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Effectiveness of Gymnastics Dysmenorrhoea and Deep Breathing Relaxation Techniques to Reduce Mensual Pain in Adolescent Women Indonesia

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Abstract: Menstrual pain is a common issue among adolescent girls, often disrupting their daily activities. To address dysmenorrhea, one effective approach is the use of dysmenorrhea exercises and deep breathing relaxation techniques. This study investigates the effectiveness of these methods in reducing menstrual pain among adolescent girls in Indonesia. Utilizing a quasi-experimental design with a pretest-posttest with control group, the research sampled 210 adolescent girls experiencing menstrual pain, selected through purposive sampling. Data was collected via observation sheets and analyzed using paired sample t-tests and independent t-tests. The findings show that before the dysmenorrhea exercises, most participants experienced moderate pain (63.80%), which decreased to mild pain (74.30%) afterward. Similarly, before the deep breathing technique, most participants had moderate pain (76.20%), which reduced to mild pain (58.10%) post-intervention. Both dysmenorrhea exercises (p-value 0.000) and deep breathing techniques (p-value 0.000) were effective in reducing pain, but dysmenorrhea exercises proved more effective. Adolescent girls are encouraged to regularly perform dysmenorrhea exercises and deep breathing techniques for 30 minutes daily during the week leading up to menstruation to manage menstrual pain effectively.

Keywords: Deep breathing; Exercise dysmenorrhea; Menstrual pain; Relaxation techniques; Young women.

Introduction

Nowadays, the reproductive health of adolescent girls is one of the issues that parents, teachers and health workers, especially midwives, must pay attention to in terms of improving the self-quality of adolescent girls to compete with adolescent boys in the era of globalization (Azward et al., 2021; Feng et al., 2024; Kuptniratsaikul et al., 2023; Li et al., 2024). One of the reproductive health problems experienced by young women which is often considered trivial by teachers and parents is dysmenorrhea (Li et al., 2023; Shi et al., 2023; Zhu et al., 2023). Dysmenorrhea which is often considered fine by parents and teachers, which is basically a very important problem and must be handled immediately, because when a teenager experiences dysmenorrhoea, then the activities of these young women can be disrupted so that the teaching and learning system at school is ineffective and academic grades become poor.

According to WHO data for 2020 figures dysmenorrhoea in the world is very large, on average more than 50% of women in each country experience menstrual pain (dysmenorrhoea) (WHO, 2020). The prevalence of menstrual pain in Asia is approximately (84.2%), with the specific incidence in Northeast Asia being (68.7%), in Middle East Asia being (74.8%), and almost (50.0%) in Northwest Asia. The prevalence in Southeast Asia shows different figures, Malaysia

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estimates that the number of women who experience menstrual pain is (69.4%), Thailand (84.2%) (Parasuraman, 2022).

The impact that occurs if you experience it dysmenorrhoea namely disrupting physical, psychological and social activities (D0, 2018; Faux-Nightingale et al., 2021; Michalsen et al., 2021). UNICEF research conducted in 2018, carried out research with 1402 participants in 16 schools in 4 provinces of Indonesia with results stating that the main reason why young women do not go to school is illness and feeling unwell. Many young women are unable to overcome the symptoms of pain caused by menstruation, such as discomfort due to irritation due to menstruation or itching of the genitals and menstrual pain or dysmenorrhoea.

Dysmenorrhea in young women, it is cramping pain in the lower abdomen before or during the menstrual period experienced by young women. Efforts to overcome dysmenorrhoea can be done by pharmacological and non-pharmacological methods. Pharmacological drugs that are often used are analgesics and anti-inflammatories such as mefenamic acid, ibu profen, and others which are analgesic in nature (Overbury et al., 2023; Pua et al., 2017). Anti-inflammatory drugs that are non-steroidal or non-narcotic in nature can reduce pain, but there are many side effects that are likely to occur when we consume them, such as nausea, vomiting, constipation, anxiety and drowsiness (Atika & Siti, 2022).

