

How to Cite:

Dewi, S. (2022). The effectiveness of cutaneous stimulation (slow stroke back massage) and warm compresses to decrease menstrual pain (dysmenorrhoea) in female adolescents. *International Journal of Health Sciences*, 6(S5), 7319–7327. <https://doi.org/10.53730/ijhs.v6nS5.10382>

The effectiveness of cutaneous stimulation (slow stroke back massage) and warm compresses to decrease menstrual pain (dysmenorrhoea) in female adolescents

Sri Dewi

Padang Health Polytechnic, Jln. Laing Tembok Jaya, Solok 20445

Email: uchiuda@gmail.com

Abstract---The incidence of pain in world dysmenorrhea is very large, on average more than 50% of women in each world experience it. While in Indonesia the incidence of dysmenorrhea pain ranges from 40-95% among the productive age. Pain during menstruation will interfere with adolescents if not addressed will have difficulty walking, constructing and working out. There are several ways to cope with menstrual pain non-medical including cutaneous stimulation (slow stroke back massage) and warm compresses. The purpose of this study was to determine the effectiveness of cutaneous stimulation (Slow Stroke Back Massage) and Warm Compresses to Reduce menstrual pain (dysmenorrhea). Research Design Quasy experiment with the design of two groups pretest-posttest design. The study was conducted at SMA N 1 Kota Solok on October 2 to October 28, 2017. The population was young women who experienced menstrual pain during the study. The sampling technique was accidental sampling where students experienced menstrual pain when the study was conducted that met the sample criteria with a total of 25 students. The results showed there were significant differences in pain scale before and after cutaneous stimulation (p value = 0.008), there were significant pain scale differences before and after warm compresses (p value = 0.000). And there is no difference in decreasing menstrual pain scale (dysmenorrhoea) between Cutaneous Stimulation (Slow Stroke Back Massage) and warm compresses (p value = 0.749). It is recommended to health workers and UKS staff at school that cutaneous stimulation (Slow Stroke Back Massage) and warm compresses can be used as non-medical measures to reduce menstrual pain in young women who experience dysmenorrhoea.

Keywords---Dysmenorrhea, Cutaneous Stimulation, teenage girls, Warm Compress.

Introduction

Dysmenorrhea is pain during menstruation caused by uterine muscle spasms. The cause is the excessive amount of prostaglandins in menstrual blood, which stimulates uterine hyperactivity (Sinaga, 2017: 62). The main symptom is pain, starting during menstruation. Pain can be sharp, blunt, cyclic, or persistent, can last within a few hours to 1 day. Sometimes these symptoms can take longer than 1 day but rarely exceed 72 hours. Systemic symptoms that accompany accompany nausea, vomiting, diarrhea, headaches, and emotional changes (Price & Wilson, 2013 : 1288).

The incidence of menstrual pain in the world is very large. On average more than 50% of women in each country experience menstrual pain. Its percentage in the United States is around 60% and in Sweden around 72%. Indonesia has an estimated dysmenorrhea rate of 55% of women of childbearing age who are tortured by pain during menstruation. The incidence (prevalence) of menstrual pain ranges from 45-95% among women of childbearing age. The incidence of primary dysmenorrhea in Indonesia is around 54.89% and 45.11% have secondary dysmenorrhea (Marlinda, 2013 : 119). Mahmudiono's research results in 2011, the incidence of primary dysmenorrhea in female adolescents aged 14-19 years in Indonesia was around 54.89% (Harahap, 2013: 109). According to Woo and Mc Eneaney (2010), dysmenorrhea affects the quality of life of 40-90% of women, where one in thirteen women who experience dysmenorrhea is absent from work and school for 1-3 days per month.

There are two types of serious menstrual pain (dysmenorrhea), namely primary dysmenorrhea and secondary dysmenorrhea. Menstrual pain that is classified as serious is very severe pain, so that women who experience it, often have to have total rest (Yohana et al, 2011: 37). Symptoms are often felt pain in the lower abdomen, which usually radiates to the lower back and legs. Pain is felt as cramps that arise or arise or dull pain that persists. Usually accompanied by headaches, nausea, constipation / diarrhea, and frequent urination, sometimes vomiting (Yohana et al, 2011 : 179).

