Jurnal Kebidanan dan Kesehatan Tradisional
Volume 9, Number 2, November 2024
https://doi.org/10.37341/jkkt.v9i2.448

Original Research

The Effects of Back Massage on Dysmenorrhoea in Adolescents

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ABSTRACT

Background: *The incidence of dysmenorrhoea worldwide is 92%, and primary dysmenorrhea cases are more than half. Dysmenorrhea interferes with products, decreases quality of life, increases health costs, and increases dependent drug consumption, all of which adversely affect health. This study aimed to determine the effect of back massage on primary dysmenorrhea in adolescents.*

Methods: *Quasi-experimental one-group design research. Samples were determined incidentally and obtained from adolescents. Data analysis using the paired sample t-test.*

Results: *There is an effect between back massage and dysmenorrhea (p-value 0.000). Back massage can reduce 80% of primary dysmenorrhea.*

Conclusion: *We need to socialize back massages as an alternative to primary dysmenorrhea therapy in the community.*

ARTICLE HISTORY
Received: March 27th, 2023
Accepted: January 15th, 2025

KEYWORDS
adolescent, back massage, primary dysmenorrhea;

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Cite this as: Suazini, E. R., & Humaeroh, L. (2025). The Effects of Back Massage on Dysmenorrhoea in Adolescents . *Jurnal Kebidanan Dan Kesehatan Tradisional*, *9*(2), 70–78. https://doi.org/10.37341/jkkt.v9i2.448

INTRODUCTION

Menstruation is one indicator of a woman's reproductive health. If a woman has menstrual problems, it is estimated that there are problems with her reproductive organs. Menstrual problems are menorrhagia, metrorrhagia, menometrorrhagia, polymenorrhoea, oligomenorrhoea, amenorrhea, and dysmenorrhoea. Dysmenorrhoea is menstrual pain (Prawirohardjo, 2014).

Women who are experiencing dysmenorrhoea can feel several symptoms such as pain on the first or second day of menstruation, severe pain, nausea, nausea to vomiting, and dizziness to fainting. Dysmenorrhea cases almost occur in all women in the world. 92% of women worldwide have dysmenorrhoea (Lail, 2019). About 50% have experienced menstrual pain since the first menstruation (menarche); this condition is called primary dysmenorrhea (Hayati et al., 2020). Dysmenorrhea in Indonesia is less than the incidence worldwide, which is 64.25% (Rejeki et al., 2021).

Some of the causes of primary dysmenorrhea are heredity, young age, active or passive smoking, nutritional problems, diet, coffee consumption, and duration of bleeding (Mitsuhashi et al., 2023). A mother who has dysmenorrhoea is estimated that her daughter will also have dysmenorrhoea. Preventive efforts against dysmenorrhea are to consume lots of fresh foods or foods with minimal processing (Aguilar-Aguilar, 2020).

We need to pay attention to dysmenorrhoea. Dysmenorrhea can affect women's anxiety, cause emotional conflict, tension, and anxiety, and a person's productivity decreases, thereby lowering the quality of life (Vagedes et al., 2018). Women may experience abnormal activities, unfocus, and reduced concentration. From an economic point of view, dysmenorrhea can lead to increased health costs; every month the woman must allocate funds for the discomfort (Allan Dong, 2021). Dangerous conditions, one of which sufferers can depend on one type of drug, will have a bad impact on health (Nora D. Volkow, 2020).

Traditional medicine is still being researched and developed, with several studies showing results with healing effects. Healing of mild to severe diseases. Examples of diseases that can be overcome by traditional therapy include constipation (Paknejad et al., 2019).

Orthopedic and biomaterial problems can also be treated with traditional therapy (Tang et al., 2021). Some research related to traditional services to treat primary dysmenorrhea. Fisher et al., researching *Complementary Alternative Medicine* (*CAM),* can treat some menstrual problems (Fisher et al., 2018). Armour et al. have discussed how to overcome dysmenorrhea, either with medical treatment or traditional health (Armour et al., 2019).

