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THE EFFECT OF *PELVIC ROCKING EXERCISE* ON LOW BACK PAIN IN THIRD-TRIMESTER PREGNANT WOMEN IN THE INDEPENDENT PRACTICE OF MIDWIFE ROSITA DEWI, CIBITUNG SUB-DISTRICT, BEKASI DISTRICT IN 2022.

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ABSTRACT

Changes during pregnancy can trigger disturbances in the comfort of pregnant women. As many as 83.3% of pregnant women experience low back pain and interfere with activities. The impact of the activities of pregnant women if disrupted will affect the health status of pregnant women and the growth and development of the fetus in the womb. One of the discomforts that pregnant women often complain about is low back pain, which can be due to the older gestational age so mothers have difficulty doing activities. This study aims to determine the effect of implementing Pelvic Rocking Exercise (PRE) on low back pain in third-trimester pregnant women at the Mandiri Midwife Rosita Dewi Practice, Cibitung District

This type of research is a Quasi-experimental pre-post with a control design, with a total sample of 15 people for the experimental group and 15 people for the control group. This study uses primary data from interviews and filling out questionnaires.

The results showed that 29 people (96.7%) were aged 20-35 years and 100% were at 28-30 weeks' gestation. Mothers had high school-university education as many as 22 people (73.3%) and 25 people (83.3%) were multiparous. The results of the analysis used the Mann-Withney test with a p-value of 0.040 <0.05, meaning that Ha is accepted, meaning that there is a significant influence between the implementation of Pelvic Rocking Exercise (PRE) on low back pain in third-trimester pregnant women at the Independent Practice of Midwife Rosita Dewi, Cibitung District.

It is hoped that pregnant women can increase their knowledge, especially about how to do pelvic rocking activities and exercises or PRE to increase self-empowerment in dealing with low back pain and make it easier for them to give birth later.

Keywords: Pelvic Rocking Exercise (PRE), low back pain, pregnant women

INTRODUCTION

These changes are increasingly complex until the last stage of pregnancy. In this condition, third-trimester pregnancy requires special attention because the gestational age is increasing. Changes during pregnancy can trigger comfort disorders in pregnant women. Suryani & Handayani's research in Sihombing about pregnant gymnastics and the discomfort of third-trimester pregnant women obtained the results of 41.7% of respondents with swollen discomfort,

83.3% of back pain discomfort, 83.3% of back pain discomfort, 75% of leg cramps discomfort, 41.7% of shortness of breath discomfort, 33.3% of sleeplessness discomfort (Sihombing, 2020).

Disruption of comfort during pregnancy can have an impact on pregnant women, namely low back pain. If pregnant women experience sleep disturbances, it can affect low back pain. According to the results of research conducted by the *National Sleep Foundation* in America about 70 million people experience sleep problems where the prevalence of sleep deprivation in women is higher than men. About 78% of pregnant women experience sleep problems including in the third trimester reaching 66-97% and reporting that they often wake up on average 3-11 times every night which results in increasing the amount and low back pain. (Lauwsen & Dwiana, 2019).

Pregnant women who have poor low back pain can have several complications in pregnancy, such as sleep disorders that occur in pregnant women can worsen the body's *inflammatory* response and cause excess *cytokine* production. Based on Sukorini's research (2017) on the relationship between physical comfort disorders and diseases with Waist Pain in Trimester III Pregnant Women, the results showed that 14% of respondents had no disorders, 78% had mild physical disorders, 8% had severe physical disorders, 47.2% of respondents with good Waist Pain and 52.8% with bad Waist Pain. Based on the *Prevalence Ratio* (PR) shows that severe physical comfort disorders have a 5 times greater risk of experiencing bad low back pain compared to those who do not have physical comfort disorders. (Sukorini, 2017)

The impact of changes in both physiological factors and psychological factors on pregnancy comfort disorders not only affects low back pain but also affects daily activities in the third trimester of pregnancy. Decreased low back pain and unoptimized activities during the third trimester will affect the health conditions of the mother and baby. The maternal mortality rate (MMR) in Indonesia in 2018 reached 305/100,000 KH, and IMR reached 15/1000 KH. The number of maternal deaths in West Java in 2020 based on district/city health profile reporting was 745 cases or 85.77/100,000 KH, an increase of 61 cases compared to 2019, namely 684 cases. Maternal deaths totaling 745 cases, occurred in pregnant women in as much as 22.14%, delivery women as much as 19.73%, and postpartum women as much as 44.16%.

