

Original Research Report

## Effect of Pregnancy Exercise on Lower Back Pain in Pregnant Women in the Village of the Working Area of Medan Tuntungan Public Health Center

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**Abstract:** Back pain is pain that is in the lumbar, lumbar sacral, or in the neck area. Back pain occurs due to muscle strain and pressure on nerve roots. The research method uses a quasi-experimental design with One group pretest-post test design. The population in this study were pregnant women in the third trimester in the working area of the Medan Tuntungan Health Center as many as 30 people and all of them were used as samples (total sampling). The results of the study were 21 respondents (70%) moderate pain, 6 respondents (20%) had mild pain, 3 respondents (10%) had severe but controlled pain and no respondent had no pain and experienced severe uncontrolled low back pain. After the demonstration there were 20 respondents (66.7%) mild pain, 7 respondents (23.3%) no pain, 3 respondents (10%) moderate low back pain, and none of the respondents experienced controlled and uncontrolled severe low back pain. Paired sample t-test analysis obtained a p-value of 0.000 (p-value <0.05). This means that there is an effect of pregnancy exercise on low back pain in pregnant women. It is expected that health workers will provide counseling to pregnant women about the benefits of pregnancy exercise to prevent back pain complaints.

**Keywords:** Back Pain, Pregnancy Exercise, Pregnant Women.



## 1. Introduction

Pregnancy can cause major changes in a woman's body. Cunningham et al [1] found that changes that occur after conception and continues in pregnancy, in response to physiological stimuli stimulated by the fetus and placenta. Changes that occur in pregnant women are body changes, weight gain that can cause changes in body shape and the way they walk [2].

Back pain is pain in the lumbar, lumbosacral, or neck area. Back pain occurs due to muscle strain and pressure on the nerve roots, usually causing pain, tension, or stiffness in the back [3]. Lower back pain is pain arising from the structure of spinal and paraspinal bones in the lumbosacral area [4]. Low back pain is a muscle and bone problem that is often complained about in pregnancy. Lower back pain can be associated with lordosis, which is the result of an increase in uterine weight that pulls the spine out of the mother's body line [5].

Based on the initial survey conducted by researchers in January 2021 in the Village of Medan Tuntungan Health Center Work Area obtained data from Ibu Cut Part of KIA the number of pregnant women trimester III in August that there were 30 people. The results of interviews with 5 pregnant women obtained information that there are 3 pregnant women who experience back pain that is very disturbing for mothers to do activities and there are 2 pregnant women who complain of back pain but do not interfere with activity. Doing a back massage with eucalyptus oil and then rest is an effort made in reducing pain. There is also compressing the back with warm water. When asked about sports such as pregnant gymnastics, there were 2 pregnant women who answered that they had done these activities but were irregular and 3 pregnant women never did pregnant gymnastics. Many pregnant women who do not follow the pregnant gymnastics program even though it has been done. Irregularity of pregnant women to carry out and do pregnant gymnastics can cause pregnant women to complain of pain in the back.

## 2. Literature Review

The highest prevalence rates in low back pain at the time of pregnancy were reported in Europe, America, Australia, China, including in mountainous regions of Taiwan, Africa and Nigeria [6]. The results of the Latin American study showed over the past 14 years from 3.9% in 1992 to 10.2% in 2006 there was a significant increase in the incidence of low back pain. The prevalence of pregnancy-related low back pain in Australia is about 35% to 80%. Rodrigues et al [7] added the average prevalence from 50% to 80% of pregnant women who experience back pain is 57%.

The results of research on pregnant women in Indonesia reached 60-80% of people who experience back pain (back pain) in their pregnancy. East Java province is estimated to be about 65% of 100% of pregnant women who experience back pain (back pain). Mudayyah Research [8] at Private Practice Midwife (BPS) Siti Halimah in Surabaya Village, Sukodadi Subdistrict, Lamongan Regency that of 12 pregnant women respondents found there were 10 respondents (83%) pregnant women who experienced back pain and there were 2 respondents (17%) pregnant women did not experience back pain [8] [9].

Increasing levels of the hormone relaxin in pregnancy can cause back pain in the mother, so flexibility of ligament tissue can increase the mobility of joints in the pelvis. This can have an impact on spinal and pelvic instability that can cause discomfort. Other predisposing factors that cause back pain are weight gain, changes in posture, in addition back pain can also be felt from posture errors when sitting, standing, lying down and even when doing home activities [10].

Complaints of back pain pregnant women can not be ignored. According to Chen et al [11], light exercise such as pregnant gymnastics is one way to improve health during pregnancy. In pregnant gymnastics there are movements that can strengthen the abdominal muscles so that complaints of back pain felt by pregnant women can be reduced. Abdominal muscles have the function to control the pelvis when looking up. Muscles become the second line of defense that can help prevent excessive tension when the ligaments in the area around the pelvis stiffen and no longer provide support to the joints. The cause of back pain is excessive tension in the pelvis and weakening of the abdominal muscles, so it needs exercise to maintain good abdominal muscle tone [12].

