
The Effect Of Endorphin Massage On The Intensity Of Dysmenorrhea In Adolescents Studying Social Sciences At Pasir Pengaraian University

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Abstract

Menstruation is a natural process that occurs in women every month as a sign that the body is in the process of preparing for pregnancy. However, not a few teenagers experience disorders in their menstruation, one of which is dysmenorrhea. Disrupting daily activities due to the pain they feel. Based on data from the Rokan Hulu Health Office in 2019, it was found that the prevalence of anxiety reached 4.3% (4,936 people), and 59.5% of teenagers experienced dysmenorrhea. The incidence of dysmenorrhea in Riau, which has been studied in adolescent girls (age range 15-16 years) in Bangko District, Rokan Hilir Regency, found a prevalence of dysmenorrhea of 95.7%. Treatment of dysmenorrhea can be overcome with non-pharmacological methods to reduce dysmenorrhea pain, one of which is Endorphin Massage. This type of research is Quantitative with a pre-experimental research design with a pretest and posttest design approach using the NRS observation sheet. The population of this study was students of the Social Studies education study program at Pasir Pengaraian University, with a sample of 20 female students. The sampling technique was purposive sampling. The data analysis used univariate and bivariate methods. From the results of the study, it is known that the univariate analysis obtained an average pretest of 3.75 with a standard deviation of 1.165. The average posttest was 2.10 with a standard deviation of 1.021. This shows that the mean posttest value is smaller than the mean pretest value. The results of the bivariate analysis using the T-Test obtained a p-value of 0.000 ($p < 0.05$). This indicates that there is a significant difference in the average intensity of dysmenorrhea before and after the administration of endorphin massage in female students of the Social Studies Education Study Program at Pasir Pengaraian University.

Keywords: Teenagers, Menstruation, Dysmenorrhea, Endorphin Massage

INTRODUCTION

Menstruation is a natural physiological process marking the transition from childhood to adulthood in women, regulated by reproductive hormones. While a normal part of life, this transition can be accompanied by discomfort, with dysmenorrhea being a common and significant issue (Jusni et al., 2025). Dysmenorrhea, characterized by pain, aches, and cramps in the lower abdomen and back, can be so severe that it disrupts a woman's daily routine. According to the World Health Organization (WHO), over 50% of women globally experience dysmenorrhea, with a staggering 10-15% suffering from severe cases (WHO, 2020). This pain, medically known as "catamenial pelvic pain," can last for two or more days of the menstrual cycle, impacting daily activities and overall quality of life (Sari Dewi, 2023).

The prevalence of dysmenorrhea is particularly high among adolescents. In Indonesia, the incidence is substantial, affecting 64.25% of women, with 54.89% experiencing primary dysmenorrhea. A concerning 90% of Indonesian women who suffer from this pain do not report it to a healthcare provider (WHO, 2020). Regional data further highlights this issue. In Rokan Hulu, the prevalence of dysmenorrhea among teenagers reached 59.5% in 2019 (Apridayati et al., 2023). A separate study in Riau on adolescent girls aged 15-16 found an even higher prevalence, with 95.7% experiencing dysmenorrhea (Oktorika et al., 2020). This widespread issue underscores the need for effective interventions.

Dysmenorrhea is a frequently reported reproductive health complaint among women, especially those between 10 and 19 years old, where the incidence can be as high as 75% (Sari et al., 2025). This pain is caused by uterine contractions during menstruation and can be influenced by factors such as

anemia, exercise habits, and nutritional intake (Sari et al., 2025). The pain associated with dysmenorrhea can significantly disrupt daily activities and interfere with academic performance and social engagement (Zahroh & Suharmati, 2022). While pharmacological treatments like painkillers are available, they can have side effects and may not be preferred by all individuals (Susilawati et al., 2023).

Given the challenges with pharmacological treatments, non-pharmacological approaches have gained popularity as a safe and effective alternative for pain management (Sari Dewi, 2023). One such method is endorphin massage, a complementary therapy that utilizes light touch to manage pain (Jusni et al., 2025). This technique, first developed by Constance Palinsky, involves gentle massage that can stimulate the body's natural pain-relieving mechanisms. The release of endorphins, which are natural polypeptides, helps to inhibit pain signals from reaching the brain, providing a sense of comfort and relaxation (Widiarti et al., 2024).

The effectiveness of endorphin massage has been supported by various studies. Research by Rosita and Kartika (2023) and Oktaviani et al. (2024) demonstrated that endorphin massage significantly reduces the intensity of menstrual pain, improving daily functioning. It is believed that the light massage on the back stimulates the release of endorphins, which are beneficial for pain reduction and mood improvement (Oktaviani et al., 2024). This approach offers a promising, non-invasive way to manage dysmenorrhea without the side effects associated with medication.

