

# The Effects of Relaxation Technique and Warm Compress on Decreasing Dysmenorrhea Scale

Jumita<sup>1\*</sup> and Muhammad Kristiawan<sup>2</sup>

<sup>1</sup>Dehasen University of Bengkulu, Bengkulu 38126, Indonesia

<sup>2</sup>University of Bengkulu, Jl. WR Supratman, Bengkulu, 38126, Indonesia

\*Corresponding author. Email: itajumita78@gmail.com

## ABSTRACT

The purpose of this study was to determine and analyse the effect of deep breathing relaxation technique and warm compress on decreasing the dysmenorrhea scale of students of SMPN 17 in Bengkulu city in 2014. This research is an experimental research that the quantitative approach used is the Queasy Experimental Design method and the design used post-test only with a control group design. The data were collected by using a questionnaire which includes the respondents' bio data, the characteristics of the respondent's menstruation, the measurement of dysmenorrhea scale by using the NRS (Numeric Rating Scale), the assessment of the implementation of deep breathing relaxation technique, the assessment of the implementation of warm compress, and the measurement of the scale of fatigue. The results showed that (1) the characteristics of menstruation of respondents included (a) menstruation first appeared in the early teenage (11 to 13 years) as many as 47 people (71.21%) and middle teenage (> 13 to 14 years old) 19 people (28.79%), (2) there was a difference in the dysmenorrhea scale between before and after being given the intervention in the relaxation technique and warm compress groups, (3) there was a difference in the dysmenorrhea scale between before and after being given the intervention in the warm compress group. The decrease in dysmenorrhea scale in the warm compress group was more significant than the deep breathing relaxation technique group, and (4) there was no relationship between the fatigue factor and the dysmenorrhea scale in the deep breathing relaxation technique group and warm compress.

**Keywords:** Dysmenorrhea scale, Deep breathing relaxation technique, Warm compress.

## 1. INTRODUCTION

Reproductive health itself is a full physical, mental and social state, not only free of all facets of the reproductive system, its roles and mechanisms, from disease or disability [1]. Maternity nursing practices play an important role in assessing the success of health services through comprehensive maternity care for patients, families and populations, both good and ill, in improving overall reproductive health [2].

In the context of physical / biological development, one of which is that they have undergone menstruation, the earliest changes at puberty are. Menstruation starts at puberty and the willingness of a woman to bear kids or during years of reproduction. Depending on a number of factors, such as the health of an individual, nutritional status, and body weight relative to height, menstruation begins between 12 and 15 years of age. Menstruation continues until the age of 45 to 50 years is reached [3].

Young women's menstruation can cause different problems, one of which is dysmenorrhea [4]. The most common gynaecological problem faced by women, both adult women and adolescent girls, is dysmenorrhea. Before or after menstruation, dysmenorrhea is intense pain that causes the patient to rest and leave work or everyday life for several hours or days. Nausea and vomiting, headaches, diarrhoea, and so on can also be observed along with pain [5].

In this country, the prevalence of dysmenorrhea is very high. On average, in every region, more than 50% of women experience dysmenorrhea. It is estimated that 45 to 90% of women in the United States experience dysmenorrhea, in which 12% of the pain is severe, 37% moderate, 49% mild, resulting in 14% of young girls not attending school [6]. The prevalence of dysmenorrhoea in Sweden is about 72 percent [6]. The prevalence of dysmenorrhea in adolescents in Malaysia is 62.3 percent [7]. The occurrence of dysmenorrhea in Indonesia can

not be entirely verified due to the lack of awareness of patients visiting a doctor, but 90% of Indonesian women are reported to have undergone dysmenorrhea [7].

The researchers selected teenage girls (school age) in this sample, which is confirmed by evidence from the findings of epidemiological studies on the U.S. population of adolescents aged 12 to 17 years. Klein and Litt discovered that dysmenorrhea prevalence was 59.7%, with severe menstrual pain as high as 12%, moderate pain was 37%, and mild pain was 49% [7]. In addition, the French found that the highest incidence of dysmenorrhea was in adolescents with an estimated 20-90% of severe menstrual pain, up to 15% [7].

