

# **The Effect Of Effleurage Massage With Lemon Aromatherapy On Reducing Primary Dysminorea Pain In Adolescent Females At Al-Hijrah Sirah Senior High School, Pulau Padang, Ogan Komering Ilir Regency**

**Eri Puji Kumalasari<sup>1\*</sup>, Liswani<sup>2</sup>**

Universitas STRADA Indonesia

**\*Corresponding Author : [ery21021989@gmail.com](mailto:ery21021989@gmail.com)**

## **ABSTRACT**

Dysmenorrhea is menstrual pain and is the most common gynecological problem in women of reproductive age. Management of dysmenorrhea can be done pharmacologically and non-pharmacologically. Pharmacological therapy includes administration of analgesic drugs, hormonal therapy, non-steroidal prostaglandin drugs, and cervical canal dilation. While non-pharmacological therapy through acupressure, yoga, warm or cold compresses, exercise, drinking herbal medicine, massage, rest, knee chest position, breathing relaxation techniques. Effleurage massage is a massage technique that is done to help speed up the pain recovery process by using hand touch to create a relaxing effect. Lemon The fragrant compound limonene has effects, anxiety, analgesics and sedatives that can inhibit prostaglandin activity and reduce pain. The purpose of this study was to determine the effect of effleurage massage with lemon aromatherapy on reducing primary dysmenorrhea pain in adolescent girls. This study population is all adolescents with primary dysmenorrhea who meet the inclusion and exclusion criteria with a sample size of 14 respondents using a one group pretest posttest only research design. The collected data were then analyzed using the chi square statistical test (p value = 0.000), based on the chi square analysis showed that effleurage massage with lemon aromatherapy has an effect on overcoming primary dysmenorrhea in adolescent girls.

**Keywords:** Adolescent Girls, Effleurage Massage, Lemon Aromatherapy, Primary Dysmenorrhea

## **INTRODUCTION**

Reproductive health is a state of overall well-being encompassing physical, mental, and social well-being related to the reproductive organs, functions, and processes. The concept of reproductive health is not simply the absence of disease, but rather how a person can have a safe and satisfying sexual life before and after marriage. Currently, reproductive health in adolescents requires further attention from health professionals (Wijayanegara & Mega, 2019).

Dysmenorrhea can be caused by several factors, such as age, family history, body mass index, socioeconomic status, education, smoking, alcohol use, and the potential role of a woman's daily diet in exacerbating the incidence of dysmenorrhea. Factors that cause primary dysmenorrhea include increased levels of the hormone prostaglandin, which can increase myometrial contractions and narrow blood vessels, resulting in uterine muscle contractions. Adolescent girls typically experience primary dysmenorrhea during their menstrual cycle (Desreza & Marwati, 2021).

Data shows that 90% of Indonesian women have experienced dysmenorrhea. The prevalence of dysmenorrhea in Indonesia is primary (54.98%) and secondary (9.36%). This

high rate of dysmenorrhea in adolescent girls disrupts school activities, rest patterns, eating habits, and other activities (Fitriah & Haqqatiba'ah, 2020).

Based on the results of preliminary interviews conducted at Al-Hijrah Senior High School Sirah Pulau Padang, Ogan Komering Ilir Regency in November 2024 with 10 female adolescents, it was found that 8 female adolescents experienced dysmenorrhea during menstruation and 2 female adolescents did not experience dysmenorrhea. Based on the results of the interview, the researcher was interested in conducting a study entitled "The Effect of Effleurage Massage with Lemon Aromatherapy on Reducing Primary Dysmenorrhea Pain in Female Adolescents at Al-Hijrah Senior High School Sirah Pulau Padang, Ogan Komering Ilir Regency".

## METHODS

This study used a pre-experimental research design with a one-group pretest-posttest design approach, namely by conducting a pretest before the intervention was given and a posttest after the intervention was given to the subject group (Sriandini, 2021). Population in this study, all female adolescents at Al-Hijrah Sirah Pulau Padang High School, Ogan Komering Ilir Regency were involved. The sample in this study was all female adolescents at Al-Hijrah Sirah Pulau Padang High School, Ogan Komering Ilir Regency. The sampling technique used was consecutive sampling, namely the samples taken in this study were female adolescents with primary dysmenorrhea who met the criteria.

