, Wedi District, Klaten Regency, Central Java Province, which is one of the community health centers with an active prenatal yoga program. This location was chosen because there were a sufficient number of yoga participants, enabling researchers to obtain representative data. The research was conducted in November 2022, after obtaining permission from the relevant agencies and ethical approval from the institution. All research activities, including the preparation, implementation, and final report preparation stages, were carried out according to the previously established research schedule.

The research population consisted of 42 pregnant women in their third trimester who participated in prenatal yoga at the Wedi Community Health Center. The researchers used total sampling, in which the entire population was used as the research sample (Sugiyono, 2016). This technique was chosen so that the research results could reflect the conditions of all pregnant women who participated in the prenatal yoga program in the area. The inclusion criteria in this study included pregnant women in their third trimester who actively participated in yoga classes and were willing to be respondents. The exclusion criteria were pregnant women with pregnancy complications, severe musculoskeletal disorders, or medical conditions that prevented them from practicing yoga.

This study used a single variable, namely back pain in third trimester pregnant women participating in prenatal yoga. The research instrument used was the Visual Analog Scale (VAS), a numerical scale from 0 to 10 used to assess pain intensity. This scale has been widely used in clinical research because it is able to describe the level of pain subjectively but measurably (Harsono, 2014). VAS is considered valid and reliable with a validity value of $r = 0.62$ and reliability of more than 0.95, making it suitable for use in this study.

The data collection procedure was carried out in several stages. The researchers first requested the respondents' consent through an informed consent form. Next, the researchers explained how to assess pain using the VAS, then measured the participants' back pain before and after they participated in prenatal yoga. Yoga activities were conducted four times a month. After all data were collected, the researcher edited, coded, entered, and cleaned the data to ensure that they were ready for analysis. Data processing was conducted using a computer to ensure more accurate and efficient results.

Data analysis in this study used univariate analysis with the results presented in the form of frequency distribution and percentages. This analysis aimed to describe the characteristics of the respondents and the level of back pain before and after participating in prenatal yoga descriptively (Sugiyono, 2016). This study also pays attention to research ethics, including the principle of informed consent for respondent approval, anonymity to maintain confidentiality, and confidentiality to protect respondents' personal information (Notoatmodjo, 2018).

RESULTS

Table 1. Characteristics of Pregnant Women in the Third Trimester in the Wedi Health Center Service Area (n = 42)

Characteristics	Category	Frequency (n)	Percentage
Age	< 20 years	2	4.8
	20–35 years	40	95.2
	> 35 years old	0	0

Characteristics	Category	Frequency (n)	Percentage
Gestational age	28–32 weeks	29	69.1
	> 32–40 weeks	13	30.9
	> 40 weeks	0	0
History of pain	Yes	32	76.2
	None	10	23.8
Parity	Primigravida	14	33.3
	Multigravida	28	66.7

Table 1 shows that most respondents were aged 20–35 years (95.2%) with a gestational age of 28–32 weeks (69.1%). Most pregnant women had a history of pain (76.2%) and the majority were multigravida (66.7%). These data indicate that the respondents were of healthy reproductive age, but factors such as pregnancy experience and history of pain could potentially affect the intensity of back pain complaints.

Table 2. Overview of Back Pain Responses Before and After Prenatal Yoga (n = 42)

Pain Scale	Before Prenatal Yoga (n, %)	After Prenatal Yoga (n, %)
0	0 (0.0)	1 (2.4)
1	0 (0.0)	1 (2.4)
2	2 (4.8)	10 (23.8)
3	3 (7.1)	16 (38.1)
4	9 (21.4)	12 (28.6)
5	19 (45.2)	2 (4.8)
6	8 (19.0)	1 (2.4)
8	1 (2.4)	0 (0.0)
Total	42 (100)	42 (100)

Table 2 shows that before participating in *prenatal yoga*, most pregnant women experienced moderate pain on a scale of 5 (45.2%). After regularly participating in yoga, the intensity of pain decreased, with most respondents scoring 3 on the scale (38.1%). These results indicate an improvement in pain levels after *prenatal yoga*, which means that this exercise is effective in helping to reduce back pain in pregnant women in their third trimester.

Table 3. Back Pain Responses Before and After Prenatal Yoga Based on Respondent Characteristics (n = 42)

Characteristics	Category	Highest Pain Scale Before (f, %)	Lowest Pain Scale After (f, %)
Age	< 20 years	Scale 4 (2.4%)	Scale 3 (2.4%)
	20–35 years	Scale 5 (42.9%)	Scale 3 (37.8%)
Gestational age	28–32 weeks	Scale 5 (28.6%)	Scale 3 (28.6%)

Characteristics	Category	Highest Pain Scale Before (f, %)	Lowest Pain Scale After (f, %)
	> 32–40 weeks	Scale 5 (16.6%)	Scale 3 (9.6%)
History of pain	Yes	Scale 5 (37.8%)	Scale 3 (30.8%)
	None	Scale 5 (9.6%)	Scale 2 (12.0%)
Parity	Primigravida	Scale 5 (23.8%)	Scale 3 (19.7%)
	Multigravida	Scale 5 (21.4%)	Scale 3 (19.7%)

Table 3 shows that a decrease in back pain occurred in all respondent characteristic groups. The most significant reduction occurred in mothers aged 20–35 years and with a gestational age of 28–32 weeks. Mothers with a history of pain and higher parity also experienced an improvement in pain scale after participating in *prenatal yoga*. This indicates that yoga exercises are beneficial for various conditions in pregnant women, both primigravida and multigravida.

