


## Effectivity Of Acupressure Therapy For Premenstrual Syndrome Pain In Adolescent Girls At Al Azhar Paya Jeget Pegasing Integrated Boarding School, Central Aceh Regency

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Article Info	ABSTRACT
<b>Keywords:</b> Therapy Premenstrual Acupressure Pain Pramentruasia Syndrome, Young Women	<p>Premenstrual syndrome (PMS) occurs a few days before menstruation and even until menstruation takes place. WHO prevalence of productive women experienced PMS of 53.87% and 56.19%). In Indonesia, 90% of women of reproductive age experience PMS symptoms. Non-pharmacological management, including Acupressure, is a form of physiotherapy by providing massage and stimulation at certain points on the body. The purpose of the study was to determine the effectiveness of acupressure therapy on premenstrual pain syndrome. The research design uses sectional cross, which is a study that is conducted at one time, there is no repetition, the population in this study is adolescent girls. The sampling technique was Simple Random with a total of 34 people, data presentation was carried out univariate and bivariate, using a single sample test. The results of the study were measured by Visual Analog Scale (VAS). With the results of the pre-therapy pain scale of Acupressure in the mild category of 25 (73.5%), while the post pain scale was carried out in the category of no pain 22 (64.7%), with a Sign value of <math>(0.000) \leq 0.05</math> which indicates that there is an effect of acupressure therapy on the premenstrual pain scale. The conclusion of the study is that there is an effectiveness between acupressure therapy and the premenstrual pain scale. Suggestions that this acupressure therapy can be used as a therapy to relieve pain during Premenstruation. It is hoped that the respondents will be applied this Acupressure therapy in overcoming premenstrual pain.</p>
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### INTRODUCTION

Adolescence is a transitional period where individuals experience physical and psychological changes, before reaching adolescence, a person will enter puberty caused by hormones. Puberty in women is characterized by experiencing menstruation. One of the disorders before menstruation is premenstrual syndrome (PMS). Premenstrual syndrome, known as the terminology of premenstrual syndrome (PMS), is a collection of physical, emotional and

behavioral complaints and/or symptoms that occur in women of reproductive age (Suparman, 2012).

PMS occurs a few days before menstruation and even until menstruation takes place. Physical complaints experienced during PMS include weight gain, enlargement of body parts, especially certain areas (abdomen, fingers, feet) because the body retains fluid, aches and pains, especially in the waist area, enlarged breasts and tenderness, acne arises, urine decreases, dizziness, nausea, appetite increases. Psychological complaints that are commonly experienced include low emotional control, irritability, illogical emotional reactions, low memory and concentration, lethargy, depression, lack of confidence and worthlessness. (Astikasari & Kofi, 2022; Bahrin, S. et al, 2019).

The cause of PMS is related to the rise and fall of estrogen levels with progesterone. However, there are several risk factors for PMS, one of which is stress and lack of physical activity. Stress will trigger the excessive release of the hormone cortisol resulting in an emphasis on Luteinizing Hormone (LH) which is needed to produce the hormones estrogen and progesterone during the menstrual cycle. The influence of the hormone cortisol causes an imbalance of estrogen and progesterone hormones that result in PMS.

World Health Organization (WHO 2020) PMS is found in 53% of women under half of women under the reproductive age group. The analysis of sub-groups based on universities versus secondary schools showed a prevalence of 53.87% and 56.19%. (Geta et al., 2020). According to research in the United States survey, around 40% of women aged 14-50 years experience STDs and 50% of STDs are experienced with middle socioeconomic conditions who come to the Gynecology Clinic. From data from the journal Archives of Internal Medicine, 90% of women experience premenstrual syndrome before menstruation and a study conducted on 3000 women, about 90% of women experience one or more signs or symptoms of premenstrual syndrome. About one in three people with premenstrual syndrome say their lives are affected by these symptoms substantially. Various daily activities are disrupted and affected, including work performance 58%, household chores 56% and relationships with family/spouses 50% (Susanti et al, 2017).