The instruments used in this study were questionnaires, observations, and standard operating procedures (SOPs). Researchers observed a decrease in the pain scale of primary dysmenorrhea in adolescent girls. They provided a request form to become respondents, with the participants signing an informed consent form. After the data is collected, the data is processed through stages editing, coding, processing, tabulating, and cleaning.

Data analysis consisted of two components: bivariate and univariate. Univariate analysis was used in this study to identify the effect of effleurage massage with lemon aromatherapy on reducing primary dysmenorrhea pain in adolescent girls at Al-Hijrah Senior High School, Sirah Pulau Padang, Ogan Komering Ilir Regency. Bivariate analysis was conducted using a statistical test to test differences in dependent means, namely the dependent t-test. Data analysis in this study used SPSS software, with a 95% confidence level. Research ethics include Informed Consent, Anonymity, Confidentiality.

## RESULTS AND DISCUSSION

### 1. Univariate Analysis

#### a. Frequency Distribution of Respondents Before Effleurage Massage Using Lemon Aromatherapy

The univariate analysis in this study included the number of respondents and the percentage of primary dysmenorrhea before receiving effleurage massage using lemon aromatherapy among female adolescents at Al-Hijrah Sirah Senior High School, Padang Island, Ogan Komering Ilir.

Table 1. Frequency Distribution of Respondents Based on Primary Dysmenorrhea in Adolescent Girls Before Being Given Effleurage Massage Using Lemon Aromatherapy at Al-Hijrah Sirah Senior High School, Padang Island, Ogan Komering Ilir on March 14, 2025

No.	Primary Dysmenorrhea	Frequency	Percentage (%)
1	No Pain	0	0

2	Mild Pain	4	28,6
3	Moderate Pain	8	57,1
4	Severe Pain	2	14,3
<b>Total</b>		<b>14</b>	<b>100,0</b>

### **b. Frequency Distribution of Respondents After Effleurage Massage Using Lemon Aromatherapy**

The univariate analysis in this study included the number of respondents and the percentage of primary dysmenorrhea after effleurage massage using lemon aromatherapy was given to female adolescents at Al-Hijrah Sirah Senior High School, Pulau Padang, Ogan Komering Ilir.

Table 2. Frequency Distribution of Respondents Based on Primary Dysmenorrhea in Adolescent Girls After Being Given Effleurage Massage Using Lemon Aromatherapy at Al-Hijrah Sirah Senior High School, Padang Island, Ogan Komering Ilir on March 14, 2025

No.	Primary Dysmenorrhea	Frequency	Percentage (%)
1	No Pain	5	35,6
2	Mild Pain	7	57,1
3	Moderate Pain	2	14,3
4	Severe Pain	0	0
<b>Total</b>		<b>14</b>	<b>100,0</b>

### **2. Data Normality Test**

Before conducting the bivariate analysis, a data normality test was first performed on the existing data. The results of the normality test can be seen in the following table:

Table 3. Results of the Normality Test of Respondent Data Before and After Being Given an Effleurage Massage Using Lemon Aromatherapy at Al-Hijrah Sirah High School, Padang Island, Ogan Komering Ilir on March 14, 2025

Variabel	Shapiro Wilk		
	Statistic	N	Sig
Group Before intervention	0,917	14	0,198
Group After intervention	0,869	14	0,040

### **3. Bivariate Analysis**

The bivariate analysis aimed to test the research hypothesis: whether effleurage massage using lemon aromatherapy has an effect on primary dysmenorrhea in adolescent girls. This analysis used the Wilcoxon test, a statistical test appropriate for this study.

