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The Effect of Acupressure Method on Dysmenorrhea in Adolescent Woman at Muhammadiyah 1 Gresik Junior High School

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A B S T R A C T

Adolescent girls are more susceptible to dysmenorrhoea which is influenced by many factors, one of which is the mental condition of adolescents who experience menstruation. The aim of the research was to analyze the effect of the acupressure method on dysmenorrhoea in young women at Muhammadiyah 1 Gresik junior high school. This research design uses the Pre-Experiment method with a One Group Pretest Posttest design. The population was 44 teenagers who experienced dysmenorrhoea, using the Simple Random Sampling technique, 40 teenagers were obtained. This data was taken using a questionnaire and Visual Analogue Scale (VAS) scores. After tabulating the data, it was analyzed using the Paired t Test with a significance level of p = <0.05. The results of the study showed that the average dysmenorrhoea scale before the acupressure method was carried out was 5.6 and after the acupressure method was carried out it was 2.28. Based on the results above, the significance value is sign=0.000<0.05. This means that there is an influence of the acupressure method on dysmenorrhoea in young women at Muhammadiyah 1 Gresik junior high school

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INTRODUCTION

Adolescence is the beginning of a transition period from puberty to adulthood which generally begins at the age of 10-13 years and ends at the age of 18-22 years. Adolescence is a time of change including biological changes, psychological changes and social changes. Entering adolescence at the same time as puberty is one of the stages of sexual organ maturity which is marked by the occurrence of the first menstruation (menarche), especially in adolescent girls (Hidajahturrokhmah et al., 2018). During menstruation, one of the complaints that often occurs in young women is usually cramps, pain and discomfort associated with menstruation, called dysmenorrhoea. Most women experience varying levels of cramps, dysmenorrhoea (menstrual pain) is a gynecological complaint resulting from an imbalance of the hormone progesterone in the blood, resulting in pain (Nurwana et al., 2017).

Dysmenorrhea or menstrual pain is generally complained of by some women before menstruation which can last 2-3 days. The symptoms are cramps in the lower abdomen which sometimes spread to the lower back and thighs. This causes discomfort in daily physical activities which can cause young women to be repeatedly absent from school (A. Ratnawati, 2018). About 40-70% of young women experience dysmenorrhea, and 10% occur until. the woman could not carry out her activities (Marlinda et al., 2022). In East Java alone, the incidence of dysmenorrhea is 58% of women who experience menstrual pain every month (Kusmindarti & Munadlifah, 2019). an initial survey conducted on 10 teenage girls at SMP Muhammadiyah 1 Gresik in June 2023, 3 (30%) teenage girls did not experience dysmenorrhea, 7 (70%) teenage girls experienced dysmenorrhea.

The causes of dysmenorrhoea can vary and are not fully understood. Several factors that can cause dysmenorrhoea include: 1) Hormonal factors, namely prostaglandin hormones produced by the uterus can cause strong uterine muscle contractions and cause menstrual pain. In addition, the hormones estrogen and progesterone can also affect prostaglandin levels and cause dysmenorrhoea. 2) Psychological factors, namely stress and anxiety can affect hormone levels in the body and cause dysmenorrhoea. 3) Genetic factors, namely several studies show that dysmenorrhoea can run in families. 4) Reproductive Health Factors, namely several reproductive health conditions such as endometriosis, fibroids, and pelvic infections can cause dysmenorrhoea (ACOG, 2018).

The impacts that occur if dysmenorrhoea (menstrual pain) is not treated are disruption of daily living activities, retrogression (menstruation that moves backwards), infertility (sterility), pregnancy or undetected ectopic pregnancy rupture, cyst rupture, uterine perforation from the IUD and infection. Apart from the impacts above, emotional conflict, tension and anxiety can all play a role and give rise to uncomfortable and unfamiliar feelings (Adzani, 2021). In general, dysmenorrhea can be treated by providing pharmacological and non-pharmacological therapy. In pharmacological therapy, non-steroidal anti-inflammatory drugs (NSAIDs) can be given Non-pharmacologically, it can be done using acupressure techniques (Rahmawati, D.T., Situmorang, R.B. and Yulianti, 2019).

