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The effectiveness of acupressure using aromatherapy to reduce dysmenorrhea pain at teenager student

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Abstract

One of the complaints during menstruation is dysmenorrhea. As many as 90% of adolescent girls worldwide experience menstrual problems and more than 50% of menstruating women experience primary dysmenorrhea. Another way of healing to reduce the symptoms of dysmenorrhea in addition to pharmacological therapy is by giving acupressure and aromatherapy. This research method is Quasi Experimental Design with Nonequivalent Control Group Design, 60 sample. The treatment group was given acupressure therapy using lemon essential oil aromatherapy at points LI 11, LI 4, dan ST 36 on day 1-2 menstruation, the control group was given acupressure therapy without using aromatherapy. Then do the post test. The results of statistical analysis using Mann Whitney revealed that the p value: 0.000 is smaller than (0.05), it can be concluded that there is an effect of acupressure using aromatherapy on dysmenorrhea. Acupressure using aromatherapy is effective to treat dysmenorrhea in adolescents. The results of this study are expected to be one of the methods that can be used in the practice of midwifery services. It is hoped that further researchers will carry out other non-pharmacological treatments to overcome dysmenorrhea

Keywords: acupressure; aroma therapy; dysmenorrhea

INTRODUCTION

Dysmenorrhea is one of the problems commonly encountered with symptoms obtained due to pelvic pain, daily activities can be hampered. History and physical examination, including pelvic examination in patients who have had sex, can be used as sources of information on the causes of menstrual pain. (Osayande & Mehulic, 2014). Menstrual pain is encountered during menstruation in all women of all ages, starting during adolescence with varying incidence (16.8% to 81%), and rates as high as 90% have been recorded, symptoms of menstrual pain can interfere with daily activities. (Osayande & Mehulic, 2014).

Pain in dysmenorrhea may occur due to increased secretion of prostaglandins in menstrual blood, which increases the intensity of normal uterine contractions. Prostaglandins strengthen myometrial smooth muscle contractions and constrict uterine blood vessels so that uterine hypoxia that normally accompanies menstruation will increase in weight (Cholifah & Hadikasari, 2016). Handling of dysmenorrhea so far has been more about giving pharmacological therapy, such as giving analgesics. Analgesic drugs can cause tolerance, dependence and withdrawal symptoms. Another way of healing to reduce the symptoms of dysmenorrhea besides pharmacological therapy is by giving acupressure and aromatherapy (Prihatin, 2019).

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One of the effects of suppressing acupressure points can increase levels of endorphins which are useful as pain relievers produced by the body in the blood so that it is expected to reduce pain during menstruation (Hasanah, 2014). According to the concept in acupressure that a person experiences impaired bodily functions when there is an imbalance in his body. To restore this unbalanced condition, a certain number of meridian points according to the disturbance, need to be triggered by pressing (Panggabean, 2019). Aromatherapy is a form of alternative medicine using volatile plant materials, widely known in the form of essential oils and various other forms that aim to regulate cognitive function, mood, and health (Dewi & Purwoko, 2016).

This research is also based on research by Lakhan et.al which states that the use of essential oils derived from plants in aromatherapy which is absorbed by the body directly by the skin or through inhalation can be a cure in terms of physical and psychological problems as well as Gattefosse explained that aromatherapy is one of the herbal treatments has been popular all over the world that can reduce problems in the body system. (Lakhan et al., 2016). The results of the study stated that there were two research groups in women who experienced menstrual pain, the intervention group was given massage and aromatherapy while the control group was given pain relievers, the results showed that in the intervention group pain was reduced compared to the control group (Hur et al., 2012).

Marzouk's research, which is in line with this study, stated that there was a trial between the placebo and the aromatherapy group, where the placebo group was massaged but not given aromatherapy, the results of the group with aromatherapy getting better results than the control group. (Marzouk et al., 2013). Other studies also mention that the management to reduce menstrual pain is by treatment without drugs, namely complete rest, exercise, warm compresses, acupuncture and acupressure. (Chen et al., 2013).

