

Decreasing the Intensity of Back Pain by Doing Maryam Gymnastics in Third Trimester Pregnant Women at Independent Midwife Practice Mrs.R

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ABSTRACT

Background: Back pain is pain that occurs in the lumbosacral area. Low back pain will usually increase in intensity as the gestational age increases because this pain is the result of a shift in the woman's center of gravity and her posture so that efforts are needed to do maryam gymnastics activities. Maryam gymnastics is carried out in an effort to optimize the harmonization between the body modified by the movement of prayer movements so as to provide side effects of relaxation and promote emotional health, improve balance and body coordination. The aim is to analyze the decrease in back pain intensity through maryam gymnastics in third trimester pregnant women at Independent Midwife Practice Mrs. R.

Method: The research design used One Group Pretest-Posttest. The population was 33 third trimester pregnant women with a sample of 31. Sampling was done by simple random sampling. Observation sheet measuring instrument, with Wilcoxon test.

Result: This study shows that most of the third trimester pregnant women experienced severe pain intensity before doing maryam gymnastics as many as 17 or 54.8%. Almost half of the third trimester pregnant women after doing maryam gymnastics experienced moderate pain intensity as many as 15 or 48.4%. Statistical test results there is a decrease in the intensity of back pain through maryam gymnastics in third trimester pregnant women at Independent Midwife Practice Mrs. R Jember Regency in 2023 with a p-value of $0.000 < \alpha 0.05$.

Conclusion: The more routine the maryam gymnastics performed for 2 times a week with a duration of 10-15 minutes, the lower the intensity of back pain in pregnant women. It is recommended for pregnant women to further increase their sense of concern for the health of themselves and the fetus in order to better understand the importance of pregnant gymnastics activities in increasing the decrease in the intensity of back pain in Trimester III pregnant women.

Keywords: *Pregnancy Gymnastics; Back Pain; Decreased Intensity*

Introduction

Pregnancy involves various physiological changes, including physical changes, emotional changes, and physiological changes. The changes that occur during pregnancy generally lead to discomfort such as back pain and soreness in the legs. The incidence of lower back pain will increase as pregnancy enters the third trimester. Older women, particularly those who experience back problems or have poor balance, may suffer from severe lower back pain during and after pregnancy (Johnsoney, 2010). The pain can cause difficulty in walking (Fauziah & Sutejo, 2012).

The prevalence of back pain during the third trimester of pregnancy has been reported in Europe, the United States, China, mountainous areas of Taiwan, rural Africa, and among upper-class women in Nigeria. Pregnant women in the third trimester who experience back pain account for about 16% experiencing back pain during the first 12 weeks of pregnancy, 67% by the 24th week, and 93% by the 36th week. From research conducted on 869 pregnant women in the United States, England, Norway, and Sweden, it shows that the prevalence of back pain among pregnant women is around 70-86% (Glute, 2017). From the results of a study in India, the prevalence of back pain in pregnant women was 33.7%, occurring in 261 pregnant women. In 2013, the prevalence of back pain among pregnant women in Indonesia during the third trimester was found to be 60-80%. The back pain is caused by the weight gain during pregnancy, which is a risk associated with changes in the body and the fetus along with its components such as the placenta, amniotic fluid, and uterus. There are 80% of pregnant women who experience back pain during pregnancy due to changes in the muscles of the back (James et al, 2017). Out of 100% of pregnant women in East Java province, 65% experience back pain. A preliminary study conducted at the independent practice of midwife Mrs.R using interviews with 36 third-trimester pregnant women found that 33 of them experienced back pain.

According to WHO, pregnancy is a process of nine months or more during which a woman carries an embryo and a developing fetus in her womb. The development of the fetus during pregnancy leads to changes in the physiological and psychological factors of the pregnant mother. The increasing weight on the abdomen can cause pregnant women to have difficulty when engaging in activities. Pregnant

women lean their bellies forward, which increases the curvature of the lower back and causes mothers to feel pain in this area. The weight of the enlarged uterus and walking without rest causes pain. During the weeks from 24 to 28, back pain is often encountered. This happens due to the shift in the center of gravity and the shape of a woman's body. (In Rustam's 2018 study), lower back pain (lumbar pain) refers to pain occurring in the lumbosacral area. Lower back pain typically increases in intensity as pregnancy progresses because this pain is a result of the shift in the woman's center of gravity and her body posture.