Acupressure is known as a traditional Chinese therapy method for curing dysmenorrhea by using massage techniques at meridian points in certain parts of the body (Yuniati, M., Rohmayanti, R., & Mareta, 2019). Pressing acupressure points can increase endorphins, which are components in the blood that can relieve pain. Endorphins will be produced as a response to the body by the nervous tissue and are expected to reduce pain during menstruation. (Widyaningrum, 2013).

There are several acupressure points on the body that can be recommended to reduce dysmenorrhoea, namely: Shuiquan point (KI5), Sayinjiao point (SP 6), and Taichong/Daichong point (LR3/LV3). Acupressure therapy is a development of the science of acupuncture which has the same principles, the difference is that the acupuncture technique uses needles while the acupressure technique uses the fingers (Marlinda et al., 2022). Recently there has been a lot of research on the benefits of acupressure techniques. Therefore, researchers are interested in proving the truth that the acupressure method can reduce dysmenorrhoea in adolescent girls. And also this research aims to determine the effect of the Acupressure method on dysmenorrhoea in young women at SMP Muhammadiyah 1 Gresik.

LITERATURE REVIEW

According to research by Sari et al. (2023) on factors related to dysmenorrhea in adolescent girls, the results showed that age of menarche, duration of menstruation, and family history were related to the incidence of dysmenorrhea (T. M. Sari et al., 2023). Meanwhile, according to Erlina Rustam (2014), adolescents who experience dysmenorrhea will undergo pharmacological therapy such as consuming traditional medicine or pharmaceutical drugs as much as 83%, while only 17% undergo non-pharmacological therapy (Rustam, 2015).

Another study on acupressure by Ida Dwi and Arief Yanto (2020) concluded that there was a decrease in the average pain intensity in the third study subjects after the acupressure technique was performed at the hegu point (L14). So from the explanation of the studies above, the hypothesis that can be taken is that there is an effect of giving acupressure on dysmenorrhea in adolescents (Revianti & Yanto, 2021).

METHODOLOGY

The type of research used in this study is quantitative research. Analytical pre-experimental research design or design with a one group pre-post design approach. The study was conducted from September to November 2023 at SMP Muhammadiyah 1 Gresik. Population: Adolescent girls at SMP Muhammadiyah 1 Gresik who experienced dysmenorrhea were 44 students with the sampling technique being simple random sampling. The sample of this study was some adolescent girls who experienced dysmenorrhea were 40 students at SMP Muhammadiyah 1 Gresik. The independent variable is the acupressure method and the dependent variable is dysmenorrhea. The research instrument used the

Visual Analog Scale (VAS) questionnaire. After tabulating the data, it was analyzed using the Paired t Test with a significance level of p = <0.05

RESULTS

Based on research conducted on 40 respondents at SMP Muhammadiyah 1 Gresik, data on the characteristics of respondents was obtained which included the following:

Table 1. Distribution of Respondents Based on Age of Female Students at SMP Muhammadiyah 1 Gresik Who Experience Dysmenorrhoea

No.	Age	Quantity	Percentage (%)
1.	12 years old	10	25%
2.	13 years old	13	32,5%
3.	14 years old	17	42,5%
	Total	40	100%

Based on Table 1 above, it shows that of the 40 female students who were divided into 3 age groups, namely 12 years, 13 years and 14 years, it can be seen that almost half of the respondents were 14 years old, and a small number of respondents were 12 years old.

Table 2. Distribution of Respondents Based on Mother's Or Sibling's History of Dysmenorrhoea at SMP Muhammadiyah 1 Gresik

No.	Mothers or siblings history	Quantity	Percentage (%)
1.	Present	27	67,5%
2.	Absent	13	32,5%
	Total	40	100%

Based on Table 2 above, looking at the history of mothers or siblings who experienced dysmenorrhoea, it is divided into two categories, namely Present and Absent, most of the respondents with a family history of dysmenorrhea are present and almost half of them have a family history of dysmenorrhea, namely absent.

Table 3. Distribution of Respondents Based on Age at Menarche at SMP Muhammadiyah 1 Gresik

No.	Age of Menarche	Quantity	Percentage (%)
1	<10 years old	4	10%
2	10-11 years old	19	47,5%
3	12 years old	17	42,5%
	Total	40	100%

Based on Table 3 above, it shows that almost half of the respondents' menarche age was 10-11 years, and a small percentage had menarche age <10 years.