Based on research conducted in Indonesia through the Adolescent Home Health Service (PKRR) in 2020, as many as 90% of women of reproductive age experience PMS symptoms (Afifah et al., 2020). As many as 30-50% of women experience PMS symptoms and about 5% experience severe symptoms that impact their physical health and social functioning. Another 10% experience PMS that is very severe so that it causes absenteeism at school or at work for 1-3 days every month (Ramadhani, 2014)

A person who is less physically active has more estrogen levels than progesterone, so the possibility of PMS is greater. If left unchecked, it will cause premenstrual disorder Dysphoric Disorder (PMDD). Other consequences of STDs are psychosexual problems such as reduced performance at work, marital problems (possibly leading to divorce), suicide, murder, intentional house burning and child beating. (Ratikasari, 2015).

An increase in the hormone prostaglandin stimulates the uterine muscles (uterus) and affects the blood vessels which causes uterine ischemic (decreased blood supply to the

uterus) through the contraction of the myometrium (uterine wall muscles) and causes vasoconstriction (narrowing of blood vessels) which can lead to the onset of menstrual pain (dysmenorrhea) (Anurogo & Ari, 2011).

Management to reduce menstrual pain (dysmenorrhea) can be done with pharmacological and non-pharmacological therapy. Pharmacological therapy for menstrual pain (dysmenorrhea) can be done by administering NSAIDs (Nonsteroidal Antiinflammatory Drugs), but in the long term its use can have side effects such as gastric leg upset, gastrointestinal bleeding, and kidney damage (Faisal, Yatim MPH, 2006). Non-pharmacological therapies to treat menstrual pain (dysmenorrhea) can use warm water, relaxation, aerobic exercise, exercise, drinking water, aromatherapy and specific point massages such as acupressure.

Acupressure is a healing science that originated in China more than 500 years ago. Acupressure as an art and healing science is based on the theory of balance derived from the teachings of Taoism. Taoism teaches that all the contents of the universe and its traits can be grouped into two groups, called yin and yang. Acupressure is a form of physiotherapy by providing massage and stimulation at certain points on the body (energy flow lines or meridians) to reduce pain (Widyaningrum, 2013).

Acupressure or commonly known as acupuncture or needling is a form of physiotherapy by providing massage and stimulation at certain points on the body. Acupressure therapy is a development of acupuncture science, so in principle the acupressure therapy method is the same as acupuncture which distinguishes acupressure therapy from not using needles in the treatment process. Acupressure is useful for various diseases and reduces tension, fatigue and pain. The treatment process with acupressure techniques focuses on nerve points in the body. The acupressure points are located on both palms of the hand and both soles of the feet. On both palms and soles of the feet, acupressure is found for the heart, lungs, kidneys, eyes, thyroid gland, pancreas, sinuses and brain (Fengge, 2012)

One of the traditional treatments that is cheap, easy and can be done for self-treatment at home is acupressure. Acupressure is a form of acupuncture, which is a healing method that is carried out by emphasizing the fingertips of the fingers in a certain area or point on the surface of the body (Maureen A, 1997).

One of the effects of acupressure point suppression can increase endorphin levels that are useful for pain relief produced by the body in the blood and endogenous peptide opioids in the central conditioning system. Nerve tissue will stimulate the endocrine system to release endorphins according to the body's needs and is expected to reduce pain during menstruation (Widyaningrum, 2013). Acupressure can be done with an emphasis on a single point or a combination or combination that has been proven to be used to treat dysmenorrhea.

Based on the results of the study (Hanin, 2021), it is proven that acupressure which is empirically proven to be 100% can be an alternative to nonpharmacological therapy that is able to overcome or minimize pain with the result that there is an effect of acupressure on the management of dysmenorrhea pain in adolescent girls in the city of Bengkulu.

Based on the results of the study (Revianti and Yanto, 2021), the LI4 Acupressure Technique is able to reduce the intensity of dysmenorrhea pain because the emphasis on the acupuncture point is able to increase endorphin levels which are beneficial as pain relievers which are produced in the body in the blood and endogenous opioid peptides in the central nervous system. The central nervous system will provide stimulation to the endocrine system to release endorphins as needed by the body and is expected to reduce premenstrual syndrome pain.

Based on this background, I am interested in conducting research on the effectiveness of acupressure therapy on premenstrual syndrome pain in adolescent girls of Al Azhar Paya Jeget Integrated Islamic Boarding School (Dayah), Pegasing District, Central Aceh Regency. This research is expected to be applied as an appropriate, affordable non-pharmacological therapy for every teenager and can be carried out by the community in the midst of busy work by not ruling out the use of anti-pain drugs.

