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EFFECT OF RELAXATION TECHNIQUE IN BREATHING ON THE PAIN LEVEL OF DYSMENORHEA'S PAIN IN TEENAGE GIRL

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ABSTRACT
The technique of deep breathing relaxation can reduce the intensity of pain and improve pulmonary ventilation and increase blood oxygenation so the young man can adapt to pain during dysmenorrhea. This study aimed to examine the association between deep breathing relaxation techniques and the level of dysmenorrhea pain in adolescent girls at SMPN 6 Samarinda City. Quasi experimental with one group pre-test and post-test model. The non-probability sampling was applied with 40 respondents. Wilcoxon test was used to analyse data in this study. there was a significant association between deep breathing relaxation techniques and the level of dysmenorrhea pain in adolescent girls at SMPN 6 Samarinda City (p=0,0001). The deep breathing relaxation technique has an effect on the level of pain and can be used as one of the pain adaption techniques.

Keywords: dysmenorrhea; pain; relaxation techniques in breathing

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INTRODUCTION

Adolescence is a developmental phase in humans characterized by the development of secondary sexual characteristics and the maturation of sexual organ functions, such as the ovulation process and menstrual cycle. Menstruation refers to the periodic discharge of blood and uterine cells through the vagina originating from the female uterus wall. One common issue related to the menstrual period is menstrual pain. Menstrual pain is a gynecological problem caused by an imbalance of prostaglandin hormones in the bloodstream, resulting in the discomfort often experienced by women (Lestari, 2013; Lisnawati et al., 2021; Pratiwi, 2011). Dysmenorrhea, or menstrual pain, was described as discomfort felt in the lower abdomen (Handayani et al., 2022; Prawirohardjo, 2020; Safriana & Sitaresmi, 2022). This condition affected more than 50% of adolescent girls, disrupted daily activities, influenced emotional status and feelings, and increased anxiety (Afifah, 2022).

According to the World Health Organization (WHO) in 2017, the incidence of menstrual pain is high worldwide. The average incidence of menstrual pain in young women ranges from 16.8% to 81%. In various European countries, menstrual pain occurs in an average of 45-97% of women. The lowest prevalence rate is recorded in Bulgaria at 8.8%, while the highest reaches 94% in Finland. High prevalence of menstrual pain often occurs in adolescent women, estimated to be between 20-90%. Approximately 15% of adolescents report experiencing severe menstrual pain. In the United States, dysmenorrhea is recognized as the most common cause of school absenteeism among teenage girls. Additionally, a survey conducted on 113 women in the United States revealed that the prevalence of dysmenorrhea

ranges from 29-44%, with the highest rates occurring in the age group of 18-45 years(Andarmoyo, 2017).

The prevalence of menstrual pain in Indonesia includes 64.25% for primary menstrual pain and 35.75% for secondary menstrual pain. The perceived intensity of pain varies among individuals. Approximately 70% of them experience irregular menstrual pain during menstruation, while 30% always experience menstrual pain. They also adopt various measures to cope with menstrual pain. About 40% of them take rest, 20% use warm compresses, 20% try abdominal massage, and 20% consume paracetamol as a way to alleviate menstrual pain(Anggraini, 2018; Siregar et al., 2019).The deep breathing relaxation technique is one nursing intervention where the nurse educates the client on how to perform deep breathing, slow down the breath (holding the inspiration maximally), and how to exhale slowly. In addition to reducing pain intensity, deep breathing relaxation technique can also improve lung ventilation and increase oxygen levels in the blood(Suzanne C. Smeltzer, 2013).

The research results showed a reduction in menstrual pain among adolescents with primary dysmenorrhea after using breathing relaxation techniques (Kotta et al., 2022; Purnamasari et al., 2020; Santi et al., 2021).Based on the preliminary survey conducted at SMPN 6 Samarinda using interview methods with 15 students, data was obtained showing that 11 students experienced menstrual pain, while 4 did not. Among the students experiencing menstrual pain, 9 of them were not familiar with ways to alleviate menstrual pain. Therefore, the researcher is interested in investigating the "Effect of deep breathing relaxation technique on the level of dysmenorrhea pain in teenage girls at SMPN 6 Samarinda".This study aimed to examine the association between deep breathing relaxation techniques and the level of dysmenorrhea pain in adolescent girls at SMPN 6 Samarinda City.

