

Pregnancy exercise as back pain therapy for pregnant women in the third trimester

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ABSTRACT

Back pain is a common complaint among pregnant women caused by physiological changes during pregnancy. One effective way to alleviate this discomfort is through prenatal exercise, which includes movements designed to strengthen the abdominal muscles. These muscles play a crucial role in maintaining pelvic stability during physical activities. To evaluate the effectiveness of prenatal exercise in reducing back pain among third-trimester pregnant women. Methods This study employed a quasi-experimental design with a post-test without control approach. Conducted in November 2021 at Campagalo Health Center, the study involved 41 pregnant women selected through purposive sampling. Data were collected using a pain assessment questionnaire and analyzed with the Wilcoxon Signed Rank Test. Results: Before the intervention, 10 participants (24.4%) reported mild pain, 12 participants (29.3%) reported moderate pain, and 19 participants (46.3%) reported severe pain. After the intervention, 9 participants (22.0%) experienced mild pain, and 32 participants (78.0%) reported moderate pain, while no participants reported severe pain. Statistical analysis revealed a Z-score of -5.282 with a p-value of 0.000 ($p < 0.05$). Conclusion: Prenatal exercise effectively reduces back pain in third-trimester pregnant women. Midwives are encouraged to provide comprehensive education and training on appropriate prenatal exercise techniques to empower pregnant women to manage pain independently at home.

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INTRODUCTION

During pregnancy, the mother will experience changes in physical, emotional and social status. One of the impacts of these changes is that pregnant women experience discomfort in the form of back pain (Hu et al. 2020; Chen, D'Onofrio, and Hameed 2020; Shiri, Coggon, and Falah-Hassani 2018; Sedigheh, Elham, and Mazlounzadeh 2010). Back pain is a pain syndrome that occurs in the lower back area as a result of the influence of gravity shifting the body forward due to the enlargement of the uterus

which causes the mother to have to adjust her standing position (Budi Rahayu, 2023; Yosefa, 2020). Incorrect posture during pregnancy results in additional stretching and fatigue of the mother's body, especially the spine, pelvis and weight-bearing joints, which can lead to increased pain and soreness (Kluge et al., 2011; Yousefabadi et al., 2019).

The Ministry of Health's Data and Information Center (2019) reported a prevalence of 67% in pregnant women. While in 2020 it reached 91.3%. The results of research on pregnant women in various regions in Indonesia reached 60-80% of pregnant women experiencing back pain during their pregnancy. (Ministry of Health of the Republic of Indonesia 2019). Meanwhile, data obtained from the Bantaeng Regency Health Service in 2019 showed that the prevalence of pregnant women was 75.8% and in 2020 it was 78.2% and 60% of them experienced back pain during pregnancy (Khaerah et al., 2019).

One of the efforts that can be done is doing pregnancy exercises that can relieve complaints of back pain felt by pregnant women because in pregnancy exercises there are movements that can strengthen the abdominal muscles. Function important of the abdominal muscles is the control of the pelvis when looking up. When the ligaments around the pelvis tighten and no longer providing strong support to the joints, the muscles become a second line of defense helping to prevent excessive stress on the pelvic ligaments (Colla et al., 2017; Davenport et al., 2019; Wadhwa et al., 2020).

It should be remembered that it is excessive tension in the pelvis and weakening of the abdominal muscles that causes back pain. For that reason it is necessary to do this exercise to maintain good abdominal muscle tone. Although a pregnancy exercise program has been implemented, many pregnant women do not follow the program, for pregnant women who follow the pregnancy exercise program, they still complain of back pain, this is caused by the irregularity of pregnant women in carrying out pregnancy exercises (Bhardwaj & Nagandla, 2014; Octavia & Ruliati, 2020; Shafiq et al., 2022).

Back pain during pregnancy peaks in the 24th to 28th week, just before abdominal growth reaches its maximum point, in addition According to Mayer's research results quoted by Yosefa, back pain is often exacerbated by the occurrence of backache or often referred to as "long back pain". This backache was found in 45% of women when their pregnancy was recorded, increasing to 69% in the 28th week and almost remaining at that level (Anggeriani, 2018; Lilis, 2019).

The results of the preliminary study at the Campalagian Health Center found that 34 pregnant women experienced back pain. Complaints of back pain experienced by pregnant women certainly cannot be ignored. Correct diagnosis is important for proper management. Each woman can be given different treatment with the same case, therefore, comprehensive knowledge and understanding from midwives are needed to help mothers overcome disorders and discomfort during pregnancy. Based on the description above, researchers are interested in conducting this study entitled "The Effect of Pregnancy Exercise on Reducing Back Pain in Pregnant Women in the Third Trimester at the Campagaloe Health Center, Bantaeng Regency".

RESEARCH METHOD

The type of research is a quasi-experiment with a Post Test Without Control design, which means that the researcher only intervenes in one group without a comparison. This research was conducted at the Campagaloe Health Center, Bantaeng Regency in October 2021.