DISCUSSION

The results of this study indicate that most pregnant women in their third trimester in the Wedi Community Health Center working area experienced a reduction in back pain after participating in prenatal yoga activities. Before doing yoga, most respondents experienced moderate to severe pain, while after participating in yoga regularly, the intensity of pain decreased to mild to moderate. These findings indicate that prenatal yoga can help relax the back muscles, increase body flexibility, and improve posture due to weight gain and changes in the position of the uterus during pregnancy. Targeted physical exercise has been proven to help improve blood circulation and reduce pressure on the spinal nerves (Jorgensen et al., 2018).

The reduction in back pain after prenatal yoga intervention is also in line with Ulfah's (2014) study, which states that four weeks of yoga can reduce the intensity of back pain in pregnant women by up to 50%. Similar results were found by Aprilia (2020), who found that yoga plays a role in improving posture and balancing the pelvic muscles during pregnancy. Another study by Omoke et al. (2021) in Nigeria also explains that lower back pain complaints in third-trimester pregnant women are caused by hormonal changes and increased mechanical load on the body, and that stretching exercises can help reduce these complaints. Thus, the results of this study reinforce empirical evidence that prenatal yoga is an effective non-pharmacological intervention for reducing back pain in pregnant women.

This study also found that pregnancy age and parity factors influence the level of back pain experienced. Mothers with a pregnancy age of more than 32 weeks or multigravida tend to experience more severe pain than primigravida. This condition is caused by the increasing size of the fetus and the weight of the uterus, which puts greater pressure on the spine (Kamarudin et al., 2019). Hormonal factors such as increased relaxin also weaken the pelvic support tissues, thereby disrupting the body's balance. Therefore, yoga exercises that involve strengthening the back and pelvic muscles are very helpful for pregnant women in adjusting to the body's biomechanical changes prior to delivery (Central Java Provincial Health Office, 2020).

In terms of implications, the results of this study provide an important contribution to health workers in antenatal care. Prenatal yoga can be incorporated into prenatal classes

at community health centers to help reduce back pain without the use of medication. Midwives and health workers need to act as facilitators who supervise the safe and regular practice of yoga. With professional guidance, pregnant women can obtain optimal physical and psychological benefits, such as relaxation, improved sleep quality, and reduced stress during pregnancy (Indonesian Ministry of Health, 2020a). In addition, this activity can increase mothers' satisfaction with maternal health services at the primary level.

The limitation of this study lies in its descriptive design, which cannot show a definite cause-and-effect relationship between yoga exercises and reduced back pain. Pain measurement was based on subjective perception using the VAS scale, which has the potential to cause perception bias among respondents. Furthermore, psychological factors and the mothers' daily physical activity levels were not measured in depth, even though these can affect pain perception (Polit & Beck, 2018). Therefore, further research using an experimental design with a control group and longitudinal measurements is recommended to obtain stronger and more measurable results.

Based on the results and limitations found, this study recommends that prenatal yoga activities be developed continuously in primary health care facilities. This activity can be included as a routine intervention in pregnant women's classes with the support of certified instructors. The researchers also recommend that yoga training for midwives and health cadres be expanded to improve their skills in facilitating activities. In addition, further research is recommended to explore the effects of yoga on the psychological aspects of pregnant women, such as anxiety levels, stress, and sleep quality, so that the benefits are more comprehensive and evidence based.

CONCLUSION

Based on the analysis and synthesis of the research, it can be concluded that prenatal yoga is effective in reducing the intensity of back pain in pregnant women in their third trimester in the Wedi Community Health Center working area. Most respondents experienced a change in pain scale from moderate to mild after participating in regular exercises, indicating increased muscle relaxation, improved posture, and adaptation to physiological changes during pregnancy. Factors such as age, gestational age, history of pain, and parity affect the level of pain felt, but the overall results show that prenatal yoga contributes positively to the comfort and well-being of mothers approaching childbirth. Therefore, it is recommended that prenatal yoga activities be integrated into prenatal classes at healthcare facilities, with the guidance of midwives and certified yoga instructors, and be used as a preventive and promotive strategy to improve the quality of antenatal care and reduce musculoskeletal complaints during pregnancy.

ACKNOWLEDGEMENT

The author would like to thank the Director of Poltekkes Kemenkes Surakarta for facilitating this research.

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