



THE EFFECT OF THERAPY MASSAGE EFFLEURAGE ON PRIMARY DYSMENORRHEA IN ADOLESCENTS

Putri Azzahroh, Triana Indrayani*, Novita Lusiana

Midwifery Study Program, Universitas Nasional Jakarta, Jl. Sawo Manila No.61, Pejaten Barat, pasar Minggu, Minggu, Jakarta Selatan, Jakarta 12520, Indonesia

*trianaindrayani@civitas.unas.ac.id

ABSTRACT

The incidence of dysmenorrhea in Indonesia is quite high. Dysmenorrhea can be reduced both pharmacologically and non-pharmacologically. One of the non-pharmacological therapies is massage effleurage. Non-pharmacological pain management is safer because it does not cause side effects like drugs. After all, non-pharmacological therapy uses physiological processes. Objective to determine the effect of therapy massage effleurage on primary dysmenorrhea pain in adolescent girls at Posyandu Kenanga 2 Bojong Rawalumbu Bekasi in 2021. This pre-experimental study used a one-group post-test pretest design. The sample in this study amounted to 25 young women who experienced dysmenorrhea. The sampling technique used was the purposive sampling technique. The research instruments are SOP worksheets and pain level measurement sheets using the Numeric Rating Scale (NRS) which have been tested for validity and reliability in previous studies. The data will be analyzed using univariate and bivariate analysis with the Wilcoxon test. The results showed that massage effleurage on dysmenorrhea pain in adolescent girls significantly affected dysmenorrhea pain in adolescent girls, with a p-value = 0.000. There is an effect of Massage Effleurage on reducing primary dysmenorrhea pain in adolescent girls at Posyandu Kenanga 2 Bojong Rawalumbu Bekasi.

Keywords: adolescent; dysmenorrhea; massage effleurage

INTRODUCTION

One thing that related to reproduction is menstruation. Menstruation usually begins between the ages of 10 and 16 years, depending on the woman's health, nutritional status and weight relative to height (Suryantini & Ma'rifah, 2022). Generally, every woman experienced menstrual disorders, which harm daily life in carrying out activities; one of these disorders is dysmenorrhea (Agustin, 2018). Dysmenorrhea is defined as the presence of painful cramps of uterine origin that occur during menstruation and represents one of the most common causes of pelvic pain and menstrual disorder (Bernardi, Lazzeri, Perelli, Reis, & Petraglia, 2017). Dysmenorrhea is classified into two groups as primary and secondary dysmenorrhea (Sahin, Kasap, Kirli, Yeniceri, & Topal, 2018). Dysmenorrhea is the leading morbidity among gynecological disorders and the leading cause of pelvic pain (Lin et al., 2021). But, although it is a common condition, it is usually under-diagnosed, and most women do not seek medical attention (Karout et al., 2021).

Data from the World Health Organization (WHO) in 2018, the incidence of dysmenorrhea in the world is huge. On average, more than 50% of women in every country experience dysmenorrhea; in America, about 60%, in Sweden, around 72% and in the UK, a study states that 10% of high school adolescents appear to be absent 1-3 days each month because of dysmenorrhea (Chayati & Na'mah, 2019). In Indonesia, dysmenorrhea is quite high, namely primary dysmenorrhea, around 54.89% and 9.36% secondary dysmenorrhea (KemenkesRI, 2016). The incidence of dysmenorrhea in West Java in 2015 was 72.89% primary dysmenorrhea and 27.11% secondary dysmenorrhea (DinkesJabar, 2016). In the city of Bekasi, dysmenorrhea is 63.2% (Agustin, 2018). The impact of dysmenorrhea can make women feel uncomfortable

and disturb their activities. A study conducted in the United States found that 91% of high school adolescents (aged 14-18 years) experienced dysmenorrhea, 55% of them affected their academics, even 26% experienced class failure (Yati, 2019). Adolescents with severe dysmenorrhea have impaired quality of life and are at increased risk for depression and anxiety (Sachedina & Todd, 2020).