Non-pharmacological treatment is environmental management, stimulation and massage, compressing, distraction, relaxation, imagination, and using herbal plants. Other non-pharmacological ways to overcome dysmenorrhoea, including doing gymnastics dysmenorrhoea and deep breathing relaxation techniques (Ma & Guo, 2024). Exercise dysmenorrhoea is a relaxation technique that can be used to reduce pain. This is caused by doing exercise dysmenorrhoea the body will produce endorphin hormones. Endhorpins are produced in the brain and spinal cord. This hormone can function as a natural sedative produced by the brain, causing a feeling of comfort. The degree of pain dysmenorrhoea before being given exercise treatment dysmenorrhoea namely moderate as much as 60.0%, the degree of pain dysmenorrhoea after being given exercise treatment dysmenorrhoea namely light as much as 60.0% so there is an influence of exercise dysmenorrhoea towards reducing pain dysmenorrhoea experienced before and after being given gymnastics treatment dysmenorrhoea in young women with grades p value $0.000 < 0.05$.

Apart from gymnastics dysmenorrhoea, there are also relaxation techniques that can be done, namely by doing deep breathing relaxation techniques. The deep breathing relaxation technique is the technique of taking deep breaths or slow breaths and how to exhale slowly. Apart from taking deep breaths, clients are directed to concentrate (focus attention or thoughts on something) on areas experiencing muscle tension. The deep breathing relaxation had a significant effect on reducing pain intensity dysmenorrhea with value p value $0.004 < 0.05$.

The results of a preliminary study at the Kulafaur Rasyidin Islamic Boarding School in Kubu Raya, West Kalimantan, found that 7 of them had menstrual pain, 7 of them were found at SMPN 8 Kota Serang, 7 of them were found at SMPN 8 Serang City, 7 of them were found to be experiencing menstrual pain, at the Bismillah Islamic Boarding School of Serang Regency, 6 of them were found at the Bismillah Islamic Boarding School of Serang Regency for 10 young women. experiencing menstrual pain, SMP Negeri 2 Kedungwaringin Kab. Bekasi to 10 teenage girls, 6 of them were found to be experiencing menstrual pain, SMP IT Al Jabar Kab. Karawang to 10 teenage girls, 6 of whom were found to have menstrual pain, SMP Negeri 5 Gelumbang, Muara Enim Regency, South Sumatra, to 10 teenage girls, 7 of whom were found to be experiencing menstrual pain, and at SMP 176 Duri Kosambi, West Jakarta, to 10 teenage girls, 7 of whom were found to be experiencing menstrual pain. Matter this can be seen from the UKS statement that often female students who ask permission to enter the dormitory do not participate in learning activities, go home before school time because they experience dysmenorrhoea on the grounds that they are unable to participate in teaching and learning activities. Treatment efforts dysmenorrhoea what some female students do is rub eucalyptus oil on the painful area, then rest in bed and there are also those who don't do anything. Based on the background description above, researchers are interested in conducting research entitled "Effectiveness of Gymnastics Dysmenorrhea and Deep Breathing Relaxation Techniques for Reducing Menstrual Pain in Young Women in Indonesia".

Method

Research The research was conducted in various places, namely at the Kulafaur Rasyidin Islamic Boarding School Kubu Raya West Kalimantan, SMPN 18 Serang City, Bismillah Integrated Islamic Boarding School Serang Regency, SMP Negeri 2 Kedungwaringin Kab. Bekasi, SMP IT Al Jabar Kab. Karawang, SMP Negeri 5 Gelumbang, Muara Enim Regency, South Sumatra and SMP 176 Duri Kosambi, West Jakarta, while the research period was in April-May 2024. The

samples studied were young women who always experienced menstrual pain during menstruation. The method in this research is Quasi Experiment by design pretest-posttest with control group design. The dependent variable in this study is a decrease in menstrual pain, while the independent variable is exercise dysmenorrhoea and deep breathing relaxation techniques (Korkmaz Dayican et al., 2023; Qi et al., 2023; Zingg et al., 2024). The data used is primary data obtained from observations. Data management was carried out using univariate and bivariate methods with different tests in paired and unpaired groups with computer assistance using the SPSS IBM Version 25.0 program which previously carried out normality and homogeneity tests. If the data is normally distributed and homogeneous then parametric tests are used paired sample t-test and T-Test Independent, whereas for data that is not normally distributed and is not homogeneous, the calculation uses a non-parametric test, namely the test wilcoxon and test Mann Whitney.