According Lichayati & Kartikasari [13] research conduct at in Polindes Village Tlanak Kedungpring District Lamongan that more than 75% pregnant women who never do pregnant gymnastics experience back pain and 100%. Many pregnant women who do pregnant gymnastics do not experience back pain. Sulistiana et al [14] research conduct at BPS Ny. Widya Suroso Turi Lamongan Subdistrict, as many as 13 people (54.2%) pregnant women before being given treatment

pregnant gymnastics experienced back pain and after being given pregnant gymnastic treatment there were 14 people (58.3%) did not experience back pain.

### 3. Method

Type of this research is quasi experimental with one group pretest-post test design [15]. The design of this study can be seen in Figure 1.

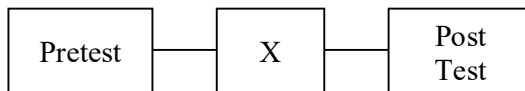


Figure 1. Reserch Design

where,

- O1 : Measuring low back pain in pregnant women before a demonstration of pregnant gymnastics
- X : Treatment in the form of pregnant gymnastics activities
- O2 : Measures lower back pain in pregnant women after a demonstration of pregnant gymnastics

Population in this study was of a third trimester pregnant woman in the Village of Medan Tuntungan Health Center working area of 30 people which was carried out in January to June 2021. The sample in this study met the inclusion criteria of 30 people (total sampling). The inclusion criteria in this study were trimester III pregnant women and mothers who experienced low back pain. The exclusive criteria are pregnant women in trimesters I and II, and mothers who do not experience back pain. The study was conducted from January to June 2021.

### 4. Result and Discussion

Bsed on the results of the study showed that before the demonstration of pregnant gymnastics most of the respondents experienced moderate low back pain as many as 21 respondents (70%), mild pain as many as 6 respondents (20%), severe but controlled pain there were 3 respondents (10%) and no respondents who were not painless and experiencing uncontrolled severe lower back pain.

Results showed that after the demonstration of pregnant gymnastics most of the respondents experienced mild low back pain as many as 20 respondents (66.7%), no pain as many as 7 respondents (23.3%), moderate low back pain there were 3 respondents (10%), and none of the respondents who experienced low back pain classified as severe controlled and uncontrolled.

Table 1. Distribution of Respondents based on Low Back Pain in Pregnant Women before the Demonstration of Pregnant Gymnastics in the Village of Medan Tuntungan Health Center Work Area

No	Level of Back Pain	Before Demonstration	
		f	%
1	No Pain	0	0.0
2	Mild Pain	6	20.0
3	Moderate Pain	21	70.0
4	Severe Pain	3	10.0
5	Very Intense Pain	0	0.0
<b>Total</b>		<b>30</b>	<b>100</b>

Table 2. Distribution of Respondents based on Low Back Pain in Pregnant Women after the Demonstration of Pregnant Gymnastics in the Village of Medan Tuntungan Health Center Work Area

No	Level of Back Pain	After Demonstration	
		f	%
1	No Pain	7	23.3
2	Mild Pain	20	66.7
3	Moderate Pain	3	10.0
4	Severe Pain	0	0.0
5	Very Intense Pain	0	0.0
<b>Total</b>		<b>30</b>	<b>100</b>

Table 3. Average Distribution of Respondents based on Low Back Pain in Pregnant Women after the Demonstration of Pregnant Gymnastics in the Village of Medan Tuntungan Health Center Work Area

Back Pain	N	Average	SD
Before demonstration of Pregnant Gymnastics	30	4.8000	1.49482
After demonstration of Pregnant Gymnastics	30	2.0000	1.33907

Results showed that the average distribution of respondents based on the lower back pain scale in pregnant women before the demonstration of pregnant gymnastics was 4.8000 with a standard deviation of 1.49482 and after the demonstration of pregnant gymnastics the pain scale was reduced to 2.0000 with a standard deviation of 1.33907.

Table 4. Effect of Pregnant Gymnastics on Low Back Pain in Pregnant Women in the Village of Medan Tuntungan Health Center Work Area

No	Variable	Mean-MD	SD	95% CI		p-Value	N
				Lower	Upper		
1	Before -After Pregnant Gymnastics	2.80000	1.12648	2.37936	3.22064	0.000	30

Based on the result shows that the effect of pregnant gymnastics demonstrations on the scale of low back pain in pregnant women in the Village of Medan Tuntungan Health Center Working Area in 2021 averaged 2.80000 with a standard deviation of 1.12648. The demonstration of pregnant gymnastics affected 3.22064 times compared to before the demonstration of 2.37936 against the scale of low back pain of pregnant women.