Risk factors of dysmenorrhea were menarche, Body Mass Index (BMI), dietary habits, family history, and quantity of menstrual flow (Osonuga & Ekor, 2019). A meta-analysis study also showed a significant association between smoking (both current and previous smoking) and dysmenorrhea (Qin et al., 2020). Symptoms of dysmenorrhea are abdominal cramps, pain, sweating, headache, nausea, vomiting, and diarrhea (Al-Matouq et al., 2019). In addition, women with dysmenorrhea may experience pain radiating toward the lower back or upper legs (Chen, Kwekkeboom, & Ward, 2016). Dysmenorrhea can be reduced both pharmacologically and non-pharmacologically. Pharmacologically, namely with nonsteroidal anti-inflammatory drugs (NSAIDs) such as Ibuprofen, Naproxen, Diclofenac, Hydrocodone and Acetaminophen. But these drugs cause dependence and have contraindications (Ardina, Sudarti, & Reny, 2016). Non-pharmacological therapies that can be used are herbal remedies, relaxation techniques, warm compresses, yoga and massage therapy. Non-pharmacological pain management is safer because it does not cause side effects like drugs. After all, non-pharmacological therapy uses physiological processes (Zuraida & Aslim, 2020).

Massage therapy such as effleurage massage, had a significant effect on pain in the previous study (Ulya et al., 2017). Effleurage massage is the act of pressing by hand on the soft tissues of the body without causes displacement or changes in joint position (Argaheni, 2021). Massage effleurage aims to increase blood circulation, warm the abdominal muscles, and promote physical and mental relaxation. Massage effleurage is a relaxation technique that is safe, easy, does not cost money, has no side effects and can be done alone or with the help of others (Zuraida & Aslim, 2020).

In a study conducted in 2020 in Pesisir Selatan Regency, it was found that there was an effect of effleurage massage on the reduction of primary dysmenorrhea in adolescent girls (Zuraida & Aslim, 2020). Based on a preliminary study conducted by researchers on 64 young women in the Posyandu Kenanga 2 area, it is known that 85.9% of young women experience dysmenorrhea. Overall, young women also do not know about massage effleurage. Departing from that, the researchers aimed to determine the effect of effleurage massage therapy on primary dysmenorrhea pain in adolescent girls at Posyandu Kenanga 2 Bojong Rawalumbu Bekasi in 2021.

METHOD

This research is a type of pre-experimental research with the design used as a pretest post-test of one group. Before the sample treatment, the level of menstrual pain was first measured, and at the end of the study, the sample measured the level of menstrual pain after the effleurage massage was carried out. Furthermore, the measurement results were compared with those after the intervention. The study was conducted in the Posyandu Kenanga 2 area, Bojong Rawalumbu, Bekasi in August 2021. The population in this study were young women who experienced menstrual pain (primary dysmenorrhea) in the Posyandu Kenanga 2 Bojong Rawalumbu area. The sampling technique used in this research is purposive sampling. The sample in this study amounted to 25 young women who experienced menstrual pain (dysmenorrhea) in the region. The data obtained in this study are primary. The research instruments are SOP worksheets and pain level measurement sheets using the Numeric Rating

Scale (NRS). This tool has been tested for validity and reliability based on the results of previous research in 2012 with the validity value being 0.57-0.83 and the Alpha-Cronbach value being 0.85-0.89 (reliable) (Flaherty, 2012). The data will be analyzed using univariate and bivariate analysis. The test used is the Wilcoxon test. The research ethics committee has approved this research of Universitas Muhammadiyah Jakarta with the number 155/PE/KE/FKK-UMJ/VIII/2021.

RESULT

The results of this study show that there is a significant difference between dysmenorrhea pain before the effleurage massage therapy and after the effleurage massage therapy; in other words, there is an effect of effleurage massage therapy on primary dysmenorrhea pain in adolescent girls in the Posyandu Kenanga 2 Bojong Rawalumbu Bekasi in 2021.

Table 1.
Frequency Distribution of Respondent's Characteristics

Karakteristik Responden	f	%
Usia menarche		
11 years old	12	48
12 years old	10	40
13 years old	3	12
Menstruation duration		
<7 days	9	36
>7 days	16	64
Family history of dysmenorrhea		
Yes	22	88
No	3	12

Table 1 shows that the frequency distribution of respondents aged 11 years at menarche is 12 people with a percentage (48%). In comparison, the respondent's menstrual period is more than seven days, as many as 16 people with a percentage (64%) and as many as 22 respondents with a percentage (88%) have a history of dysmenorrhea in the family (mother or biological sister).

