

## Conference Paper

# Applications of Prenatal Yoga and Maryam Exercise for Reducing Back Pain in Pregnant Women at Third Trimester

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## Abstract.

The incidence of back pain in pregnant women occurs in all countries including Indonesia due to fetal growth, hormonal factors, activity, and other factors. Prenatal yoga and Maryam exercise can overcome back pain complaints in pregnant women; however, they are rarely studied. The study aims to analyze the application of prenatal yoga and Maryam exercise so that the third trimester pregnant women do not feel back pain. This type of research was experimental observation with a pretest-posttest design. The study was conducted at Masita Clinic, Cilegon in April-May 2022. The sample is 15 people with total population sampling technique. The research instruments were back pain questionnaire sheets and pregnancy exercise checklist sheets. Using the paired sample t-test, the data were normally distributed with the value of the One-Sample Kolmogorov-Smirnov Test, 0.2. The results of data analysis showed that there was a reduction in back pain during pregnancy in pregnant women who did prenatal yoga and Maryam exercise with (p-value: 0,000). Yoga and exercise can train the pelvic floor muscles and Maryam exercise can make pregnant women more calm, relaxed, and incorporate religious elements so that back pain complaints can be reduced.

**Keywords:** prenatal yoga, Maryam exercise, back pain

## 1. Introduction

Pregnancy is the union of a sperm from a male with an ovum from a female. The formation of the products of conception until the baby is born is called the gestation period. based on the last day of menstruation, a normal pregnancy has a duration of 280 days (40 weeks or 9 months 7 days). Pregnancy is divided into three trimesters, namely the first, second and third trimesters. Along with the growth of the fetus in the mother's womb, the pelvic joints can move slightly to compensate for the enlargement of the fetus, the shoulders are pulled back and the lumbar is more curved, the spinal joints are more flexible and can cause back pain [1].

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Almost all continents in the world show experience extreme pain in the lower back area during pregnancy, including the continents of Europe, America, Australia, Asia such as Taiwan and Indonesia, even on the African continent in upper-class women in Nigeria. For the territory of Indonesia, lower back pain is felt by 60-80% of pregnant women [2].

Pregnancy can cause the body of pregnant women to feel more tired, especially in the lower back. This is because it supports the burden of an enlarged stomach due to pregnancy and improper posture when doing activities. This condition causes pain and stiffness in the area. Pain syndrome that occurs due to the body's gravity moving forward on the lower back of pregnant women is called low back pain [3].

Before the enlargement of the abdomen due to pregnancy reaches its peak, which is in the range of 24-28 weeks of gestation, currently the peak of pain in the waist of pregnant women is felt, in addition. Complaints during pregnancy cannot be ignored because they can affect the health of pregnant women in general. One of the complaints that is felt is low back pain which is often referred to as "persistent back pain". The incidence of back pain in pregnant women occurs in 45% of pregnant women and reaches its peak and will persist at week 28 with an incidence rate of 69% [4]. The cause of pregnant women back pain is the enlargement of the abdomen along with the growth of the fetus in the womb causing the supporting muscles in the uterus to stretch and spasm occurs, making pregnant women feel very intense pain. as for other predisposing factors besides uterine growth are due to the influence of relaxin hormone on ligaments, previous history of back pain, parity and activity [3].

Efforts that can be done are to provide health education about the prevention or treatment of back pain in pregnant women, one of which is pregnancy exercise including transverse exercises, pelvic floor exercises and general stretching. This exercise trains the inner transverse abdominal muscle tone which is the main postural support of the spine. during pregnancy. The importance of relaxation physical exercise during pregnancy can be useful for relaxing any stiff and painful joints due to increased burden on pregnant women, reducing complaints that arise due to changes in body shape, maintain and regulate the flexibility of the abdominal wall ligaments, so as to prevent or overcome complaints. pain in the lower back [3]. One way to improve health during pregnancy is to do light exercise such as pregnancy exercise. Exercise during pregnancy is a structured and directed movement to prepare for a physically and mentally healthy pregnancy so that childbirth will proceed spontaneously, safely and normally [5].