The number of deaths in Bekasi Regency was 29, which was the 11th-highest number of deaths in districts and cities in West Java. The causes of maternal death are still dominated by 27.92% bleeding; 28.86% hypertension in pregnancy; 3.76% infection; 10.07% circulatory system disorders (heart); 3.49% metabolic disorders and 25.91% other causes. (Indonesian Ministry of Health, 2019) (West Java Provincial Health Office, 2020)

About 20 percent of deliveries are at risk of complications of pregnancy and childbirth whose occurrence cannot always be predicted in advance. Other data states that complications that occur in labor due to prolonged *partus* are 4.09% in women of childbearing age. (Indonesian Ministry of Health, 2019)

Khafidhoh in Sukorini (2017) researched the relationship between low back pain and the level of activity ability of second and third-trimester pregnant women at Ciputat Health Center

with the results of 40% of respondents with mild pain, 60% with severe pain, with a minimal disability as much as 36.7% and severe activity disability as much as 63.3%. The results of the analysis showed a relationship between low back pain and the level of activity ability with a correlation value of 0.043 (α <0.05). The impact of the activities of pregnant women if disrupted will affect the health status of pregnant women and the growth and development of the fetus in the womb. (Sukorini, 2017).

RESEARCH METHOD

This type of research is a *Quasi-experimental Pretest-Post Test Control Group Design*, which is a research method by conducting experiments to determine the effect of independent variables (treatment) on dependent variables (results) under controlled conditions by conducting a *pretest* beforehand. This study also divided the sample into two groups, namely the intervention group (which was given treatment) and the control group (which was not given treatment). (Sugiyono, 2019)

The population in this study were all third-trimester pregnant women in the Independent Practice of Midwife Rosita Dewi Cibitung District. The target population is 30 people taken from the register of pregnant women in November-October 2022, the sample is part of the population. The sampling technique used is total sampling or all units in the population of 30 people (Julianti, 2017).

This research was conducted in November - December 2022 at the Rosita Dewi Independent Practice Midwife, Cibitung District, Bekasi Regency, the research procedure was carried out by first determining the research location and explaining to the respondent the purpose of this study, after agreeing, the researcher examined the respondent as a condition that must be met, then the respondent intervened, the respondent took a pre-test after 3 days of intervention, the control respondent was still carried out to be fair in each treatment. After that the data is processed by editing, coding, data entry, tabulating, and cleaning, the results of the data will be analyzed using univariate analysis and bivariate analysis.

RESULT OF THE RESEARCH

Table 1 Univariate Analysis of Respondent Data

No	Characteristic	Category	f	%
1	Mother's Age	< 20 years	0	0,00
		20- 35 years	29	96,70
		> 35 years	1	3,30
2	Pregnancy Age	28 weeks	12	40,0
		29 weeks	7	23,3
		30 weeks	11	36,7

		31		
3	Education	High (≥ SMA)	22	73,3
		Low (< SMA)	8	26,7
4	Parity	Primipara	5	16,7
		Multipara	25	83,3

Table 1 shows that most of the 29 respondents (96.7%) were 20-35 years old and 100% were at 28-30 weeks gestation. Mothers had high school-college education as many as 22 people (73.3%) and 25 people (83.3%) were multiparous.