Many studies have examined the reduction of dysmenorrhea pain by using acupressure and aromatherapy. Research conducted by Yeh in 2013 Menstrual pain can be reduced by applying acupressure points to the body (Yeh et al., 2013). Research conducted by Fitria in 2020 also studied the Effect of Acupressure with the Tuina Technique on menstrual pain (dysmenorrhea) (Fitria & Haqqattiba'ah, 2020). Likewise, research by Pangastuti in 2019 discussed the effect of acupressure on the tai chong and guanyuan points on menstrual pain (dysmenorrhea) (Pangastuti & Mukhoirotin, 2019).

Similarly there are several studies that only discuss aromatherapy for Dimenorrhea including Song in 2018 exploring the Effects of aromatherapy against menstrual pain (dysmenorrhea) (Song et al., 2018). Another study that discussed aromatherapy for dysmenorrhea was Rompas in 2019 exploring Menstrual pain can be reduced by applying lemon citrus aromatheraphy. (Rompas & Gannika, 2019). As well as Nursangadah in 2019 who discussed the Effect of Giving Effleurage Massage Using Rose Aromatherapy Oil on menstrual pain (dysmenorrhea) (Nursangadah, 2019).

Researchers want to analyze the benefits of acupressure with aromatherapy in reducing menstrual pain, therefore researchers want to apply in research that giving aromatherapy and acupressure can reduce menstrual pain levels in college students in Faletehan University, Indonesia. The purpose of this study was to determine the effectiveness of acupressure by giving aromatherapy to reduce dysmenorrhea pain levels

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in teenager students. This study has the desired result that the level of menstrual pain in female students can be reduced by the use of acupressure and aromatherapy.

RESEARCH METHODS

The research that will be conducted is quantitative research, with the research design used is Quasi Experimental Design with Nonequivalent Control Group Design. The population of this study were all students of the D3 Midwifery study program, totaling 176 people. The technique used by researchers in taking samples is non-probability sampling (saturated sampling). The samples used were 60 people, 30 people as the experimental group and 30 people as the control group. The samples taken were those who had met the inclusion criteria: female students who were willing to become respondents, students who were menstruating, moderate menstrual pain scale 4 to 6, students who were still actively studying at the DIII Midwifery Study Program, Faculty of Health Sciences, University of Faletehan, did not used another therapy or medication.

The results of the study of how pain felt by respondents using a numerical visual analog scale (VAS). With research instrument numerical rating scale. With details on the pain intensity scale with a range of 0-10 respondents did not feel pain, 1-3 respondents felt mild pain, 4-6 respondents felt moderate pain, 7-9 respondents felt controlled severe pain. Acupressure was carried out by researchers and other acupressure teams who have attended workshops on acupressure and already have a certificate of competence to do acupressure (Funke & Reips, 2012).

Before the intervention, a pre-test was given in the form of an assessment of the dysmenorrhea pain scale. Then the researchers intervened in the treatment group by doing acupressure therapy using lemon essential oil aromatherapy at LI 11, LI4 and ST36 points on days 1-2 of menstruation, while the control group was given treatment in the form of acupressure therapy without using aromatherapy at LI 11, LI4 and ST36 on days 1-2 of menstruation. After that, a post test was carried out to measure the dysmenorrhea pain scale whether there was a difference or not.

The reason for using lemon aromatherapy oil is because lemon aromatherapy can overcome pain and anxiety because it contains linalool which is useful for stabilizing the nervous system so that it can have a calming effect for those who inhale it (Astuti & Rusminah, 2020). The instruments used were lemon essential oil aromatherapy, acupressure checklist and dysmenorrhea pain measurement questionnaire. Univariate data analysis in the form of frequency, bivariate analysis using Mann Whitney nonparametric test.