There are many things that must be faced by pregnant women to help the process of pregnancy and childbirth go well, one of which is by doing pregnancy exercises. Pregnant women are recommended to do pregnancy exercise when the gestational age reaches 6 months. Pregnancy exercise is suitable for pregnant women because it can help pregnant women adjust to the physical changes that occur including changes in reproductive organs such as sex, abdominal enlargement and so on. Following pregnancy exercise regularly and intensively, pregnant women can maintain optimal body and fetal health [5].

Pregnancy exercise can help pregnant women go through the labor process well. This is because pregnancy exercise can strengthen and make the abdominal wall muscles, ligaments and pelvic floor muscles more elastic. This exercise serves to strengthen the core stability of the body which will help maintain a healthy spine. Incidents of pregnant women falling and experiencing trauma to the spine can be reduced by increasing the strength and balance of the body that is obtained when pregnant women do pregnancy exercises. Pregnancy exercise movements can reduce pain in the back of pregnant women because it can strengthen the abdominal muscles [4]. One of the pregnancy exercise techniques is prenatal yoga. Prenatal yoga (yoga during pregnancy) aims to make pregnant women better prepared physiologically, psychologically and spiritually, especially during childbirth, which is one of the modifications of hatha yoga that is very suitable for pregnant women. With careful preparation, the mother will be more confident and gain confidence in having a smooth and comfortable delivery [6].

Another method is the Maryam Gymnastics which is a modification of prenatal gymnastics movements with postures of bowing, sitting and prostration as in prayer accompanied by dhikr. The name Maryam was inspired by Maryam, the mother of Prophet Isa (as) with the story of her pregnancy and childbirth which was full of struggles. The story of Mary is also enshrined by Allah in the Qur'an in a special letter, Surah Maryam. Maryam Hijra from Baitul Maqdis to a higher city on foot. That is, his physical condition is very prime to make the trip [7].

Very few studies have discussed the relationship between prenatal yoga and reduced back pain. Among them is the research by Fitriani showing the results that pregnant yoga has an effect on reducing the back pain scale of pregnant women in the third trimester seen from the pre-test to post-test results which have decreased [7]. Another researcher, Fauziah, stated that there is an effect of prenatal yoga on reducing back pain scale [1].

Research on Maryam's gymnastics is still very rare, including research conducted by Fitriana (2022), Kurniati (2019), Kurniati (2019), and Setiyani (2017). However, these studies did not discuss the effectiveness of Maryam exercise in reducing back pain in pregnant women but discussed other topics, namely anxiety in pregnant women and the duration of labor [7]–[9]. Research on prenatal yoga and Maryam's gymnastics which is still very minimal in literature makes researchers interested in studying these 2 things. Coupled with the research site that does apply the two methods of pregnancy exercise in the pregnancy exercise class. The purpose of this study was to determine the effectiveness of prenatal yoga and Maryam exercise on reducing back pain in third trimester pregnant women.

## 2. Methods and equipment

### 2.1. Study design

The research design is a one group pretest-posttest design, a quasi-experimental analytical study. The dependent variable in this study is the level of back pain and the independent variable, namely prenatal yoga and Maryam gymnastics. This research was conducted at Masita Clinic, Cilegon. This research was conducted in April – May 2022.

### 2.2. Sample

The research population is pregnant women who are in the third trimester at Masita Clinic in April-May 2022. The sample in this study was 15 pregnant women at Masita Clinic, the total sample was the population. The sample was determined based on the inclusion criteria, namely pregnant women who were declared healthy by the midwife; not suffering from disease/complications; and third trimester pregnant women.

### 2.3. Data collection procedur

The data was taken directly by the researcher. First, a pre-test was carried out to measure the back pain scale first, then the researchers intervened, namely prenatal yoga pregnancy exercise and Maryam exercise, intervention was carried out for 1 month.

After that, a post test was carried out to measure the back pain scale whether there was a difference or not.

In the pregnancy exercise class, Masita Clinic applies both methods of pregnancy exercise, namely prenatal yoga and Maryam's exercise. Before doing the pregnancy exercise session, the instructor and the participants of the Masita Clinic pregnancy exercise class performed a prayer together followed by tadarus or reciting together with Maryam's letter. After that, do pregnancy exercises. Pregnancy exercise classes at Masita Clinic are conducted privately during the pandemic so there is only 1 participant in 1 pregnancy exercise class. At the first meeting participants will be taught breathing techniques, followed by prenatal yoga at the next meeting and ended with Maryam's gymnastics. The duration of the pregnancy exercise class is 1-2 months depending on the gestational age.