Table 2 Frequency Distribution of Waist Pain in Trimester III Pregnant Women

Group	Category	Value		Mean	Std Deviation
		Min	Max		
Eksperimen	Pretest	6	7	6,60	0,50
	Posttest	3	3	3,00	0,00
Kontrol	Pretest	6	7	6,33	0,48
	Posttest	6	7	6,26	0,45

Table 2 shows that the average back pain in the experimental group before PRE was 6.60 while after PRE it was 3.00 with a decrease of about 3.60 points. Meanwhile, in the control group, the average back pain before and after did not show significant changes from 6.33 to 6.26 or only changed by 0.07.

Table 3 Data Homogeneity Test Results

Result	Levene Statistic	df1	df2	Sig.
Based on Mean	0,394	1	28	0,535
Based on Median	0,054	1	28	0,818
Based on the Median and adjusted df	0,054	1	27,679	0,818
Based on the trimmed average	0,360	1	28	0,553

Based on Table 3, the significance value is 0.535 or greater than 0.05 so it can be stated that the data is homogeneous.

Table 4 Data Normality Test Results

	Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
			dl	Sig.	Statistic	dl	Sig.
a.	Experiment	0,363	15	0,000	0,716	15	0,000

b.	Control	0,366	15	0,000	0,705	15	0,000

Based on the SPSS test results in Table 4, the Shapiro-Wilk Significance value is 0.000 or smaller than 0.05, so this states that the data is not normally distributed. Based on the test above, the test performed is nonparametric with *Mann-Whitney*.

Table 5 Effect of PRE on Waist Pain of third-trimester pregnant women

Posttest – Pretest	N	Mean Rank	*p*-value
Experiment	15	23,00	0,000
Control	15	8,00	
Total	30		

Based on Table 5, it can be seen that 30 respondents who did the *Pelvic Rocking Exercise* experienced a decrease in low back pain with an average of 23.00. The results of the analysis using the Mann-Withney test with a confidence level of 95% showed a p-value of 0.000 <0.05, meaning that Ho was rejected or Ha was accepted, meaning that there was an effect of *Pelvic Rocking Exercise* on Low Back Pain in Trimester III Pregnant Women at PMB Rosita Dewi Bekasi in 2022.

DISCUSSION

The results of this study illustrate that 30 respondents who performed the *Pelvic Rocking Exercise* experienced a decrease in low back pain with an average of 23.00. The results of the analysis using the Mann- Withney test with a confidence level of 95% showed a p-value of 0.000 <0.05, meaning that Ho was rejected or Ha was accepted, meaning that there was an effect of *Pelvic Rocking Exercise* on Low Back Pain in Trimester III Pregnant Women at PMB Rosita Dewi Bekasi in 2022. The results of bivariate analysis using the *Mann-Withney* test with a confidence level of 95% show a p-value of 0.000 <0.05, meaning that Ha is accepted or Ho is rejected, meaning that there is a significant difference between Pelvic Rocking Exercise and Waist Pain in Trimester III Pregnant Women at PMB Rosita Dewi Bekasi in 2022.

In pregnancy, there can be a physical or emotional disturbance that has no specific object, in the form of vague and diffuse worries associated with feelings of uncertainty and helplessness. If undiagnosed and not treated properly, it can have an impact on the health of the mother as well as the unborn child. During pregnancy, there will be changes in the pelvis to slightly rotate forward due to hormonal influences and ligament weakness. In a state of hyperextension of the spine, there is friction between the two facets makes the weight of the body, so that the joint surface is depressed, this situation will cause pain. Sometimes it can irritate the ischiatic nerve and if there is a narrowing of the spinal cushion, the pain will be more intense. This situation will cause an imbalance between the abdominal muscles and back muscles. (Sya'bin, 2019) (Rohmah, 2019)