METHOD

This study employed a quantitative research approach using a Quasi-Experimental method with a one-group pre-test and post-test design. The population consisted of all female students in classes 9A-9C who experienced dysmenorrhea at SMP Negeri 6 Samarinda, totaling 40 students. The sample for this study was selected using the total sampling method, comprising 40 respondents. The research instrument uses the Numeric Rating Scale (NRS) to measure pain levels. Both primary and secondary data were utilized in this study. The data underwent analysis, including tests for data normality, univariate, and bivariate analysis.

RESULT

Normalitas Test for Data

The normality test was conducted to determine whether the data were normally distributed or not, using the Shapiro-Wilk test.

Table 1.
Normality test of dysmenorrhea data before and after the application of deep breathing relaxation technique in female students at SMPN 6 Samarinda

Dismenorea	p *value*
Pain Level Before Deep Breathing	0,0001
Pain Level After Deep Breathing	0,0001

Based on the table of normality test results above, the Sig value from the Shapiro-Wilk test for both Pre-test and Post-test was 0.0001. This result is <0.05, indicating that the data were not normally distributed. Therefore, an alternative test, the Wilcoxon test, was used.

Univariate Results

Level of Dysmenorrhea Pain Before Applying Deep Breathing Relaxation Technique

Table 2.
Frequency Distribution of Dysmenorrhea Pain Levels Before the Application of Deep Breathing Relaxation Technique in Female Adolescents

The Level of Dysmenorrhea Pain	f	%
Low Pain	11	27,5
Mid Pain	25	62,5
High Pain	4	10,0

Based on the information provided in table 2, it is evident that the level of pain in adolescent girls before receiving the deep breathing relaxation technique was mostly catagorized as Mid pain, with 25 respondents (62.5%). Low pain was experienced by 11 individuals (27.5%), and the least reported was high pain, with 4 respondents (10.0%). Meanwhile, no respondents reported experincing no pain or very high pain.

Level of Dysmenorrhea Pain After Applying Deep Breathing Relaxation Technique

Table 3.
Frequency Distribution of Dysmenorrhea Pain Levels Before the Application of Deep Breathing Relaxation Technique in Female Adolescents

The Level of Dysmenorrhea Pain	f	%
No Pain	20	50,0
Low Pain	14	35,0
Mid Pain	6	15,0

Based on the information provided in table 3, it is evident that the level of pain in adolescent girls after receiving the breath-holding relaxation technique was predominantly categorized ass follows: no pain in 20 respondents (50.0%), low pain in 14 people (35.0%), and the least, mid pain in 6 respondents (15.0%). Meanwhile, no respondents reporteed experiencing high or very high pain.

Table 4.
Analysis of the Influence Before and After Deep Breathing Relaxation Technique on Dysmenorrhea Pain Levels in Adolescent Girls

Variable	N	Median	Min	Max	Z	P
Pain Level Pre Test	40	3,00	2	4	-5,372	0,000
Pain Level Post Test	40	1,50	1	3		

Based on Table 4, a decrease in the minimum, maximum, and median values of pain levels before and after the application of deep breathing relaxation technique. The results of the Wilcoxon test indicate that the minimum value after the intervention is lower than before the intervention (1<2), indicating a decrease with a difference of 1. Similiarly, the maximum value before and after experiences a decrease (3<4) with a difference of 1.To assess the impact of the deep breathing relaxation technique on reducing pain levels during dysmenorrhea, a Wilcoxon test analysis was conducted. The obtained Z value was -5.372 with a significance value of 0.0001 which is less than α (0.05). The results indicates a significant effect between pain levels before and after the aplication of deep breathing relaxation technique in dysmenorrhea among adolescent girls at SMPN 6 Samarinda. The Z value of -5.372 suggests that the post-test values are smaller than the pre-test values, resulting in a negative Z value, indicating an effect before and after the application of deep breathing relaxation technique in dysmenorrhea among adolescent girls at SMPN 6 Samarinda