Table 2.
Frequency Distribution of Dysmenorrhea Pain Intensity before Massage Effleurage therapy

Dysmenorrhea pain scale	f	%
0	0	0
1-3	5	20
4-6	20	80
7-9	0	0
10	0	0

Table 2, it can be seen that the intensity of dysmenorrhea pain before doing massage therapy effleurage respondents on a scale of 1-3 as many as five respondents with a percentage of 20%, and a scale of 4-6 (moderate pain) as many as 20 respondents with a percentage of 80%.

Table 3, it can be seen that the intensity of dysmenorrhea pain after doing massage therapy effleurage respondents was on a pain scale of 0 for as many as five respondents with a percentage of 20%, a pain scale of 1-3 (mild pain) as many as 16 people with a percentage of 64%, and a pain scale of 4-6 as much as 16%.

Table 3.
Frequency Distribution of Primary Dysmenorrhea Pain Intensity After effleurage massage therapy for young women

Dysmenorrhea pain scale	f	%
0	5	20
1-3	16	64
4-6	4	16
7-9	0	0
10	0	0

Table 4.
Normality Test Results Using Shapiro Wilk Before and After Therapy Massage Effleurage was performed

Intervention	Statistic	P-value
Before being given effleurage massage therapy	0.883	0.008
After being given effleurage massage therapy	0.888	0.010

Table 4, the results of the data normality test using Shapiro Wilk because the number of respondents is less than 50 (Novelia, 2020). The normality test results obtained a p-value = 0.008 for the data before the effleurage massage therapy was carried out. In contrast, for the data after the effleurage massage therapy was carried out, the p-value = 0.010. Because the p-value <0.05, it can be concluded that the data distribution is not normal. If the data distribution is not normal, the test used is the Wilcoxon test (Novelia, 2020).

Table 5.
Analysis of the Effect of Massage Effleurage on the intensity of primary dysmenorrhea pain in adolescent girls

Intervention	N	Mean	P-value
Before being given effleurage massage therapy	25	13.00	0.000
After being given effleurage massage therapy	25	0.00	

The analysis test in this study used Wilcoxon with an error rate of 5% ($\alpha = 0.05$). The table above shows the statistical test results obtained p-value = 0.000. This shows p-value <0.005, then H_0 is rejected, and H_a is accepted. So, it can be concluded that there is a significant difference between dysmenorrhea pain before doing effleurage massage therapy and after effleurage massage therapy, or there is an effect of effleurage massage therapy on primary dysmenorrhea pain in adolescent girls in the Posyandu Kenanga 2 Bojong Rawalumbu Bekasi in 2021.

DISCUSSION

Characteristics of Respondents

The majority of adolescent girls experienced menarche at the age of 11 years, had a history of dysmenorrhea, and the majority had a menstrual period of 7 days.

Dysmenorrhea pain intensity before massage effleurage

Based on table 2, it can be seen that the intensity of dysmenorrhea pain before doing massage therapy effleurage respondents on a scale of 4-6 (moderate pain) as many as 20 people with a percentage (80%) and as many as five people (20%) experiencing mild pain which is on a scale of 1- 3 (Mild pain). This is influenced by the age of menarche, length of menstruation and family history of dysmenorrhea. Before massage effleurage, as many as 12 people experienced

menarche at 11 years, and as many as ten experienced menarche at ten years. As many as three people experienced menarche at the age of 13 years. And as many as 16 people experienced long menstruation with a duration of more than seven days, while as many as nine people experienced menstrual periods of less than seven days. Furthermore, 22 people had a history of dysmenorrhea in the family, and three people did not have a history of dysmenorrhea.

Menarche is the first menstrual period that occurs during a woman's puberty. Menarche is a sign of a change in social status from children to adults. Primary dysmenorrhea usually begins 1-3 years after menarche. Primary dysmenorrhea occurs several months after menarche, usually after 12 months (Lubis, 2019). This follows the theory that normal menarche occurs at 11-13 years. At the beginning of menstruation, only estrogen is dominant. The dominant role of estrogen is very important at the beginning of menstruation because it causes the growth and development of secondary sex signs. That's why the beginning of bleeding is irregular because the menstrual form is ovular (without the release of eggs) (Manuaba, Manuaba, & Manuaba, 2014).

