

Endorphin Massage Reduces Back Pain Intensity in Third-Trimester Pregnant Women at Risma Pakpahan's Practice

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ABSTRACT

The management of back pain in pregnant women using endorphin massage is an urgent need. This method not only helps reduce physical pain but also provides significant emotional and psychological benefits. Endorphin massage therapy can be an effective solution to improve the quality of life of pregnant women during pregnancy. This study aims to determine endorphin massage's effect on reducing back pain intensity in third-trimester pregnant women. This research is pre-experimental with a one-group pre-test and post-test approach, conducted at Puskesmas Risma Pakpahan Ujungbatu in 2024. The population in this study consisted of 100 pregnant women, and the sample was taken using a purposive sampling technique with the criteria of third-trimester pregnant women experiencing back pain, willing to be respondents, and not having pregnancy complications. Based on these criteria, 30 pregnant women were obtained as samples. The statistical test was bivariate with a t-dependent test at 95% significance level. The results showed a significant difference in the average back pain intensity scale before (pre-test) and after (post-test) endorphin massage, with an average decrease of 4.667. The statistical test results showed a p-value of 0.0001, more diminutive than 0.05, indicating a significant relationship between the variables studied. This study concludes that there is a substantial change in the intensity of back pain in pregnant women after being given endorphin massage treatment. These results indicate that endorphin massage therapy is effective in reducing back pain and can be used as a safe and beneficial treatment method for pregnant women.

Keywords: endorphin massage, back pain in pregnancy, third trimester

INTRODUCTION

Pregnancy begins with fertilization, which is the meeting of male spermatozoa and a female ovum, followed by implantation in the uterine wall. This process marks the beginning of pregnancy, lasting about 40 weeks or about nine months. During this period, pregnancy is divided into three trimesters, each with a different duration and characteristics. The first trimester lasts for the first 12 weeks, during which the essential organs of the fetus begin to form and significant early development takes place. The second trimester covers weeks 13 to 27, during which the fetus experiences rapid growth and the development of more complex organs and body systems. The third trimester covers the 28th week to the end of pregnancy

when the fetus prepares for birth with increased weight gain, maturation of vital organs, and adjustment of position for labor. This division helps in monitoring fetal development and maternal health during pregnancy (Pratama & Indriastuti, 2023).

During pregnancy, the body undergoes various physiological and psychological changes in response to hormones, estrogen, and progesterone changes. These hormones affect the reproductive system by supporting the development of the uterus and placenta and preparing the breasts for milk production. In addition, hormonal changes also impact the skin, often leading to altered pigmentation such as linea nigra and melasma. The body's metabolism increases to meet the additional nutritional requirements while the hematological system changes blood volume and blood cell levels. The cardiovascular system adjusts to the increased blood volume and pressure, while lung capacity and breathing patterns also change to meet the increased oxygen demand. Kidney and bladder function are compromised by increased blood flow, and the gastrointestinal system often experiences nausea and altered digestion. Finally, changes in weight and posture can cause strain on muscles and joints, usually leading to back pain. All these changes are adaptations of the mother's body to support the growing fetus and maintain health during pregnancy (Natalia & Handayani, 2022).

The 2018 Riskesdas data recorded 8,902 pregnant women in Indonesia with a maternal mortality rate (MMR) of 305 per 100,000 live births (Balitbangkes, 2018). In Riau Province, the number of pregnant women in 2020 reached 170,854, decreased to 143,716 in 2021, and slightly increased to 143,985 in 2022 (Hamil et al., 2023). Back pain is a common complaint in pregnant women, especially in the third trimester, caused by changes in posture and the increasing size of the fetus (Nurlitawati et al., 2022). Around 50%-80% of pregnant women experience back pain, with the prevalence reaching 70% in Indonesia in late pregnancy. This pain can become chronic and affect daily activities (Armayanti et al., 2023).

The results of research by Badriyah et al. (2024) states that the results of statistical tests using Wilcoxon with a p-value $(0.002) < (0.005)$ indicate that endorphin massage can have an effect on reducing back pain in pregnant women who often feel back pain in third trimester pregnancy at PMB Novi Astutik Pamotan Dampit, Malang Regency (Badriyah et al., 2024). Amir et al. (2022) stated that before endorphin massage, most third trimester pregnant women experienced severe pain. After endorphin massage, pain was reduced to moderate pain. The results of the Wilcoxon sign rank test with $\alpha = 0.05$ showed $p = 0.000$, so $p < 0.05$. That is, there is an effect of endorphin massage on reducing the intensity of back pain at Setia Clinic Padang Pariaman (Amir et al., 2022).

Based on the above background, the researcher is interested in examining whether there is an effect of Endorphin massage on back pain in Trimester III pregnant women. This study provides insight into the effectiveness of endorphin massage in specific clinical settings and allows adaptation of the method to suit local conditions. By using the Wilcoxon sign rank test statistical test, the results of the study will have high validity and can be compared with other studies. In addition, this study expands the understanding of the influence of hormonal changes during pregnancy and develops more effective therapeutic protocols. This study also explored the psychological impact of endorphin massage, such as stress reduction and improved emotional well-being. Overall, this study enriches the scientific literature and clinical practice regarding endorphin massage as an effective and safe non-pharmacological method.