How to reduce menstrual pain can be done in 2 ways, namely pharmacology and non pharmacology. Pharmacologically by administering analgesic drugs, hormonal therapy, therapy with nonsteroidal antiprostagladin drugs, dilatation of the cervical canal (Mitayani, 2009 : 212). Non-pharmacologically this action usually has a very low risk to reduce pain can be done with cutaneous stimulation that provides a touch of sensory integration techniques that affect the autonomic nervous system in the form of back massage with a slow stroke and warm compresses that provide warmth to meet the needs of the taste comfortable, reduce or relieve pain, reduce or prevent muscle spasms and provide a feeling of warmth in certain areas (Uliyah & Hidayat, 2009 : 93).

Based on the research of Mukhoirotin, et al, (2010) on "Utilization of Cutaneous Stimulation (Slow Stroke Back Massage) on Reducing Menstrual Pain Intensity", it was found that there was an influence of Cutaneous Stimulation (Slow Stroke Back Massage) on decreasing pain intensity. Other research that is about the difference in the effect of deep breathing relaxation techniques and warm compresses in reducing dysmenorrhea in adolescents of SMA Negeri 3 Padang shows that there is no significant difference in the decrease in the dysmenorrhea scale in adolescents who are given deep breathing relaxation techniques and warm compresses (Rahayuningrum, 2016). Based on the facts that have been described, the researchers are interested in conducting research to reduce menstrual pain by non-pharmacological methods by combining the Slow Stroke Back Massage technique and warm compresses.

Research Materials and Methods

This type of research is conducted using a quasi experiment design research method with the design of two groups pretest-posttest. The population in this study were students of SMAN 1 Solok City who experienced menstrual pain during the study. The sample in this study was young women who experience menstrual pain (dysmenorrhoea) in SMA N 1 Solok City during the study, with accidental sampling techniques that met the inclusion criteria set by this researcher found as many as 25 people. The sample criteria in this study are willing to be respondents are cooperative, pain that arises 24 hours before or until 2 days of menstruation, regular menstrual cycles and do not get any other action or consumption of drugs.

The sample was divided into 2 groups: 13 students with cutaneous stimulation intervention (Slow Stroke Back Massage) and 12 students with warm compress intervention. Grouping will be done based on informed consent and 1: 1 (one respondent is sampled, cutaneous stimulation is carried out (Slow Stroke Back Massage) and the following 1 respondent is made a sample for warm compresses and so on). The intervention was carried out once during the first day of menstrual cycles or up to 2 days after menstruation. Pain scale data before and after the intervention was collected by interview using pain scale measurement tools. The instrument used in this study was an observation sheet with numerical pain intensity scale measurement (Numeric Rating Scales) with categories 0 = no pain, 1-3 = mild pain, 4 - 6 = moderate pain, 7 - 9 = severe pain and 10 = very heavy pain. The respondents were asked to choose which answers were in accordance with the state of menstrual pain experienced before and after the intervention.

Data analysis was used to describe the characteristics of respondents, namely age, age of menarche, menstrual length, menstrual cycle, pretest-posttest pain with cutaneous stimulation techniques (Slow Stroke Back Massage) and warm compresses on respondents. After the data is collected, the data is processed and analyzed univariately and bivariately using t-test for cutaneous stimulation, because after Shapiro Wilk's Test of Normality is concluded, the distribution of the two groups of data is abnormal, and the statistical tests used for bivariate analysis on warm compresses are t-test dependent. So to know the difference in the reduction in the scale of menstrual pain (dysmenorrhoea) after cutaneous

stimulation (Slow Stroke Back Massage) and warm compresses performed Mann-Whitney test with a significance level of 0.05.

Results and Discussion

Characteristics of Respondents

The frequency distribution of respondents in SMA N 1 Kota Solok based on age, age of menarche, menstrual length, and menstrual cycle is presented in table 1 as follows.

Table 1. Frequency Distribution by Category Age, Age of menarche, in young women experiencing menstrual pain (dysmenorrhoea)

Variable	Frequency	Percent (%)
<i>Age :</i>		
16 Years	8	32,0
17 Years	12	48,0
18 Years	5	20,0
<i>Menarche age :</i>		
11 years old	4	16,0
12 years old	8	32,0
13 years old	7	28,0
14 years	5	20,0
15 years	1	4,0
<i>Menstruation day :</i>		
The first day	15	60,0
The second day	10	40,0

Source: 2017 Primary Data

From table 1 it is known that 25 young women who experience menstrual pain (dysmenorrhoea) in SMA N1 Solok City 12 people (48.0%) are in the age group of 17 years, 8 people (32.0%) menarche age are 12 years, and as many as 15 people (60.0%) menstrual pain occurs on the first day. Frequency distribution based on pain categories before and after cutaneous stimulation intervention (Slow Stroke Back Massage) is presented in table 2.

