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# Endorphin Massage Therapy for Dysmenorrhea in Adolescent Girls at Takwa High School Palembang

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***Abstract.*** *Dysmenorrhea is a gynecological complaint caused by an imbalance of the hormone progesterone in the blood, resulting in pain during menstruation which often occurs in women. One effort to treat menstrual pain is non-pharmacological therapy with endhorpine massage. The aim of the research was to analyze the effect of endorpine massage on dysmenorrhoea in young women at SMA Takwa Palembang. The research method uses quasi-experimental one group pretest and posttest. The population is all class X female students. The total sample was 28 people taken using purposive sampling technique. The research instrument used the Numeric Rating Scale (NRS) which was measured before after the endorphin massage. Results: The average pain scale before endorpine massage was 4.83 (moderate pain) with a maximum value of 6 and a minimum value of 4. In the second measurement, the average pain scale was 2.61 (mild pain) with a maximum value of 4 and a minimum of 2. Results paired t test obtained α 0.022 < 0.05. Conclusion: There is an effect of endorphin massage on dysmenorrhoea in young women at SMA Takwa Palembang. It is hoped that related parties will develop complementary therapies to treat menstrual pain in adolescents through education.*

***Keywords:*** *dysmenorrhoea, endorphin massage, adolescent girls*

## 1. BACKGROUND

Adolescence is a phase where a woman experiences both primary and secondary sexual development. The first menstruation ( *menarche* ) occurs in adolescence, usually there are cramps, pain, and discomfort during menstruation called dysmenorrhea. Every woman experiences different levels of pain during menstruation, for Some women suffer from pain or discomfort that can stop them from doing their daily activities (Sabilu et al., 2017).

Dysmenorrhea is a gynecological complaint due to an imbalance of the hormone *progesterone* in the blood, resulting in pain that most often occurs in women (Elvira, 2018). The pain is felt like being squeezed before and during the menstrual cycle in the lower abdomen and can spread to the waist to the thighs. The pain lasts for 48-72 hours, felt more painful on the first and second days of menstruation (Hayati et al, 2020).

Data from *the World Health Organization* (WHO), in the world the incidence of dysmenorrhea is still very high. The average incidence of dysmenorrhea in young women ranges from 16.8-81% in 2018 (WHO, 2020). In Indonesia, data from Riskesdas (2018) shows that the prevalence of dysmenorrhea is 64.25%. It is estimated that 90% of women in Indonesia experience menstrual pain, but do not report to health services (Septianingrum and Hatmanti 2019). *mood* disorders , unstable emotions, fatigue, lack of concentration, changes in appetite, sleep problems, breast pain, joints and headaches. The impact or complaints that occur will

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affect daily activities (Anjelina, 2013). Menstrual pain is pain felt during menstruation caused by increased prostaglandins and psychological influences, namely stress and anxiety (Sabilu et al., 2017).

Pain can be treated with various alternatives, both pharmacologically and non-pharmacologically. Pharmacologically it can be treated with analgesic drugs, while non-pharmacologically it can be treated with anticipatory guidance, hot and cold compresses, transcutaneous electrical nerve stimulation (TENS), distraction, relaxation, guided imagery, hypnosis, acupuncture, biological feedback, and endorphin massage (Pramadika, 2019).

Endorphin massage is a light touch massage given to the back of the body. The massage given can stimulate the body to release endorphin compounds and create a feeling of comfort and relaxation (Rahayu et al. 2017). Endorphins are well known as substances with various benefits. Some of them are regulating the production of growth and sex hormones, controlling pain and illness, controlling stress, and increasing the body's immunity (Septianingrum & Hatmanti, 2019)

According to Zuhrotunida's research (2022), endorphin massage intervention on reducing dysmenorrhea pain resulted in a decrease in the degree of pain (moderate to mild pain). Endorphin massage is performed for at least 30 minutes to relieve dysmenorrhea pain.

The results of Rahayu's (2017) study showed that giving endorphin massage can reduce menstrual pain felt by adolescent girls. Therefore, it is necessary to search for articles to determine the effectiveness of endorphin massage on reducing dysmenorrhea pain in adolescent girls.

This study has implications for the management of dysmenorrhea in adolescents with complementary methods. Endorphin massage can be used as an alternative to reduce dependence on consuming analgesics during menstruation. This certainly minimizes the risk of excessive use of chemical drugs.

## 2. THEORETICAL STUDY

Menstruation is a physiological process that occurs in women. In adolescents, dysmenorrhea is defined as a symptom of recurrent pelvic pain or what is known in health as catmenial pelvic pain, where a woman experiences menstrual pain that has a negative impact, causing an impact/disruption in carrying out daily activities. This condition can last for two days or more each menstruation (Islamiati et al., 2020).

Menstrual pain is pain felt during menstruation caused by increased prostaglandins and psychological influences such as stress and anxiety (Sabilu et al., 2017). Many efforts have been made to reduce menstrual pain such as giving painkillers. However, excessive use of

drugs will cause a person's dependence on the effects of pain relievers, which can cause liver damage and hypertension (Lintan and Puspita, 2012).

