



## Paduan *Effleurage Massage* dan *Zingiber Officinale Oil* dalam Menurunkan Intensitas Dismenore Primer pada Remaja

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### Abstract

**Introduction:** Menstruation and breast enlargement in female adolescents are physical characteristics that appear when they enter puberty. The menstrual period begins when the reproductive organs are mature or capable of producing eggs. Menstruation is a physiological thing, nevertheless complaints that occur in menstruation, such as pain, nausea, joint pain (often called dysmenorrhea), are considered disturbing. Several efforts were made to relieve the complaints, such as taking medication and sleeping, but some adolescents claimed to have allergic reactions to the medication, such as swollen eyes and even shortness of breath. Currently, treatment with natural methods or ingredients is believed to be used to overcome dysmenorrhea complaints. The method used in this research is effleurage massage that is scientifically proven to reduce menstrual pain and the ingredient used is Ginger (*Zingiber officinale* oil) which contains shogaol and gingerol compounds that effectively can reduce menstrual pain. This study aimed to examine the effects of combinations treatments between massages and herbal medicine which can treat complaints of dysmenorrhea. **Method:** This study used pre-experimental design with one group pretest posttest design. The population were female students at SMK 2 Malang who were selected by using purposive sampling to obtain 74 respondents. The data were tested for their homogeneity and analyzed by using paired t test. **Result:** Based on the data collection, the results showed that Fisher homogeneity test had P value of 0.522, which means that the data was homogeneous. The results of paired T test showed that T count was 21.182 which is greater than T table (1.993). **Conclusion:** Based on the test results, there was a decrease in pain experienced by the respondents. It proves that the application of effleurage massage and zingiber oil can prevent or reduce the rate of dysmenorrhea in the respondents.

**Keywords:** dysmenorrhea, effleurage, herbs, youth, zingiber officinale oil

### Abstrak

**Latar Belakang:** Menstruasi dan pembesaran payudara pada remaja putri merupakan ciri-ciri fisik remaja yang sedang memasuki masa pubertas. Masa menstruasi dimulai saat organ reproduksi sudah matang atau mampu menghasilkan sel telur. Menstruasi merupakan hal fisiologis yang terjadi pada remaja putri. Meski terjadi secara fisiologis, keluhan menstruasi, seperti nyeri, mual, nyeri sendi atau sering disebut dismenore, dianggap sebagai hal yang mengganggu. Upaya dilakukan untuk mengurangi dismenore adalah minum obat dan tidur, namun ada yang mengaku mengalami reaksi alergi seperti mata bengkak bahkan sesak nafas. Pengobatan dengan metode atau ramuan alami saat ini dipercaya dapat digunakan untuk mengatasi keluhan dismenore tanpa adanya efek samping ataupun reaksi alergi yang timbul dari penggunaan obat farmakologi. Metode yang digunakan adalah



*pijat effleurage yang terbukti secara ilmiah dapat mengurangi nyeri haid dan bahan yang digunakan adalah Jahe (Zingiber officinale oil) yang mengandung senyawa shogaol dan gingerol yang efektif dapat mengurangi nyeri. Penelitian ini bertujuan untuk mengkaji pengaruh kombinasi pengobatan antara pijat dan pengobatan herbal yang dapat mengatasi keluhan dismenore. **Metode:** Penelitian ini menggunakan desain pra eksperimen dengan one group pretest posttest design. Populasi dalam penelitian ini adalah siswi SMKN 2 Malang yang dipilih secara purposive sampling sehingga didapatkan jumlah sampel sebanyak 74 responden. Kemudian data diuji homogenitasnya dan dianalisis dengan uji t berpasangan. **Hasil:** Berdasarkan data yang terkumpul dari responden penelitian, diketahui bahwa hasil uji homogenitas Fisher memiliki nilai P (0,522) yang berarti data bersifat homogen. Hasil uji T berpasangan menunjukkan bahwa T hitung (21,182), yang mana lebih besar dari T tabel (1,993). **Kesimpulan:** Berdasarkan hasil pengujian terdapat penurunan nyeri yang dialami responden, hal ini membuktikan bahwa aplikasi minyak jahe dapat mencegah atau menurunkan angka dismenore pada responden.*