The impact of back pain on pregnant women in the third trimester includes a significant increase in weight, causing expectant mothers to feel fatigued quickly, have difficulty sleeping, experience shortness of breath, and suffer from edema in the legs and arms. The increase in the height of the uterine fundus, accompanied by abdominal enlargement, shifts the body's weight forward.

One way to reduce pain is through non-pharmacological therapy, one of which is exercise or physical activity. Pregnancy exercise is currently known as Maryam exercise. Pregnant women need to meet their overall needs to prevent anxiety and manage the discomfort of pregnancy. Maryam's exercise can reduce stress levels and cortisol levels in pregnant women, which is beneficial for the occurrence of adequate uterine contractions during labor, resulting in shorter durations of the first and second stages of labor, smoother breastfeeding, training abdominal and pelvic muscles, and improving sleep quality. Maryam's exercise aims to improve the health of mothers and fetuses in preparation for childbirth. The Maryam exercise activities for pregnant women in the second and third trimesters (16 weeks – 40 weeks) are conducted regularly twice a week. Pregnant women experience the benefits of Maryam Exercise, which helps them feel relaxed, prepared to face childbirth comfortably, improves sleep quality, and prevents anxiety and stress during pregnancy, as well as relaxes the muscles of the vagina, abdomen, thighs, and back. Therefore, pregnant women are required to participate in every Maryam exercise session in order to face childbirth with a calm and happy heart, as well as to ensure the health of both mother and baby (Neng. 2019). Based on the facts that have been outlined, the researcher is interested in exploring "The

Reduction of Back Pain Intensity through Maryam Exercises in Pregnant Women in their Third Trimester at the Independent Midwifery Practice of Mrs. 'R'."

Method

This research uses a Pre-Experimental research method with a "One Group Pretest-Posttest" design. The treatment in this study involves observing respondents who experience lower back pain before undergoing Maryam exercise therapy, and then observing them again after the therapy has been conducted. The population in this study consists of 33 pregnant women in their third trimester who are experiencing back pain, located at the independent midwifery practice of Ny.R in Jember Regency. The sample in this study consists of pregnant women in their third trimester who are experiencing back pain. In this study, the sample size was determined using the Slovin's formula. In this study, the sampling technique used is probability sampling with the type of simple random sampling, and a questionnaire is used as the data collection tool. Analyze the data using the Wilcoxon Signed Rank Test.

Results

Table 1. Frequency Distribution Based on the Age of Respondents at the Independent Midwifery Practice of Mrs. R in Jember Regency in 2023

Age	Frequency	Percentage
<20 years	1	3,22%
20-30 years	26	83,90%
31-40 years	4	12,90%
Total	31	100,0%

Source: Primary Data 2023

Based on table 4.1, almost all respondents aged 20-30 years, totaling 26 or 83.90%. The remaining respondents aged 31-40 total 4 or 12.90%, and respondents under 20 total 1 or 3.22%.

Table 2. Frequency distribution percentage based on the number of living children of respondents at the independent midwife practice Mrs.R in Jember Regency in 2023.

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Number of children	<i>f</i>	Percentage
Nullipara	12	38,70%
Primipara	11	35,54%
Multipara	6	19,35%
Grand multipara	2	6,45%
Total	31	100,00%

Source: Primary Data 2023

Based on Table 2, nearly half of the respondents in terms of the number of living children are nulliparous, totaling 12 or 38.70%, followed by primiparous with 11 or 35.54%. The remaining are multiparous with 6 or 19.35%, and grand multiparous with 2 or 6.45%.

Table 3. Frequency distribution percentage based on the education of respondents at the independent midwife practice Mrs.R in Jember Regency in 2023.

Education	<i>f</i>	Percentage
Junior high school	3	9,67%
Senior high school	19	61,29%
Bachelor degree	9	29,03%
Total	31	100,00%

Source: Primary Data 2023

Based on Table 3, the majority of the respondents have a high school education, totaling 19 or 61.29%, followed by junior high school education with 3 or 9.67%, and the remaining have higher education, totaling 9 or 29.03%.

Table 4. Frequency distribution percentage based on the job of respondents at the independent midwife practice Mrs.R in Jember Regency in 2023.