Table 2. Frequency Distribution of Pain scale differences before and after cutaneous stimulation (Slow Stroke Back Massage) in young women in SMA N 1 Kota Solok

Variable	n	Median Minimal- maksimal	Rerata SD	$\pm$	p
Pain scale before cutaneous stimulation (Slow Stroke Back Massage)	13	5 (4 – 7)	5,15 0.89	$\pm$	0,008
Pain scale after cutaneous	13	3 (2 – 4)	2,77 $\pm$		

stimulation (Slow Stroke Back Massage)	0.72
--	------

Source: 2017 Primary Data

Table 2 shows the median value of pain scale measurement before cutaneous stimulation (Slow Stroke Back Massage) in young women who experience menstrual pain (dysmenorrhoea) is 5 with a minimum value of 4 and a maximum value of 7 with a mean value of 5.15 and a standard deviation of 0.89 . Whereas after cutaneous stimulation (Slow Stroke Back Massage) the median value is 3 with a minimum value of 2 and a maximum value of 4 with a mean value of 2.77 and a standard intersection of 0.72. Statistical test results obtained p value = <0.008, it can be concluded that there are significant pain scale differences before and after cutaneous stimulation (Slow Stroke Back Massage). The frequency distribution based on pain categories before and after the hot compress intervention is presented in table 3.

Table 3. Frequency Distribution Difference in pain scale before and after warm compresses for young women in SMA N 1 Solok City

Variable	n	Average $\pm$ SD	Difference Average $\pm$ SD	p
Pain scale before warm compresses	12	5,42 $\pm$ 1.37	2,33 $\pm$ 0.77	0,000
Pain scale after warm compresses	12	3.08 $\pm$ 1.24		

Source: 2017 Primary Data

Table 3 is known before warm compress the mean pain scale is 5.42 with a standard intersection of 1.37. Whereas after a warm compress was done, the pain scale was 3.08 with a standard intersection of 1.24. The difference in mean values before and after the implementation of warm compresses is 2.33 with a standard intersection of 0.77. The statistical test results obtained p = 0.000, it can be concluded that there are significant differences in the mean pain scale before and after a warm compress is performed. Frequency distribution based on pain category after cutaneous stimulation and warm compress interventions is presented in table 4.

Table 4. Statistical distribution of pain scale after cutaneous stimulation (Slow Stroke Back Massage) and warm compresses on Decreasing menstrual pain (dysmenorrhoea) in young women. At SMA N 1 Kota Solok in 2017

Variable	n	Median Minimum-maximum	Mean $\pm$ sb	p
Pain scale after cutaneous stimulation (Slow Stroke Back Massage)	13	3 (2 – 4)	2,77 $\pm$ 0.72	0,749
Pain scale after warm compresses	12	3 (2 – 5)	3,08 $\pm$ 1,24	

Source: 2017 Primary Data

Table 4 shows that the median value of pain scale measurement after cutaneous stimulation (Slow Stroke Back Massage) in young women who experience menstrual pain (dysmenorrhoea) is 3 with a minimum value of 2 and a maximum value of 4 with a mean value of 2.77 and a standard deviation of 0, 72. Whereas after a warm compress is done the median value is 3 with a minimum value of 2 and a maximum value of 5 with a mean value of 3.08 and a standard intersection of 1.24. The statistical test results obtained p value = 0.749, it can be concluded that there is no significant difference in pain scale between groups performed Cutaneous Stimulation (Slow Stroke Back Massage) with groups that do warm compresses on young women who experience menstrual pain (dysmenorrhoea)

Pain during menstruation is called dysmenorrhea. Dysmenorrhea is pain during menstruation caused by uterine muscle spasms. The cause is an excessive amount of prostaglandins in menstrual blood, which stimulates uterine hyperactivity. The main symptom is pain, starting during menstruation. Pain can be sharp, blunt, cyclic, or persistent, can last within a few hours to 1 day. Sometimes these symptoms can take longer than 1 day but rarely exceed 72 hours. Systemic symptoms that accompany accompany nausea, vomiting, diarrhea, headaches, and emotional changes. Dysminore is divided into primary dysminore and secondary disminore (Price & Wilson, 2013: 1288).

