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## Research Article

# Comparison of Deep Breathing and Benson Relaxation on Decreasing Dismenore Pain in Adolescent Women at Bina Smp Indonesia Gemilang Boarding School

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### Abstract

**Aims:** determine the comparison of deep breathing relaxation and benson to decrease dismenore pain in young women.

**Methods:** Quasi experimental with a two group pre test-post test design. The sample in this study were all young women who experienced pain during menstruation at SMP Bina Indonesia Gemilang Boarding School as many as 30 people. The sampling technique used purposive sampling.

**Results:** The majority of menstrual pain before doing relaxation breathing in the majority was moderate pain (60.0%) and mild pain afterward (53.3%). The two treatments, namely deep breathing relaxation and benson, were both effective in reducing menstrual pain levels in young women (p. value 0.000).

**Conclusions:** There is no difference between deep breathing relaxation and Benson relaxation in reducing the level of menstrual pain in young women. It is expected that young women who experience menstrual pain can do deep breathing relaxation or Benson relaxation to reduce the level of pain.

### Keywords:

Adolescent Woman, Deep Breathing Relaxation, Dismenore, Menstruation

## INTRODUCTION

Normally women of childbearing age will experience menstruation every month. However, the experience of menstruation will vary from one person to another. Some women menstruate without complaints, most others menstruate accompanied by complaints of cramping pain in the lower abdomen that occurs during menstruation and is called dismenorea (1). Dysmenorrhea is divided into two, namely primary and secondary dysmenorrhea. Primary dysmenorrhoea is menstrual pain that occurs during menarche and there are no pelvic pathological abnormalities, while secondary dysmenorrhoea occurs in women who previously did not experience dysmenorrhea and there were pelvic pathological abnormalities. Dysmenorrhea

is a very painful symptom for young women and teenagers that can disrupt activities and impact quality of life (2). Based on data from the World Health Organization, the incidence of dysmenorrhoea is 1,769,425 people (90%) with 10-15% of women experiencing severe dysmenorrhoea. The incidence of dysmenorrhoea in the world is very high, on average more than 50% of women in each country experience menstrual pain. Meanwhile, the incidence of dysmenorrhoea in Indonesia alone is 107,673 women (64.25%), consisting of 59,671 (54.89%) women who experience primary dysmenorrhoea and 9,496 people (9.36%) who experience secondary dysmenorrhoea (3).

Based on research results, the incidence of dysmenorrhoea in Indonesia is 55%, but

very few people seek treatment at health services, namely only 1% - 2%. Dysmenorrhea can occur in every woman at least once during her reproductive cycle, some women even experience it every menstrual cycle. This dysmenorrhea varies from mild to severe. This condition can affect activities and requires management (1). Proverawati mentioned that there are two methods, namely pharmacological and non-pharmacological, that can be utilized to alleviate the discomfort that is associated with menstruation. The non-pharmacological procedures include hypnotherapy, warm water compresses, regular exercise, relaxation, and distraction, specifically by diverting attention through reading, watching television, or listening to the radio. Pharmacological procedures are carried out with the use of non-steroidal anti-inflammatory drugs (NSAIDs), while non-pharmacological procedures can be carried out with the regular use of warm water compresses (4). For a prolonged period of time, the use of pharmaceutical methods for the treatment of menstruation pain, such as the administration of non-steroidal anti-inflammatory medicines (NSAIDs) such indomethacin, ibuprofen, and naproxen, might result in potentially harmful side effects. The use of nonsteroidal anti-inflammatory drugs (NSAIDs) can result in a number of adverse effects, particularly those that are experienced by the gastrointestinal tract. These adverse effects are linked to the activity of the medicine, which is to block the manufacture of prostaglandins, which are chemicals that play a key role in a number of functions throughout the body. In general, nonsteroidal anti-inflammatory drugs (NSAIDs) are known to induce adverse effects on three organ systems: the liver, kidneys, and gastrointestinal tract. The most prevalent adverse effect is the development of peptic ulcers, which causes dyspepsia as the clinical manifestation of the condition. (5).