Result and Discussion

Results

Table 1. Frequency Distribution of Menstrual Pain in Young Women Before and After Doing Gymnastics Dysmenorrhea in Indonesia

Menstrual Pain	Before		After	
	N	%	N	%
No Pain	0	0.00	17	16.20
Mild Pain	21	20.00	78	74.30
Moderate Pain	67	63.80	10	9.50
Severe Pain	17	16.20	0	0.00
Very Severe Pain	0	0.00	0	0.00
Amount	105	100	105	100

Based on the research results in table 1, it is known that 105 young women did gymnastics before *dysmenorrhoea* mostly with moderate pain, 67 people (63.80%). Meanwhile, after doing exercise *dysmenorrhoea* mostly with mild pain as many as 78 people (74.30%).

Table 2. Menstrual Pain in Young Women Before and After Deep Breathing Relaxation Techniques in Indonesia

Menstrual Pain	Before		After	
	N	%	N	%
No Pain	0	0,00	8	7.60
Mild Pain	15	14.30	61	58.10
Moderate Pain	80	76.20	35	33.30
Severe Pain	10	9.50	1	1.00
Very Severe Pain	0	0.00	0	0.00
Amount	105	100	105	100

Based on the research results in table 2, it is known that of the 105 young women before the deep breathing relaxation technique was carried out, the majority had moderate pain, 80 people (76.20%). Meanwhile, after using deep breathing relaxation techniques, the majority had mild pain as many as 61 people (58.10%).

Table 3. Kolmogorov-Smirnov Normality Test Results

Menstrual Pain	P value	a=5%	Information
Dysmenorrhoea exercise			
Before	0.081	Bigger	Normal
After	0.121	Bigger	Normal
	Deep breathing relaxation techniques		
Before	0.114	Bigger	Normal
After	0.102	Bigger	Normal

Based on Table 3, the results show that the normality test results using *Kolmogorov-Smirnov* found the sig number. greater than 0.05 (sig > 0.05) for menstrual pain in young women before and after doing exercise *dysmenorrhoea* and before and after deep breathing relaxation techniques. Based on the normality test results, it turns out that the data is normally distributed.

Table 4. Homogeneity Test Results

Menstrual Pain	Say	Information
Before	0.66	Homogeneous
After	0.65	Homogeneous

Based on Table 4, the results of the homogeneity test for menstrual pain in young women after treatment, the results were significantly greater than 0.05 (sig > 0.05), thus the data partly had homogeneous variants. Because the data is homogeneous and normally distributed, the method used is a parametric statistical method using the paired sample t-test and independent t test.

Table 5. Effectiveness of Dysmenorrhea Exercise in Reducing Menstrual Pain in Young Women in Indonesia

Menstrual Pain	Mean	Mean Difference	p value
Before	4.67	3.14	0,00
After	1.53		

Based on the research results in table 5, it is known that menstrual pain occurs in young women before doing exercise *dysmenorrhoea* average = 4.67 and after doing exercise *dysmenorrhoea* average = 1.53 so we get an average difference of 3.14. Test results *paired sample t-test* The significance value is known before and after the exercise *dysmenorrhoea* equal to 0.000 < 0.05, it can be

concluded that Ho is rejected and Ha is accepted, thus it can be concluded that there is effectiveness of dysmenorrhoea exercises in reducing menstrual pain in young women in Indonesia.

Table 6. Effectiveness of Deep Breathing Relaxation Techniques in Reducing Menstrual Pain in Young Women in Indonesia

Menstrual Pain	Mean	Mean Difference	p value
Before	4.86	1.88	0.000
After	2.98		

Based on the research results, it is known that menstrual pain in young women before the deep breathing relaxation technique was carried out, the average was = 4.86 and after the deep breathing relaxation technique was carried out the average was = 2.98, so an average difference of 1.88 was obtained. Test results *paired sample t-test* It is known that the significance value before and after after the deep breathing relaxation technique is 0.000 <0.05, so it can be concluded that Ho is rejected and Ha is accepted, thus it can be concluded that there is effectiveness of the deep breathing relaxation technique in reducing menstrual pain in young women in Indonesia.