#### 4.1. Low Back Pain in Pregnant Women Before Pregnancy Gymnastics Demonstrations

From the 21 respondents (70%), mild pain as many as 6 respondents (20%), severe but controlled pain there were 3 respondents (10%) and none of the respondents were painless and experienced uncontrolled severe low back pain. According to the assumption of researchers one of the causes of low back pain in pregnant women is because most of the respondents in this study are housewives who do a lot of daily work as the habits that mothers do when they are not pregnant. This is in

accordance with the opinion of Lichayati & Kartikasari [13] that low back pain is a clinical syndrome characterized by the main symptoms of pain or other unpleasant feelings in the lower spine area.

In order not to cause pain, the movements carried out should not violate limitations, where the pain caused by abnormality in the lumbar pelvis, thus affecting the movement or bone structure of the normal vertebrae but its function is not perfect.

#### **4.2. Lower Back Pain in Pregnant Women After a Pregnancy Exercise Demonstration**

From the 20 respondents (66.7%), 7 respondents (23.3%), low back pain were 3 respondents (10%), and none of the respondents experienced severe low back pain which was classified as controlled and uncontrolled.

The assumption of the researcher, all respondents in this study have done pregnancy exercise. There is a difference in the pain scale between before the pregnancy exercise is done and after the pregnancy exercise demonstration is carried out. This is a positive behavior of pregnant women, because it can reduce the occurrence of back pain, strengthen labor muscles, and help arrange the fetus so that it is very good in an effort to facilitate the delivery process in the future.

#### **4.3. Low Back Pain in Pregnant Women before and after Pregnancy Gymnastics Demonstrations**

Result shows that before doing pregnant gymnastics the average scale of low back pain of pregnant women by 4.8000 means that the mother's lower back pain is included in the category of uncontrolled low back pain with a level of pain among pregnant women of 1.49482. And after the demonstration of pregnant gymnastics, the scale of pain experienced by mothers decreased on average to 2,000, meaning that the mother's lower back pain has been reduced to mild pain with the level of pain among pregnant women is 1.33907. This means that mothers have done pregnant gymnastics regularly entirely even though there are still mothers who experience lower back pain, but it has been reduced compared to before the demonstration of pregnant gymnastics.

#### **4.4. Effect of Pregnant Gymnastics on Low Back Pain in Pregnant Women**

The results showed that the effect of pregnant gymnastics demonstration on the scale of low back pain in pregnant women in the Village of Medan Tuntungan Health Center Working Area in 2021 averaged 2.80000 with a standard deviation of 1.12648. The demonstration of pregnant gymnastics affected 3.22064 times compared to before the demonstration of 2.37936 against the scale of low back pain of pregnant women. The results of the analysis showed a p-value of 0.000 ( $p < 0.05$ ), meaning that there is an influence of pregnant gymnastics on low back pain in pregnant women in the Village of Medan Tuntungan Health Center Working Area in 2021.

According to the assumption of back pain researchers in pregnant women can be overcome by doing activities carefully and correctly so that there are no posture errors. In addition, back pain in pregnant women can also be overcome with exercise that is in accordance with the ability of pregnant women one of them by doing pregnant gymnastics.

The results of this study are in line with research conducted by Yosefa et al [15] in the working area of the Pekanbaru Women's Inpatient Health Center that the administration of pregnant gymnastics in the experimental group decreased the intensity of back pain of pregnant women by a difference in the average value of pain intensity by 2.40 and based on the results of the wilcoxon test showed significance with a value of  $p (0.000) < \alpha (0.05)$ . In the control group there was a decrease in pain intensity but not significant with an average difference in pain intensity of 0.47 and based on wilcoxon test results showed no significance with a value of  $p (0.159) > \alpha (0.05)$ . This means that there is a significant difference between the average intensity of back pain of pregnant women in the experimental group and the control group after being given pregnant gymnastics, thus it can be concluded that pregnant gymnastics is effective against reducing back pain in pregnant women.

#### **5. Conclusion**

Based on the results, it can be concluded that low back pain in pregnant women before pregnant gymnastics there are 21 respondents (70%) moderate pain, 6 respondents (20%) mild pain as much, 3 respondents (10%) severe but controlled pain there and no respondents who do not have pain and experience severe low back pain is not controlled. Low back pain in pregnant women after pregnant gymnastics there were 20 respondents (66.7%) mild pain, 7 respondents (23.3%) no pain, 3 respondents (10%) moderate low back pain, and no respondents who experienced controlled and

uncontrolled severe low back pain. The effect of pregnant gymnastics on low back pain in pregnant women in the village of Medan Health Center working area in 2021 with a p-value of 0.000 (p-value <0.05).

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