Table 4. Distribution of Respondents Dysmenorrhea Scale at SMP Muhammadiyah 1 Gresik

Group	Quantity	Mean ± SD	Min	Max
Pre Intervention	40	5,6 ± 1,661	2	8
Post Intervention	40	2,28 ± 1,432	0	6

From the data in Table 4, it describes the scale of dysmenorrhea before and after the acupressure method. Before the intervention was implemented, the average pain scale for respondents who experienced dysmenorrhea before the intervention was 5.6 with a standard deviation of 1.661. Meanwhile, after the acupressure intervention was given, the respondents' dysmenorrhea scale showed an average of 2.28 with a standard deviation of 1.432.

In processing the data, the first step was to carry out a normality test with the Shapiro-Wilk test and obtained a significance value from Shapiro-Wilk of 0.731 > 0.05, meaning the data was normal. So next we carry out the Paired t Test. Hypothesis testing was carried out by analyzing the difference in mean pain scales before and after the acupressure method was carried out on young women at SMP Muhammadiyah 1 Gresik who experienced dysmenorrhoea. The Paired t Test was carried out using a significance of 95% (alpha 0.05).

Table 5. Paired T Test Results

Group	Numb of Respondent	Paired T test
Pre Intervention	40	0,000
Post Intervention	40	

Table 5 can explain the influence of the acupressure method on dysmenorrhoea in young women at SMP Muhammadiyah 1 Gresik. The acupressure method was concluded to have an effect seen from the significant value of 0.000 < 0.05.

DISCUSSION

Based on the distribution of characteristics of respondents in this study, it was found that half of the respondents were 14 years old, and a small number of respondents were 12 years old. This is in line with research by Sianipar (2015) which shows that there is a significant relationship between age and dysmenorrhoea (Sianipar, 2019). Chandrayani 2020, that primary dysmenorrhea can be found in young women between the ages of 11-25 years and will disappear in their late 30s without finding any genital abnormalities on gynecological examination (Chandrayani et al., 2022).

This age period is early adolescence, where at this stage it is a period of imaginative thinking in teenagers, so guidance regarding menstruation is needed, such as dysmenorrhoea, this means that at a young age, where in this study the age of respondents was 12-14 years, according to WHO, it is still classified as adolescent group so there is still a high level of dysmenorrhoea.

Factors that influence dysmenorrhoea include a history of a mother or sibling experiencing dysmenorrhoea. Most of the respondents had a family history of

dysmenorrhoea, namely present and almost half of them had a family history of dysmenorrhoea, namely none. This is in accordance with Andriani's (2013) research that family history plays a role in the occurrence of primary dysmenorrhoea(Andriyani, 2013). According to research by Ika and Nunik (2017), research results show that family history or heredity has an influence on the incidence of primary dysmenorrhea. Family history is a risk factor that can increase the likelihood of primary dysmenorrhea. Two out of three women who suffer from primary dysmenorrhoea have a family history of primary dysmenorrhoea (Ika Novia dan Nunik Puspitasari, 2018).

Another factor is the respondent's age at the start of menstruation or menarche. Almost half of the respondents' menarche age was 10-11 years, and a small percentage had menarche age <10 years. In research Yusra (2022) respondents experienced menarche at the age of 10-16 years. The largest number of respondents with menarche age 12 years was 103 people (34.3%). Respondents with a menarche age of <12 years are one of the factors that can increase the incidence of dysmenorrhea. At < 12 years of age, the reproductive organs in women are not ready to undergo changes and there is still narrowing of the cervix, causing pain during menstruation. One of the risk factors for primary dysmenorrhea is first menstruation at an early age (earlier age at menarche), namely the age at first menstruation < 12 years (yusra taqiyah, fatma jama, 2022) Based on research from 40 respondents, the average dysmenorrhoea scale in young women before using the acupressure method was 5.6 with a minimum value of 2 representing pain such as itching, electric shock, throbbing, twisting, hitting, stinging and soreness and the maximum value was 8 which was a very severe scale pain but the pain can still be controlled. Similar research was conducted by Darnisah and Lismarni (2013) where 18 teenagers who experienced dysmenorrhoea had an average of moderate pain scale as measured using the Visual Analog Scale of 4.94 (Harahap & Lismarni, 2013).