One of the most straightforward approaches of alleviating pain is the

relaxation technique that involves deep breathing. In comparison to other types of exercises, practicing relaxation techniques has a number of advantages. One of these advantages is that relaxation exercises are simpler to perform regardless of the circumstances, and they do not have any negative side effects. Aside from that, the benefits of relaxation techniques include the ability to lower medical costs and the ability to prevent stress for the individual. This method can also improve the ventilation of the lungs and increase the amount of oxygen in the blood (6). Efforts to reduce pain through non-pharmacological methods with relaxation therapy continue to be developed, one of which is the Benson relaxation technique. This relaxation technique is a treatment to relieve pain by focusing on a focus by repeating ritual sentences and eliminating various disturbing thoughts. Benson's relaxation has the same effect as other types of relaxation on the incidence of dysmenorrhea. Benson's relaxation process will help the body relax so that it stops producing adrenaline and all the hormones needed during stress. This happens because the sex hormones estrogen and progesterone and the stress hormone adrenaline are produced from the same chemical block. When a person reduces stress, they reduce the production of these two sex hormones. Benson's relaxation will provide an opportunity for the body to produce hormones that are important for having pain-free menstruation (1).

Several studies have proven the effectiveness of relaxation in reducing dysmenorrhea pain. Aningsih research (7) proves that there is a significant effect of deep breathing relaxation techniques on reducing dysmenorrhea pain. Silviani research (8) shows that there is a significant influence between breathing relaxation techniques and dysmenorrhoea at Purwodadi State High School, Musi Rawas Regency, South Sumatra. Rica research (9) The research results show that there is an effect of breathing relaxation

techniques on menstrual pain in young women at the UPTD Panglayungan Health Center, Tasikmalaya City. Astutiningrum research (10) showed that there was an effect of Benson relaxation on reducing the level of dysmenorrhea pain in DIII Nursing students. Anggraeni research (6) showed that the Benson relaxation technique was effective for reducing dysmenorrhoea pain. Marinda research (11) showed that there was an effect of Benson relaxation therapy on primary dysmenorrhoea in female students at SMAN 8 Seram Barat.

A preliminary study conducted by researchers on April 2 2023 by interviewing 10 female students at SMP Bina Insan Boarding School, 7 of them experienced menstrual pain ranging from moderate to severe, which interfered with concentration while studying and reduced academic achievement. This disturbance was felt one day before menstruation for up to 2 days during menstruation. Most of the students who experience dysmenorrhea just endure

the pain and do not even go to school. Efforts made to endure the pain are by taking analgesic medication and resting. Based on this background, researchers are interested in conducting research entitled "Comparison of deep breathing and Benson relaxation on reducing dysmenorrhea pain in adolescent girls at SMP Bina Indonesia Gemilang Boarding School in 2023".

## METHODS

This study was quasi-experimental and used a pre-test-post-test design with two groups. For the purpose of this study, the sample consisted of all thirty young women who attended SMP Bina Indonesia Gemilang Boarding School and reported experiencing pain throughout their menstrual periods. Using purposive sampling is the method of sampling that is used. Utilizing a paired simple t test in conjunction with univariate and bivariate analysis is the method of analysis that is utilized.

## RESULTS

**Table 1. Frequency Distribution of Respondents' Menstrual Pain Levels Before and After Deep Breathing Relaxation**

No	Menstrual Pain	Pre test		Post test	
		f	%	f	%
1.	No pain	0	0,0	3	20,0
2.	Mild pain	4	26,7	8	53,3
3.	Moderate pain	9	60,0	4	26,7
4.	Severe pain	2	13,3	0	0,0
<b>Total</b>		<b>15</b>	<b>100,0</b>	<b>15</b>	<b>100,0</b>

Based on the table above, it can be seen that of the 15 respondents before deep breathing relaxation, the majority experienced moderate pain, 9 people (26.7%), and after deep breathing relaxation, the majority of respondents experienced mild pain, 8 people (53.3%).