**Kata kunci:** awet muda, dismenore, effleurage, herbal, minyak jahe

## INTRODUCTION

Adolescents according to the Regulation of the Minister of Health of the Republic of Indonesia Number 25 of 2014 are in the age range of 10-18 years, where during adolescence there are many physical and mental changes. Menstruation and breast enlargement in female adolescents are physical characteristics that these adolescents are entering puberty. Puberty occurs in the age range between 9-12 years (Kemenkes RI, 2017). The menstrual period begins when the reproductive organs are mature or capable of producing eggs. Menstruation is a physiological thing that occurs in female adolescents. Although physiologically, menstrual complaints are considered as disturbing things such as pain, nausea, joint pain or often called dysmenorrhea.

Dysmenorrhea is pain or pain in the lower abdomen that occurs when a woman experiences her menstrual cycle (Ratnawati, 2017). During the menstrual cycle there is a thickening of the uterine wall, because fertilization does not occur, the hormones estrogen and progesterone decrease, while there is an increase in the hormone prostaglandin which causes the uterine muscles to contract, causing pain. Dysmenorrhea is divided into two namely,

primary dysmenorrhea, namely lower abdominal pain during menstruation (without pelvic abnormalities or disease) and secondary dysmenorrhea, namely lower abdominal pain during menstruation (accompanied by abnormalities or pelvic disease). Pain can spread to the waist, thighs or legs and is even accompanied by nausea, vomiting, diarrhea, headaches, constipation, frequent urination and even fainting (Anurogo, 2011). In every country, 50% of women of reproductive age and 85% of adolescents experience dysmenorrhea during menstruation to the point that it interferes with daily activities. According to the World Health Organization (WHO), 1,769,425 women (90%) in the world experience severe dysmenorrhea. The prevalence of dysmenorrhea in Indonesia is 107,673 (64.25%) women, experiencing primary dysmenorrhea 59,671 women (54.89%) and secondary dysmenorrhea 9,496 women (9.36%) (Herawati, 2017). Adolescents who experience severe primary dysmenorrhea do not attend school as much as 8.86%, withdraw from social, academic and other social activities 67.08% (Singh et al., 2011). Complaints of primary dysmenorrhea are generally harmless, but very disturbing for those who experience it.



Women frequently experience the issue of dysmenorrhea, or period pain, to the point that they must stop all daily activities and rest for several hours or even days. Compared to teenagers who do not have dysmenorrhea, those who complain of it are frequently absent from school. Due to the excruciating discomfort experienced during menstruation, it might be challenging to concentrate during class. As a result, it is anticipated that this research will be able to offer strategies for treating adolescent dysmenorrhea by reducing the likelihood of adverse effects, developing simple but effective painkillers, and making an attempt to prevent even worse consequences.

The results of a brief preliminary study interview conducted at SMKN 2 Malang with grade X and XI students randomly out of 80 students, who said they experienced menstrual pain to the point of disrupting their activities as many as 74 students. The efforts they made were taking medicine and sleeping, but some admitted that they had allergic reactions such as swollen eyes and even shortness of breath.

Treatment with natural ingredients is currently believed to be used to overcome dysmenorrhea complaints. These ingredients include Ginger (*Zingiber officinale* oil) containing shogaol and gingerol compounds that can effectively reduce pain. Ginger also acts as an inflammation by inhibiting the work of enzymes in the cyclooxygenase (COX) cycle so that it can inhibit the release of these enzymes to prostaglandins which cause inflammation, inhibiting contractions in the uterus which can cause pain during menstruation. The results of the research by Sri Mintasih et al (2018) at MTs Nurul Huda showed that ginger compresses reduced the intensity of dysmenorrhea. The results of Rajasri Pradeep's research (2019), dysmenorrhea pain 86% of arthritis

pain healed by giving raw ginger for 30 days, while 100% recovered by giving ginger oil. Based on these data, the researcher is interested in carrying out research at SMK 2 Malang on the use of ginger oil (*Zingiber officinale* oil) to reduce dysmenorrhea complaints in adolescents. Non-pharmacological therapy by combining touch (massage) and natural ingredients as complementary therapy, namely combining Massage Effleurage and *Zingiber Officinale* oil to treat primary dysmenorrhea in adolescents given on the 5th to the third day of menstruation, is expected to reduce the intensity of dysmenorrhea during menstruation.