DISCUSSION

Pain Level Before and After Deep Breathing

Based on the research results, it is evident that the pain levels in adolescent girls before receiving the deep breathing relaxation technique were predominantly mid pain in 25 respondents (62.5%), low pain in 11 individuals (27.5%), and the least, high pain in 4 respondents (10.0%). No respondents reported experiencing no pain or very high pain. Following the application of the deep breathing relaxation technique, there was a significant change in the pain levels of adolescent girls. The majority experienced no pain in 20 respondents (50.0%), low pain in 14 individuals (35.0%), and the least, mid pain in 6 respondents (15.0%). Similar to before, no respondents reported experiencing high or very high pain.This research aligns with a study conducted by Priscilla (2012). Following the intervention of deep breathing relaxation technique, a reduction in the level of dysmenorrhea pain was observed. Specifically, 8 individuals who initially experienced high dysmenorrhea reported a decrease to a mid scale and 8 individuals with mid dysmenorrhea reported a dcrease to a low scale(Priscilla et al., 2012).

This study aligns with the research conducted by (Silviani et al., 2019), which showed that after the application of relaxation techniques, there was a reduction in dysmenorrhea pain levels. Among the 9 individuals who initially experienced severe pain, there was a decrease to a mid scale, while 33 individuals with mid mid dysmenorrhea reported a dcrease to a low scale. The deep breathing relaxation technique is a conditions capable of stimulating the body to release endogenous opioids, thereby forming a pain-suppressing system that ultimately results in a reduction in pain intensity. This is the reason for the difference in the reduction of pain intensity before and after the application of deep breathing relaxation technique.(Amalia, 2020; Anurogo & Wulandari, 2017).

The Influence of Deep Breathing Relaxation Technique on the Dysmenorrhea Pain Level in Adolescent Girls

Based on the research results, it was determined that there was an influence before and after the application of deep breathing relaxation technique in reducing the level of pain during dysmenorrhea. This is evident from the Wilcoxon test analysis, where the Z value obtained is -5.372 with a significance value of 0.0001, indicating a significance level of less than α (0.05). This implies a significant influence between the pain levels before and after the application of deep breathing relaxation technique in dysmenorrhea among adolescent girls at SMPN 6 Samarinda. The Z value of -5.372 indicates that the sample with the post-test values is smaller than the pre-test values, resulting in a negative Z value, signifying an effect before and after the application of the deep breathing relaxation technique in dysmenorrhea among adolescent girls at SMPN 6 Samarinda. This study aligns with the research conducted by (Reni Trivia, 2021) titled "The Influence of Deep Breathing Relaxation Technique on the Reduction of Dysmenorrhea Pain in Nursing DIII Students." The research produced results with a statistical test p-value of 0.041 (< 0.05), suggesting an influence between dysmenorrhea pain before and after the intervention of deep breathing relaxation technique. The results of this study are consistent with the findings of (Dewi & Kamidah, 2024; Ibrahim et al., 2020; Mulyani & Astuti, 2024; Prasetyaningsih & Zalmadani, 2023), which demonstrated a significant effect between before and after the application of deep breathing relaxation techniques. This is attributed to the deep breathing relaxation technique’s ability to stimulate the release of endorphins. When an individual achieves a state of complete relaxtion through successful deep breathing exercise, the release of endorphins occurs. Endorphins are released when someone is in a state of complete comfort and relaxation.

The relaxation has demonstrated is effectiveness in allevating pain sensations in individuals dealing with chronic pain. By attaining an optimal state of relaxation, it can diminish muscle tension, alleviate fatigue, and address anxiety, thus preventing heightened levels of pain stimuli. Consistent practice of deep breathing relaxation techniques can instill feelings of comfort. This sense of comfort can ultimately enhance an individual's tolerance to pain. Those with a high pain tolerance are better equipped to adapt to painful experiences and develop effective coping mechanisms(Antari et al., 2021; Aprilia et al., 2022).

CONCLUSION

This study suggests a significant influence of deep breathing relaxation technique on dysmenorrhea pain at SMPN 6 Samarinda.

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