Pain management can be provided by health workers using non-pharmacological therapy. Non-pharmacological therapies that can be provided include hypnotherapy, aromatherapy, hot compresses, gymnastics, yoga, and massage (Anjelina, 2013). Massage therapy that can be given to sufferers of menstrual pain is endorphin massage and pressure massage (counter pressure) (Rahayu et al., 2017). Endorphin massage is a light touch massage given to the back of the body. The massage given can stimulate the body to release endorphin compounds and create feelings of comfort and relaxation (Rahayu et al. 2017).

Endorphins are already well known as substances with various benefits. Some of them are regulating the production of growth and sex hormones, controlling pain and illness, controlling stress, and increasing the body's immunity (Septianingrum & Hatmanti, 2019).

## 3. RESEARCH METHODS

This study is a quantitative study with *a quasi-experimental one group pretest posttest research design* . Respondents will be studied for 2 menstrual cycles. In the first cycle, the pain scale will be measured with *the Numeric Rating Scale* (NRS) on the first day of menstruation. In the next menstrual cycle, on the first day, an endorphin massage intervention was given for 30 minutes and then the pain scale was measured with the NRS. Measurement of the pain scale before and after the intervention was carried out 2 hours after the menstrual blood came out. The study was conducted at Takwa Sriwijaya Senior High School (SMA) Palembang in October 2023. The study population was female students of Takwa Senior High School class X. The sampling technique used was *purposive sampling* with inclusion criteria, namely not consuming painkillers, normal menstrual cycles (21-35 days) duration (3-7 days), willing to be respondents. The sample consisted of 28 people. The research instrument used was the Pain Scale Questionnaire using *the Numeric Rating Scale* (NRS) and the endorphin massage *checklist sheet* . Univariate and bivariate data analysis. The statistical test used was *the paired sample t test* because the data was normally distributed where *the p value* > 0.05.

## 4. RESULTS AND DISCUSSION

Statistical test results *paired sample t test* can seen in table 1.

**Table 1**
Distribution of the Average NRS Pain Scale of respondents according to the first and second measurements at TAKWA High School in 2023

| Pain Scale | Mean | Max | Min | P *value* | N |
|---|---|---|---|---|---|
| Measurement I (Pre) | 4.83 | 6 | 4 | 0.022 | 28 |
| Measurement II (Post) | 2.61 | 4 | 2 | | |

Based on table 1, the average pain scale is at a score of 4.83 with a maximum value of 6 and a minimum value of 4. Based on the NRS assessment, a score of ≤ 6 is included in the moderate pain category. In the second measurement, the average pain scale was 2.61 with a maximum value of 4 and a minimum of 2. The NRS assessment score ≤ 3 is included in the mild pain category. The results of the *paired t test* obtained α 0.022 <0.05, so it can be concluded that endorphin massage can reduce dysmenorrhea pain in adolescent girls as seen from *the p value* and the average respondent before endorphin massage had a moderate pain category, after endorphin massage it changed to mild pain.

The results of this study are supported by research by Septianingrum and Hatmanti (2019) which showed the results of the analysis with Mann-Whitney, there was a significant difference in menstrual pain in the treatment group. This shows that endorphin massage can reduce menstrual pain when compared to the control group that received deep breathing relaxation.

A literature study conducted by Zuhrotunida et al. (2022) on 10 articles on the effect of endorphin massage on dysmenorrhea found that *endorphin massage* intervention on reducing dysmenorrhea pain resulted in a decrease in the degree of pain (moderate to mild pain). Endorphin massage is performed for at least 30 minutes to relieve dysmenorrhea pain.

Mild dysmenorrhea, which is dysmenorrhea with pain that lasts for a while so that it is necessary to take a break to relieve the pain without taking medication. While moderate dysmenorrhea, which is dysmenorrhea that requires medication to relieve the pain, without having to leave daily activities.

Endorphin hormone is a chemical substance like morphine that is produced by the body itself. Endorphin has the effect of reducing pain and triggering feelings of pleasure, calm, or happiness. This hormone is produced by the central nervous system and the pituitary gland. Endorphin hormone consists of endogenous opioid neuropeptides. In the human body, endorphin hormone has several functions including relieving pain, the main function of this hormone is to block opioid receptors found in nerve cells. This then causes disruption of the transmission of pain signals (Muhlisin, 2019)

Researchers assume that, in addition to the endorphin hormone in the body functioning as a pain reliever, dysmenorrhea in adolescents experiencing a decrease in scale from moderate to mild is also caused by the relaxing effect of endorphin massage therapy. Massage can increase blood flow to the painful area, bringing oxygen and nutrients. Massage therapy can stimulate the production of endorphins, which are hormones that function as natural pain relievers in the body. This helps reduce the perception of pain.

## 5. CONCLUSION AND SUGGESTIONS

Based on the results of the study, it was concluded that there was an effect of endorphin massage therapy on dysmenorrhea in female adolescents at SMA Takwa Palembang. It is expected that related parties will always provide education on pain management during menstruation, one of which is the benefits of endorphin massage in overcoming dysmenorrhea.

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