The population in this study were all pregnant women in their third trimester who visited the Campagaloe Health Center from January to September, totaling 470 women. Sampling was done using Purposive Sampling based on inclusion criteria, namely mothers willing to be respondents, mothers in their third trimester, and mothers in good health, with 41 samples of pregnant women. Data collection used a Verbal Rating Scale questionnaire to assess pain levels before and after the intervention. Data analysis used the Wilcoxon Signed Rank Test because the data was not normally distributed.

RESULTS AND DISCUSSIONS

Table 1. Pretest of back pain level in pregnant women in the third trimester before intervention

Pain Pretest Back In Pregnant Women Trimester III	n	%
Light	10	24.4
Currently	12	29.3
Heavy	19	46.3
Total	41	100.0

Table 1 shows that of the 41 pregnant women before pregnancy exercises, 10 (24.4%) experienced mild back pain, 12 (29.3%) experienced moderate pain and 19 (46.3%) experienced severe pain.

Table 2. Posttest level of back pain in pregnant women in the third trimester after intervention

Pain Pretest Back In Pregnant Women Trimester III	n	%
Light	9	22
Currently	32	78
Heavy	-	-
Total	41	100

Table 2 shows that after the intervention in the form of pregnancy exercises, the number of pregnant women who experienced mild back pain was 9 people (22%) and moderate pain was 32 people (78%).

Table 3. Effect of prenatal exercise on reducing back pain in pregnant women in the third trimester

Pain Reduction Before and After Pregnancy Exercises	n	Mean	Z	p
	41	18	-5,282	0,000

Table 3 shows based on the results of statistical calculations using the Wilcoxon Signed Rank Test, the Z value obtained was -5.282 with a p value of $0.000 < \alpha 0.05$. Thus, there is an effect of pregnancy exercise on reducing back pain in pregnant women in the third trimester at the Campalaloe Health Center, Bantaeng Regency.

Discussion

Based on the results of statistical tests, it was obtained p value $0.000 < \alpha 0.05$, which means that there is an effect of pregnancy exercise on reducing back pain in pregnant women in the third trimester. This is because in prenatal gymnastics there are movements that can strengthen the abdominal muscles. An important function of the abdominal muscles is to control the pelvis when looking up. When the ligaments around the pelvis tighten and no longer provide strong support to the joints, the muscles being a second line of defense helps prevent stress that overexertion of the pelvic ligaments. It should be remembered that excessive tension on the pelvis and weakening of the abdominal muscles is what causes back pain. Therefore, it is necessary to do this exercise to maintain good abdominal muscle tone (Megasari, 2015).

Back pain felt by pregnant women can be overcome by doing activities carefully and correctly so that there are no mistakes in body posture and can also be overcome with sports that are in accordance with the abilities of pregnant women, one of which is by doing pregnancy exercises. Pregnancy exercises that are done regularly can reduce back pain because the movements in pregnancy exercises can strengthen the abdominal muscles (Ni'amah 2020; Elkheshen, Mohamed, and Abdelgawad 2016; NCT05206851 2022).

Physiologically, this exercise will cause a relaxation effect, this will cause a relaxing effect involving the parasympathetic nerves in the parasympathetic nervous system, in the parasympathetic nervous system, this will reduce the production of adrenaline or epinephrine hormones (stress hormones) and increase the secretion of noradrenaline or norepinephrine hormones (relaxation hormones) so that there is a decrease in anxiety and tension in pregnant women, causing pregnant women to become relaxed and calm. Thus, pregnant women can sleep easily and comfortably and it is better to do pregnancy exercises twice a week (Borg-Stein et al., 2006; Lestari, 2019; Pinzón-Durán et al., 2022).

The results of this study are in line with Fourlina Putih Tunjung (2019) who reported that there was an effect of prenatal exercise on back pain and decreased sleep duration. Based on 34 samples, data was obtained before and after being given prenatal exercise. Back pain (pre-test) experienced mild pain 22 respondents (64.7%)(Putih Tunjung & Nuraeni, 2019). Then the research conducted by Kurniasih Uun (2020) reported that there was an effect of pain on pregnant women after doing pregnancy exercises (Kurniasih, 2020).

Pregnancy exercise is a form of structured exercise or training with the following benefits: 1) reducing stress during pregnancy and the postpartum period, 2) increasing fetal and placental growth in the first and second trimesters, 3) reducing the incidence of pregnancy-related complications such as preeclampsia and gestational diabetes, 4) facilitating the labor process, 5) reducing back pain during the third trimester (Hidayati, 2019; Maharani, 2021).

In addition, when doing prenatal exercise, the body will produce more endorphins. Endorphins are known as substances that have a working principle like morphine which functions to provide calm, overcome stress during pregnancy and is able to reduce pain such as pain in the back area (Firdayani & Rosita, 2020).

Because the research results have discussed a lot about the benefits of prenatal exercise for pregnant women, it is hoped that midwives on duty in the antenatal care department will pay more attention to providing information about how to do prenatal exercise.

CONCLUSION

There is an effect of prenatal exercise on reducing back pain in pregnant women in the third trimester at the Campagaloe Health Center, Bantaeng Regency with a p value of 0.000 < α 0.05.

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