Based on the results of a November 2013 preliminary survey of junior high school adolescents in the Muara Bangkahulu District, Bengkulu Region, especially of 66 girls who had such menstrual pain at SMP Negeri 17.40% of students had mild pain, 45% of students had moderate pain, and 15% of students had severe pain.

During the preliminary analysis of SMPN 17 students from Bengkulu City, the results of interviews showed that among the girls who suffered dysmenorrhea, they had trouble concentrating while studying and felt weak and lazy. As an agency overseeing the health of students in schools, the UKS (School Health Business) reported that there are no special steps usually taken to minimize student-experienced dysmenorrhea. Eucalyptus oil is used in the form of handling offered by the school, resting in bed, and some do nothing.

Based on the above background, the authors are interested in conducting research and examining more deeply the use of relaxation techniques and warm compresses for dysmenorrhea and pouring it into a thesis entitled "The Effects of Relaxation Technique and Warm Compress on Decreasing Dysmenorrhea Scale: a Case Study on SMPN 17 Students in Bengkulu City in 2014".

## 1.1. Related Work

This research relates to some studies that have been conducted before. The work is as the following.

### 1.1.1. Definition of Menstruation

Menstruation is a sign of maturity of the reproductive organs in adolescents that starts between the ages of 12 and 15 and can cause various symptoms in adolescents, including abdominal pain (cramps), headaches that are often followed by vertigo, anxiety and restlessness [7].

Periodic and cyclic uterine bleeding followed by discharge of the endometrium [2] is menstrual.

Menstruation is a physiological transition in the body of a woman that occurs periodically and is affected by reproductive hormones, according to Kasdu [8]. This happens between puberty and menopause every month. Menstruation is the shedding of the uterine wall consisting of blood and body tissue that occurs every month and is a common process for women, according to Wiknjosastro [5].

Based on some of the above studies, it can be concluded that, after fourteen days of ovulation per month, menstrual bleeding is intermittent in the uterus, with the duration of the bleeding flow and the menstrual cycle varying for each individual.

Periodic and cyclic uterine bleeding followed by discharge of the endometrium [2] is menstrual. Menstruation is a physiological transition in the body of a woman that occurs periodically and is affected by reproductive hormones, according to Kasdu [8]. This happens between puberty and menopause every month. Menstruation is the shedding of the uterine wall consisting of blood and body tissue that occurs every month and is a common process for women, according to Wiknjosastro [5].

Based on some of the above studies, it can be concluded that, after fourteen days of ovulation per month, menstrual bleeding is intermittent in the uterus, with the duration of the bleeding flow and the menstrual cycle varying for each individual.

### 1.1.2 Menstrual Cycle Abnormalities

Abnormalities arising during the menstrual cycle include [9]:

1. No menstruation (amenorrhea), which is more than 3 consecutive months of overdue menstruation, daily menstruation after reaching the age of 18 years.
2. Dysmenorrhea (menstrual pain), which is pain in the lower abdomen that spreads to the waist and thighs. This pain does not occur long before or after menstruation starts and lasts for several days before and after menstruation.
3. Menorrhagia or hypermenorrhoea, that is, the cause may be uterine myoma or an enlarged uterus in the form of menstrual cycle disorders that remain normal and the amount of blood released is quite a number.
4. Pre-menstrual stress is caused by complaints starting around a week before and after menstruation. This happens prior to menstruation because of an imbalance of estrogen and progesterone. Pre-menstrual stress occurs about the age of 30 to 49 years, care depends on the circumstances, and consulting with an expert is required.

In this research, menstrual cycle irregularities in the type of pain that occurs during menstruation, called

dysmenorrhea, especially primary dysmenorrhea, are the focus of the study.