**Table 2. Frequency Distribution of Respondents' Menstrual Pain Levels Before and After Benson Relaxation**

No	Menstrual Pain	Pre test		Post test	
		f	%	f	%
1.	No pain	0	0,0	4	26,7
2.	Mild pain	5	33,3	9	60,0
3.	Moderate pain	9	60,0	2	13,3
4.	Severe pain	1	6,7	0	0,0
<b>Total</b>		<b>15</b>	<b>100,0</b>	<b>15</b>	<b>100,0</b>

Based on the table above, it can be seen that of the 15 respondents before Benson relaxation, the majority experienced moderate pain, 9 people (60.0%), and after Benson relaxation, the majority of respondents experienced mild pain, 9 people (60.0%).

**Table 3. Results of Kolmogorov-Smirnova and Shapiro-Wilk Normality Tests on Adolescent Girls Who Experience Menstrual Pain**

Group	Measurement	Kolmogorov-Smirnov <sup>a</sup>	Shapiro-Wilk	Information
Deep breathing relaxation	Pre Test	0,200	0,198	Normal
	Post Test	0,200	0,136	Normal
Benson relaxation	Pre Test	0,200	0,326	Normal
	Post Test	0,200	0,167	Normal

The findings of the normalcy test in the deep breathing relaxation group, both before and after the test, indicated that there was an issue with the amount of pain experienced by young women who were experiencing menstrual pain. This was demonstrated by the table that was presented earlier. The pre-test result for the Kolmogorov-Smirnova test was  $p = 0.200$ , which is greater than 0.05, and the post-test value was  $p = 0.200$ , which is also greater than 0.05. There was a significant difference between the pre-test value of  $p=0.198$  ( $p$  value  $> 0.05$ ) and the post-test value of  $p=0.136$  ( $p$  value  $> 0.05$ ) in the Shapiro-Wilk test. The Kolmogorov-Smirnova test was used to investigate the problem of pain levels in young women who suffered menstruation pain. The results of the test showed that the pre-test value was  $p = 0.200$  ( $p$  value  $> 0.05$ ), and the post-test value was also  $p = 0.200$  ( $p$  value  $> 0.05$ ). Both of these results were achieved in the Benson therapy group. The pre-test value for the Shapiro-Wilk test was  $p = 0.326$ , which is greater than 0.05, and the post-test value was  $p = 0.167$ , which is also greater than 0.05. Following the findings of the Kolmogorov-Smirnova test and the Shapiro-Wilk test, the data presented above can be classified as belonging to a normal distribution.

**Table 4. Comparison of Deep Breathing and Benson Relaxation on Reducing Pain Levels in Young Women Who Experience Menstrual Pain**

Group	Pain Level Categories	Frequency		Mean		Difference Mean	Difference SD	P value
		Pre test	Post test	Pre test	Post test			
Deep breathing relaxation	No pain	0	3	4,73	2,33	2,40	0,091	0,000
	Mild pain	4	8					
	Moderate pain	9	4					
	Severe pain	2	0					
Benson relaxation	No pain	0	4	4,33	1,93	2,40	0,219	0,000
	Mild pain	5	9					
	Moderate pain	9	2					
	Severe pain	1	0					