Based on an initial survey conducted at the Al Azhar Paya Jeget Integrated Boarding School in March 2023 through interviews conducted with several students, they admitted that they often felt symptoms such as pain in the abdomen, anxiety, emotions and tight breasts a few days before menstruation. In an interview conducted with the UKS (Public Health Unit) supervisor teacher at the Al Azhar Paya Jeget Islamic Boarding School, he said that every month there are students who go to UKS and complain of several symptoms before and during menstruation.

## METHODS

In this study, the type of research is Quantitative research with a Pre-Experimental research method which aims to determine acupressure therapy for Premenstrual Pain Syndrome in female students of Al Azhar Islamic Boarding School. The reason for choosing the location is because of the many complaints of adolescent girls during premenstrual syndrome pain at the Al Azhar Integrated Dayah Islamic Boarding School who do not know how to treat acupressure to reduce pain during pre-menstruation, the number of population is sufficient for research to be carried out, a location that is easy to reach and has never been researched.

The total population of this study is 103 adolescent girls (Al Azhar Islamic Boarding School, 2023). The sample in this study is the young women of the integrated Islamic Boarding School (Dayah) of the Al Alzhar Paya Jeget Islamic Boarding School, Pegasing District, Central Aceh Regency. In this study, the technique used is Simple Random Sampling, which is random sampling.

Univariate analysis was carried out on each variable of the search results. Bivariate analysis is carried out on two variables that are suspected to be related. In this case, the researcher wants to know whether or not there is an influence or to prove the influence hypothesis. Variables were analyzed using a statistical test one sample test conducted with the help of an SPSS computer.

## RESULTS AND DISCUSSION

The frequency of this study, the demography data of the respondents were female students aged 13-14 years who were in the Al Azhar Paya Jeget Central Aceh perasntren (dayah) boarding school, the reason why students became respondents was because the majority of children with age restrictions experienced pain before and after menstruation that caused pain.

**Table 1.** Distribution of Respondents Based on Demographic Data

No	Characteristic	Frequency (F)	Percentage (%)
1	Age		
	13 Years	22	66,7
	14 Years	12	35,2
	Total	34	100

Based on the table above, the data based on the majority age of the study respondents was 13 years old with a total of 22 (66.7%).

**Table 2.** Frequency Distribution Based on Pre-Pain Scale

Pre-Pain Scale	Frequency (F)	Percentage (%)
No pain	5	14,7
Mild pain	25	73,5
Moderate pain	4	11,8
Total	34	100

Based on table 2 above, the majority of pain scales in adolescent girls before being given acupressure treatment are mild pain with a total of 25 people (73.5%).

**Table 3.** Frequency Distribution Based on Post Pain Scale

Post Pain Scale	Frequency (F)	Percentage (%)
No pain	22	64,7
Mild pain	12	35,3
Moderate pain	-	-
Total	34	100

Based on table 3 above, the majority of pain scales in adolescent girls after being given acupressure treatment are in the pain-free category with a total of 22 people (64.7%).

**Table 4.** Efectivity of Distribution Acupressure Therapy Against Premenstrual Syndrome Pain in Adolescent Girls

Variebel	T	df	Sig (2tailed)	Mean Difference	Lower	Upper
Pre-Pain Scale	21.479	34	0,000	1.92059	177397	21025
Post Pain Scale	15.662	34	0,000	130294	1.1337	14722

Based on table 4, the results of the study obtained the results of the effectiveness of acupressure therapy on premenstrual pain in adolescent girls after the therapy action was

carried out where the scale of mild pain with a total of 25 people changed after the therapy was carried out the pain scale to the category of non-existent after the test was carried out one sample test obtained  $\text{sig} = 0.000$  and the value of  $P 0.05 = (p \geq 0.05)$ , meaning that  $H_a$  was accepted and  $H_o$  was rejected, which indicates a significant influence or effectiveness between the administration Acupressure therapy on the scale of premenstrual pain in adolescent girls at the Al azhar Jaget Islamic boarding school, Central Aceh in 2023.