Based on Western medicine, primary dysmenorrhea can be treated with anti-pain medication, while secondary dysmenorrhea is treated based on the diagnosis of the disease. The use of anti-pain drugs only eliminates the symptoms felt at that time. Handling dysmenorrhoea in the traditional way can be overcome with aromatherapy using *essential oils*, relaxation by doing yoga movements, *stretching* the abdomen, weaving herbs, and doing endorphin *massage* (Lee et al., 2018) (Fitriana & Putri, 2017).

Pramita mentioned that *massage* with lavender oil and regular exercise had the impact of reducing the intensity of dysmenorrhoea pain compared to untreated dysmenorrhea (Pramita et al., 2020). Previous research used several types of oil for lubricants and added comfort during *massage* and provided better effects, such as the use of *virgin coconut oil* (Vidayanti et al., 2020). Research that combines *massage* with olive oil with the results has an effect (Nopi Herdiani et al., 2018)(Najaf, 2021)(Vagedes et al., 2018)(Najaf, 2021)(Vagedes et al., 2018).

Lavender oil also has a better effect than not using oil in reducing the intensity of dysmenorrhoea pain. This study was conducted in Iran by Bakhtshirin, Froozan Abedi, Sara Razmjooee, and and Damoon (Bakhtshirin et al., 2015)(Ou et al., 2012)(Najaf, 2021). Researchers do not mind the type of oil used for massage with consideration; the oil is less common and more expensive than telon or eucalyptus oil that has been widely circulated in the community.

Massage is one of the traditional therapy methods that, until now, is still in demand by women, both adults and adolescents. Skin-to-skin touch gives a sense of calm. Acupressure as part of *massage* by pressing on points L14 and SP6 can reduce dysmenorrhea pain (Barani & Shahraki, 2018). Nisa et al., and Putri et al., have researched the effect of massage on the back on pain intensity during the latent phase of normal labor through increased endorphin levels.

The results of this study show that there is an influence of back massage on the intensity of pain during labor (Nisa et al., 2022) (Putri et al., 2021). Based on this study, researchers assume that dysmenorrhoea pain is not as strong as pain during labor contractions, so back massage will reduce dysmenorrhoea pain (Jama et al., 2020). Traditional services have regulations. The governing law is Health Law No. 36 of 2009,

articles 1, 48, 59, 60, and 61. In article 1, point 16. Until now, the development of traditional services has tended to increase.

Including massage has become part of traditional health (Indonesia, 2009). Therefore, health workers need to know this service so that they can combine medical services. Especially midwives have the authority to provide care for dysmenorrhea limited to early detection and early treatment, so massage services can improve dysmenorrhea services to patients without exceeding authority. The authority of midwives in reproductive health services is contained in Midwifery Law No. 4 of 2019, articles 44, 45, and 50, which provide comprehensive reproductive services, including to adolescents.

The scope of services includes promotive, preventive, curative, and rehabilitative. Other services include education and counselling (NKRI, 2019). As stated earlier, there is limited research on the effect of back massage on primary dysmenorrhea pain intensity. The purpose of this study was to determine the intensity of dysmenorrhea pain before and after back massage and to determine the effect of back massage on primary dysmenorrhea.

Novelty in this study: back massage combined with endorphin touch at the end of the massage session. Massage movements in this study are more complete than in previous studies. There are 5 types of massage movements and 1 endorphin touch. The five movements are effleurage, stroking/rolling, petrissage, walking, friction, and tapotement. In addition to more complete movements, this study determines the time and pressure of the massage.

MATERIALS AND METHOD

This is research on an experimental study using quasi-experimental with a single-group interrupted time series *design* (Hastjarjo, 2019). Data collection was carried out in one group with 2 observations, namely before back massage and after back *massage*. The population in this study is adolescent girls who experience dysmenorrhea, the number is not known with certainty.

The inclusion criteria of the study sample were adolescents who experienced primary dysmenorrhea and were willing to be research respondents. Samples were taken from accidental sampling for 6 months, and primary dysmenorrhea adolescents were obtained as many as 42 people. The instrument used to measure dysmenorrhoea pain is the ***Visual Analog Scales* (VAS) *Score***. VAS is a standardized pain measurement tool.

This tool is in the form of a 10 cm long line. Respondents put a mark on one of the points according to the pain they feel. 0 no pain, 1-3 mild pain, 4-6 moderate pain, and 7-10 severe pain. This VAS has been used to assess the degree of patient pain (E. C. Huskisson, 1974).

