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Slow Stroke Back Massage Is Fery Effective in Reducing the Gradation of Dysmenorrhea in Teenagers

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ABSTRACT

Introduction. Dysmenorrhoea becomes a problem for adolescent girls every month and interferes with daily activities and even unable to perform activities at all.The purpose of the study was to analyse the difference in the effect before and after cutaneous stimulation on the gradation of dysmenorrhoea. **Methods.** Type of Quasy Experiment, design "Non Randomised Control Group Pretest-Postest Design", comparing the results of the experimental group and the control group. Population of 83, sample 31 adolescents taken by simple random sampling. The dependent variables are age of adolescents, age of onset of dysmenorrhoea, dysmenorrhoea scale score, dysmenorrhoea scale category. The independent variable is cutaneous stimulation. To determine the effect of cutaneous stimulation on pain gradation analysis using Wilcoxon Signed Ranks Test, to determine the difference in influence before and after cutaneous stimulation analysis using Mann-Whitney Test. **Result.** Teenage age mean 19.03, SD ± 0.795, age of onset of dysmenorrhoea 13-17 years. Pre-stimulation dysmenorrhoea scale score, obtained mean 4.90, SD ± 2.241. In post stimulation, the mean was 2.58, SD ± 1, 785, The category of post stimulation dysmenorrhoea scale changes from severe to moderate, moderate to mild, mild to no dysmenorrhoea. Gradation of dysmenorrhoea pre stimulation and post stimulation there is a significant change with a mean of 4.90 to 2.58, p value 0.000. There is a significant difference in the effect of stimulation on dysmenorrhoea gradation, delta -2.32 ± SD 1.739. **Discussion.** The age of onset of dysmenorrhoea occurs shortly after menarche due to imperfect reproductive organs. Stimulation performed twice with a span of 3 hours can significantly reduce the dysmenorrhoea scale score and can reduce the pain scale category from severe to moderate, mild to missing. The mechanism of action of stimulation is to encourage the release of endorphin which can block pain stimulus.

Keywords: Dysmenorrhoea, Pain gradation, Cutaneous stimulation

INTRODUCTION

Dysmenorrhea becomes a problem for adolescent girls every month and interferes with daily activities and even cannot do activities at all. Dysmenorrhea occurs shortly before or at the same time as the onset of menstruation and lasts for several hours, although in some cases it can last several days(1,2). The nature of dysmenorrhea is a seizure that is limited to the lower abdomen and can spread to the waist and thigh area. Dysmenorrhea is also accompanied by complaints of nausea, vomiting, headache and diarrhea, adolescents who experience dysmenorrhea begin in the age range of 15-18 years with a history of never exercising and there is a family history of dysmenorrhea(3–5). In a similar study conducted on adolescents who experienced dysmenorrhea, it occurred at an early age (under 20 years old) which was accompanied by suboptimal nerve function in the uterus with the impact of increased prostaglandin levels which would have dysmenorrhea effects during menstruation.

Dysmenorrhea also occurs in adolescents with early menarche, namely in the age range under 15 years old, which is accompanied by impaired nutritional status(6–8). In Indonesia, the incidence of dysmenorrhea consists of 54.89% of primary dysmenorrhea and 9.36% of secondary dysmenorrhea (9).

Dysmenorrhea is lower abdominal pain and can extend to the waist, lower back, and thighs. Dysmenorrhea occurs due to an increase in prostaglandin (PG) F2-alpha which is a cyclooxygenase (COX-2) which causes hypertonus and vasoconstriction of the myometrium resulting in ischemia and menstrual pain. In addition, there is also PGE2 alpha which contributes to primary dysmenorrhea. Dysmenorrhea that often occurs in adolescents is primary dysmenorrhea, that is, menstrual pain that is not related to gynecology. This can happen because the hormonal cycle experienced is not so stable, and adolescent girls do not experience uterine contractions as often as young adult women(10–12).

To measure the scale of pain in adolescents, by using the skin stimulation module as a product of this research in the previous year period(13–15). This module is prepared as a guide for users who experience pain, especially dysmenorrhea with varying degrees of pain gradation. The stages of the module lead users to understand dysmenorrhea accompanied by some current issues about dysmenorrhea, dysmenorrhea theory, stimulation, how to measure pain gradation and how to assess stimulation results. To measure the pain scale in this study, the NRS (Numeric Rating Scale) scale was used. The use of NRS scales in some studies can easily determine pain scales. The advantage of this NRS is that the adolescent pain level can be measured directly by determining a scale that is adjusted to the complaints felt and the results can be determined on the pain scale(16–19).