Job	<i>f</i>	Percentage
Work	15	48,38%
Not work	16	51,61%
Total	31	100,00%

Source: Primary Data 2023

Based on Table 4, almost the majority of the respondents are unemployed, totaling 16 or 51.61%. The remaining respondents are employed, totaling 15 or 48.38%.

Table 5. Frequency distribution of the percentage of back pain intensity before performing Maryam exercises in third trimester pregnant women at the Independent Midwifery Practice of Mrs. R in Jember Regency in 2023.

Back pain intensity	Frequency	Percentage
Mild pain	2	6,5 %
Moderate pain	12	38,7 %
Severe pain	17	54,8 %
Total	31	100,00 %

Source: Primary Data 2023

Based on Table 5, the intensity of back pain before performing Maryam exercises shows that the majority of respondents experienced severe pain, totaling 17 or 54.8%. The remaining respondents reported moderate pain, amounting to 12 or 38.7%, and mild pain, totaling 2 or 6.5%.

Table 6. Frequency distribution of the percentage of back pain intensity after performing Maryam exercises in pregnant women in the third trimester at the Independent Midwifery Practice of Mrs. R in Jember Regency in 2023.

back pain intensity	Frequency	Percentage
Mild pain	12	38,7 %
Moderate pain	15	48,4 %
Severe pain	4	12,9 %
Total	31	100,00 %

Source: Primary Data 2023

Based on Table 6, the intensity of back pain after performing Maryam exercises shows that nearly half of the respondents experienced moderate pain intensity, totaling 15 or 48.4%. The rest reported mild pain intensity, amounting to 12 or 38.7%, and severe pain intensity, which was 4 or 12.9%.

Table 7. Comparison of the decrease in back pain intensity before and after performing Maryam exercises in pregnant women in their third trimester at the Independent Practice Midwife Mrs. R in Jember Regency in 2023.

Back pain intensity	before performing Maryam exercises		after performing Maryam exercises		p
	f	%	f	%	
Mild pain	2	6,5 %	12	38,7 %	α 0,05
Moderate pain	12	38,7 %	15	48,4 %	
Severe pain	17	54,8 %	4	12,9 %	
Total	31	100,00%	31	100,00 %	

Source: Primary Data 2023

Based on the cross table above, the intensity of back pain before performing Maryam exercises was mostly severe, with 17 respondents or 54.80%. After performing the Maryam exercises, nearly half experienced moderate pain, with 15 respondents or 48.40%. After being tested with the help of SPSS using the Wilcoxon Signed Rank Test, the results showed $\alpha < 0.05$ or 0.000, leading to the conclusion that H_0 is rejected, indicating a decrease in the intensity of back pain before and after the Maryam exercises were given to pregnant women in their third trimester at the independent practice of midwife Mrs.R. This means that the Maryam exercises can reduce the intensity of back pain.

Discussion

The intensity of back pain before performing Maryam exercises in third-trimester pregnant women.

The research findings indicate that the intensity of back pain before engaging in Maryam exercises shows that the majority of respondents experienced severe pain, with 17 or 54.8%. The rest reported moderate pain, totaling 12 or 38.7%, and mild pain, amounting to 2 or 6.5%.

These findings are consistent with a study conducted by Mega Fajar Wati et al. in 2021 in Aceh, which examined the effect of Maryam exercises on back pain in third-

trimester pregnant women. The average intensity of back pain before the Maryam exercises was found to be 0.75, with a minimum pain score of 0, a maximum score of 2, and a standard deviation of 0.851. This indicates a decrease in the intensity of lower back pain in pregnant women in the third trimester before and after participating in Maryam exercises.

The results of this study indicate that nearly half of pregnant working women experience back pain. Several factors that can trigger discomfort in the lower back include activities such as bending, sitting, lifting, carrying, and squatting, especially when performed for extended periods and continuously. The position while working is a determining factor in the ineffectiveness of the work being done; poor body posture can lead to issues such as pain in certain areas and can affect outcomes and performance. In addition, work also greatly affects the time that pregnant women have, as those who do not work have more time to exercise compared to those who are already employed. This is in line with Ratnawati's research on the relationship between work and mothers' participation in prenatal exercise.