## METHODS

The research conducted was a pre-experimental design with the one group pretest posttest design method, measuring pain scales using the Numeric Rating Scale (NRS). Samples that match the inclusion criteria are aged 12-18 years, experience dysmenorrhea during menstruation, are willing to do ginger oil therapy according to directions independently at home, and do not consume analgesics or other therapies. Exclusion criteria for female students who have allergies or do not like the smell of ginger.

**Table 1.** Research Design

Subject	Pre Test	Treatment	Post Test
Sample	O <sub>1</sub>	X	O <sub>2</sub>

The research was conducted at SMK 2 Malang in September 2022 – January 2023. Samples according to the data inclusion criteria were tested for homogeneity and analyzed by paired T-test. In the preliminary study, purposive sampling was selected to obtain a sample size of 74 respondents. In the next stage, the sample was given instructions on the

use of ginger oil and its benefits. The use of ginger oil is carried out from 5 days before to the third day of menstruation with the aim of preventing or reducing the rate of dysmenorrhea. Data analysis techniques used a comparative correlation between pain intensity before and after the intervention.

**RESULTS**

The results achieved in the research conducted at SMKN 2 Malang. There were 80 female students who participated in this study and 74 female students who met the inclusion criteria. A description of the characteristics of the respondents will be presented including general data and specific data in tabular form.

**Table 2.** Distribution of Respondents by Age

No	Age	N	%
1	15 year	22	29.7
2	16 year	18	24.3
3	17 year	18	24.3
4	18 year	16	21.7
<b>Total</b>		74	100.00

The presentation of the table above shows that based on the age of the respondents, there were 22 respondents (29.7%) aged 15 years. Respondents aged 16 years were 18 respondents (24.3%), respondents aged 17 were 18 respondents

(24.3%), 18 years old were 16 respondents (21.7%).

**Table 3.** Distribution of Respondents Based on Pain Intensity before intervention

No	Pain Intensity	N	%
1	2-4 Mild	5	6.76
2	5-7 Moderate	18	24.32
3	8-9 Severe	26	35.14
4	10 Grievous	25	33.78
<b>Total</b>		74	100.00

The table above shows that based on pain intensity, mild 5 (6.76%), moderate 18 (24.32%), great 26 (35.14%), severe 25 (33.78%).

**Table 4.** Distribution of Respondents Based on Pain Intensity after intervention

No	Pain Intensity	N	%
1	2-4 Mild	38	51.35
2	5-7 Moderate	24	32.43
3	8-9 Severe	12	16.22
4	10 Grievous	0	0
<b>Total</b>		74	100.00

The table above shows that based on pain intensity, mild 38 (51.35%), moderate 24 (32.43%), severe 12 (16.22%), severe 0 (0%).

Before data analysis is carried out, a fisher homogeneity test is carried out to find out whether the data has the same source (homogeneous) as follows:

**Table 5.** Fisher Homogeneity Test

Mean Group 1	8,040540541
Mean Group 2	4,891891892
Mean Difference	3,148648649
Varian Group 1	4,751758608
Varian Group 2	5,522399111
N Group	74
dF	73
Critical Value	0,05
F Hit (df1=73, df2=73)	1,162180062
P value (left tailed)	0,261223854
P value (right tailed)	0,261223854
P value (2 tailed)	0,522447708

It can be seen that the data collected is homogeneous with a P value (0.522) > critical limit (0.05).

The data was then tested using a paired T test to determine whether or not there was a significant difference between before and after the intervention, as follows:

**Table 6.** T Paired Test

Sampel	74
DF	73
Critical Value	0,05
T Table	1,992997097
Mean 1	8,040540541
Mean 2	4,891891892
Mean Difference	3,148648649
SD Difference	1,278724026
T Count	21,18181818

From the results of the data analysis above, it is known that T count (21,182) > T table (1,993), which means that there is a significant difference in the calculated data

between after being given intervention or treatment with a critical limit of 0.05 (5%). This study succeeded in proving that the combination of massage effleurage and cyber oil can reduce the level of dysmenorrheal pain in respondents.