## 2.4. Instrument

Independent variables using research instruments in the form of Leaflets and SOPs for pregnancy exercise techniques, while for the dependent variable, namely the measurement of back pain, the researcher used a pain intensity observation sheet, namely the Visual Analogue Scale.

## 2.5. Data Analysis

The data analysis used in this research is univariate analysis and bivariate analysis. The bivariate analysis test is a paired sample t-test with a significance limit of 5% because the data is normally distributed with the value of One-Sample Kolmogorov-Smirnov Test is 0.2.

## 3. Results

The following are the results of data analysis that has been carried out univariate and bivariate.

Based on table 1 shows that almost half (40%) of respondents are aged 30-34 years, most (73%) have a high school education and more than half of respondents are aged 28-32 weeks (53%).

TABLE 1: Respondent characteristics.

Variable	Frequency	Percentage (%)
<b>Age</b>		
20-24	3	20
25-29	4	27
30-34	6	40
35-39	2	13
<b>Education</b>		
Junior High School	1	7
Senior High School	11	73
College	3	20
<b>Gestational age (weeks)</b>		
28-32	8	53
33-37	7	47

TABLE 2: Respondent's pain level.

Pain Scale	Frequency	Percentage (%)
<b>Pre test</b>		
5	1	6,7
6	2	13,3
7	4	26,7
8	5	33,3
9	2	13,3
10	1	6,7
<b>Post test</b>		
2	1	6,7
3	2	13,3
4	4	26,7
5	5	33,3
6	2	13,3
7	1	6,7

Table 2. shows the results of the pre-test were 1 person with a pain scale of 5, 2 people with a pain scale of 6, 4 people with a pain scale of 7, 5 people with a pain scale of 8, 2 people with a pain scale of 9, and 1 person with a pain scale of 10. The post test results were 1 person with a pain scale of 2, 2 people with a pain scale of 3, 4 people with a pain scale of 4, 5 people with a pain scale of 5, 2 people with a pain scale of 6, and 1 person with a pain scale of 7.

Tabel 3. shows that there is a decrease in the pain scale before and after pregnancy exercise with an average value of 3 and a p value of 0.000, which means that there is

TABLE 3: Respondents' pre-test-post-test scores.

Pain Scale	Mean	P Value
Pre test	7,53	0,000
Post test	4,53	
Mean difference	3	

a significant relationship between prenatal yoga and Maryam exercise with a decrease in back pain for pregnant women.

## 4. Discussion

After being given pregnancy exercises, many pregnant women experience a decrease in low back pain, even pregnant women do not feel lower back pain anymore, this is because when pregnant women feel low back pain, pregnant women are willing to do pregnancy exercises correctly and regularly so that pressure on the back muscles or shift in the lower spine is reduced [10]. By doing pregnancy exercise can also develop the back muscles so that the muscles on the back become flexible and the pressure on the back will also subside so that lower back pain will decrease. in doing. Daily activities such as when preparing food, ironing and lifting heavy objects if there is an error in posture will cause a shift in the lower spine resulting in low back pain [10].

Pregnancy exercise is sports exercises for pregnant women. Pregnancy exercise is done with the aim of making practice breathing, regulate the rhythm of contraction and relaxation, improve posture, and make stage muscles more flexible. The exercises are carried out by starting with preliminary exercises, core exercises and relaxation exercises. Core exercises to change the posture for the better by practicing contraction and relaxation and practicing good breathing techniques. This exercise depends on gestational age (22-25 weeks, 26-30 weeks, 31-34 weeks, and 35 weeks). As well as relaxation with a bent sitting position. From these exercises, it can relax the body's muscle contractions and the area of joint movement, as well as eliminate or reduce stiffness so that lower back pain can be reduced [10].