This is in line with the 2015 study where the statistical test results for the age of menarche variable showed a p-value of 0.006, meaning that there was a significant relationship between the age of menarche and primary dysmenorrhea (Beddu, Mukarramah, & Lestahulu, 2015). Normal menstrual period occurs in 4-7 days. The duration of menstruation is more than normal (7 days), causing uterine contractions that occur longer, resulting in the uterus contracting more often and more prostaglandins being secreted, resulting in excessive production of prostaglandins, the pain will occur, in addition to continuous uterine contractions which also causes uterine contractions. Blood to the uterus stops temporarily so that primary dysmenorrhea occurs (Lubis, 2019). This follows research in 2019 that the duration of menstruation is one of the characteristics of respondents that affects primary dysmenorrhea pain in adolescents. The results showed that the menstrual period was more than seven days there were 21 people (72.4%) of the total respondents, 29 people (Sholihah & Azizah, 2020).

A history of a mother or sister experiencing primary dysmenorrhea, namely a family and genetic history related to severe primary dysmenorrhea, a family history (mother or sibling) experiencing dysmenorrhea causing a person to experience dysmenorrhea. This is related to the anatomical and physiological conditions of a person. In general, they are almost the same as parents and siblings (Lubis, 2019). This is in line with research in 2016, which stated that there was a significant difference between respondents who had a family history of dysmenorrhea and those who did not have a genetic history of dysmenorrhea in the incidence of dysmenorrhea. There was a relationship between family history and dysmenorrhea in students of the Academy of Midwifery Bina Banua Husada Banjarbaru in 2016. History Family is a risk factor that can increase the possibility of dysmenorrhea. Two out of three women suffer from dysmenorrhea in their family. Many girls suffer from dysmenorrhea, and they have been warned by their mothers beforehand that they are likely to suffer from dysmenorrhea as well as mothers (Dhewi, 2016).(Dhewi, 2016)(Dhewi, 2016)

Lack of knowledge and information on young women on non-pharmacological therapy Massage effleurage to reduce the level of dysmenorrhea pain in the Posyandu Kenanga 2 Bojong Rawalumbu Bekasi area. According to the researcher's assumption, the difference in pain scale felt by respondents is the subjectivity of each respondent. Because the pain threshold of each respondent is different. In addition, the experience and ability to control each individual's pain also determine a person's acceptance of pain.

Dysmenorrhea pain intensity after massage effleurage

Based on table 3, it can be seen that there are five people (20%) when the effleurage massage is on a scale of 0 (no pain), and as many as 16 people (64%) on a pain scale of 1-3 (mild pain) and as many as four people (16%) on a pain scale of 4-6 (moderate pain). These results indicate that the value of dysmenorrheal pain after effleurage massage has decreased. Massage effleurage is a massage technique in soft, slow and long strokes (not broken). This technique has a relaxing effect so that it can reduce pain, has no side effects and can be done independently (Ardina et al., 2016). The success of giving effleurage massage on menstrual pain can provide a physiological response to the body. On the one hand, this massage causes increased blood circulation, and sensory nerves prevent the transmission of pain. On the other hand, this massage also releases endorphins and enkephalins, reducing anxiety in patients. Giving effleurage massage can reduce tissue hypoxia. This is because oxygen levels in the tissue increase, causing pain to decrease (Rahayu, Pertiwi, & Patimah, 2017).

This effleurage massage mechanically helps warm the body, thereby increasing blood flow and relaxing the contracting muscles, so this effleurage massage is effective for reducing pain during menstruation (dysmenorrhea). Massage decreases muscle tension and promotes the relaxation response, decreasing activation of the sympathetic nervous system, which can present as decreases in heart rate (Gensic, Smith, & LaBarbera, 2017). The results of this study agree with the results of research conducted in 2019. The results of the study show that there are differences in the pain scale of dysmenorrhea in adolescents before and after being given effleurage massage therapy with a p-value = 0.000, so it can be concluded that there is a significant effect of effleurage massage therapy on reducing pain scale Primary dysmenorrhea in adolescent girls at SMP Muhammadiyah Terpadu Bengkulu City (Andari, Amin, & Purnamasari, 2018).