According to the data presented in the table above, the average difference in pain levels between young women who suffer menstrual pain before and after receiving deep breathing relaxation is 2.40, with a standard deviation of 0.091. This information is based on the fact that the table was presented. The analysis conducted on the group that had deep breathing relaxation yielded a p value of 0.000, which is less than the predetermined significance threshold of  $\alpha$  (0.05). This indicates that there was a noteworthy distinction in the degrees of pain experienced before and after the implementation of deep breathing relaxation. There was a difference of 2.40 in the average amount of pain reported by young women who were experiencing menstrual pain before and after receiving Benson relaxation. The standard deviation for this difference was 0.219. The analysis conducted on the Benson relaxation group yielded a p value of 0.000, which is less than the predetermined significance level of  $\alpha$  (0.05). This indicates that there was a noteworthy distinction in the levels of pain experienced by the participants before and after receiving Benson relaxation. The results of the two treatment groups, deep breathing relaxation and Benson relaxation, demonstrated that the results were equally effective in reducing the level of menstrual pain in young women. This is because, judging from the difference in the mean values of the two treatments, the same value was obtained, which was 2.40, which means that it is possible to draw the conclusion that there was no significant difference between the two treatments. While both Benson and deep breathing relaxation are useful in reducing the amount of menstrual pain experienced by young women, there is a distinction between the two in terms of their effectiveness.

## DISCUSSION

### Frequency Distribution of Respondents' Pain Levels Before and After Deep Breathing Relaxation

The research findings indicate that prior to engaging in deep breathing relaxation, the majority of the 15 participants reported experiencing moderate pain, with 9 individuals (26.7%) falling into this category. However, after engaging in deep breathing relaxation, the majority of respondents reported experiencing light pain, with 8 individuals (53.3%) falling into this category. Koziar states that practicing deep breathing relaxation techniques consistently will induce a sensation of comfort. The sensation of comfort will ultimately enhance an individual's capacity to endure pain. Individuals with high pain tolerance possess the ability to acclimate to discomfort and have effective coping methods. In addition to enhancing pain tolerance, deep breathing induces a sense of comfort that can elevate the pain threshold. By raising the pain threshold, the resulting pain level after employing the deep breathing relaxation technique ranges from 2 (moderate) to 1 (light pain) (12)

The results of this study are in line with the results of research (7) showing that after being given the deep breathing relaxation technique less than half (34.8%) experienced mild and moderate pain. The results of this research are also supported by the results of Silviani's research (8) which showed that 33 female students (68.8%) experienced moderate dysmenorrhea pain before the breathing relaxation technique was carried out, 19 female students (39.6%) did not experience dysmenorrhea pain after the breathing relaxation technique was carried out. In the opinion of researchers, the results of research conducted at SMP Bina Indonesia Gemilang Boarding School, teenage girls who experienced menstrual pain who were given deep breathing relaxation treatment showed a change in the scale of pain from severe to moderate, from moderate to mild and from partially mild to not painful. However, from the research results, before deep breathing relaxation was carried out, the majority of respondents experienced moderate pain and after deep breathing

relaxation was carried out, the majority of respondents experienced mild pain. This shows that deep breathing relaxation is very useful for reducing menstrual pain that occurs in young women every time their period comes.

### **Frequency Distribution of Respondents' Pain Levels Before and After Benson Relaxation**

From the research results, it can be seen that of the 15 respondents before Benson relaxation, the majority experienced moderate pain, 9 people (60.0%), and after Benson relaxation, the majority of respondents experienced mild pain, 9 people (60.0%). Benson relaxation provides a feeling of relaxation and calm so that it can have an impact on decreasing the perception of pain. A relaxed body condition makes every system in the body run well, including the supply of oxygen to the brain, thus affecting the pain receptors that arise due to dysmenorrhea (10). The results of this research are in line with the results of Putri Halimu Husna's research which stated that before Benson relaxation, most respondents experienced moderate pain and after Benson relaxation, most respondents felt mild or no pain (13).

Based on the researcher's perspective, the research conducted at SMP Bina Indonesia Gemilang Boarding School revealed that young women who received Benson relaxation therapy experienced a shift in their pain levels. Prior to the therapy, the majority of respondents reported experiencing moderate pain, whereas after the therapy, most of them experienced a decrease to mild pain. The Benson relaxation treatment induces a state of relaxation, thereby diminishing severe pain to a moderate level, moderate pain to mild pain, and mild pain to no pain. The findings of this study indicate that Benson relaxation is highly effective in managing pain in young women suffering from dysmenorrhea.