Discussion

Menstrual Pain in Young Women Before and After Doing Gymnastics Dysmenorrhea in Indonesia

Based on the research results, it can be seen from 105 young women before doing gymnastics dysmenorrhoea mostly with moderate pain, 67 people (63.8%). Meanwhile, after doing exercise dysmenorrhoea mostly with mild pain as many as 78 people (74.3%). Menstrual pain in young women before doing exercise dysmenorrhoea average = 4.67 and after doing exercise dysmenorrhoea average = 1.53 so we get an average difference of 3.14. The teenager dysmenorrhoea will experience cramps in the lower abdomen due to strong and prolonged contractions of the uterine wall resulting in muscle fatigue, so exercise is needed dysmenorrhoea to get rid of the cramps. Exercise dysmenorrhoea is an exercise that focuses on helping stretch the abdominal, pelvic and waist muscles, apart from that, this exercise can provide a gradual relaxing sensation and reduce pain if done regularly (Gornitzky & Diab, 2021; Ithamar et al., 2018; Prasanna Venkatesh & Vandhana, 2022). This exercise is designed to increase muscle strength, endurance and muscle flexibility so that it can decrease dysmenorrhoea. Women who exercise at least once a week can reduce the intensity of pain and discomfort in the lower abdomen. Women who are physically active are reported to reduce the incidence dysmenorrhoea. This is due to the hormone endorphin which functions as a natural sedative, thus causing a feeling of comfort. Beta-endorphin triggers further processes, including strengthening the body's immunity and increasing memory and stamina, and even has an analgesic effect (pain reliever).

In line with the results of Hermaniati & Anggraini, (2023) research, the results show that the intensity of menstrual pain before doing exercise dysmenorrhoea mostly with moderate pain (6.7%) and afterward mild pain (53.3%). The pain dysmenorrhoea before being given exercise treatment dysmenorrhoea namely moderate as much as 60.0%, the degree of pain dysmenorrhoea after being given exercise treatment dysmenorrhoea which is light as much as 60.0%. According to researchers' assumptions, there is a decrease in menstrual pain in young women after doing exercise dysmenorrhoea, this is caused by doing exercise dysmenorrhoea then it can help stretch the abdominal, pelvic and waist muscles. If there is stretching around the abdominal, pelvic and waist muscles, the blood vessels will widen, resulting in a process of narrowing of the blood vessels which causes menstrual pain caused by a lack of oxygen supply, especially in the uterus, which will widen so that oxygen can enter the stomach, pelvis and waist. so that the feeling of menstrual pain experienced by young women has decreased (Paris-Alemany et al., 2018; Varangot-Reille et al., 2022).

If you look at it overall, there are three places that experience a decrease in menstrual pain more than other places after doing exercise dysmenorrhoea namely at the Kulafaur Rasyidin Kubu Raya Islamic Boarding School, West Kalimantan, SMPN 18 Serang City and at SMP 176 Duri Kosambi West Jakarta where they experienced a decrease in menstrual pain with an average difference of 3.14. This happens because of the exercise process dysmenorrhoea carried out together in one room so that they can chat with each other and exchange ideas which makes them feel not alone and motivate each other. There is exercise dysmenorrhoea What is done together makes them more regular in carrying out these gymnastic actions (Popa & Dobrescu, 2014; Punga et al., 2023). This is what makes gymnastics dysmenorrhoea can reduce menstrual pain through exercise dysmenorrhoea it can release endorphins which function as a sedative, causing a feeling of comfort. Apart from that, through exercise dysmenorrhoea makes the muscles, especially in the reproductive organs such as the pelvis, waist and abdomen, less stiff and relaxed and can increase the body's endurance. Meanwhile in other areas such as the Bismillah Integrated Islamic Boarding School, Serang Regency, SMA Negeri 1 Kedungwaringin, Bekasi Regency, Buana Perjuangan University, Karawang, SMP Negeri 5

Gelumbang, Muara Enim Regency, South Sumatra, although the exercise process is carried out together, it is sometimes done alone. -on your own, especially if there is no encouragement from parents to do gymnastics dysmenorrhoea, making it irregular for some young women to do it so that the decrease in the pain scale is not too much. Looking at these results, it would be good if parents had good knowledge of how to deal with menstrual pain, one of which is by doing exercise dysmenorrhoea so that you can find out the benefits and can provide support to your children who experience menstrual pain to do dysmenorrhoea exercises regularly in the week before menstruation for around 30 minutes every day.