## Discussion

### Characteristics of Reaponden for Young Women at Al Azhar Paya Jeget Islamic Boarding School

This research was carried out at the Al Azhar Paya Jeget Islamic boarding school in Central Aceh, data collection was carried out on July 27, 2023. This study aims to determine the effectiveness of the Acupressure technique on premenstrual pain of menstrual syndrome in adolescent girls. The population of this study is 13-14 years old students in the class with a total of 34 research samples divided into 34 intervention groups. Sampling is by simple random sampling technique, which is sampling by means of a random system of absentee students who have odd absenteeism numbers entering the intervention group and even attendance numbers entering the control group, then samples that have met the criteria are then conducted according to the procedure.

Before intervening, first do a pre-test or observe the pain scale using a Visual Analog Scale, and continue to provide intervention with acupressure techniques, namely with 4 action steps, the first is to rub the client's lower back for 1 minute, the second way to wipe the client's abdomen repeat the movement for 1 minute, the third way is to sweep across the abdomen repeat the movement for 1 minute, and the fourth way is a circular movement around the umbilicus, repeat the movement for 1 minute before the acupressure technique, eucalyptus oil is given and observed again after 1 minute of the action is completed, using the Visual Analog Scale pain scale or post test to see whether the pain scale drops or not.

### Premenstrual syndrome in Adolescent Girls at Al Azhar Paya Jeget Islamic Boarding School

Based on table 2, the results of the time of premenstrual syndrome were obtained for the majority of menstruation or appeared before the menstrual period, which amounted to 26 respondents (76.5%). Premenstrual syndrome is a collection of symptoms characterized by physical, affective and behavioral tremors that significantly interfere with the daily activities of fertile women, including work and daily activities, during the luteal phase and will disappear spontaneously at the beginning of the menstrual phase (Ryu and Kim, 2015). The most severe premenstrual syndrome with a decrease in perceived quality is called Late Luteal Dysphoric Disorder (LLDD) or now known as Premenstrual Dysphoric Disorder (PMDD) (Mishra and marwaha, 2018). Premenstrual syndrome has high rates of absenteeism, higher medical costs and a poor quality of life (Hofmeister and Boddeb, 2016).

Premenstrual syndrome is a syndrome that occurs in women 2-14 days before menstruation. Pre-menstrual syndrome is one of the common disorders that occur in women (Rizka, et al., 2016). Premenstrual syndrome is a common cycle disorder in women Cycle

disorders are common in young and mid-term women, characterized by consistent physical and emotional symptoms, luteal phase dive occurs in the menstrual cycle.

Premenstrual syndrome is a collection of symptoms, and the type and intensity of menstruation differ from that of women in the menstrual cycle. The menstrual cycle is part of the regular process that prepares a woman's body every month of pregnancy. This cycle involves several stages controlled by hormonal interactions secreted by the hypothalamus, the glands under the forebrain and the telovary tube. At the beginning of the cycle, the uterine cell lining begins to develop and thicken. This layer acts as a support for the growing fetus because the woman is pregnant with hormones that signal the egg in the ovary to begin to develop. Shortly after, an egg is released from the woman's ovaries and begins to move towards the fallopian tubes and the uterus. If the egg is not fertilized by sperm during intercourse (or during artificial insemination), the lining of the uterus will separate from the uterine wall and begin to shed and will be expelled through the vagina. The period of blood discharge known as the menstrual period, lasts for 3 to 7 days. When a woman becomes pregnant the menstrual cycle will stop. Although so many women experience physical discomfort for a few days before their menstrual period comes (Sejati, 2009)

#### **Pre-Acupressure Pain Scale in Adolescent Girls at Al Azhar Paya Jeget Islamic Boarding School**

Based on the data in table 3, the average result of the respondents' scores before being given acupressure for the group was a mild pain scale with a total of 25 people (73.5%). There was no pain in 5 people (14.7%). And for the moderate pain category, there were 4 people (11.8%). Pain during menstruation or premenstrual primary syndrome is one of the most common gynecological problems that women complain about during menstruation (Stewart & Deb, 2014).

In the treatment of premenstrual syndrome, 2 types of methods are known, namely pharmacological and non-pharmacological methods. The non-pharmacological method itself is known to be the safest and least likely to cause complications both in the short and long term. One of the non-pharmacological treatments for premenstrual syndrome is acupressure. Acupressure is a massage technique that is carried out to help speed up the pain recovery process by using hand touch which causes a relaxing effect (Varney, 2010).