### **Comparison of Deep Breathing and Benson Relaxation on Reducing Menstrual Pain Levels in Adolescent Girls**

The research findings suggest that there is a difference in pain levels among young women who experience discomfort during menstruation before and after practicing deep breathing relaxation. The average difference in pain levels is 2.40, with a standard deviation of 0.091. The deep breathing relaxation group analysis resulted in a p-value of 0.000, indicating statistical significance at a threshold of  $\alpha = 0.05$ . This demonstrates a substantial disparity in pain levels prior to and following the use of deep breathing relaxation. The average disparity in pain levels between young women who experienced menstruation pain before and after doing Benson relaxation was 2.40, with a standard deviation of 0.219. The examination of the Benson relaxation group resulted in a p-value of 0.000, which is below the significance level  $\alpha$  of 0.05. This suggests a statistically significant disparity in pain levels prior to and following the administration of Benson relaxing. Both the deep breathing relaxation and Benson relaxation therapies exhibited equivalent efficacy in alleviating menstruation pain among young women. This conclusion is derived from the analysis of mean values, which demonstrated that both treatments produced an identical outcome of 2.40. Thus, it may be inferred that there is no substantial disparity between the two medications with regards to their efficacy in alleviating menstruation discomfort. The deep breathing relaxation and Benson technique have distinct approaches, yet both are equally advantageous in reducing menstrual discomfort in young women.

When prostaglandins trigger uterine contractions due to the large amount of menstrual blood that comes out, the blood flow contracts, causing ischemia around the uterine area. The muscles of the abdominal cavity also contract and trigger cramps (spasm). When teenagers do deep breathing

relaxation techniques, it will increase baroreceptor sensitivity and increase endorphins so that autonomic nerve stimulation affects the central and parasympathetic nerves. The effects felt are a decrease in heart rate, stroke volume and blood pressure. Apart from that, deep breathing relaxation techniques will reduce the contractility of the sympathetic nerves so that the sensation of pain is reduced and this stimulates the hormones adrenaline and cortisol so that anxiety will also be reduced (14). Relaxing deep breaths accompanied by reciting religious sentences such as saying the names of God or dhikr can reduce hormone levels that cause pain, thus increasing feelings of comfort and pleasure, which ultimately reduces the level of pain felt. Apart from that, remembrance and prayer from the perspective of mental health science is psychiatric therapy, a level higher than ordinary psychotherapy. This is because remembrance and prayer contain spiritual, religious elements which can raise hope and self-confidence which ultimately increases the body's immunity and psychic strength so that the pain will be healed.

The results of this research are in line with the results of Rica's research showing that there is an influence of breathing relaxation techniques on menstrual pain in young women at the UPTD Panglayungan Health Center, Tasikmalaya City in 2020 with the results of statistical tests using paired sample t-tests, the result was  $p = 0.002$  which means  $p < 0.05$ . Deep breathing relaxation activities create the sensation of releasing discomfort and stress. Gradually, the client can relax the muscles without having to tense them first. When the client reaches full relaxation, the brain will activate alpha waves in the brain and stimulate the hypothalamus to release endorphin hormones, causing the perception of pain to decrease and anxiety about the experience of pain to be minimal (9).

Agustinia's research also agrees, saying that Benson relaxation therapy is effective in

reducing the intensity of menstrual pain for female students at the Faculty of Nursing, University of North Sumatra with a p-value  $< (0.05)$ , so it can be concluded that there is a difference in dysmenorrhea pain before and after Benson relaxation. student of D III Nursing at STIKes Karya Husada Semarang (15). From the results of Astuti's research entitled "Effectiveness of Benson Relaxation on Reducing Menstrual Pain, Dysmenorrhea in Female Students at Stikes Karya Husada Semarang" with research results: based on the results of analysis using the Wilcoxon Signed Ranks Test with a value of  $p = 0.000$ ,  $< (0.05)$ , then It can be concluded that there is a difference in dysmenorrhea pain before and after Benson relaxation in D III Nursing students at Stikes Karya Husada Semarang (13).

