

Research Article

The Effect of Relaxation Techniques in Reducing Dysmenorrhea in Adolescents

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Abstract. Dysmenorrhea is a lower abdominal pain that occurs before menstruation or during a menstrual period. To overcome dysmenorrhea non-pharmacologically, one technique is deep breathing relaxation. This technique can reduce dysmenorrhea in adolescents because it can relax the body and provide a sense of comfort so that the intensity of the pain felt gradually disappears. This study's purpose was to analyze the effect of the deep breathing relaxation technique on reducing dysmenorrhea in adolescents. This was a literature review, and articles were found through Google Scholar and Garuda Dikti. The results of the five articles that were identified showed that, before the breathing relaxation technique was carried out, the majority of adolescents experienced moderate pain; then after it was carried out, the majority of adolescents experienced a decrease in pain to mild; there were additional adolescents who did not feel any pain. These changes were significant (shown by p-values < 0.05). It can therefore be concluded that deep breathing relaxation can help to decrease dysmenorrhea in adolescents. Changes can be seen when the technique is practiced for 5-30 minutes.

Keywords: deep breathing relaxation, dysmenorrhea, adolescents

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Published: 7 February 2022

Publishing services provided by Knowledge E

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Selection and Peer-review under the responsibility of the IVCN Conference Committee.

1. Introduction

Dysmenorrhea is a stabbing pain that is felt in the lower abdomen and thighs due to an imbalance of the hormone progesterone in the blood, causing pain to arise. In general, pain is usually felt below the stomach occurs on the first and second day of menstruation. The pain will decrease after a lot of blood comes out [1].

According to the World Health Organization (WHO), the incidence of dysmenorrhea is quite high throughout the world. The average incidence of dysmenorrhea in young women is between 16.8% - 81%. On average in European countries, dysmenorrhea occurs in 45-97% of women. With the lowest prevalence in Bulgaria (8.8%) and the highest reaching 94% in Finland [2]. In the United States, Klein and Litt reported the prevalence of dysmenorrhea was 59.7% and in Sweden, it was around 72% [3]. In Indonesia, the incidence of dysmenorrhea is 64.25%, consisting of 54.89% primary

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dysmenorrhea and 9.36% secondary dysmenorrhea [4]. 60-90% of adolescents often complain of dysmenorrhea, with three-quarters of these adolescents experiencing mild to severe pain [5]. If dysmenorrhea is not treated immediately, it can impact the activities or activities of women, especially adolescents. Women cannot function normally and require treatment or prescription drugs. From 30-60% of women who experience dysmenorrhea, as many as 7-15% do not go to school or work [5].

The interventions to reduce dysmenorrhea are pharmacological and non-pharmacological. In overcoming dysmenorrhea, non-pharmacologically, one of them is by using deep breathing relaxation techniques [4]. The technique to do deep breathing relaxation, slow breaths (hold inspiration maximally), and to exhale slowly. Deep breathing relaxation techniques can reduce pain intensity, increase pulmonary ventilation and increase blood oxygenation. Other benefits obtained, namely, peace of mind, and reduced anxiety, are also practical in performing these deep breathing relaxation techniques [4]. This study aimed to conduct a literature review of the effect of deep breathing relaxation techniques on the reduction of dysmenorrhea in adolescents.

2. Research methods

2.1. Design

The design of this study used the literature review method or literature study with the type of literature review in the form of a traditional review. The data collected in this study were from the results of research that has been carried out and published in national and international online journals published on the internet using Google Scholar and Garuda Dikti.

2.2. Data collection

The criteria for the journal being reviewed were journal articles with adolescent subjects dealing with deep breathing relaxation techniques to decrease dysmenorrhea with a period of journal publishing in 2010-2020, then screening, viewing abstracts, then reading full-text articles. So that we get 5 full text journals that match the keywords and research inclusion criteria.

2.3. Inclusion criteria

this study were a subject of adolescents aged 11-24 years with primary dysmenorrhea, the theme of the journal is the effect of deep breathing relaxation techniques on reducing dysmenorrhea in adolescents, Indonesian language, and the type of journal original research articles (not research reviews) available in full text. The exclusion criteria for this study were adolescent subjects over 24 years of age or adult age, the theme of the journal providing therapy other than deep breathing relaxation techniques to decrease dysmenorrhea in adolescents, foreign languages, and the type of journal not available full text and unpublished journals.