Menstrual Pain in Adolescent Girls Before and After Deep Breathing Relaxation Techniques in Indonesia

Based on the research results, it can be seen that of the 105 young women in Indonesia before the deep breathing relaxation technique was carried out, the majority had moderate pain, 80 people (76.20%). Meanwhile, after using deep breathing relaxation techniques, the majority had mild pain as many as 61 people (58.10%). Menstrual pain in young women before the deep breathing relaxation technique was carried out, the average = 4.86 and after the deep breathing relaxation technique was carried out the average = 2.98, so an average difference of 1.88 was obtained. Menstrual pain can interfere with activities and requires treatment which is characterized by pain or soreness in the abdominal or pelvic area. The deep breathing relaxation technique is carried out within 3 days of the first day of menstruation until the 3rd day of menstruation. The deep breathing relaxation technique carried out for 15 – 30 minutes can generally relax the body, providing a feeling of comfort so that the intensity of the pain felt gradually disappears (Andarmoyo, 2020). Relaxation techniques are the act of relaxing skeletal muscles which are believed to reduce pain by relaxing muscle tension that supports pain. Relaxation techniques are also an action to free the mental and physical from tension and stress, so that it can increase tolerance to pain (Prasetyo, 2020).

Based on dysmenorrhea pain pre test the majority of respondents experienced moderate pain, 68.8%, based on dysmenorrhea pain post test the majority of respondents experienced mild pain, 56.2%. Likewise with the results of Atika & Siti (2022) based on the results literature review shows that deep breathing relaxation interventions can help overcome the problem of dysmenorrhoea. Deep breathing relaxation can reduce or eliminate pain, increase peace of mind and reduce feelings of anxiety. According to the researchers' assumption, there was a decrease in menstrual pain in young women after being given deep breathing relaxation technique intervention. This was caused by the intervention carried out, namely abdominal breathing with a slow and rhythmic frequency, resulting in relaxation or release of tension, especially in the abdomen. This condition can relax muscle tension, especially in the abdomen, so that menstrual pain in young women decreases. If we look at the difference in decreasing menstrual pain after being given the deep breathing relaxation technique intervention, overall various regions experienced a decrease in menstrual pain with an average difference between 1.73 to 1.94, only one region experienced a significant decrease of around 2.2. namely at SMPN 18 Serang City. This is because the menstrual pain that they often experience disrupts the learning process.

Through the deep breathing relaxation technique, it is hoped that it can reduce menstrual pain, making them focus on doing this technique so that when they experience menstruation, they often experience menstrual pain. decrease. Different conditions occurred at the Kulafaur Rasyidin Islamic Boarding School in Kubu Raya, West Kalimantan, the Bismillah Islamic Boarding School in Serang Regency, SMP Negeri 2 Kedungwaringin, Bekasi Regency, SMP IT Al Jabar, Karawang Regency, SMP Negeri 5 Gelumbang, Muara Enim Regency, South Sumatra, and SMP 176 Duri Kosambi. West Jakarta with an average of less than 2, this is because when doing the deep breathing relaxation technique it is not carried out seriously so that the process of reducing menstrual pain is not too much. The anxiety experienced by young women, the large number of activities that must be carried out, supported by a lack of internal motivation, and the absence of support from external parties such as parents mean that the deep breathing relaxation technique is not carried out seriously and routinely so that success in reducing menstrual pain is not very Lots.

Effectiveness of Gymnastics Dysmenorrhea on reducing menstrual pain in young women in Indonesia

Based on the research results in table 5.21, it is known that menstrual pain occurs in young women before doing exercise dysmenorrhoea average = 4.67 and after doing exercise dysmenorrhoea average = 1.53 so we get an average difference of 3.14. Test results paired sample t-test The significance value is known before and after the exercise dysmenorrhoea equal to 0.000 < 0.05, it can be concluded that Ho is rejected and Ha is accepted, thus it can be concluded that there is effectiveness of dysmenorrhoea exercises in reducing menstrual pain in young women in Indonesia.