Low back pain according to Wahyuni & Prabowo in Qibtiyah (2021) is discomfort that occurs below the costa and above the inferior glueteal. Low back pain is a common disorder, and pregnant women may have a history of "back pain" in the past. Low back pain is so common in pregnancy that it is described as one of the minor disorders of pregnancy. Pain symptoms usually

occur between 4-7 months of gestation and pain is usually felt in the low back, sometimes spreading to the buttocks and thighs, and sometimes down the legs as a symptom. Many pregnant women experience low back pain during pregnancy. In general, low back pain in pregnant women is influenced by several factors, namely 1) Increased body weight and spinal physiology; 2) The curvature of the spine of pregnant women increases towards the end of pregnancy and changes in posture; 3) There is an imbalance between agonist and antagonist muscles. The situation or wrong position if it lasts long will cause tension in the ligaments and muscles that cause fatigue in the abdominals muscle; 4) The enlarged uterus will increase the degree of lordosis so that it often causes back pain. (Herawati, 2017) (Qibtiyah, 2021)

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Many pregnant women experience low back pain during pregnancy. In general, low back pain in pregnant women is influenced by several factors, namely 1) Increased body weight and spinal physiology. 2) The curvature of the spine of pregnant women which increases towards the end of pregnancy and changes in posture. 3) There is an imbalance between agonist and antagonist muscles, namely the *musculus erector spine* and *lumbar nexor* group. 4) The enlarged uterus will increase the degree of lordosis so that it often causes back pain. (Herawati, 2017)

According to Suharto in Astri (2019), the joints that will form the spine and pelvis are partly syndesmosis joints. The sacroiliac joint is L-shaped, the surface of the joint is not symmetrical, or uneven its position is almost in the sagittal plane and the surface of the sacrum bone is more concave. The movement that occurs is rotation within a limited range of motion known as nutation and counter-nutation. The pelvis receives a load from the spine with the force distribution being a closed ring. In pregnancy, the motion of this joint may increase due to hormonal influences. The pelvis and sacrum that move forward cause the position of the sacroiliac joint to also change, combined with laxity will cause complaints in other joints (Astri, 2019).

Pelvic Rocking exercise is a way to increase the size of the pelvic cavity by rocking the pelvis on a ball and slowly swinging the hips forward and backward, right side, left side, and circular. This movement makes a sense of comfort because it uses gravity while increasing endorphin release due to elasticity and stimulating receptors in the pelvis that are responsible for secreting endorphin (Kurniawati, 2017). The movement is one method that is very helpful in responding to pain. (Anggasari & Mardiyanti, 2021)

This is because *Pelvic Rocking exercises* can strengthen the muscles of the abdomen and waist. This exercise can reduce pressure on the waist by moving the fetus forward from the mother's waist temporarily to reduce low back pain. This exercise can also reduce blood vessel

pressure in the uterine area, and reduce pressure on the mother's bladder *(vesica urinaria)*. Pelvic rocking exercise also helps the mother to relax so that it can reduce tension which has an impact on reducing pain and improving the digestive process. (Anggasari & Mardiyanti, 2021)

Pelvic Rocking Exercise during labor can reduce pain levels because it stimulates postural reflexes maintains muscles and maintains spinal posture in good condition, thereby reducing anxiety and increasing maternal satisfaction and well-being. (Zahara, 2021).

CONCLUSION

Most of the 29 respondents (96.7%) were 20-35 years old and 100% were at 28 - 30 weeks gestation. Mothers have high school-college education as many as 22 people (73.3%) and 25 people (83.3%) are multiparous.

A total of 30 people experienced a decrease in low back pain with an average of 23.00. The results of the analysis using the Mann-Withney test with a 95% confidence level showed a p-value of 0.000 <0.05, meaning that Ho was rejected or Ha was accepted, meaning that there was an effect of *Pelvic Rocking Exercise* on Low Back Pain in Trimester III Pregnant Women at PMB Rosita Dewi Bekasi in 2022.

SUGGESTION

It is hoped that pregnant women can increase their knowledge, especially about how to do activities and do *pelvic rocking* exercises (PRE) to increase self-empowerment in overcoming low back pain and make it easier for them in the delivery process later.

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