RESULTS AND DISCUSSION

Table 1 shows that dysmenorrhea in the acupressure and aromatherapy group has changed. Dysmenorrhea in the pretest acupressure and aromatherapy groups received a moderate scale of 10 respondents (33.3%), a controlled weight scale of 14 respondents (46.7%) and an uncontrolled weight scale of 6 respondents (20%). While the posttest in the intervention group of respondents who did not experience pain were 10 respondents (33.3%), mild scale were 14 respondents (46.7%) and moderate scale were 6 respondents (20%).

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Table 1. The Frequency of Dysmenorrhea in the Intervention Group

Dysmenorrhea	Pre Test		Post Test	
	Frequency	Percentage	Frequency	Percentage
No pain			10	33.3
Mild pain			14	46.7
Moderate pain	10	33.3	6	20
Controlled weight	14	46.7		
Uncontrolled weight	6	20		
Total	**30**	**100**	**30**	**100**

Table 2 shows that dysmenorrhea in the in the acupressure and aromatherapy group has changed. Dysmenorrhea in the pretest acupresur group without aromatheraphy received a mild pain scale of 1 respondent (3.3%), a moderate scale of 5 respondents (16.7%), a controlled weight scale of 13 respondents (43.3%), and a severe scale of no controlled by 11 respondents (37%). While the posttest in the control group of respondents who did not experience pain was 1 respondent (3.3%), the mild scale was 5 respondents (16.7%) and the moderate scale was 13 respondents (43.3%), the Controlled weight scale was 10 respondents. (33.3%), and the uncontrolled weight scale was 1 respondent (3.3%).

Table 2. The Frequency of Dysmenorrhea in the Control Group

Dysmenorrhea	Pre Test		Post Test	
	Frequency	Percentage	Frequency	Percentage
No pain			1	3.3
Mild pain	1	3.3	5	16.7
Moderate pain	5	16.7	13	43.3
Controlled weight	13	43.3	10	33.3
Uncontrolled weight	11	37	1	3.3
Total	**30**	**100**	**30**	**100**

Table 3 shows that the results of statistical analysis using Wilcoxon Sign Ranks are known that the p value of 0.000 is not greater than (0.05) so that the results of the study show that there are differences in levels of menstrual pain between before and after the group given acupressure and aromatherapy. so that means that there is an effect of acupressure using aromatherapy on dysmenorrhea in DIII Midwifery students at the University of Faletehan. Indonesia.

Table 3. Results of Data Analysis of Dysmenorrhea in the Intervention Group

Post Tes – Pre Test	N	Mean Rank	Sum of Ranks	Nilai Z	P Value
Negative Ranks	21	12.64	265.50	-3.646	0.000
Positif Ranks	3	11.5	34.5		

Table 4 shows that the results of statistical analysis using Wilcoxon Sign Ranks, it is known that the p value of 0.000 is not greater than (0.05) The results of the study showed that there were differences in the level of menstrual pain between before and after the group given acupressure and aromatherapy, so it could be concluded that there was an effect of acupressure without using aromatherapy on dysmenorrhea in DIII Midwifery students at the University of Faletehan. Indonesia.

Based on the results of statistical analysis using Mann Whitney, it is known that the p value of 0.000 is not greater than 0.05 (Table 5). The results of the study showed that the hypothesis is accepted. Thus it can be said that there is a difference in the pain scale

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of so that temporary results can be obtained that there is an effect of acupressure using aromatherapy on dysmenorrhea in DIII Midwifery students at the University of Faletehan.

Table 4. Results of Data Analysis of Dysmenorrhea in the Control Group

Post Tes – Pre Tes	N	Mean Rank	Sum of Ranks	Nilai Z	P Value
Negative Ranks	30	15,5	465	-4,853	0,000
Positif Ranks	0	0	0		

Table 5. Results of Comparative Data Analysis Between the Intervention Group and the Control Group

Variable	N	Mean Rank	Sum of Ranks	Nilai Z	P Value
Post Test Experimen	30	19.8	594	-4.932	0.000
Post Test Control	30	41.2	1,236		

This study discusses 3 things, the first is about the impact of acupressure on dysmenorrhea, the second is the impact of aromatherapy on dysmenorrhea and the third combines the two about the impact of acupressure using aromatherapy on dysmenorrhea.