Menstrual pain is an imbalance of the hormone progesterone in the blood, resulting in abdominal pain

caused by uterine muscle spasms, usually at the same time as the pain occurs, dizziness, nausea, vomiting can even occur. Exercise dysmenorrhoea is one way to reduce pain due to menstruation without using painkillers or analgesics. Gymnastics exercises dysmenorrhoea able to increase the production of endorphins (natural pain killers in the body), and can increase serotonin levels. The endorphin hormone functions as a natural sedative, causing a feeling of comfort. Beta-endorphin triggers further processes, including strengthening the body's immunity and increasing memory and stamina, and even has an analgesic effect (pain reliever). This exercise or gymnastics does not require expensive costs, is easy to do and of course does not cause dangerous side effects for the body (Antari et al., 2021).

In line with the results of research by Hermaniati & Anggraini, (2023), the results show that there is effectiveness of exercise dysmenorrhoea on reducing menstrual pain in adolescent girls (p. value 0.000). Likewise the results of Anurogo & Wulandari (2021) showed that there was an effect of dysmenorrhoea exercise on reducing dysmenorrhoea pain experienced before and after being given exercise treatment. dysmenorrhoea in class X teenage girls at Jamaah Pasrah Pati Vocational School, with grades p value 0.000 < 0.05. The results of further research in the literature review show that overall it is known that there is an effect after doing exercise dysmenorrhoea towards respondents who experienced it dysmenorrhea (Di Lorito et al., 2020; Martins Rodrigues et al., 2024; Mueller et al., 2024). According to researchers' assumptions, there is the effectiveness of exercise dysmenorrhoea on menstrual pain in young women, this is caused by exercise dysmenorrhoea then it can help stretch the abdominal, pelvic and waist muscles so that oxygen can enter them. This condition can increase serotonin levels and increase endorphin production so that pain is reduced, especially through exercise dysmenorrhoea Apart from the abdominal, pelvic and waist muscles, other body organs also move, causing relaxation throughout the body which causes the body's endurance to become stronger and increases stamina (Blazev et al., 2022; Hutchison et al., 2023; Paganelli et al., 2022).

Overall, the most effective exercise is dysmenorrhoea towards reducing menstrual pain, namely at the Kulafaur Rasyidin Islamic Boarding School Kubu Raya West Kalimantan, SMPN 18 Serang City and at SMP 176 Duri Kosambi West Jakarta where they experienced a decrease in menstrual pain with an average difference of 3.14. This happens because of the exercise process dysmenorrhoea carried out together in one room so that they can chat with each other and exchange ideas which makes them feel not alone and motivate each other. There is exercise dysmenorrhoea what is done together makes them more regular in carrying out these gymnastic actions. This is what makes gymnastics dysmenorrhoea can reduce menstrual pain through exercise dysmenorrhoea it can release endorphins which function as a sedative, causing a feeling of comfort. Apart from that, through exercise dysmenorrhoea makes the muscles, especially in the reproductive organs such as the pelvis, waist and abdomen, less stiff and relaxed and can increase the body's endurance. Meanwhile in other areas such as the Bismillah Integrated Islamic Boarding School, Serang Regency, SMA Negeri 1 Kedungwaringin, Bekasi Regency, Buana Perjuangan University, Karawang, SMP Negeri 5 Gelumbang, Muara Enim Regency, South Sumatra, although the exercise process is carried out together, it is sometimes done alone. -on your own, especially if there is no encouragement from parents to do gymnastics dysmenorrhoea, making it irregular for some young women to do it so that the decrease in the pain scale is not too much. Looking at these results, it would be good if parents had good knowledge of how to deal with menstrual pain, one of which is by doing exercise dysmenorrhoea so that you can find out the benefits and can provide support to your children who experience menstrual pain to do dysmenorrhoea exercises regularly in the week before menstruation for around 30 minutes every day.

Effectiveness of Deep Breathing Relaxation Techniques in Reducing Menstrual Pain in Adolescent Girls in Indonesia

Based on the research results, it is known that menstrual pain in young women before the deep breathing relaxation technique was carried out, the average was = 4.86 and after the deep breathing relaxation technique was carried out the average was = 2.98, so an average difference of 1.88 was obtained. Test results paired sample t-test It is known that the significance value before and after after the deep breathing relaxation technique is 0.000 <0.05, so it can be concluded that Ho is rejected and Ha is accepted, thus it can be concluded that there is effectiveness of the deep breathing relaxation technique in reducing menstrual pain in young women in Indonesia.