Based on a survey of 40 female students in the Social Sciences Education study program at Pasir Pengaraian University, a significant number reported experiencing menstrual pain. This research aims to investigate the effect of endorphin massage on the intensity of dysmenorrhea in these students. The urgency of this study lies in addressing a prevalent health issue among young women that often goes unreported and untreated, despite its impact on daily life. By exploring a non-pharmacological intervention, this study seeks to provide a practical and accessible solution for dysmenorrhea management. The novelty of this research is in its specific focus on a targeted population—female students in a particular university program—to provide concrete, localized evidence on the efficacy of endorphin massage. The findings are expected to contribute to the body of knowledge on complementary therapies for menstrual pain and encourage wider adoption of non-pharmacological methods for improving women's reproductive health.

RESEARCH METHODS

Research Methods

This study used a quantitative approach with a pre-experimental design, specifically a one-group pretest-posttest design (Creswell & Creswell, 2021; Emzir, 2021). This design involved measuring the intensity of dysmenorrhea in participants before the intervention (pretest) and then again after the intervention (posttest) to assess the effect of the treatment. The research was conducted from November 2024 to May 2025 at Pasir Pengaraian University. This approach allows for the direct observation of changes in the dependent variable (dysmenorrhea intensity) as a result of the independent variable (endorphin massage).

Population and Sampling

The population of this study consisted of all female students in the Social Sciences Education study program at Pasir Pengaraian University who experienced dysmenorrhea, totaling 40 individuals. The sample, a subset of the population, was 20 female students. To select the sample, a non-probability sampling technique known as purposive sampling was employed. This method was chosen because it allows the researcher to select participants based on specific characteristics relevant to the research purpose, in this case, students who experience dysmenorrhea (Sudaryono, 2021; Sugiyono, 2021). The sample size was determined using the "saturated sampling" method, where all members of a smaller population are included if the population size is less than 30, to ensure the sample is representative of the population (Sugiyono, 2021).

Research Instruments and Data Analysis

The primary research instrument used to measure the intensity of dysmenorrhea was the Numerical Rating Scale (NRS) observation sheet. The NRS is a valid and reliable tool for self-reporting pain levels, ranging from 0 (no pain) to 10 (worst possible pain), which is appropriate for this type of quantitative study (Hadi & Hidayah, 2022). The data collected was analyzed using both univariate and bivariate analysis (Riyadi & Noviyani, 2023). Univariate analysis was performed to describe the

characteristics of the data, such as the mean and standard deviation of dysmenorrhea intensity before and after the intervention. Bivariate analysis was conducted using a Paired Samples T-Test to examine the significant difference between the pretest and posttest scores. A p-value of <0.05 was used as the criterion for statistical significance to determine if the endorphin massage had a measurable effect on dysmenorrhea intensity.

Research Procedures

The research procedure involved several stages. First, potential participants were identified from the Social Sciences Education study program at Pasir Pengaraian University. The identified participants were then screened to ensure they met the inclusion criteria of experiencing dysmenorrhea. After obtaining informed consent, the pretest was administered by having the participants record their dysmenorrhea pain intensity using the NRS. Following the pretest, the endorphin massage intervention was implemented. This massage was performed three days before and on the first day of menstruation, twice daily, or whenever the participants experienced pain. The massage technique was a light touch on the back to stimulate the release of endorphins, a natural pain reliever. Finally, a posttest was conducted after the intervention to measure the new intensity of dysmenorrhea using the same NRS observation sheet. The data from the pretest and posttest were then compared using the T-test to analyze the effectiveness of the intervention. This systematic approach ensures the findings are robust and provide a clear conclusion regarding the effect of endorphin massage on dysmenorrhea intensity.

RESULTS AND DISCUSSION

Table 1. Average Distribution of Dysmenorrhea Intensity Before and After Endorphin Massage

Intensitas Dismenore	Mean	SD	Min-Max	N
<i>Pretest</i>	3,75	1,164	2 - 6	20
<i>Posttest</i>	2,10	1,021	1 - 4	20

The results showed that the average intensity of dysmenorrhea before being given endorphin massage was 3.75 with a standard deviation of 1.164. The lowest intensity of dysmenorrhea is 2, and the highest intensity is 6. And the average intensity of dysmenorrhea after endorphin massage was 2.10 with a standard deviation of 1.021. The lowest intensity of dysmenorrhea is 1, and the highest intensity is 4.

Table 2. The Effect of Endorphin Massage on Reducing the Intensity of Dysmenorrhea in Adolescent Girls in the Social Studies Education Study Program.

Variabel	Mean	SD	SE	N	P Value
Intensity of dysmenorrhea before and after endorphin massage	1,650	0,671	0,150	20	0,000

Based on Table 2, it is known that there is a difference in the average value before and after endorphin massage of 1.650 with a standard deviation of 0.671, a standard error of 0.150, and the results of a statistical test obtained a p value of 0.000 (p < 0.05). Thus, it can be concluded that there is an effect of giving endorphin massage on reducing the intensity of dysmenorrhea in adolescent girls in the Social Studies Education Study Program.