METHODS

This type of research is analytical, quantitative research with an experimental design that uses a one-group pre-test and post-test approach. This method is designed to observe changes in one group of objects by taking measurements before (pre-test) and after (post-test) applying specific treatments. In this study, the treatment used is endorphin massage. The research will begin with an initial measurement of back pain intensity in third-trimester pregnant women before endorphin massage is given. After that, the intervention in the form of an endorphin massage will be performed on the group. Furthermore, the intensity of back pain will be measured again after the intervention period to evaluate the effect of endorphin massage. This study will be conducted in 2024 at the practice of midwife Rismana Pakpahan STr. Keb, located in Ngaso Village, Ujung Batu Sub-district, Rokan Hulu Regency. With this design, the study aims to identify and analyze the impact of endorphin massage on reducing the intensity of back pain in pregnant women and to better understand this method's effectiveness in a specific clinical context.

The population in this study consisted of all third-trimester pregnant women, with a total of 100 individuals. From this population, the sample taken was 30 third-trimester pregnant women who reported experiencing back pain. The sampling technique used was non-probability sampling with a purposive selection method. This method selected samples based on specific criteria relevant to the research objectives.

The criteria for sample selection in this study include third-trimester pregnant women who experience back pain, are willing to participate as respondents, are in good health, and do not experience pregnancy complications. Using these criteria, the researcher can ensure that the samples involved are truly in accordance with the study's needs and objectives.

Data collection was carried out through questionnaires as the main tool for obtaining primary data. This data was then analyzed using univariate analysis methods to describe the essential characteristics of the sample and bivariate analysis methods to evaluate the relationship between variables. The statistical test used to test the hypothesis was the paired t-test (T-dependent test), with the significance level set at 0.05. This method allowed the researcher to assess whether there was a significant difference in back pain intensity before and after the endorphin massage treatment, thus providing a clear picture of the effectiveness of the intervention in the context of this study.

RESULTS

The research results can be seen in the Table below:

Table 1. Distribution of Average Back Pain Intensity Before Endorphin Massage

Variable	Mean ± SD	Min-Max
Back pain intensity before Endorphin Massage	6,40 ± 1,404	5-9

Based on the study's results, the average intensity of respondents' back pain before endorphin massage was 6.40, with a standard deviation (SD) of 1.404, as shown in Table 1.

Table 2. Distribution of Mean Back Pain Intensity After Endorphin Massage

Variable	Mean ± SD	Min-Max
Back pain intensity scale after Endorphin Massage	1,73 ± 0,907	0-3

After endorphin massage, the intensity of back pain in third-trimester pregnant women at the Independent Midwife Practice of Risma Pakpahan Ujungbatu showed an average scale of 1.73 with an SD of 0.907, as shown in Table 2. The scale of back pain intensity ranged from 0 as the minimum value and three as the maximum value. There was a difference in back pain intensity scale between pre-test and post-test, with a minimum difference of 5 and a maximum of 6. All respondents experienced decreased pain levels after undergoing endorphin massage for 15 minutes.

Table 3. Effect of Endorphin Massage on The Intensity Of Back Pain in Third-Trimester Pregnant Women in The Independent Practice of Midwife Rismana Pakpahan Ujungbatu

Variable	Mean	SD	P-Value	N
Before Endorphin Massage	6,40	1,404	0,000	30
After Endorphin Massage	1,73	0,907		30

Based on Table 3, the intensity of respondents' back pain before treatment had an average of 6.40 with SD 1.404; after treatment, it had an average of 1.73 with SD 0.907. It shows that the average back pain value has decreased after endorphin massage. The average difference in back pain intensity scale before (pre-test) and after (post-test) giving endorphin massage is 4.667. There was a decrease in pain levels in all respondents who received treatment in the form of endorphin massage for 15 minutes. The results of statistical tests using the t-test showed a p-value of 0.000 ($p < 0.05$), which indicated a significant relationship between the intensity scale of back pain before and after endorphin massage.

DISCUSSION

The results showed that the average intensity of back pain before endorphin massage was 6.40, with a standard deviation (SD) of 1.404. This means that, in general, third-trimester pregnant women who became research subjects experienced back pain with an intensity level of about 6.40 on a certain scale before the massage intervention was carried out. The standard deviation 1.404 indicates how much the data varies or spreads from the mean. In this context, the relatively small standard deviation indicates that most study subjects had back pain intensity close to the mean value of 6.40. It suggests consistency in reported pain levels before the endorphin massage was administered.