Deep breathing relaxation activities create the sensation of releasing discomfort and stress (Carreño et al., 2023; Foster Vander Elst et al., 2023; Ranasinghe et al., 2023). 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. The aim of deep breathing relaxation

techniques is to increase alveolar ventilation, maintain gas exchange, prevent lung atelectasis, increase cough efficiency, reduce stress, both physical and emotional stress, namely reducing pain intensity and reducing anxiety (Anurogo & Wulandari, 2021).

There are differences in average pain dysmenorrhoea respondents after being given deep breathing relaxation technique intervention was 0.250. Statistical test results were obtained p value 0.041, meaning there is an influence between menstrual pain before and after being given deep breathing relaxation technique intervention. The results literature review shows that deep breathing relaxation interventions can help overcome the problem of dysmenorrhoea. Deep breathing relaxation can reduce or eliminate pain, increase peace of mind and reduce feelings of anxiety. The results of further research were carried out by the results of a literature study reveal that the effectiveness of deep breathing relaxation as a preventive measure can reduce the scale of dysmenorrhea pain with the average research results P-value = 0.000 which means $\alpha < 0.05$. Conclusion: The effectiveness of deep breathing relaxation can reduce pain intensity dysmenorrhoea primary care in adolescent girls.

According to the researchers' assumption that the effectiveness of the deep breathing relaxation technique for menstrual pain in young women, this is due to the intervention carried out, namely the act of inhaling which is focused on the abdomen with a slow and rhythmic frequency so that there is relaxation or release of tension, especially in the abdomen. This condition causes the entry of oxygen into the stomach and brain to stimulate the release of endorphins, which are hormones of happiness, causing pain to decrease. The process of reducing menstrual pain can be seen from the difference in decreasing menstrual pain after being given deep breathing relaxation technique intervention. Overall, various regions experienced a decrease in menstrual pain with an average difference of between 1.73 to 1.94, only one area experienced a significant decrease. the number is around 2.20, namely at SMPN 18 Serang City. This is because the menstrual pain that they often experience disrupts the learning process (Anca, 2014; Elkins, 2023; Katz & Barbosa, 2024; Yu et al., 2023). Through the deep breathing relaxation technique, it is hoped that it can reduce menstrual pain, making them focus on doing this technique so that when they experience menstruation, they often experience menstrual pain. decrease. Different conditions occurred at the Kulafaur Rasyidin Islamic Boarding School in Kubu Raya, West Kalimantan, the Bismillah Islamic Boarding School in Serang Regency, SMP Negeri 2 Kedungwaringin, Bekasi Regency, SMP IT Al Jabar, Karawang Regency, SMP Negeri 5 Gelumbang, Muara Enim Regency, South Sumatra, and SMP 176 Duri Kosambi. West Jakarta with an average of less than 2, this is because when doing the deep breathing relaxation technique it is not carried out seriously so that the process of reducing menstrual pain is not too much. The anxiety experienced by young women, the large number of activities that must be carried out, supported by a lack of internal motivation, and the absence of support from external parties such as parents mean that the deep breathing relaxation technique is not carried out seriously and routinely so that success in reducing menstrual pain is not very Lots**.**

Conclusion

Menstrual pain in young women in Indonesia before doing exercise dysmenorrhoea mostly with moderate pain as much as 63.80% and after with mild pain as much as 74.30%. Menstrual pain in young women in Indonesia before the deep breathing relaxation technique was carried out mostly with moderate pain as much as 76.20% and after with mild pain as much as 58.10%. There is the effectiveness of exercise dysmenorrhoea on reducing menstrual pain in young women in Indonesia with a value of p = 0.000. There is effectiveness of deep breathing relaxation techniques in reducing menstrual pain in young women in Indonesia with a value of p = 0.000.

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Author Contributions

The following statements should be used Conceptualization NA, ARS, RH, RJ, LKH, OK, S, ABR contributed to the data collection process, data processing, article writing.

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Conflicts of Interest

The authors declare no conflict of interest.

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