Based on the theory explained by Jill and Gilly Dysmenorrhea is very painful menstruation, many women feel discomfort on the first day of menstruation, but the level of discomfort from dysmenorrhea is much higher, with pain that is often felt in the lower back and radiates down to upper part of the leg. In general, pain during menstruation is caused by estrogen and hormones produced by the ovaries which stimulate the release of prostaglandins by the uterus. The higher the release of prostaglandins, the higher the uterine contractions which will ultimately result in dysmenorrhea (Wahtini et al., 2021). Pain caused by high levels of prostaglandin release usually feels like heartburn, dizziness, and even fainting. Apart from that, prostaglandins also stimulate pain nerves in the uterus, thereby increasing the intensity of pain (L. T. Wahyuni, 2018).

Research shows that the average dysmenorrhea scale after using the acupressure method is 2.28 with a minimum value of 0 which is no pain and a maximum value of 6 which is pain such as cramps, stiffness, pressure, difficulty moving, burning, stabbing. Similar research regarding the effect of the acupressure method carried out by Sri, et al in 2023 at Udayana University on 15 students with primary dysmenorrhea pain showed that the pain scale before

being given the acupressure method was 5.73 while after being given the acupressure method it was 2.73 (S. Wahyuni, 2023).

The difference in the scale of dysmenorrhoea is due to the pressing effect on acupressure points related to its impact on endorphin production in the body. Endorphins are pain killers produced by the body itself. The release of endorphins is controlled by the nervous system, the nerves are sensitive to external stimulation so they can be triggered using the acupressure method, so that they can instruct the endocrine system to release an endorphin according to the body's needs. This is what makes the difference in the scale of dysmenorrhea after intervention is given (Harahap & Lismarni, 2013).

The results of the Paired t Test obtained a significant value = 0.000 (sig<0.05), indicating that there was an influence of the acupressure method on reducing the dysmenorrhoea pain scale. Another study conducted by Arini (2021) on young women at SMAN 1 Pekalongan found that of 21 people who received acupressure, 80.95% experienced a reduction in pain levels and the average difference in pain intensity before and after acupressure therapy was 1.810 (A. P. Sari & Usman, 2021).

Acupressure can be used to treat dysmenorrhea and menstrual distress. Apart from this, acupressure has also been proven to overcome general pain, it has also been proven to overcome pain during labor and facilitate the delivery process (Rifiana et al., 2023). Endorphins are pain killers produced by the body itself. Endorphins are peptide or protein molecules made from a substance called beta-lipoptropin which is found in the pituitary gland. Endorphins control the activity of the endocrine glands where these molecules are stored. In addition, endorphins can affect pain-sensing areas in the brain in a similar way to opiate drugs such as morphine. The release of endorphins is controlled by the nervous system. Nervous tissue is sensitive to pain and external stimulation, and if triggered using acupressure techniques, it will instruct the endocrine system to release a number of endorphins according to the body's needs (Sudjarwo & Solikhah, 2023).

In this study, the acupressure points used were the Sayinjiao point (SP6), the Taichong/Daichong point (LR3/LV3), and the Shuiquan point (KI5). Acupressure at the Sanyinjiao point functions to strengthen the spleen, restore Yin balance to the liver and kidneys, so that it can strengthen blood supply and improve blood circulation, thus acupressure at the Sanyinjiao point can reduce dysmenorrhea pain (Tyas et al., 2018). Meanwhile, the Taichong/Daichong point and the Shuiquan point have the same function, namely the effect of pressing on this point can relieve spasms (sudden muscle contractions), tension and stiffness (Sudjarwo & Solikhah, 2023).

CONCLUSIONS AND RECOMMENDATIONS

According to researchers, currently many people assume that there is no alternative or non-pharmacological medicine to treat dysmenorrhoea, but when someone experiences dysmenorrhoea it will definitely be uncomfortable and can have an impact on their daily activities, therefore knowledge about acupressure methods and other alternative treatments is needed, to efforts to reduce dysmenorrhoea. Apart from being considered safer than synthetic drugs, the costs required are much lower. So the conclusion of this research is that there is an influence of the acupressure method on dysmenorrhoea in young women at Muhammadiyah 1 Gresik junior high school.

FURTHER STUDY

limitations in this study are the duration of acupressure treatment which may be too short and the presence of bias factors. So it is necessary to give acupressure for a longer duration and provide a control group and intervention group as a sample

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