Based on the researchers' hypotheses, a study was conducted at SMP Bina Indonesia Gemilang Boarding School to examine the effectiveness of two relaxation techniques in reducing menstrual pain among young women. The aim was to compare the efficacy of the two techniques and determine which one was more effective in reducing pain levels. This relaxation technique involves deep breathing and Benson relaxation. The analysis of the paired simple test comparing the two relaxation methods in lowering menstrual pain revealed a consistent difference of 2.40 between the pre-test and post-test findings. The study findings indicate that both relaxation techniques are equally efficacious in alleviating menstruation discomfort in young women. Deep breathing relaxation techniques and Benson relaxation are thought to alleviate pain intensity by inducing relaxation in skeletal muscles that are in spasm due to an elevation in prostaglandins. This relaxation leads to vasodilation of blood vessels and an enhanced blood flow to the affected areas, relieving spasm and ischemia. Deep breathing relaxation techniques are thought to have the ability to trigger the body to produce and release natural pain-relieving substances called endogenous opioids,



specifically endorphins and enkephalins. Engaging in deep breathing relaxation techniques for a duration of 15 to 30 minutes typically induces relaxation in the body, resulting in a sense of comfort and gradual reduction in perceived pain intensity.

Concurrently, the amalgamation of relaxation techniques and the potency of positive thoughts plays a pivotal role in the achievement of relaxation. The intervention will utilize the factor of religious belief. The aspect of belief encompasses the recurrent utilization of words or phrases that align with an individual's religious convictions, along with an attitude of acceptance or surrender. Benson relaxation therapy is a therapeutic approach that can serve as a valuable resource for alleviating depression, particularly among individuals with religious convictions. The benefits of Benson relaxation are its simplicity, self-administration capability, affordability, and time efficiency. Benson relaxation optimizes the respiratory function, ensuring adequate oxygen supply to maintain the body's homeostasis in equilibrium. This condition will induce a feeling of overall relaxation in individuals. Benson relaxation induces a suppression of sympathetic nerve activity, resulting in a decrease in the body's oxygen consumption. Consequently, the body's musculature experiences relaxation, leading to a sensation of tranquility and ease. The research findings indicate that both deep breathing relaxation and Benson relaxation techniques are equally effective in reducing desminore pain levels in young women. There is no significant difference between the two treatments, as the average value of pain reduction is identical at 2.40.

## CONCLUSION

The study conducted at SMP Bina Indonesia Gemilang Boarding School revealed that both deep breathing relaxation and Benson relaxation techniques exhibit equivalent efficacy in alleviating menstrual pain among young women. Both relaxations induce

relaxation in skeletal muscles, encourage the body to release endogenous opioids, and elicit a sensation of contentment. The integration of relaxation techniques with the potency of positive beliefs, particularly religious ideas, is crucial for the efficacy of the intervention. Benson relaxation treatment is a simple, economical, and flexible practice that can be conducted at one's convenience. It aids in the regulation of homeostasis by suppressing sympathetic nerve activity, decreasing oxygen consumption, and inducing a state of relaxation. The mean value of the two treatments is 2.40, suggesting that both relaxation techniques are equally efficacious in alleviating menstruation pain in young women. The intensity of monthly pain is associated with relaxation techniques, including deep breathing and Benson relaxation. Both of these methods have proven efficacy in reducing period pain levels in young women. Put simply, there is no discernible distinction in the effectiveness of deep breathing relaxation and Benson relaxation in alleviating menstruation pain among young women ( $p$ -value 0.000).

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