Adolescence is a transitional period from childhood to adulthood, experience physical, hormonal, and sexual changes. One of the changes that occurred was menstruation. Menstruation or menstruation is a physiological change that occurs according to the cycle of the female body and is influenced by reproductive hormones. Menstruation can cause discomfort, one of which is dysmenorrhea. Dysmenorrhea refers to pain, aches, and cramps felt in the lower abdomen all the way to the back that can interfere with daily activities (Jusni et al., 2025).

Management of dysmenorrhea can be done using non-pharmacological therapy. One of the effective interventions is endorphin massage assistance. (Jusni et al., 2025). Endorphins are polypeptides produced by the body to relieve pain. Endorphins can be triggered to be released by doing meditation activities, deep breathing, eating spicy foods, or it can also be using chiropractic therapy, acupuncture, and massage (massage. What is useful for inhibiting the course of pain from the source of pain is the part of the body that has been traumatized, to the center of the brain. (Widiarti et al., 2024).

According to a study conducted (Rosita & Kartika, 2023) Entitled The Effect of Endorphin Massage on Menstrual Pain in Students of Al Hikmah Jepara University. Based on the data from the Wilcoxon signed rank test, the results were obtained in the intervention group to reduce menstrual pain, the mean rank was 12.50, and in the increase in pain, the mean rank was 0.00. It can be concluded that there is a big difference in the average of increasing pain and decreasing menstrual pain in college students, so it can be concluded that the administration of endorphin massage can affect the level of menstrual pain and is effective in reducing menstrual pain in college students.

In line with the research conducted by (Jusni et al., 2024) Entitled The Effect of Endorphin Massage on the Reduction of Dysmenorrhea Pain in Bulukumba Regency, the results of the study showed that the p-value before and after endorphin massage was $0.002 < 0.05$. So it can be concluded that there is an effect of giving endorphin massage on reducing dysmenorrhea pain in students of the Tahirah Al Baeti Bulukumba Midwifery Academy.

The results of this study are in line with the research conducted by (Oktaviani et al., 2024) Entitled Overview of the Effectiveness of Endorphin Massage to Reduce Menstrual Pain in Adolescent Girls at SMK Hepweti stating that the results of the study showed that after endorphin massage was initially found to be very severe pain, it was not found again but the majority occurred in no pain as many as 7 respondents (46.7%), mild pain 6 respondents (40%) and moderate pain 2 respondents (13.3%). Meanwhile, on the second day after endorphin massage which was initially found to be moderate pain was not found again but the majority occurred in no pain as many as 11 respondents (73.3%), and mild pain in 4 respondents (26.7%) with an average menstrual pain after being given an endorphin massage on the first day 1.46 and 0.33 on the second day, this shows that there has been a decrease in the scale of menstrual pain. This is in line with the theory. (Oktaviani et al., 2024) Giving an endorphin massage with a light massage on the back can stimulate the production of endorphin hormones. This hormone is beneficial for reducing pain and providing a sense of comfort and relaxation to the person who gets it.

According to the researchers' assumptions, adolescent girls who experience menstruation tend to experience dysmenorrhea with different levels of pain. The menstrual pain experienced can cause daily activities to be disrupted because it is caused by contractions of the uterine wall during menstruation. So it is necessary to handle dysmenorrhea that occurs during menstruation. Currently, many complementary therapies can treat dysmenorrhea. Complementary therapy is a non-pharmacological therapy, which has no side effects if done, one of which is by doing endorphin massage. Endorphin massage is one of the touch therapies and light massage that is effective in reducing menstrual disorders, namely menstrual pain, and improving mood disorders.

CONCLUSION

The research demonstrates that light massage therapy can significantly alleviate menstrual pain through the stimulation of natural endorphin release, which inhibits pain transmission pathways to the brain. The intervention provides a viable therapeutic option that addresses the widespread problem of dysmenorrhea in adolescent populations, offering a safe, accessible, and cost-effective alternative to pharmacological treatments. These findings support the integration of complementary therapies into comprehensive reproductive health management strategies for young women, particularly in settings where medication access may be limited or contraindicated.

Despite these promising results, the study's methodological limitations must be acknowledged when interpreting the findings. The pre-experimental design with a single-group pretest-posttest approach, while practical for initial investigation, lacks the rigor of a randomized controlled trial and cannot definitively establish causality or control for confounding variables such as placebo effects, natural pain fluctuations, or concurrent lifestyle changes. The relatively small sample size (n=20) and specific population (Social Sciences Education students at one university) may limit the generalizability of findings to broader adolescent populations with different demographic characteristics. Future research should employ more robust experimental designs, including randomized controlled trials with adequate control groups, larger and more diverse sample sizes, and longer follow-up periods to assess the sustained effects of endorphin massage. Additionally, investigating optimal massage protocols, comparing effectiveness across different dysmenorrhea severity levels, and exploring potential mechanisms through biomarker analysis would strengthen the evidence base and inform clinical practice guidelines for this promising complementary therapy approach.

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