The purpose of this study was to analyze the effect of skin stimulation in reducing dysmenorrhea pain gradation in adolescents and to analyze the difference in skin stimulation effects before and after skin stimulation.

RESEARCH METHOD

The Quasy Experiment Type, the "Non Randomised Control Group Pretest-Postest Design" design, compares the results of the experimental group and the control group. The population is 83 people, a sample of 31 adolescents was taken by simple random sampling. The dependent variables were adolescent age, age of onset of dysmenorrhea, dysmenorrhea scale score, dysmenorrhea scale category. The independent variable is skin stimulation. To determine the effect of skin stimulation on pain gradation analysis using the Wilcoxon Signed Ranks Test, to find out the difference in the effect before and after skin stimulation analysis using the Mann-Whitney Test with a p value of <0.05.(20)

RESULT AND DISCUSSION

Data that can be collected from Sutomo Midwifery Study Program students who are all women, every month many students experience menstruation accompanied by dysmenorrhea with various pain gradations. To overcome this, there are several variations in overcoming dysmenorrhea disorders, both pharmacology using painkillers and non-pharmacological(21,22).

Table 1. Age of adolescents and age of onset of adolescent dysmenorrhea

Characteristics		Treatmenr (N = 31)	*p* Value
Teenage Age	Mean ± Standard Deviasi	19,03 ± 0,795	0,265
	Median (Min – Max)	19 (17 - 21)	
Age of onset of dysmenorrhoea	12 Tahun Kebawah	3 (9,6 %)	1,000
	13 - 17 Tahun	25 (80,6 %)	

	18 - 20 Tahun	3 (9,6 %)

* Declared Homogeneous if the p value> 0.05

Based on table 1, the data of adolescent age and age of onset of dysmenorrhoea in the treatment group are equal.

Table 2. Dysmenorrhoea scale score and Dysmenorrhoea scale category

Treatment Group			Pre	Post
Dysmenorrhoea Score	Scale	Mean ± Standard Deviasi	4,90 ± 2,241	2,58 ± 1,785
		Median (Min – Max)	5 (1 - 9)	2 (0 - 6)
Dysmenorrhoea Category	Scale	Tidak Nyeri	0 (0%)	3 (9,7%)
		Mild	12 (38,7%)	18 (58,1%)
		Moderate	14 (45,2%)	10 (32,3%)
		Heavy	5 (16,1%)	0 (0%)

Based on table 2 obtained data:

Dysmenorrhoea scale score, there was a significant change from pre to post cutaneous stimulation.

The category of dysmenorrhoea scale changes from severe to moderate, moderate to mild, some even change from mild to no dysmenorrhoea / missing, after cutaneous stimulation. (23)

Table 3. Data Normality Test Tests of Normality

	Group	Shapiro-Wilk		
		Statistic	df	Sig.
Pain Scale. Pre		.		.
	Treatment	.904	31	.009
Pain Scale. Pre		.		.
	Treatment	.924	31	.030
Pain Change		.		.
	Treatment	.952	31	.176

* Normal if the P value> 0.05

Based on table 3, the data is normal

Table 4. Analysis of the effect of cutaneous stimulation on the gradation of dysmenorrhoea in adolescents

		Pre	Post	*p* Value
ADOLESCENTS	Mean ± Standard Deviation	4,90 ± 2,241	2,58 ± 1,785	0,000
	Median (Min – Max)	5 (1 - 9)	2 (0 - 6)	

* Significantly Different if the p value <0.05

Based on table 4, it can be seen that:

In the adolescent group there was a significant change in dysmenorrhoea gradation after cutaneous stimulation.

Table 5. Analysis of the difference in influence before and after cutaneous stimulation.

		Treatment	*p* Value
Pre	Mean ± Standard Deviation	4,90 ± 2,241	0,851
	Median (Min – Max)	5 (1 - 9)	
Post	Mean ± Standard Deviation	2,58 ± 1,785	0,000
	Median (Min – Max)	2 (0 - 6)	
Delta	Mean ± Standard Deviation	-2,32 ± 1,739	0,000
	Median (Min – Max)	2 (-6 - 1)	

Based on table 5, it can be seen that there are differences in the effect of cutaneous stimulation on the gradation of dysmenorrhoea which is meaningful in the adolescent group with a significance of delta value of -2.32 ± SD 1.739, which means that there is a change in the effect of dysmenorrhoea scale in the adolescent group after cutaneous stimulation.

Age of adolescents

Based on the results of the study, it can be seen that the age of adolescence and the age of onset of dysmenorrhea in the treatment group are the same.