Back pain in pregnant women can be addressed by engaging in activities carefully and correctly to avoid posture mistakes. Additionally, back pain in pregnant women can also be managed through exercises suitable for their abilities, one of which is prenatal yoga. Regular prenatal exercise can reduce back pain because the movements involved in prenatal exercise strengthen the abdominal muscles, thereby preventing excessive tension on the pelvic ligaments, which in turn decreases the intensity of back pain. In addition, doing pregnancy exercises can release endorphins in the body, where the function of endorphins is to act as a natural pain reliever and can reduce back pain in pregnant women. Thus, it can be concluded from this study that the provision of prenatal exercise can reduce the intensity of back pain in pregnant women.

Intensity of back pain after performing Maryam exercise in third trimester pregnant women

The research results indicate that nearly half of the respondents experienced moderate back pain intensity, with 15 or 48.4%. The remaining respondents reported

mild back pain intensity, totaling 12 or 38.7%, and severe back pain intensity, with 4 or 12.9%.

In a previous study conducted by Indah Rahayu et al. in 2021 in Pekanbaru regarding the effect of pregnancy exercise on reducing back pain intensity in third trimester pregnant women, it was found that among the third trimester pregnant women, 152 (80%) did not experience back pain, while 38 (20%) did experience back pain. The presence of back pain intensity in pregnant women during the third trimester is caused by musculoskeletal changes that often lead to mothers experiencing pain in the back area, especially in the lower back. Lower back pain is the most commonly reported musculoskeletal issue during pregnancy. Back pain occurs due to changes in pregnancy hormones that increase the levels of the hormone relaxin. This affects the flexibility of the ligament tissues, ultimately increasing joint mobility in the pelvis, which leads to spinal and pelvic instability and causes discomfort. Other predisposing factors that contribute to back pain are related to weight gain, rapid changes in posture, previous back pain, and repetitive stretching. In addition, back pain is also felt due to poor posture while sitting, standing, lying down, and even during household activities.

Reduction of back pain intensity through Maryam exercises in third trimester pregnant women.

The research results show that the intensity of back pain before performing Maryam exercises decreased from a severe pain intensity of 54.8% to 12.9% after the exercises. For moderate pain intensity, there was an increase from 38.7% to 48.4%. For mild pain intensity, there was an increase from 6.5% to 38.7%.

Data analysis using the Wilcoxon Signed Rank Test yielded an asymptotic significance value of 0.000 or a p-value of 0.000 (<0.05), leading to the conclusion that H_0 is rejected. This indicates a decrease in the intensity of back pain before and after the Maryam exercise was given to pregnant women in their third trimester at the independent practice of midwife Ny.R. This means that the Maryam exercise can reduce the intensity of back pain in third-trimester pregnant women at the independent practice of midwife Ny.R in Jember Regency in 2023.

The results of this study are in line with the research conducted by Finisa Hirdanti (2018), which used the Independent Sample T-Test and obtained a probability value (p) of 0.000, which is less than 0.05 ($p < 0.05$). Meanwhile, in the Independent Sample T-Test, a probability value (p) of 0.01 was obtained, which is less than α . (0,05). Thus, it can be concluded that there is a difference in the reduction of back pain in pregnant women in the third trimester between those who practice pregnancy exercise and those who practice pregnancy yoga. In prenatal yoga, there are various movements that focus more on back pain, as well as relaxation exercises that can stimulate the release of endogenous opioid hormones, helping to condition the body, mind, and emotions into a harmonious state during pregnancy, especially in the third trimester. The results from the research conducted by the researchers indicate that the majority of pregnant women experience a decrease in the intensity of back pain, but there are still some pregnant women who are experiencing moderate and mild pain. The researchers assume that the results of this study indicate that among pregnant women who practice Maryam exercise, nearly half of the primiparous mothers, 12 individuals (38.7%), are involved. Parity affects the reduction of pain in first-time pregnant women, where primiparous mothers have a high level of excitement to engage in Maryam exercise. This, along with pre- and post-exercise counseling and involving mothers in the Maryam pregnancy exercise sessions, leads to optimal results in pain intensity reduction. In addition to the influence of practicing Maryam exercises, factors that affect the success and failure of pain intensity reduction include work factors and declining physical condition, such as fatigue, which can increase pain intensity. Work can trigger discomfort and lower back pain, so engaging in activities can increase the intensity of pain in pregnant women. The results of this study indicate that the majority of pregnant women are non-working mothers, with 16 respondents (51.6%), which in this case can help reduce the triggering factors for the decrease in pain intensity in pregnant women. For this reason, the researchers conducted Maryam exercises to reduce the intensity of back pain in third-trimester pregnant women at the Independent Midwifery Practice of Mrs. R in Jember Regency in 2023.