### 1.1.3 Definition of Dysmenorrhea

In compliance with Bobak, et. Al.[10], dysmenorrhea is a pain-causing menstruation that is one of the most common gynecological issues faced by women of all ages. Dysmenorrhea is a discomfort that can interfere with everyday activities during menstruation [9].

Pain in the lower abdomen, radiating to the waist and thighs, is dysmenorrhea. This pain occurs not long before or when menstruation starts and lasts for several days before and during menstruation [5]. Dysmenorrhea is pain during menstruation that is felt in the lower abdomen or in the waist, which causes heartburn, aches, and is like being stabbed, according to Prawirohardjo [11]. Such symptoms often begin immediately after your first phase of menstruation (menarche). After menstruation, pain decreases, but pain can continue to occur in some women during the menstrual period [2].

It can be inferred that dysmenorrhea is menstruation followed by pain (cramps) in the abdominal area and occurs on the first day, based on some of the studies above, and is a common gynecological problem in women.

### 1.1.4 Definition of Deep Breathing Relaxation

In addition to decreasing pain severity, deep breathing relaxation techniques may also improve pulmonary circulation and improve blood [12], deep breathing relaxation technique is a method of nursing care, in which the nurse teaches clients how to do deep breathing, slow breathing (holding full inspiration) and how to exhale slowly.

In a comfortable state, since the sex hormones, estrogen and progesterone, and the stress hormone, adrenaline, are made from the same chemical building blocks, the body can stop the development of the hormone adrenaline and all the hormones it needs during stress. It decreases the development of these two sex hormones when we minimize stress. Therefore, the need for relaxation is to provide the body with an opportunity to generate hormones that are necessary for pain-free menstruation [12].

Based on the above description, it can be inferred that deep breathing relaxation techniques are an effective way to alleviate pain, with a mechanism that prevents the pain cycle, which is an uncomfortable sensory and emotional experience.

**Table 1.** Frequency Distribution of Respondents by Age

Age (Year)	N (People)	Percentage (%)
11 to 14	16	24,24
15 to 17	47	71,21

### 1.1.5 Definition of Warm Compress

Perry and Potter [13] state that warm compress is a compressing treatment by using hot jars wrapped in cloth, namely in conduction where heat transfers from the jar into the body, so that it will cause the dilation of blood vessels and will decrease tension muscles, so that the menstrual pain that is felt will be reduced or stopped. According to Smeltzer and Bare [12], warm compresses have the advantage of increasing blood flow to an area and may help relieve pain by accelerating healing.

According to Bobak, et. al. [10], warm compress functions to treat or reduce pain, where heat can relieve ischemia by reducing uterine contraction and smoothing blood vessels, so as to relieve pain by reducing tension and increasing feelings of well-being, increasing menstrual flow, and relieving pelvic vasocongestion

## 2. METHODOLOGY

This quantitative study used the Queasy Experimental Design method with a pre-test and post-test design.

The population in this study were all 81 students of Class IX in SMPN 17 Bengkulu City. Determination of the number of samples in this study used purposive sampling method. The total number of samples in this study were 66 people.

The research was conducted in the school from April to May 2014. Meanwhile, respondent data collection was conducted from November to December 2013.

The data collection instrument used in this study was a questionnaire. Data processing was carried out after the data collection process had been completed.

The data analysis in this study used a computer-based application program, namely SPSS (Statistical Program for Social Science) Version 21.0 for Windows with a confidence level of 95% and an error rate ( $\alpha$ ) of 5% (0.05) through the Univariate Analysis stage, Bivariate and Multivariate Analysis.

## 3. RESULTS AND DISCUSSION

### 3.1 Overview of Research Respondents

The following tables 1 and 2 show the frequency distribution of respondents by age and menstruation characteristics.