After being given an Endorphin Massage, the average back pain intensity decreased to 1.73 with SD 0.907. The mean difference in back pain intensity scale between before (pre-test) and after (post-test) administration of endorphin massage was 4.667. This means that, on average, the level of back pain in third-trimester pregnant women was reduced by 4.667 points on the assessment scale after the endorphin massage intervention compared to before the therapy was performed. The statistical test results showed a p-value of 0.000 ($p < 0.05$). This p-value is far below the significant limit of 0.05, indicating that the results are not coincidental. In other words, this considerable difference confirms that endorphin massage has a real and substantial impact on reducing back pain intensity. The minimal p-value indicates that this intervention

effectively addresses back pain, and the effect can be considered valid and consistent. These results support the conclusion that endorphin massage is an effective and significant method of reducing back pain in third-trimester pregnant women, providing a valuable alternative for pain management without the use of medications.

The results of this study are supported by Febiola's research (2023) conducted in the Kelir Health Centre Working Area. In the study, statistical tests showed a p-value of 0.000, indicating that the application of endorphin massage significantly reduced the severity of back pain in third-trimester pregnant women. This minimal p-value suggests that the observed difference in back pain intensity before and after endorphin massage therapy was not coincidental but rather the result of the intervention's natural effect. This study confirms that endorphin massage can be an effective method of managing back pain in pregnant women, offering a beneficial non-pharmacological alternative to improve the well-being of pregnant women (Febiola et al., 2023). In line with Eka and Sri's research (2023), there is a significant difference in back pain in third-trimester pregnant women before and after being given endorphin massage in Hadimulyo Village. The statistical test results in the study showed a p-value of 0.003 ($p < 0.05$), which indicated that endorphin massage significantly reduced the scale of back pain in pregnant women during pregnancy. A p-value of less than 0.05 suggests that the difference in the level of back pain before and after the intervention was not coincidental but rather a natural result of the effectiveness of endorphin massage in reducing back pain. This study strengthens the evidence that endorphin massage effectively manages back pain in third-trimester pregnant women (Eka & Sri, 2023).

Endorphin massage is a non-pharmacological method of reducing back pain. Unlike medications, endorphin massage does not involve drugs. Still, it focuses on physical techniques to stimulate the release of endorphins, the body's natural hormones that can help reduce pain and promote well-being. The method aims to reduce muscle tension, improve blood circulation, and stimulate the body's natural pain-relieving mechanisms, thus helping to reduce the intensity of back pain without the side effects of medication (Anggeriani et al., 2024). Endorphin Massage is a light touch method developed by Constance Palinsky to control pain (Purwaningsih et al., 2022). Endorphin massage can reduce pain and promote relaxation through a light touch on the skin's surface (Rohma & Rejeki, 2023). Numerous studies have shown that this technique increases the release of Endorphins and oxytocin. The benefits of Endorphin Massage are that it provides relaxation and lowers the intensity of pain by increasing blood flow to the affected area (Siul et al., 2023), gives a sense of comfort (Kundayanti et al.,

2023), stimulates sensory receptors in the skin and brain, increases local circulation, stimulation of Endorphin release, decreases endogenous catecholamines stimulation of efferent fibers resulting in block to pain stimuli (Amanda et al., 2023).

Endorphin massage performed by researchers was proven to reduce the intensity scale of back pain in third-trimester pregnant women in the Independent Practice of Midwife Risma Pakpahan Ujungbatu. The decrease in the pain intensity scale provides comfort that can make third-trimester pregnant women feel calmer and more comfortable during activities. Endorphin massage performed by researchers effectively reduces the intensity scale of back pain from higher to lower levels and prevents discomfort in third-trimester pregnant women in the Independent Practice of Midwife Risma Pakpahan Ujungbatu.

Overall, this study confirms that Endorphin Massage is an effective and safe method to reduce back pain in third-trimester pregnant women. This technique not only helps reduce pain intensity but also promotes a sense of comfort and relaxation, thus allowing pregnant women to better go about their daily activities. With significant benefits and lower costs compared to synthetic drugs, Endorphin Massage is worth considering as a valuable non-pharmacological alternative in the management of back pain in pregnant women.

CONCLUSION

This study concludes that Endorphin Massage effectively reduces back pain intensity in third-trimester pregnant women at the Independent Practice of Midwife Risma Pakpahan Ujungbatu. The average back pain intensity decreased from 6.40 to 1.73, with a significant difference of 4.667 ($p = 0.000$). Endorphin Massage provides non-pharmacological pain relief, comfort, and relaxation without harmful side effects and at a lower cost than synthetic drugs. It is recommended to integrate this massage into prenatal care programs, with proper training for healthcare providers. Further research should explore long-term benefits and broader applications. Standard protocols should be developed for consistent and safe practice. Ensuring accessibility and affordability for all pregnant women is crucial, potentially through subsidized services or insurance coverage. Patient feedback should be used to refine the therapy, and non-pharmacological methods should be promoted as first-line options for managing pregnancy-related discomforts.

LIMITATION

The limitations of this study include several aspects, namely the research design using a one-group pre-test and post-test approach without a control group, so that the results may be influenced by other variables besides Endorphin Massage. The research sample was limited to third-trimester pregnant women who experienced back pain in one location, namely the Practice of Midwife Risma Pakpahan STr. Keb in Ngaso Village, so the results cannot be generalized to a broader population. External factors such as physical activity, nutrition, and social support of respondents during the study were not controlled, which could affect the intensity of pain reported.

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