Conclusion

Most third-trimester pregnant women at the independent midwifery practice of Mrs. R experienced severe pain before participating in Maryam exercises. Nearly half of the third-trimester pregnant women at the independent midwifery practice of Mrs. R experienced moderate and mild pain after performing Maryam exercises. There was a decrease in back pain intensity after performing Maryam exercises among third-trimester pregnant women at the independent midwifery practice of Mrs. R in Jember Regency in 2023. The p value obtained is $0.000 < 0.05$, which means there is a decrease in the intensity of back pain by performing Maryam exercises in pregnant women during the third trimester.

References

1. Astuti, Maya. (2013). *Buku Pintar Kehamilan*. Jakarta: Buku Kedokteran EGC.
2. Aulia, V. B. (2017). *Perbedaan nyeri punggung pada ibu hamil Trimester III sebelum dan sesudah melakukan senam yoga hamil*. (Unpublished doctoral dissertation). Politehnik Kesehatan Kemkes Malang. Jember. Indonesia.
3. Dewi, V. N. L., Sunarsih, T. (2012). *Asuhan kehamilan untuk kebidanan*. Jakarta : Salemba Medika.
4. Fitriani, L., (2018). *Efektifitas senam hamil dan yoga terhadap penurunan nyeri punggung pada ibu hamil trimester III di puskesmas pekkabata*. *Jurnal kesehatan masyarakat*, 04, 72-80.
5. Famadhaniata, F., Utami, R., Pedoman, T. A. (2022). *Prenatal yoga untuk mengurangi ketidaknyamanan kehamilan trimester III*. *Jurnal kebidanan*. 12 (03), 44-54.
6. Jannah, N. (2012). *Buku ajar Asuhan*.
7. Lapau, B. (2015). *Metode penelitian kesehatan metode ilmiah penulisan skripsi, tesis dan disertasi*. (Ed 3). Jakarta: Yayasan Putra Obor Indonesia
8. Notoatmodjo S. *Metodologi penelitian kesehatan*. Revisi Per. Notoadmodjo S.
9. Editor. Jakarta: Rineka Cipta; 2016. 236 P.
10. Neng, Kurniati. (2019). *Pengaruh senam maryam pada ibu hamil > 35 minggu terhadap durasi persalinan dan kondisi fisik baru lahir*. Politeknik Kesehatan Kemenkes Semarang.Indonesia.
11. Priskawati, D. E. (2017). *Pengaruh senam hamil terhadap nyeri punggung pada ibu hamil trimester III di BPM “J” kecamatan kencong kabupaten jember*. (Unpublished doctoral dissertation). Politeknik Kesehatan Kemenkes Malang. Jember. Indonesia.
12. Rijati., Erisna, M. Kartini, A. (2020). *Senam maryam dan stress dalam kehamilan*. Semarang : Politeknik Kesehatan Kemenkes Semarang.

13. Revika, E., fitriana, Y. (2022). Pendampingan ibu hamil menuju persalinan nyaman dengan rutin senam maryam selama pandemi. Jurnal kebidanan. 12 (05), 425-433. <https://doi.org/10.47679/ib.2022260>
14. Sugiyono. (2021). *Metode penelitian kuantitatif kualitatif*. (Sutopo, 3). Bandung : ALFABETA,cu.
15. Suryaningsih, M., Abdillah, A., Sukiyani. (2020). Pengaruh senam hamil terhadap penurunan nyeri punggung pada ibu hamil trimester ketiga di puskesmas bangkalan. Jurnal kebidanan. 11 (45). 37-45.
16. Yusuf Muri (2021). *Metode penelitian kuantitatif, kualitatif & penelitian gabungan: Alfabeta*
17. Widiarti, I. R, Yulviana, R. (2021). Pendampingan senam hamil pada ibu hamil trimester III untuk mengurangi nyeri punggung. *Jurnal kebidanan terkini (Current Midwifery Journal)*, 01, 154-155). <https://jom.hip.ac.id/index.php/jkt/artickel/down;oad/463/107/2031>.
18. Wati, M. F. Susilawati, F., Yansartika., Yanizar, A. (2021). Pengaruh masase effleurage terhadap intensitas nyeri punggung bawah ibu hamil trimester III. Jurnal kebidanan, 01 (1), 25-29.