1. The Effect of Acupressure on Dysmenorrhea

Research conducted in 2019 by Haijun Hwang et al, in China showed that acupuncture was shown to be associated with a significant reduction in pain intensity in primary dysmenorrhea symptoms compared to ibuprofenBased on the results of the study, acupuncture was associated with a decrease in pain symptoms of menstrual pain than using ibuprofen in the control group ($p < 0.05$), respondents said there was no impact on both groups (H. Wang et al., 2019).

The LI4 point is used in problems of blood circulation and stopped energy. Qi in the language of acupressure is energy.An acupuncture management flow was implemented which included manual pushing on fixed acupuncture points including Zhibian (BL54) and Shuidao (ST28) and individual acupuncture points. For patients with a diagnosis of TCM who are silent, cold and damp, moxibustion will be applied in Shuidao (ST28); for patterns of Qi stagnation and blood stasis, Hegu (LI4), Taichong (LR 3), and Ciliao (BL32) will be encouraged by manual acupuncture; for dual deficiency of Qi and blood, Xuehai (SP10), Pishu (BL20), and Zusanli (ST36) will be pushed manually. This is in line with our research that respondents who were given acupressure, one of which was the LI4 point, turned out that during the post test, the pain was moderate to no pain to mild pain (Yeh et al., 2013).

In addition, in another study, namely research conducted on female students in Taiwan that performing acupressure with auricular points can be successful in increasing parasympathetic nerve activity to maintain a balance of body functions in adolescent girls in dealing with menstrual pain so as to avoid various body disorders and menstrual pain decreases. Emphasis on the auricle properly can increase parasympathetic activity, namely regulating and activating digestion and body metabolism while resting on the autonomic function of adolescent girls so that menstrual pain and pressure disorders can be reduced. In future research, it is hoped that it can measure the level of stress during menstruation, the frequency and duration of auricular acupressure, the level of menstrual pain, using other research designs. Likewise with the research we did, that doing acupressure at points LI 11, LU7 and LI4 increased parasympathetic nerve activity

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thereby increasing the production of endorphins in the body (Y.-J. Wang et al., 2013). Zafari (2011) mentioned that acupressure can reduce dysmenorrhea according to the statement that Acupressure and fish oil supplements can be used as a substitute for anti-inflammatory drugs and reduce menstrual pain. In future studies, more varied doses of fish oil can be used (Zafari et al., 2011).

Massage therapy reduces the severity of primary dysmenorrhea. Since pain relief without medication is an important health care target and can reduce the complications associated with medication, given the high prevalence of dysmenorrhea and the greater willingness of people to use non-pharmacological and also safe and inexpensive ways, It is recommended that nonpharmacological methods such as acupuncture, heat therapy, psychotherapy, massage therapy, hypnotherapy, physiotherapy, trans cutaneous electrical nerve stimulation (TENS) are used to reduce the primary dysmenorrhea intensity (Aboualsoltani et al., 2020).

2. The Effect of Aromatherpy on Dysmenorrhea

The use of aromatherapy essential oils, whether using inhalation, massage, or oral in reducing menstrual pain, has proven to be effective compared to placebo. In addition, aromatherapy has economic advantages, it relieves cramps during menstruation (Heidari et al., 2012). Essential oils in aromatherapy are either used by inhalation, or used as massage oils, there is much evidence that it can reduce menstrual pain compared to placebo, aromatherapy is a complementary therapy that is commonly used, economical, safe, in overcoming menstrual pain.

Ji-Ah Song (2018) also stated that aromatherapy can reduce dysmenorrhea seen from the statement that the results showed that there were different results between the decrease in menstrual pain scores in the group given aromatherapy 2.67 points (mean difference 2.67), showing a statistically significant difference. ($Z=7.79$, $p<.001$, Higgins $I2=0\%$) with the group not receiving any treatment. In the group receiving the placebo oil treatment, the dysmenorrhea score in the experimental group decreased by 1.71 points (difference in mean, 1.71), indicating a statistically significant difference ($Z=4.51$, $p<.001$), but high heterogeneity (Higgins $I2 = 81\%$) (Song et al., 2018).