18 to 20	3	4,55
Total	66	100

**Table 2.** Frequency Distribution of Respondents' Menstruation Characteristics

Parameter	Characteristics	Frequency (People)
First menstruation	Early Teens (11 to 13 years)	47 (71.21%)
	Mid Teens (> 13 to 14 years)	19 (28.79%)
	Total	66
First dysmenorrhea felt	1 to 2 years after <i>menarche</i>	52 (78.79%)
	2 to 3 years after <i>menarche</i>	14 (21.21%)
	Total	66
Monthly Dysmenorrhea Duration	≤ 1 day	18 (27.27%)
	2 to 3 days	36 (54.55%)
	> 3 days	12 (18.18%)
	Total	66
Menstruation cycle	Smooth	12 (18.18%)
	Not smooth	54 (81.82%)
	Total	66

Table 1 shows that there were 16 respondents aged 11 to 14 years (24.24%), 47 people aged 15 to 17 years (71.21%) which was the largest number, aged 18 to 20 years 3 people (4.55%) which is the least amount.

Meanwhile, Table 2 shows that respondents with their first menstruation appeared in early teenage (11 to 13 years) 47 people (71.21%) and middle teenage (> 13 to 14 years) 19 people (28.79%). Respondents who experienced dysmenorrhea for the first time at 1 to 2 years after menarche were 52 people (78.79%) and 2 to 3 years after menarche 14 people (21, 21%). Respondents with dysmenorrhea pain duration less than 1 day were 18 people (27.27%), 2 to 3 days 36 people (54.55%), and more than 3 days 12 people (18.18%).

Furthermore, respondents with a smooth menstrual cycle were 12 (18.18%) and 54 people (81.82%) were not fluent.

Table 3 shows that before the intervention of deep breathing relaxation techniques, the average dysmenorrhea scale of the respondents was 5.85 with an SD of 1.734. Before the warm compress intervention, the average dysmenorrhea scale of the respondents was 5.52 with an SD of 1.349. The p value of 0.387 is greater than the significance of 0.05. Based on this value, it can be concluded that there is no difference in the dysmenorrhea scale of the respondents in the two groups before the intervention.

**Table 3.** Dysmenorrhea Scale between Group of Deep Breathing Relaxation Technique and Warm Compress before Intervention

Time of Measurement	Mean	SD	P value
Before Relaxation	5.85	1.734	
			.387
Before Warm Compress	5.52	1.349	

**Table 4.** Dysmenorrhea Scale between before and after Deep Breathing Relaxation Technique Intervention

Dysmenorrhea Scale	Mean	SD	P value
Before Relaxation	5.85	1.734	
			.000
After Relaxation	3.12	1.850	

**Table 5.** Dysmenorrhea Scale between before and after Warm Compress Intervention

Time of Measurement	Mean	SD	P value
Before Warm Compress	5.52	1.349	
			.000
After Warm Compress	1.61	1.560	

**Table 6.** Decreasing Dysmenorrhea Scale in the Deep Breathing Relaxation Technique Group and Warm Compress after Intervention

Group	Mean	SD	P value
Relaxation Technique	2.76	1.714	
			.010
Warm Compress	3.88	1.709	

**Table 7.** The Relationship between Fatigue Factors and Dysmenorrhea Scale in the Deep Breathing Relaxation Technique Group and Warm Compress

Fatigue	Group		Total	P value
	Relaxation	Warm Compress		
Mild	22	28	50	
				.085
Severe	11	5	16	
Total	33	33	55	

Table 4 shows that before the intervention of deep breathing relaxation techniques, the average dysmenorrhea scale of the respondents was 5.85 with an SD of 1.734 and after the intervention, the average dysmenorrhea scale of the respondents was 3.12 with an SD of 1.850. The p value of 0.0001 is smaller than the significance of 0.05. Based on this value, it can be concluded that there are differences in the dysmenorrhea scale of the respondents between before and after the intervention of deep breathing relaxation techniques.