In the short term pain during menstruation causes discomfort in daily physical activity. This complaint is related to repeated absence from school or workplace, which can interfere with productivity. 40% - 70% of women during reproduction experience menstrual pain, and as many as 10 percent experience it to disrupt daily activities. About 70-90 percent of menstrual pain cases occur when teenagers who experience menstrual pain will be affected by academic, social and sports activities (Praise, 2010: 67).

There are several ways to overcome the symptoms that arise due to painful menstruation, namely medical therapy by administering analgesic drugs, hormonal therapy, therapy with nonsteroidal anti-prostaglandin drugs, dilatation of the cervical canal can provide relief because it facilitates the release of menstrual blood and prostaglandins in it (Mitayani, 2009 : 212). Besides pain can be treated with non-medical which is safe to do with exercise, warm compresses, etc. (Potter & Perry, 2006: 1887).

Cutaneous stimulation (slow-stroke back massage) is a back massage with a slow stroke. Cutaneous stimulation in the body in general is often centered on the back and shoulders (Smeltzer, 2001: 232) while warm compresses provide warmth to reduce pain by using fluids that serve to dilate blood vessels and increase local blood flow with the aim of providing comfort to patients (Price & Wilson, 2013: 1088).

The results are in line with the results of research by Fitra M.P, Bonde: 2013 on "The influence of hot compresses on the Reduction of Menstrual Pain Degrees in Yapika Koplik II High School and Vocational School students showed that there was a significant relationship between hot compresses and a decrease in the degree of menstrual pain. The results of this study indicate that there is a decrease in the pain scale from the moderate pain category (75%) and the severe

pain category (16.5%) to the mild pain category (75%). This shows that warm water (46.5-51.5 ° C) has a physiological impact on the body, namely softening of the fibrous tissue, affecting tissue oxygenation so as to prevent muscle stiffness, vasodilating and improving blood flow, so as to reduce or eliminate pain .

Cutaneous stimulation in the body in general is often centered on the back and shoulders (Smeltzer, 2001: 232). Cutaneous stimulation stimulates afferent fibers to send impulses through the dorsal horn in the spinal cord, when the impulses carried by A-Beta fibers dominate the gate mechanism will close so that the pain impulses are not delivered to the brain (Prasetyo, 2010; 70). The results of Mukhoiratin, et al, 2010's study on "Utilization of Cutaneous Stimulation (Slow Stroke Back Massage) on Reducing Menstrual Pain Intensity" showed the effect of cutaneous Stimulation (Slow Stroke Back Massage) on the decrease in pain intensity.

Based on the results of the study showed that there was no significant difference in pain scale between the groups performed Cutaneous Stimulation (Slow Stroke Back Massage) with groups that performed warm compresses on young women who experience menstrual pain (dysmenorrhoea) in SMA N 1 Solok City. This is consistent with the gate control theory that skin stimulation activates the larger and faster transmission of sensory nerve fibers A - Beta. This process decreases pain transmission through C fibers and delta-A with a small diameter so that the Gate is closed to close the transmission of pain impulses. Cutaneous stimulation (Slow Stroke Back Massage) and warm compresses are actions that both provide stimulation to the skin and non-medical actions so that they do not give side effects.

Conclusion

This research concludes that before and after cutaneous stimulation (p value = 0.008), and there are differences in scale before and after warm compresses (p value = 0.000). Based on the statistical test results of differences in cutaneous stimulation and warm compresses it was found that the value of p = 0.749 can be concluded that there was no significant difference in pain scale between groups performed Cutaneous Stimulation (Slow Stroke Back Massage) with groups that performed warm compresses on young women who experience menstrual pain (dysmenorrhoea) at SMAN 1 Kota Solok. It is recommended to health workers and UKS staff in schools that cutaneous stimulation (Slow Stroke Back Massage) and warm compresses can be used as an alternative action to reduce menstrual pain (dysmenorrhoea) in young women. For further research, it is recommended to include confounding factors such as BMI, stress, history of pain and other factors so that this study does not occur. For further research related to dysmenorrhea it is advisable to further develop other treatments that have an effect on decreasing menstrual pain.

References

- A. Aziz Alimul Hidayat & Musrifatul Hidayah. (2008). *Pengantar Kebutuhan Dasar Manusia Edisi 2*. Jakarta : Salemba Medika.
- Benson. (2009). *Buku Saku Ginekologi*. Jakarta: EGC.