After being given acupressure intervention, it was known that 6 respondents who before the intervention stated mild pain, after the intervention there was a decrease in the pain scale even though they were still in the category of mild pain. Meanwhile, other respondents who before the intervention stated moderate pain, after being given the intervention experienced a decrease in the pain scale to mild pain. Meanwhile, based on the delta of pain, acupressure treatment was able to reduce the average pain level in respondents.

The same results were reported in a study conducted by Sinurat in 2018. The results of the study provided acupressure treatment to 53 respondents who experienced premenstrual syndrome and showed that the respondents experienced a significant decrease in pain intensity. The intensity of premenstrual pain syndrome in respondents before performing abdominal massage acupressure was the most moderate pain category, while the intensity

of premenstrual pain syndrome in respondents after abdominal massage acupressure was the most was in the category of mild pain. (Sinurat, 2018)

According to research conducted by Handayani, (2013), Abdominal Acupressure can stimulate tactile fibers so that pain signals can be inhibited. Abdominal acupressure reduces premenstrual syndrome pain by stimulating tactile fibers in the skin on the abdomen which provides a relaxing effect on the abdominal muscles so that muscle spasms are reduced and can provide a distraction effect that will reduce pain (Ernawati, 2010).

The administration of acupressure message intervention is able to improve energy in the reproductive organs, energy improvement in the reproductive organs is able to increase rest and relaxation, thus helping the body in increasing the production of Beta endorphine, endorphine acts as a neurotransmitter and neuromodulator that inhibits the transmission of pain messages (as a Beta-A fiber pain inhibitor) so that the pain felt is reduced. The administration of non-pharmacological interventions with acupressure messages to reduce premenstrual syndrome pain is very beneficial compared to pharmacological administration, in addition to having no side effects of non-pharmacological treatment nor causing systemic allergic reactions (Judha, 2012)

#### **Post-Acupressure Pain Scale in Adolescent Girls at Al Azhar Paya Jeget Islamic Boarding School**

Based on the results of the study, after acupressure was given, the number of respondents who experienced no pain was 22 people (64.7%) and moderate level was 12 people (35.5%). Acupressure itself is one of the non-pharmacological therapies to treat premenstrual syndrome pain in addition to the use of the message acupressure technique. Acupressure is a development of massage therapy which is a derivative of acupuncture. This technique uses fingers instead of needles but is performed at the same point as the acupuncture point (After being given acupressure intervention, it is known that most of the respondents experienced a decrease in pain level (Rudiyanto, 2012).

Based on research conducted by Kostania (2019) proves that acupressure can reduce pain levels in a person who experiences dysmenorrhea, relieve pain during menstruation, because acupressure can reduce pain sensations through increasing endorphins, which are hormones that are able to bring a sense of relaxation to the body naturally, blocking pain receptors to the brain (Kostania et al., 2019)

#### **Efficacy of Therapy: Effect of acupressure on premenstrual pain syndrome in adolescent girls at Al Azhar Islamic boarding school Payah Jeget, Central Aceh**

Based on the statistical test of one sample test, a significance value of 0.000 ( $p < 0.05$ ) was obtained, then the hypothesis was accepted. The difference in the pre and post pain scales of the pre and post test T values was 21,479 while the results of the T test of 15,662 showed a significant difference in pain in the respondents between before and after the Acupressure intervention. So it is known that acupressure can significantly reduce the intensity of dysmenorrhea pain.

In the implementation of the study, the point used was the SP 10 (xuehai) point located in 2 cuns above the medio-superior angle of the patella, above the protrusion of the medial



part of M. Quadrep femoris (Febrianti, 2015) and the Large Intestine (LI 4) point located in the middle of the lower part between the mother and the index finger, which is indented with a lot of flesh (Unsal et al., 2010). One of the effects of acupressure point suppression can increase endorphins that are useful as pain relievers produced by the body in the blood and the endogenous peptide opioids in the central nervous system. Nerve tissue will stimulate the endocrine system to release endorphins as needed by the body and is expected to reduce pain during menstruation (Kostania et al., 2019). So that in fact, the benefits of the acupressure technique itself include providing a relaxing effect and reducing pain, maintaining body balance and improving blood circulation.