## DISCUSSIONS

This study tries to introduce alternative methods to reduce the intensity of dysmenorrhea in young women by combining the Massage Effleurage method with Zingiber Officinale oil (ginger oil). Complaints of primary dysmenorrhea are generally harmless, but very disturbing for those who experience it. The results of research conducted at SMKN 2 Malang with 74 students in class X and XI who experienced primary dysmenorrhea, found that most of the respondents were 15 years old (22 respondents). This is in accordance with Simanjuntak's 2014 theory, the peak incidence of primary dysmenorrhea is in the range of late adolescents to young adults, namely in the age range of 15-25 years. One of the early signs of puberty for young women is the occurrence of Menarche. Menarche is characterized by rapid physical growth, psychological changes and the emergence of secondary sex characteristics (Batubara, 2010). Menarche is influenced by several factors such as reactivation of the GnRH secretory system, genetic factors, nutritional status, and physical activity that occurs in the age range of 10-15 years (Karapanou, 2010).

The intensity of pain felt by respondents before being given the intervention was mostly severe pain, namely 26 respondents. Primary dysmenorrhea is the effect of an increase in prostaglandin (PG) F<sub>2</sub>-alpha which is a cyclooxygenase (COX-2) which causes hypertonicity and vasoconstriction in the myometrium resulting in ischemia and pain in the lower abdomen. There are strong



contractions and a long span of time on the uterine wall, high prostaglandin hormones and dilation of the uterine wall when menstrual blood is released, dysmenorrhea occurs (Anugroho, 2011). Respondents said they experienced menstrual pain that interfered with their activities, including absence from school. Respondents' treatment of dysmenorrhea before the intervention was mostly (27 respondents) taking analgesic type drugs. Pharmacological therapy by taking analgesic (non-steroidal anti-inflammatory) drugs chosen by women who experience menstrual pain generally has side effects of disturbances in the gastrointestinal tract such as nausea, vomiting, dispersion, diarrhea and other symptoms of the gastric mucosa and pain in the head (Prawiroharjo, 2015). From the results of the interviews, the efforts that the respondents made before receiving the intervention were mostly taking medication and sleeping, but some admitted that they had allergic reactions such as swollen eyes and even shortness of breath, headaches, and drowsiness.

Giving Massage Effleurage and Zingiber oil therapy is an alternative non-pharmacological treatment used to reduce the intensity of primary dysmenorrhea in adolescents. After the intervention was carried out on female students of SMK 2 Malang, it was found that the results of the Fisher homogeneity test had a P value (0.522), which means that the data is homogeneous and the results of the paired T test show that T count (21.182) is greater than T table (1.993), which means that there is an effect of giving Massage Effleurage and Zingiber oil in reducing the intensity of primary dysmenorrhea in female students of SMK 2 Malang. Massage Effleurage can improve blood circulation and sensory nerves preventing pain transmission. Massage Effleurage is

able to release endorphins and enkephalins which can reduce pain, increase comfort, relax, flex muscles and reduce anxiety. Endorphin compounds will be released by the body as a natural pain reliever and cause a feeling of comfort (Qurniasih, 2017). The composition of Zingiber Officinale oil (ginger oil), namely shogaol, zingiberene, camphene, geranial and neral, zingerone, and giggerdion are able to treat various kinds of diseases, including anti-inflammatory, inflammation, pain reliever, improve blood flow, anti-cancer and anti-microbial. Ginger inhibits the formation of prostaglandins thereby reducing prostaglandins, leukotrienes, inteleukins (Sharifi et al., 2017). This is in accordance with Shantrya Delly's research, 2021, it was found that the intensity of menstrual pain before the intervention was 4.46 and after the intervention was 3.78. The results of the analysis of the pair sample t-test obtained by Asymp. Sig. (2-tailed) (0.000)  $< \alpha$  (0.05), this shows that there is an effect of red ginger aromatherapy on menstrual pain in adolescents.

## CONCLUSION AND RECOMMENDATIONS

Based on the results of the research that has been done, it can be concluded that there is a significant effect of the combination of Massage Effleurage and ginger oil in reducing primary pain intensity in female students of SMK 2 Malang. The average decrease in pain intensity before the intervention was 8 (8,041), whereas after the intervention was 5 (4,892). This value showed a decrease of 3 on the pain intensity scale which indicated that there was an effect of giving Massage Effleurage and ginger oil in reducing the intensity of primary dysmenorrhea in female students SMK 2 Malang.



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