- Berman, dkk. (2010). *Buku Ajar Fundamental Keperawatan*. Jakarta: EGC.
- Brunner & Suddarth. (2015). *Buku Ajar Keperawatan Medikal-Bedah*. Jakarta: EGC.
- Dini,Kasdu.(2008). *Solusi Problem Wanita Dewasa*. Jakarta:Puspa Swara.
- El-Manan. (2011). *Kamus Pintar Kesehatan Wanita*. Yogyakarta: Buku Biru.
- Gui-Zhou, H. (2010). Prevalence of dysmenorrhea in female students in a Chinese university: a prospective study, 2(4), 311–314. <https://doi.org/10.4236/health.2010.24046>
- Hillard,P.A.J. (2006). *Dysmenorrhea : Pediatrics In Review*.27:64-71.Holder.
- Imron, A. O. dan R. (2012). *Menurunkan nyeri dismenorea dengan kompres hangat, VIII(2), 137–141.*
- Kumalasari, Intan. (2012). *Kesehatan Reproduksi*. Jakarta: Salemba Medika.
- Kusmiran, Eny. (2011). *Kesehatan Reproduksi Remaja Dan Wanita*. Jakarta: Salemba Medika.
- Mahmud, Mahir Hasan. (2007). *Terapi Air,Qultum*. Jakarta : Media.
- Manuaba, dkk. (2010). *Buku Ajar Ginekologi Untuk Mahasiswa Kebidanan*. Jakarta: EGC
- Mitayani. (2009). *Asuhan Keperawatan Maternitas*. 2009. Jakarta: Salemba Medika.
- Mukhtar, A. U. S., Budu, B., Sanusi B, Y., Mappawere, N. A., & Azniah, A. (2022). The effect of reproductive health education with multimedia video learning on the improvement of fluor albus prevention behavior young woman pathologist. *International Journal of Health & Medical Sciences*, 5(1), 75-79. <https://doi.org/10.21744/ijhms.v5n1.1841>
- Notoatmodjo, S. (2010). *Metodologi Penelitian Kesehatan*. Jakarta: Rineka Cipta.
- Potter, P. &. (2006). *Fundamentals Of Nursing: Consept,Process, And Practice*. Jakarta: EGC.
- Prasetyo.(2010). *Konsep Dan Keperawatn Nyeri*. Yogyakarta : Grahailmu.
- Prawiroraharjo, Sarwono, (2005). *Ilmu Kandungan*. Jakarta: Yayasan Bina Pustaka Sarwono.
- Price, A, Sylvia. &Wilson (2013). *Patofisiologi*. Jakarta: EGC.
- Proverawati, Atikah. (2009). *Menarche*. Yogyakarta : Nuha Medika.
- Puji, A. I. (2009). *Efektivitas Senam Desminore Dalam Mengurangi Disminore Pada Remaja Putri Di SMUN 5 Semarang*. Di unduh dari <https://core.ac.uk/download/pdf/11709709.pdf>.
- Rahayuningrum. (2016). *Perbedaan Pengaruh Teknik Relaksasi Napas Dalam Dan Kompres Hangat Dalam Menurunkan Disminore Pada Remaja SMA Negeri 3 Padang*. *Jurnal Kesehatan Medika Saintika*. Vol.7, No 2. Diunduh Dari <Http://Jurnal.Syedzasaintika.Ac.Id/Index.Php/Medika/Article/View/88>.
- Rahmadhayanti, E., Afriyani, R., & Wulandari, A. (2011). Pengaruh Kompres Hangat terhadap Penurunan Derajat Nyeri Haid pada Remaja Putri di SMA Karya Ibu Palembang, 369–374.
- Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2021). Get vaccinated when it is your turn and follow the local guidelines. *International Journal of Health Sciences*, 5(3), x-xv. <https://doi.org/10.53730/ijhs.v5n3.2938>
- Sarwono Prawirohardjo. (2008). *Ilmu Kandungan* . Jakarta : Tridasa Printer.
- Sinaga, E. (2017). *Buku Manajemen Kesehatan Menstruasi*. Jakarta: Universitas Nasional IWWASH Global One.
- Smeltzer,C.(2001). *Buku Ajar Keperawatan Medikal Bedah*. Edisi 8. Vol 1. Jakarta : EGC.

- Syntia,Nilda Dewi. (2012). *Biologi Reproduksi*. Yogyakarta: Pustaka Rihama.
- Tansuri. (2006). *Konsep Dan Penatalaksanaan Nyeri*. Jakarta: EGC.
- Widyastuti, Y. (2009). *Kesehatan Reproduksi*. Yogyakarta: Fitramaya.