Emphasis on the acupressure point of LR3 can stimulate the release of endorphin hormone by the pituitary gland (Ody, 2008). This hormone has a morphine-like effect in the body (Ody, 2008) so that it can provide analgesic and relaxing effects on painful areas (Jarmey & Bouratinos, 2008). So that the quality of pain felt in the next menstrual period decreases. In a study conducted by Chen & Chen (2004), acupressure was performed at point SP6 (Sanyinjiao) when the respondent was menstruating. This point lies in the lymphatic meridians, where according to the theory of acupressure, meridians are meridians that also play a role in regulating the function of the reproductive organs (Jarmey & Bouratinos, 2018).

Meanwhile, in a study conducted by Mahoney (1993), acupressure was carried out at the LI4 (He-qu) point. This point is located in the meridian of the colon, where this meridian is not directly related to the reproductive organs but the emphasis on this point is said to provide energy intake to the reproductive organs and relieve pain throughout the body (Jarmey & Bouratinos, 2018).

The LR3 (Taichong) point is located at the liver meridians. Emphasis on the acupressure point LR3 can improve the flow of energy in the organs that are passed by the meridians of the liver and at the same time can also improve the flow of energy throughout the body because this point is an important point that also functions to relieve pain (analgesic) and relax throughout the body (Jarmey & Bouratinos, 2018). With the reduction of other additional symptoms during menstruation throughout the body, the quality of pain felt after therapy at this point is also reduced.

This is in accordance with the opinion of Judha (2012) that the symptoms that are often felt during dysmenorrhea are pain in the lower abdomen, waist and back (Judha, 2012). Meanwhile, in acupressure treatment, the massage is carried out at the acupuncture point, namely the back of the hand between the metacarpals. So that directly adolescents will experience more relaxation in the massage treatment because the treatment directly leads to areas of the body that often experience pain during menstruation.

Acupressure is a non-pharmacological way of treating dysmenorrhea. Non-pharmacological dysmenorrhea treatment itself is known to be the safest way and minimizes causing complications (side effects) both short-term and long-term. In contrast to pharmacological treatment, the consumption of drugs can cause several side effects. Pharmacologically managing menstrual pain can be treated with analgesic therapy which is the most common method

According to Potter (2006) in Adlin (2020), analgesic drugs can relieve pain effectively, but the use of analgesics will have an addictive impact and will provide dangerous side effects for the user (Adlin, 2020). While other medications such as non-steroids to treat menstrual pain can cause side effects such as diarrhea, nausea, vomiting, acute asthma, anorexia, dysuria, acne, gastrointestinal bleeding. (Mirbagher & Aghajani, 2013). This is different from non-pharmacological treatment of dysminore pain, which causes almost no side effects at all. So that non-pharmacological treatment of dysmenorrhea, such as acupressure messages and acupressure, should be encouraged in the community, especially adolescents to adult girls.

### Research Limitations

- a. The sample size was only 34 respondents, so it is not enough to describe the real situation.
- b. Some of the selected participants failed to become respondents because their menstruation had entered the second day, where both acupressure messages and acupressure were carried out on the first day.
- c. Research has not controlled for other factors that affect dysmenorrhea pain, such as nutrition, age, psychiatry, depression levels, anxiety stress, etc.
- d. The researcher was accompanied by an acupressure expert

### CONCLUSION

Based on the results of a study on adolescent girls at the Paya Jeget Islamic boarding school, Central Aceh Regarding the effectiveness of Acupressure therapy on premenstrual syndrome pain in adolescent girls at the Paya Jeget Islamic boarding school, Central Aceh, it can be concluded as follows: Majority of Pain Scales before being given Acupressure therapy in the moderate pain category 25 people (73.5%) Majority of Pain Scales after being given Acupressure therapy in the category of no mild pain 22 people (64.7%) There is an effectiveness between Acupressure therapy for premenstrual syndrome pain in adolescent girls at the Paya Jeget Islamic boarding school, Central Aceh, obtained a sig value of  $0.000 < \alpha (0.05)$ . It is hoped that the results of this study will provide the pesantren with information about overcoming premenstrual pain in adolescent girls. This research will also increase the author's knowledge on how to manage premenstrual pain in adolescent girls without the use of drugs. It is hoped that the results of this study can be used by respondents to increase their knowledge and knowledge about how to manage premenstrual pain in adolescent girls. In order for the results to be satisfactory, the researchers are expected to continue this research in the same location or in other locations with a larger number of samples.

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