Adolescents who experience dysmenorrhea start in the age range of 15 - 18 years with an average of 16.48 accompanied by a history of never exercising and a family history of dysmenorrhea(24). In a similar study conducted by adolescents who experience dysmenorrhea occurs at an early age (under 20 years old) which is accompanied by suboptimal nerve function in the uterus with the impact of increased prostaglandin levels which will have dysmenorrhea effects during menstruation.(25) Dysmenorrhea also occurs in adolescents with early menarche, namely in the age range under 15 years old, which is accompanied by impaired nutritional status(26,27)

Primary dysmenorrhea often occurs in adolescents who experience early menarche. Menarche is the first time menstruation occurs in a woman. Menstruation is bleeding from the uterus as a sign that the uterus is starting to function, occurring every month on a regular basis in healthy and non-pregnant adult women. The occurrence of menstruation shows the characteristics of a woman who experiences cyclic changes in the reproductive organs in preparation for pregnancy. If menarche in women occurs at an earlier age, it can be a sign that the function of the female reproductive organs is not perfect, such as the nervous system in the reproductive organs which can increase the levels of the hormone prostaglandins that provide menstrual pain effects called dysmenorrhea. The results of this study are adolescents in the age range of 17-21 years with the early age of dysmenorrhea occurring at the age of 13-17 years. This shows that the adolescents in this study experience menarche at an early age so that adolescents almost entirely experience dysmenorrhea every menstrual period. Dysmenorrhea that occurs in adolescents can occur not only due to premature menarche, but also caused by other factors, namely family factors, junk food consumption habits, and exercise habits(10,15,28)

Dysmenorrhoea Scale

Based on the results of the study, it can be seen that the dysmenorrhea scale score has significant changes in post-skin stimulation. The category of dysmenorrhea scale changes after skin stimulation from severe to moderate, moderate to mild, and some even change the category from mild to no dysmenorrhea.

Pain is a sensory and emotional activity as a manifestation of the body's pathological processes that affect nerves and can damage tissues. To determine the sensory activity of nerves to pain stimuli in dysmenorrhea, it can be measured using several methods, namely Visual Analog Scale (VAS), Verbal Rating Scale (VRS), Numeric Rating Scale (NRS), Wong Baker Paint Rating Scale, McGill Pain Questinonnaire (MPQ). In this study, in determining the pain scale using the Numeric Rating Scale (NRS) Method, which is a method of measuring the pain scale that will describe the quality of a person's pain in the form of a range of 0 - 10 numbers. NRS categorizes the number 0 as no pain, the number 1-3 is mild pain, the number 4-6 is moderate pain, the number 7-9 is severe pain and the number 10 is uncontrollable severe pain. The advantage of the NRS method compared to other methods is that the scale is easy to use, adolescents can immediately determine the perceived dysmenorrhea scale and then enter it into the pain scale gradation of the NRS method. To facilitate the determination of dysmenorrhea gradation in this study, a module has been created on the application of skin stimulation in reducing dysmenorrhea. In a similar study on the action of back stimulation in breast cancer patients experiencing chemotherapy fatigue, stimulation was performed 10 minutes before and 10 minutes after chemotherapy with the result of a significant reduction in pain scale in the 1st, 2nd and 3rd chemotherapy periods (29).

Skin stimulation measures carried out on adolescents in the Sutomo Midwifery Study Program through the guidance of the Skin Stimulation Module created by the researcher, can significantly reduce the pain scale score. This module was created with the hope that it can be used by all women who experience pain, especially pain due to dysmenorrhea. In the module guide, adolescents are guided to perform stimulation actions, given a theoretical basis about dysmenorrhea and how to reduce pain gradation and at the end of the module, adolescents can independently assess the stimulation results. The results of the pain scale score that changed significantly in this study can occur because the respondents are students of the Midwifery Study Program who of course have an easier time understanding the module material and how to apply it. With the correct application of the module, in addition to the decrease in the gradation of dysmenorrhea produced, it is also followed by a decrease in the category of pain scale from severe to moderate, mild and even dysmenorrhea disappears with the action of dysmenorrhea stimulation(10,15)

Effect of Skin Stimulation on Dysmenorrhea Gradation in Adolescents

Based on table 4, it can be seen that there is a significant effect on pain gradation after skin stimulation in the adolescent group.