2.4. Data Analysis

Research journals that matched the inclusion criteria were then collected and summarized in the form of journals and were classified in the tabular form includes the name of the researcher, the year of publication of the journal, the title of the study, the method, summary of the results, or findings then sorted according to the year of publication of the journal. The summary of the journal were analyzed based on the contents contained in the research objectives and research results/findings. The method of analysis used was the journal content, and then the coding was carried out on the contents of the journal, after that, the discussion of the journal to be reviewed was then concluded.

3. Result

The article from this literature review research resulted from a search for journals on Google Scholar and Garuda Dikti with the keywords Deep Breathing Relaxation Technique, Dysmenorrhea, and Adolescents the author finds 571 journals that matched these keywords. The author conducted a selection of journals in the last 10 years and obtained 480 journals. A total of 84 journals from journals that were obtained according to the search keywords were then screened, 39 journals were excluded because full text was not available. A feasibility assessment of 45 full-text journals was carried out. Journals that were published and did not meet the inclusion criteria were excluded as many as 40 journals. So that 5 full text journals were obtained according to the keywords and inclusion criteria that were reviewed for this study.

Based on 5 journals that were reviewed, there were significant differences before and after being given deep breathing relaxation techniques in adolescents with dysmenorrhea. The first journal, research conducted by Siregar et al. (2015)[6] with a sample of adolescents aged 15-19 years with primary dysmenorrhea were given deep breathing relaxation techniques for 5-10 minutes. Before giving the deep breathing relaxation technique, respondents who felt the intensity of light pain were (13.33%), moderate pain (53.33%), and severe pain (33.34%). After giving deep breath relaxation techniques, respondents who felt the intensity of mild pain increased to (76.67%), moderate pain (23.33%), and (0%) respondents who felt severe pain intensity. The results of the analysis showed that there was a difference in the average value of pain intensity before and after treatment of 2.93. From the results of statistical tests obtained P-value = $0.001 < 0.05$ which means there is a significant difference before and after the intervention,

The second study was conducted by Aningsih et al. (2018)[7] obtained the results that respondents who experienced dysmenorrhea in this study aged 19-24 years experienced primary dysmenorrhea. Before being given deep breathing relaxation techniques (43.5%) respondents experienced mild pain, moderate pain (39.1%), severe pain (13.0%), and (4.3%) respondents experienced very severe pain. After being given a deep breathing relaxation technique for 15 minutes, the respondents who did not experience pain were as much as 21.7%. While the number of respondents who experienced mild pain and moderate pain was the same as (34.8%) and (8.7%) respondents who experienced severe pain. The results of the statistical test showed that there was a significant difference between before and after being given a deep breathing relaxation technique for dysmenorrhea, it was found that the p-value = $0.001 (p < 0.05)$.

The third study was conducted by Silviani et al. (2019) [8] obtained the results that (12.5%) of respondents experienced mild pain, (68.8%) experienced moderate pain, and (18.8%) experienced severe pain before deep breathing relaxation techniques. After doing deep breathing relaxation techniques as many as (33.3%) respondents did not experience pain, (35.4%) mild pain, and (31.2%) experienced moderate pain. Respondents in this study were aged 17-19 years with primary dysmenorrhea. Based on the results of statistical tests, the P-value = $0.000 < 0.05$ means that there is a significant difference between dysmenorrhea before and after deep breathing relaxation techniques, so it can be stated that deep breathing relaxation techniques can affect dysmenorrhea.

The fourth study was conducted by Suaib (2019) [9] obtained the results of statistical tests which showed that there was an effect of deep breathing relaxation techniques on the reduction of dysmenorrhea in adolescents, the p-value was 0.0001, which means $< \alpha$

0.05. The results also showed a decrease in the average dysmenorrhea before and after the intervention by as much as 2.52 points. Respondents in this study were adolescents aged 15-19 years who experienced primary dysmenorrhea. Before the intervention, as many as (92.59%) of respondents felt moderate pain and (7.40%) mild pain. After being given intervention with a time of 30 minutes (22.22%) respondents experienced moderate pain and experienced a decrease in pain scale to mild (48.14%) respondents. In addition, there was also an increase in respondents who did not experience pain as much as (29.63%).