Prenatal yoga (yoga during pregnancy) is Prenatal yoga is a development of hatha yoga which is very suitable for pregnant women, aiming to better prepare for birth from a physical, mental and religious perspective. Thus pregnant women will be more confident to give birth [6]. Prenatal yoga is carried out starting with warm-up movements (neck heating, stretching and twisting the side of the body, stretching shoulders and shoulders)

followed by Yoga movements: restorative postures (mudhasana/child posture), standing postures (utkatasana/chair posture, pelvic twisting series). pelvic rocking), posture flexes and strengthens the pelvis (squatting posture series, baddha konasana/butterfly posture series), Sufi rotation, meditation while relaxing diaphragmatic breathing [11].

Pregnant women must meet their needs holistically (mind, body and soul) to prevent anxiety and overcome discomfort that arises during pregnancy. Along with the development of science and technology, there are various methods of pregnancy exercise, one of which is Maryam's gymnastics. Maryam's exercise (Gymnastics) fulfills these three holistic aspects and can be one of the efforts to develop KIH in Indonesia. Maryam's training method for pregnant women has been introduced and applied. Maryam exercise consists of modified basic pregnancy gymnastics with bowing, prostration and sitting postures that resemble the Tawarruk sitting position in prayer accompanied by dhikr [8].

Pregnancy exercise classes at Masita Clinic use a combination of several pregnancy exercise techniques, namely prenatal yoga and Maryam's gymnastics. Gymnastics is done when the gestational age is more than 32 weeks, and is carried out 1-2 months. Before starting pregnancy exercise, pregnant women and therapists (midwives) do tadarus with Maryam's letter. At the beginning of the meeting, the mother was taught breathing exercises, then the next meeting was prenatal yoga and at the end of the meeting when the mother was at term, she was trained how to do Maryam's gymnastics while still doing prenatal yoga in each session. Do not forget that the midwife always recommends that mothers routinely do 15-30 minutes of pregnancy exercise every day and are adjusted to the mother's physical condition / health.

Changes in the musculoskeletal system during pregnancy, namely the gradual changes in the body and an increase changes in the weight of pregnant women make it difficult for pregnant women to walk. Large breasts and a stooped shoulder position when standing will make the back and lumbar curves stand out even more. The associated changes often cause musculoskeletal discomfort, which in turn causes lower back pain. In addition, when doing exercise during pregnancy more endorphins will be produced by the body. Endorphins function as sedatives whose properties are the same as morphine, providing a sense of calm and comfort so that pregnant women's back pain can be reduced [12].

Physiologically, regular pregnancy exercise in the intervention group helps reduce low back pain felt by mothers because exercise is carried out regularly which makes



the muscles elastic because pregnancy exercise trains to regulate contraction and relaxation and strengthens the mother's muscles, especially the lower back muscles. But if this exercise is not done regularly, then the effects or benefits of this exercise cannot be felt by the mother because the effects or benefits of pregnancy exercise can be felt if it is done regularly and regularly [12]. Pregnancy exercise and yoga have an effect on reducing back pain in third trimester pregnant women, and the most influential is Yoga. It can be concluded that pregnancy exercise can provide benefits for maintaining and improving the physical health of pregnant women, improving blood circulation, reducing complaints of cramps or aches, and preparing breathing, muscle and pelvic activity to face the labor process [13]. In accordance with the research of Lilis (2019) and Megasari (2015), there is a change in the level of low back pain in third trimester pregnant women after being given pregnant exercise, which is found that some respondents experience mild pain. Pregnancy exercise is effective in reducing the intensity of back pain in third trimester pregnant women at Pukesmas Putri Ayu [5], [14].

Lower back pain in third trimester pregnant women can be overcome by doing exercises or exercises during pregnancy. However, if it is not done regularly, the benefits will also be less felt by pregnant women. In this study, the decrease in back pain was very slightly reduced even if the mother still felt it when she did not do exercise regularly [15]. In a meta-analysis study conducted by Shiri (2018) on 2347 pregnant women from various sources found the fact that pregnancy exercise can reduce back pain in pregnant women, although not proven for pelvic pain, the conclusion is that pregnancy exercise can reduce low back pain even though the effect is small [16].

## 5. Conclusion

There is an effect between prenatal yoga and Maryam's gymnastics in overcoming back pain for pregnant women at Masita Clinic Cilegon. By doing prenatal yoga and pregnancy exercises regularly during the third trimester of pregnancy, it is proven to be able to reduce back pain.

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## Conflict of Interest

The authors have no conflict of interest to declare.

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