Skin stimulation is skin stimulation that is done to relieve pain, working by encouraging the release of endorphins, thus blocking the transmission of pain stimuli to the brain. Some factors that can affect the action of skin stimulation include: a. F (frequency) of stimulation, the more often stimulation is carried out, the more this action will lower the pain threshold, b. I (intensity) of stimulation, based on a maximum pulse rate of 65% to 85%, then skin stimulation will be more effective in reducing the pain threshold due to dysmenorrhea, c. T (time/time) of pain, effective stimulation within 30 to 60 minutes carried out every day will be effective in reducing pain threshold, d. This type of stimulation will be more effective if it is done according to the desired atmosphere. If skin stimulation is carried out according to the procedure, it will be able to affect several systems in the body, namely: a. in blood circulation,

there is a dilation of blood vessels and increase blood circulation in the stimulated area, b. in the stimulated skin area, it can reduce muscle tension so that the body becomes more relaxed, c. Correct skin stimulation will be able to reduce the perception of adolescent pain(16,30,31), Pain gradation in active phase delivery mothers, most of them experienced very good changes. When the mother giving birth is in the active phase, stimulation is carried out to reduce the pain gradation, most of the severe pain is reduced to moderate pain, and only a small part still experience severe pain. In line with this study, dysmenorrhea exercises performed on adolescents can reduce the intensity of dysmenorrhea in adolescents by 77.3%

In this study, adolescents who experienced dysmenorrhea, most of them had a moderate pain scale. After skin stimulation based on the modules that have been given, it has a significant effect on the gradation of dysmenorrhea, from severe to moderate dysmenorrhea, moderate to mild dysmenorrhea, and even some adolescents after stimulation, dysmenorrhea disappears. These results certainly have factors that can affect the success of stimulation, namely the type of dysmenorrhea in adolescents is primary dysmenorrhea, and exercise habits that are carried out regularly by adolescents so that if they experience dysmenorrhea, they do not enter a severe gradation(24,32,33).

Differences in Effects Before and After Skin Stimulation

Based on Table 5, it can be seen that there is a significant change in the effect of dysmenorrhea scale in adolescents after skin stimulation.

The skin stimulation carried out by adolescents in this study in its implementation follows the guidelines of the skin stimulation module in reducing dysmenorrhea in adolescents compiled by the researcher. The module was prepared to make it easier for users to apply stimulation independently without being accompanied by a researcher. The content of the module consists of myths and facts about dysmenorrhea, the basic concepts of dysmenorrhea theory, the concept of skin stimulation theory, and how to use the module and assess the gradation of dysmenorrhea after stimulation(34–36). The effect of dysmenorrhea exercises on the reduction of dysmenorrhea in adolescents has resulted in a significant effect on the reduction of dysmenorrhea.(14,17,21,37). Gymnastics is done in the form of light relaxation exercises in the hope of stimulating the brain and spinal cord to release endorphins. This hormone functions as a sedative and can induce a sense of comfort and ultimately has an effect on reducing pain gradation due to dysmenorrhea. The mechanism of action of skin stimulation is to encourage the release of endorphins that can block pain stimulus. In addition, the principle also works by activating A-beta nerve fibers. A-beta nerve fibers are larger and faster than A-delta and C nerve fibers. Thus, the transmission of pain impulses by A-delta and C nerve fibers will be blocked by A-beta nerve fibers(6,38,39)

The application of skin stimulation carried out by adolescents in this study is carried out by following the guidelines directed at the skin stimulation module provided.(40). Previously, adolescents had been given a classic understanding of the purpose of the research, the material and content of the module and how to use the module. Furthermore, adolescents are taught directly how to apply skin stimulation and how to assess the results of the implementation of stimulation. In the application of stimulation, adolescents are given the opportunity to apply the skin stimulation module in the following month, namely when adolescents experience menstruation(41,42). The application of this module produces real conditions in adolescents who are menstruating accompanied by

dysmenorrhea, given solutions by stimulating by fellow friends who have been trained. This stimulation action has a very significant effect after adolescents are subjected to skin stimulation. Adolescents feel more relaxed and comfortable in carrying out daily activities as students even though they are menstruating accompanied by dysmenorrhea.(43–45)

Study Weaknesses

The application of skin stimulation is mostly carried out not by researchers, but by fellow friends or women who have been trained such as mothers or relatives of adolescent girls, so there is a possibility that the action is not carried out optimally. The implementation of the module is also only carried out in a shorter time with a frequency of 2 times, so there is a possibility that it does not result in maximum relaxation.

CONCLUSION

The results of the study can be concluded that cutaneous stimulation is very effective in reducing dysmenorrhea pain gradation in adolescents, which can be proven to be a significant difference in cutaneous stimulation before and after stimulation in adolescents.

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