Lemon based on the results of research in India in 2014 was used as a plant to reduce menstrual pain, various plants were investigated for ethnogynecological problems, including Triticum aestivum, Rubiamanjith, Dalbergia sissoo, Raphanus sativus, Citrus limon, Allium cepa, Trigonella foenum-graecum, Elettaria ardamomum according to its content. can reduce menstrual pain. If further studies are carried out, these plants can be used as innovations for menstrual pain reducing drugs in the future (Bhatia et al., 2015). Nikjou (2016) stated that the results of the study showed significant differences in results in the treatment and control groups after being given the influence of the intervention, there was reduced menstrual pain after 2 months of being given the intervention ($P < 0.01$) lavender aromatherapy (Nikjou et al., 2016).

3. The Effect of The Combination of Acupressure and Aromatherapy on Dysmenorrhea

Another study conducted in 2018 in Iran on lemons which in this case was modified into a balm was found to reduce systemic symptoms associated with dysmenorrhea symptoms, such as fatigue and lethargy (Mirabi et al., 2018). As for research that is in

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line with this research is came from Bachtshirin (2015) which describes that in the 3 months prior to the intervention of menstrual pain during menstruation there was no difference. However, the results before and after being given massage using lavender oil ($t = 14.88$, $P < 0.001$) and placebo ($t = 8.31$, $P < 0.001$) were different (Bakhtshirin et al., 2015).

Plaster in the placebo group on 12 meridians can indeed reduce menstrual pain but its effectiveness is doubtful, this study shows that AAT at auricular acupressure points, AAT can reduce abdominal and back pain which is a symptom of menstrual pain and students get learning experience (Cha & Sok, 2016). Serap said that 40 female students who participated in this study who were given lavender massage and placebo massage showed a decrease in the VAS scale results on lavender massage compared to placebo, it was concluded that aromatherapy massage could reduce menstrual pain more than placebo.

Complementary therapy as a non-pharmacological therapy in reducing pain is the use of aromatherapy essential oils, aromatherapy massage got better results in pain reduction compared to massage using placebo oil, as well as massage using lavender oil had a better effect than massage using lavender oil which mixed (Sajjadi et al., 2018). Thus, it can the results show that the acupressure method using aromatherapy (intervention group) and acupressure method without using aromatherapy (control group) both have an effect on decreasing the dysmenorrhea pain scale. When the two methods were compared, it turned out that the acupressure method using aromatherapy had a more positive impact on reducing the dysmenorrhea pain scale when compared to the acupressure method without using aromatherapy.

The most likely cause is because the acupressure given will make the respondent relax and the pressure points cause an increase in metabolism so that immunity increases, plus massage using aromatherapy is inhaled to the lungs, which provides benefits both psychologically and physically. Not only the aroma of the essential oil stimulates the brain to trigger a reaction, the natural ingredients contained in the essential oil when inhaled also provide several therapeutic effects so that the respondent becomes more relaxed and can reduce the pain of dysmenorrhea.

The effects of acupressure on the respondent become relaxed, emphasis on body points results in an increase in metabolism so that the body's resistance increases, besides that aromatherapy inhaled into the lungs stimulates the brain to provide physical and psychological benefits, therapeutic effects so that respondents become more relaxed so that menstrual pain is reduced.

CONCLUSION

This study found that menstrual pain in adolescents can be used with the use of acupressure with the use of aromatherapy besides that the pain scale decreased when compared to only acupressure without additional complementary therapies. The use of acupressure and aromatherapy can be used as non-pharmacological therapy in the practice of obstetric services to reduce menstrual pain and it is hoped that further researchers will carry out other non-pharmacological treatments to overcome dysmenorrhea.

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