The results of this study are also in line with research in 2019, which showed that massage effleurage's effect on the reduction of primary dysmenorrhea in adolescents at SMA N1 Pesisir Selatan Regency (Zuraida & Aslim, 2020). In addition, these results are also supported by research in 2020, which showed a decrease in pain levels in the intervention group after being given effleurage massage from moderate to mild as many as 21 respondents and eight respondents did not experience pain from a total sample of 58 respondents who were divided into two groups. With a p-value of 0.000, massage effleurage has a significant effect on reducing the level of dysmenorrhea pain (Sholihah & Azizah, 2020). The provision of effleurage massage and ongoing information about dysmenorrhea pain is needed to prepare adolescents physically and psychologically to face the pain of dysmenorrhea. According to the researcher's assumption, the intervention of massage effleurage can help reduce pain intensity during dysmenorrhea. The success of the effleurage massage technique in reducing pain depends on the perception and tolerance of the respondent.

The effect of Massage Effleurage on the intensity of dysmenorrhea pain in adolescent girls

Table 5 shows that the Wilcoxon test results indicate that giving massage effleurage to dysmenorrhea pain in adolescent girls has a significant effect on dysmenorrhea pain in adolescent girls, namely with a p-value = 0.000. This shows that the p-value <0.05, which means H₀ is rejected, and H_a is accepted, which means that the effect of massage effleurage on dysmenorrhea pain in adolescent girls. In the Posyandu Kenanga 2 area, Bojong Rawalumbu. This results was in line with research in Papua, which showed that massage effleurage's was effective to decrease dysmenorrhea in adolescent (Dolang & Warang, 2019). The results showed that the effleurage massage decreased the level of dysmenorrhea pain in adolescent girls. Judging from the significance, massage effleurage's effect reduces dysmenorrhea pain in

adolescent girls. Giving effleurage massage can reduce tissue hypoxia. This is because oxygen levels in the tissue increase, causing pain to decrease. During the massage, endorphins are released by the body as the body's natural pain reliever and create a sense of comfort (Hikmah, Amelia, & Arian, 2018).

The massage's working mechanism inhibits labour and menstrual pain with the effleurage technique based on the Gate Control Theory concept. Based on this theory, stimulation of tactile skin fibres can transmit pain signals from along the C nerve fibres to the gelatinous substance in the spinal cord. Effleurage produces messages that are otherwise sent via larger nerve fibres (A-delta fibres). This technique also facilitates distraction and reduces the transmission of sensory stimulation from the abdominal wall, reducing discomfort in the affected area. As a relaxation technique, effleurage reduces muscle tension (Bahrudin, 2017). According to his research, this control gate theory was also confirmed by others in 2018, that menstruation will cause pain due to uterine contractions. Pain stimulation will reach the pain threshold, cause receptor activation, and spread to pain impulses by nerves A, delta and C. The presence of these impulses will cause pain gates in the gelatinous substance to open, giving cutaneous stimulation giving effleurage massage will be able to stimulate peripheral fibres to send impulses through the dorsal horn of the spinal cord. Impulses carried by A-delta fibres will dominate and close the pain gate mechanism, so pain impulses are not transmitted to the brain (Oktarina, Suwanti, & Rosyid, 2018).

According to researchers, the effect of effleurage massage on primary dysmenorrhea pain is because effleurage massage can relax muscle tension that stimulates pain. At the time of the effleurage massage, there is cutaneous stimulation which can divert the pain of dysmenorrhea that is being felt. In addition, a skin-to-skin touch done gently and continuously will cause a warm effect on the skin's surface. This will help the uterine contracting muscles tense to release the prostaglandin hormone that causes dysmenorrhea pain. The application of non-pharmacological therapy to treat primary dysmenorrhea pain during menstruation is a method that must be developed by all professionals (midwives). This will indirectly help reproductive health in adolescents to be more optimal and reduce the use of pharmacology (pain relievers) which have side effects on the body.

CONCLUSION

The results of this study concluded that there was an effect of Massage Effleurage on reducing primary dysmenorrhea pain in adolescent girls at Posyandu Kenanga 2 Bojong Rawalumbu Bekasi. Suggestions for young women to apply this effleurage massage technique which can provide benefits for reducing primary dysmenorrhea pain to minimize the use of pharmacological drugs as pain relievers that have side effects on the body. The limitation of this research is the limited number of samples that can be given intervention because it is related to the Covid-19 pandemic condition. There was also no control group for intervention in this study, so there was no comparison. It is hoped that further research can use the control group so that there is a comparison.

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