The steps of the study or primary data collection are as follows: First, the researcher measures adolescent dysmenorrhea pain. Second, massage the entire surface of the back for 15-20 minutes, with a frequency of 5-7 movements. The pressure is estimated at 100 mmHg (the pressure is set as comfortable as the teenager). Massage is done for 2-3 minutes. The message sequence is as follows:

a. The *effleurage* movement is to gently rub the back using both palms and fingers along the vertebrae from the lumbar 5 to *the cranial* level 6-7 cervical outwards to the side of the ribs. This movement also serves to equalize the rhythm of breathing between the masseuse and the massager.

b. Stroking and *rolling* movements, or massaging the skin and sliding folds, performed by both hands.
c. Petrissage movements real massage.
d. Walken's movement is rubbing across the muscles.
e. Friction *movement, which is* the movement of rubbing the back using the back of the hand (clenched), in the cranial direction evenly distributed on all surfaces.
f. Tapotement movement is the movement of tapping.
g. Endorphin touch, which is a tickling movement on the surface of the back; if this alignment is correct, then the client will get goosebumps.

The third step in data collection is to measure the intensity of dysmenorrhea pain a second time. After the data is collected, *cleaning, editing,* and *tabulating* are carried out. Next, analyze univariable data by looking for data concentration, then present it in frequency distribution. Bivariate analysis looked for the effect of back *massage* on primary dysmenorrhea using the paired sample t-test, *with a* real rate of 5%.

This research has been registered with the Health Research Ethics Commission of the STIKes Bhakti Tunas Husada Tasikmalaya No.175/ec.01/kepk-bth/VI/2022.

RESULTS

The characteristics of respondents were young women based on the age range of 17-19 years. Most respondents were 19 years old. The frequency distribution of respondents is in Table 1.

Table 1. Frequency Distribution of Age 42 Subject Study

Age	Amount	Proportion (%)
17 years	5	11,90
18 years	4	9,52
19 years	33	78,58
total	42	100

Data on pain intensity in dysmenorrhoe before and after receiving back massage services based on the VAS scale are in Table 2.

Tabel 2. VAS Scale Before and After Back Massage 42 Subject Study

VAS Scale	Before Massage	After Massage
1-3	10	36
4-6	19	6
7-10	13	0
Number	42	42

Data The results of the calculation of statistical Paired Sample are in Table 3.

Table 3. Paired Sample Statistics Analysis Results 42 Subject Study

Pain Measurement	Description				Standar Error Mean
	Maximum	Minimum	Mean	Standar Deviasi	
Before Massage	8	2	5,33	1,946	0,300

Pain Measurement	Description				Standar Error Mean
	Maximum	Minimum	Mean	Standar Deviasi	
After Massage	4	1	2,40	1,014	0,156

The data from the Paired Sample Correlation results are in Table 4.

Tabel 4. Paired Samples Correlations 42 Subject Study

		N	Correlation	Sig.
Pair 1	After and before	42	.894	.000

Data on the results of the Paired Sample Test are in Table 5.

Tabel 5. Paired Samples Test 42 Subject Study

		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	After-Before	2.929	1.135	.175	2.575	3.282	16.727	41	.000

DISCUSSION

The data normality test was not carried out because the 42 respondents were enough to be a large sample and did not need a data normality test. The results of univariate analysis include range, minimum value, maximum value, average, standard deviation, and standard error before and after back massage. The range before massage: 6 and after massage: 3.

Information on the results of univariate analysis can be seen in Table 2 and Table 3. The minimum value indicates the lowest pain before the massage, which is 2, and after the massage, 1. The maximum value indicates the most pain before massage 8 and after massage 4. The mean difference before and after massage was 2.93. From the mean difference data, it can be interpreted that the average reduction in dysmenorrhea pain after massage is 2.93 on the VAS scale.

The results of bivariate analysis obtained from standard error show the width of the data; the data before massage is wider (0.300) than after massage (0.156). The meaning of the data is that there is a decrease in data width after back massage. This data can be seen in Table 3. The correlation value was 0.894; this showed a correlation of back massage to dysmenorrhoea pain of 89.4%.