Table 4. Results of the Wilcoxon Test for Primary Dysmenorrhea in Adolescent Girls Before and After Being Given Effleurage Massage Using Lemon Aromatherapy at Al-Hijrah High School, Sirah, Padang Island, Ogan Komering Ilir on March 14, 2025

No.	Variabel	N	Mean	Nilai p
1	Primary dysmenorrhea in adolescent girls before being given effleurage massage using lemon aromatherapy	14	2,86	0,004
2	Primary dysmenorrhea in adolescent girls after being given effleurage massage using lemon aromatherapy	14	1,79	0,004

### **The Effect of Effleurage Massage Using Lemon Aromatherapy on Primary Dysmenorrhea in Adolescent Girls**

Based on Table 4.4, the Wilcoxon statistical test was used to determine the average change in primary dysmenorrhea in adolescent girls before and after effleurage massage using lemon aromatherapy. These results showed a significant value in the post-intervention group of 0.004 ( $p$ -value  $<0.05$ ), indicating a significant effect before and after effleurage massage with lemon aromatherapy on primary dysmenorrhea in adolescent girls at Al-Hijrah Sirah Senior High School, Padang Island, Ogan Komering Ilir. Because the average level of primary dysmenorrhea in adolescents after being given aromatherapy massage effleurage with lemon aromatherapy is smaller than in female adolescents before being given aromatherapy massage effleurage with lemon aromatherapy, it can be stated that massage effleurage with lemon aromatherapy can reduce primary dysmenorrhea pain in female adolescents with a significant value of 0.004 obtained, which is smaller than the significant level of 0.05 ( $P$ -value 0.004  $<0.05$ ).

The results of this study are in line with Putri's (2023) study. The results showed that after applying a combination of effleurage massage and lemon aromatherapy, all participants experienced a decrease in dysmenorrhea pain with a  $p$  value of 0.004 ( $p < 0.05$ ). The results of this study are also in line with Khotimah's (2021) study that lemon essential oil has a very high fragrance level and has a cool, refreshing aroma, so it has a strong analgesic to relieve pain, which is mediated in part through the activity of kappa-opioid receptors, which helps block the transmission of pain signals. The inhaled aroma has the fastest effect, where olfactory receptor cells are stimulated and impulses are transmitted to the emotional center of the deep brain, which shows a significant decrease in the severity of dysmenorrhea and is effective in reducing menstrual pain and its location.

Statistical analysis using the Wilcoxon signed-rank test in the experimental group ( $p = 0.000$ ) and the control group ( $p = 0.000$ ) showed that the use of lemon essential oil therapy was effective in treating dysmenorrhea. Statistical analysis using the Mann-Whitney test yielded a  $p$ -value of 0.000, lower than the 0.05 significance level ( $p < 0.05$ ).

Similarly, Ulifah's 2020 study, "The Effectiveness of Light Dysmenorrhea Exercise Combined with Lemon Aromatherapy on Reducing Menstrual Pain Levels at the Youth Integrated Health Post (Posyandu) in Mertelu Village, Gedangsari District, Gunungkidul," revealed a difference in menstrual pain levels before and after the administration of dysmenorrhea exercise combined with lemon aromatherapy ( $p = 0.000$ ). There was also a difference in menstrual pain levels before and after the administration of relaxation techniques ( $p = 0.655$ ). There was a difference in the effectiveness of the intervention and control groups in reducing menstrual pain levels.

Researchers assume that effleurage massage with lemon aromatherapy acts as an analgesic, helping to relieve pain in the body, thereby reducing pain during primary dysmenorrhea. Therefore, aromatherapy can be defined as "a method of body care and/or healing using essential oils." Inhaled aromatherapy has the most immediate effect, stimulating cells in the olfactory receptors and sending impulses to the brain, which reduces pain.

## CONCLUSION

Based on the research results, the following conclusions can be drawn:

1. The frequency distribution of primary dysmenorrhea in adolescent girls before receiving effleurage massage with lemon aromatherapy revealed that 8 respondents (57.1%) experienced moderate pain, 4 respondents (28.6%) experienced mild pain, and 2 respondents (14.3%) experienced severe pain.
2. The frequency distribution of primary dysmenorrhea in adolescent girls after receiving effleurage massage with lemon aromatherapy revealed that 7 respondents (57.1%) experienced mild pain, 5 respondents (35.6%) experienced no pain, and 2 respondents (14.3%) experienced moderate pain.
3. There was a significant effect of effleurage massage with lemon aromatherapy on primary dysmenorrhea in adolescent girls, with a Wilcoxon test result of a p-value of 0.004 (p-value <0.05).

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