The fifth study was conducted by Indasari et al. (2020)[10] found that there was an effect of giving deep breathing relaxation techniques to dysmenorrhea in adolescents in terms of before giving deep breathing relaxation techniques (17.7%) respondents experienced mild pain, moderate pain (62.3%) and severe pain (20%). Meanwhile, after giving the deep breathing relaxation technique (11%) respondents did not experience pain, (42.2%) mild pain, (35.6%) moderate pain and some additional respondents did not feel pain (11.1%) meaning the technique deep breath relaxation is effective in reducing dysmenorrhea. Respondents in this study were mostly teenagers aged 15-18 years with primary dysmenorrhea and the time of giving deep breathing relaxation techniques was 15 minutes. Statistical test results obtained p value 0.000 with standard deviation = 0.05, p value <0.05, then there is a significant effect of giving deep breathing relaxation techniques to decrease dysmenorrhea in adolescents.

4. Discussion

Based on the five reviewed journals, the characteristics of the respondents in each study were young women with primary dysmenorrhea. In research Silviani et al. (2019) [8] explained that dysmenorrhea is the most common thing experienced by women who have stepped into adolescence. Adolescent who often experience anxiety and restlessness can increase levels of prostaglandins in the body which can increase pain. In addition, dysmenorrhea that occurs can be caused by a person's emotional state. In research according to [11], explained that in emotionally unstable adolescents, especially if they do not get good information about the menstrual process, it is easy for dysmenorrhea to occur. The unpreparedness of young women in dealing with their development and growth results in psychological disorders which eventually cause physical disorders, such as menstrual disorders such as dysmenorrhea.

From the literature review, it was found that the age of adolescents was in the range of 15-24 years. This is under research Suaib (2019) [9], said that one of the factors that

cause dysmenorrhea is age. Primary dysmenorrhea is more commonly found in the age range of 15-25 years. This is in line with research according to [12] at the age of 15-25 years, there is an optimization of uterine nerve function so that the secretion of prostaglandins increases, which eventually causes pain that is felt a few days before menstruation and during menstruation which is called primary dysmenorrhea.

According to, research Noviani & Puspitasari (2017) [13] showed that respondents aged 15-25 years had a risk of 0.013 times more frequent primary dysmenorrhea than respondents aged 26-30 years. The older a person is, the more often he experiences menstruation, and the wider the cervix, the less prostaglandin hormone secretion. In addition, primary dysmenorrhea will eventually disappear with the decline in uterine nerve function due to aging [11].

The five journals found that there was a significant effect on the intervention of deep breathing relaxation techniques on dysmenorrhea with a P-value <0.05 . In research journals according to [14], the deep breathing relaxation technique is a type of non-pharmacological therapy that is done by breathing deeply and slowly through the nose (holding inspiration maximally) and exhaling slowly through the mouth. According to [15], this technique is proven to reduce pain intensity by relaxing skeletal muscles that experience spasms caused by an increase in prostaglandins, resulting in vasodilation of blood vessels and increasing blood flow to areas experiencing spasms and ischemia.

Deep breathing relaxation techniques create a sensation of releasing discomfort and stress. Gradually, teenagers who experience dysmenorrhea can relax muscles without having to first tense the muscles. When adolescents with dysmenorrhea reach full relaxation, the intensity of pain decreases. Deep breathing relaxation techniques can stimulate the body to release endogenous opioids so that a pain suppression system is formed which will eventually cause a decrease in pain intensity. [16]

The effect of deep breathing relaxation techniques on reducing dysmenorrhea in adolescents has been proven in research Siregar et al. (2015) [6], that before the deep breathing relaxation technique was carried out the majority of 53.33% of respondents felt moderate pain, while after being given deep breath relaxation for at least 5 minutes, the majority of 76.67% of respondents felt mild pain intensity and no more felt severe pain. In research Suaib (2019) [9] also proved that before the deep breathing relaxation technique was carried out as many as 92.59% of respondents experienced moderate pain, then after being given breath relaxation in 30 minutes it was found that 48.14% of respondents experienced mild pain and there was also an increase in those who did not experience menstrual pain 29.63% of respondents. Based on this study, deep breathing relaxation techniques can be done with a minimum time of 5 minutes to 30

minutes because in that time it can already provide a decrease in dysmenorrhea in adolescents.

5. Conclusion

Based on the results of research from 5 journals that have been reviewed, it can be concluded that there are significant changes before and after deep breathing relaxation techniques to decrease dysmenorrhea in adolescents. Before the deep breathing relaxation technique was carried out, the majority of adolescents experienced moderate pain, then after the deep breathing relaxation technique, the majority of adolescents experienced a decrease in pain to be mild. Adolescents from 5 reviewed journals were in the age range of 15-24 years who experienced primary dysmenorrhea. The results of statistical tests from 5 reviewed journals obtained a p-value <0.05, this indicates the effect of deep breathing relaxation techniques on dysmenorrhea in adolescents.

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