Table 5 above shows that before the warm compress intervention, the average dysmenorrhea scale of the respondents was 5.52 with an SD of 1.349 and after the intervention the average dysmenorrhea scale of respondents was 1.61 with an SD of 1.560. The p value of 0.0001 is smaller than the significance of 0.05. Thus, the researchers concluded that there are differences in the dysmenorrhea scale of the respondents between before and after the warm compress intervention.

Whereas, the deep breathing relaxation technique with an average value of 2.76 and SD of 1.714 is shown in Table 6. In the warm compress group with an average value of 3.88 and SD 1.709. The p value of 0.010 is smaller than the significance of 0.05. Based on this value, it can be concluded that there was a decrease in the dysmenorrhea scale in the deep breathing relaxation technique group and warm compresses after the intervention. However, the warm compress group was

more significant than the deep breathing relaxation technique group.

Table 7 shows that respondents with mild fatigue category for the deep breathing relaxation technique group were 22 respondents and warm compresses were 28 respondents, a total of 50 respondents. Respondents with severe fatigue in the deep breathing relaxation technique group were 11 respondents and warm compresses were 5 respondents, 16 respondents. P value of 0.085 is greater than the significance of 0.05. In brief, there is no relationship between the fatigue factor and the dysmenorrhea scale in the deep breathing relaxation technique group and warm compresses so that it is not followed by multivariate analysis.

#### 4. CONCLUSION

In summary, menstruation first appeared in the early teenage (11 to 13 years) as many as 47 people (71.21%) and middle teenage (> 13 to 14 years old) 19 people (28.79%). There were differences in dysmenorrhea scale in the deep breathing relaxation technique group between before and after the intervention. There was a difference in the scale of dysmenorrhea in the warm compress group between before and after the intervention. The decrease in dysmenorrhea scale in the warm compress group was more significant than the deep breathing relaxation technique group. There is a relationship between the fatigue factor and the dysmenorrhea scale

in the deep breathing relaxation technique group and warm compresses.

## ACKNOWLEDGMENTS

This work was supported by Dehasen University of Bengkulu and SMPN 17 Bengkulu City.

## REFERENCES

- [1] S. Rejeki, Kesehatan Reproduksi Remaja, 2009, <http://drhandri.wordpress.com/2008/05/14/kesehatan-reproduksi-remaja/>
- [2] A. Proverawati, S. Misaroh, Menarche: Menstruasi Pertama Penuh Makna, Nuha Medika, Yogyakarta, 2009.
- [3] P. Progestian, Cara Menentukan Masa Subur, Swarna Bumi, Jakarta, 2010.
- [4] Hendrik, Problema Haid. Tiga Serangkai, Jakarta, 2006.
- [5] H. Wiknjosastro, Ilmu Kebidanan (Eds.), Yayasan Bina Pustaka Sarwono Prawirohardjo, Jakarta, 2005.
- [6] R. Fajaryati, Menstruation and Their Effects on Adult Women in America, American Journal of Public Health, 2010.
- [7] D. Anurogo, A. Wulandari, Cara Jitu Mengatasi Nyeri Haid, Andi Publisher, Yogyakarta, 2008.
- [8] D. Kasdu, Solusi Problem Wanita Dewasa. Puspa Swara, Jakarta, 2005.
- [9] I.G.B. Manuaba, Ginekologi, EGC, Jakarta, 2009.
- [10] I.M. Bobak, D.L. Lowdermilk, M.D. Jensen, S.E. Perry, Buku ajar Keperawatan Maternitas (Eds.), 2005.
- [11] S. Prawirohardjo, Ilmu Kandungan (Eds.), Yayasan Bina Pustaka Sarwono Prawirohardjo, Jakarta, 2008.
- [12] S.C. Smeltzer, B. Bare, Keperawatan Medikal Bedah Brunner dan Suddarth, EGC, Jakarta, 2002.
- [13] A.G. Perry, P.A. Potter, Fundamentals of Nursing: Concepts, Process, and Practice (Eds.), Mosby-Year Book, Inc, USA, 2006.