The p-value of 0.000 can be seen from the significance value in Table 4 and Table 5. This value of 0.000 is smaller than the alpha value of 0.05, meaning that there is an effect of back massage on the intensity of dysmenorrhoea. The following is a discussion of back massage procedures to reduce the intensity of dysmenorrhea pain. The ingredient used in this massage is telon oil, which is on the market with several different trademarks. Hold each movement for 2-3 minutes or 5-7 times with a pressure of approximately 100 mmHg.

The results of movement effleurage are the same as the results of research by Putri Andarwarih et al., that massage in someone who is experiencing dysmenorrhea reduces the intensity of dysmenorrhea. The study, conducted by Putri Andanawarih et al., in 2020, used the same research design, namely Quasi-Experimental One Group Pretest-Posttest, with a statistical test, Paired T-test. In the number of samples, Putri Andanawarih's experiment was conducted on 15 respondents. The result of the calculation of the p-value is 0.00, meaning that there is an influence between the intensity of dysmenorrhea pain before and after massage effleurage movements (Andanawarih et al., 2020).

The next moves are stroking, rolling, stroking, stroking, walking, friction, and tapotement. All movements were carried out at the same time and pressure as the efflurge movement, which is 2-3 minutes, and a pressure of 100 mmHg. In this movement we found the results of research that specifically carried out stroking, rolling, stroking, walking, friction, and tapotement movements.

The results of petrissage movement research are the same as the results of research by Eti Sumiati et al., (2017) namely the effect of petrissage movement massage on the intensity of dysmenorrhea. The research design is the same. The difference in massage time, research Eti Sumiati et al., did massage movements for 5-10 minutes on the back.

In this study, the time is shorter for the petrissage movement, which is 2-3 minutes. When added up with other movements, our study took 16-20 minutes. Respondents who experienced a decrease in pain were 93% of the results of the study of Eti Sumiati et al., while for this study, 100% of respondents experienced a decrease in the intensity of dysmenorrhea. This difference in results can occur because the duration of time is longer and the massage movement is more (Eti Sumiati, Citra Sepriana, Maria Yosevina Agatha, 2017)(Kablan et al., 2021).

Previous research on the effect of endorphin massage on dysmenorrhea pain was conducted by (Asri Rahayu et al., 2017). The same research design as this study is Quasi Experiment One Group Pretest-Posttest. The results obtained were an average pain before endorphin massage of 5.28 and after endorphin massage of 2.86, and then the reduction in the intensity of dysmenorrhea was 2.42. Our results differ by 0.5 points over the reduction, which is 2.93 (Rahayu et al., 2017).

Previous studies with one movement and time and unspecified pressure have had an effect on reducing the intensity of dysmenorrhoea pain, so it is logical that this study provides results of a very strong influence of back massage on the intensity of dysmenorrhoea. In this study, a greater proportion of respondents experienced a reduction in pain and a greater decrease in dysmenorrhea intensity compared to previous studies.

ACKNOWLEDGEMENT

We would like to thank the Head of STIKes Karsa Husada Garut for giving us the opportunity to carry out research and publication of research results entitled "The Effect of Back Massage on Primary Dysmenorrhea in Adolescents". We thank all respondents who have decided to be the subject of research; hopefully, this back massage will provide benefits to people with dysmenorrhea. These benefits are in the form of improved quality of life.

CONCLUSION

There is a decrease in pain intensity in primary dysmenorrhea after a back massage. The average difference in pain before and after back massage was 2.93 on the VAS scale, or there was a change from 5.3 to 2.4 on the VAS scale. Back massage has a very strong effect (80%) on reducing the intensity of dysmenorrhea. Back massage movements performed effleurage, stroking/rolling, petrissage, walking, friction, tapotement, and endorphin touch.

The time of each movement is 2-3 minutes with pressure ranging from 10 mmHg. Suggestions from this study need to do back massage to women who experience primary dysmenorrhea because it has been shown to reduce pain intensity. Massage can be done by anyone without having to have special massage skills. It is necessary to note this back massage to the whole community as an alternative treatment of pain in primary dysmenorrhea. Other information is that the benefits of back massage can reduce dependence on the use of chemical drugs and save health costs.

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