

Comparison between Giving Warm Water Compressions and Sour Tamarind Drink on Primary Dysmenorrhea

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ABSTRACT

Primary dysmenorrhea is very painful menstruation. One way to overcome dysmenorrhea is by using non-pharmacological strategies such as warm water compresses and sour tamarind drink. This study aims to determine the comparison of giving warm water compresses and tamarind drink to primary dysmenorrhea in vocational school students in the District of Pulau Taliabu, North Maluku. This study was a quasy experiment with a two-group pretest-posttest approach. The sample in this study was 40 female students consisting of 20 being given warm water compresses and 20 being given a tamarind drink, used purposive sampling. This study used an Faces Pain Rating Scale. Data analysis used was paired sample T-test and Independent T-test. The average pretest of warm water compresses was 5.50 and the average post-test value was 1.10 with an average pre-test of drinking tamarind was 5.35 and the post-test average was of 1.15. There was no difference before and after being given warm water compresses with $p=0.911$, and tamarind drink $p=0.797$ toward primary dysmenorrhea. There was no difference in the effect between before and after giving warm water compresses and sour tamarind drink on primary dysmenorrhea among vocational school students. It is hoped that it can be applied to students who experience primary dysmenorrhea. For clinical nurses as non-pharmacological treatment is one of the main choices of treatment of menstrual pain so that side effects are often obtained from analgesic therapy can be minimized or even avoided.

Keywords: primary dysmenorrhea; warm compress; tamarind drink

INTRODUCTION

Reproductive health of adolescent girls is still a problem that needs attention. Reproductive health of young women is not only a sexual problem but also involves all aspects of reproduction, especially for young women including secondary sex development, which includes soft voice, enlarged breasts, enlargement of the hip area, and menarche.

Menarche is defined as the onset of menstruation in a woman at puberty, which usually appears at the age of 12 to 14 years. Important changes occur in adolescence to adult women, indicating that the child has entered the stage of maturity of the sexual organs in his body. Dysmenorrhea is one of the most common gynecological problems and can affect more than 50% of women causing the inability to perform daily activities for 1 to 3 days each month. Adolescent absence from school is one of the consequences of primary dysmenorrhea reaching approximately 25% (Kusmiran 2014).

Primary dysmenorrhea is menstruation that is very painful, without an identifiable pelvic pathology and can occur at the time of menarche or immediately after. Dysmenorrhea is characterized by crampy pain that begins before or immediately after the onset of menstrual flow and continues for 48 to 72 hours (Dahlan and Syahminan, 2017). Meanwhile, secondary dysmenorrhea usually only appears if there is a persistent disease or abnormality of the reproductive organs such as uterine infection, cysts, polyps, or tumors, as well as abnormalities in the position of the uterus that interfere with surrounding organs and tissues (Kusmiran, 2014).

Data from the World Health Organization (WHO) in 2017 found the incidence of 1,769,425 people (90%) people. The incidence of dysmenorrhea in each country is reported to be very high, with an average of more than 50% of women in each country experiencing dysmenorrhea, the prevalence According to Lacovides et al (2015) around 45%-95% of menstruating women experience primary dysmenorrhea.

The prevalence of dysmenorrhea in Indonesia is 107,673 people (64.25%), consisting of 59,671 people (54.89%) experiencing primary dysmenorrhea and 9,496 people (9.36%) experiencing secondary dysmenorrhea (Herawati, 2017). The incidence of dysmenorrhea among women of reproductive age ranges from 45% - 95% (Sadiman, 2017). Primary dysmenorrhea is experienced by 60% - 75% of adolescents. It is reported that 30% - 60% of adolescent girls who experience dysmenorrhea, found 7% - 15% do not go to school (Larasati, 2016).

One way to overcome dysmenorrhea is to use pharmacological and non-pharmacological strategies (Chen et al., 2018). Pharmacological therapy, among others, administration of analgesic drugs, hormonal therapy, or non-steroidal prostaglandin drugs. Non-pharmacological therapy includes exercise, warm compresses, music therapy, relaxation, and drinking herbal drinks. One of the non-pharmacological treatments that are usually carried out by the community is herbal drinks that can reduce pain. Herbal products are one of the desired products to reduce pain without side effects.

One of the herbal products that is an alternative for young women who want to reduce menstrual pain is tamarind extract. Tamarind extract is an extract whose main ingredient is tamarind. Tamarind is naturally believed to contain phenolic compounds as antioxidants, useful as analgesics, anti-inflammatory, antimicrobial. (Sina 2012).

Complementary therapies that can be used to treat pain include aromatherapy, hypnotherapy, deep breath relaxation therapy, warm compresses, acupuncture and distraction (Padila, 2012).

The use of warm compresses can make blood circulation smooth, vascularization is smooth and vasodilation occurs which makes muscles relax because the muscles get nutrients carried by the blood so that muscle contractions decrease (Eka, et al, 2017).

According to research conducted by Amaliah and Afyah (2015), the discussion of research results shows that warm compresses can reduce the degree of menstrual pain in class X students at SMA Negeri 2 Pamekasan. One of the non-pharmacological treatment interventions to reduce pain is a warm compress, which is to give a warm feeling to certain areas by using a bag filled with warm water that causes a warm feeling in the part of the body that needs it. Warm compresses with a temperature of 45 °C - 50.5 °C can be done by attaching a rubber bag filled with warm water to the painful body area.

Research conducted by Murtiningsih and Karlina (2016) The results of the study obtained that the average dysmenorrhea pain scale before compressing was 6.5, the highest pain scale was 9, the lowest was 4 with a standard deviation of 1.654. While the average pain scale for dysmenorrhea after warm compresses is 4.22, the highest pain scale is 7, the lowest is 1 with a standard deviation of 1.665. The results of statistical tests obtained p value = 0.000, it can be concluded at $\alpha = 0.05$ there is a significant difference between the dysmenorrhoea pain scale before and after warm compresses, which means there is an effect. Warm compresses against primary dysmenorrheal pain in adolescents, warm compresses using a rubber jar wrapped in a clean cloth bag with a size of 26cm x 18 cm, filled with 500 ml of hot water with a water temperature of 46°C, measured using a water thermometer, placed in the lower abdominal area for 20 minutes. ,

According to Kostania (2016), tamarind extract is more effective in reducing dysmenorrhea due to the presence of cyclooxygenase and lipooxygenase enzymes in the synthesis of prostaglandins and leukotrienes. Anti-inflammatory substances in tamarind can inhibit the synthesis of prostaglandins. This is a key mechanism in reducing menstrual pain. So that tamarind can stimulate the release of the hormone adrenaline and widen blood vessels, as a result blood flows faster and smoother, as well as lighten the work of the heart pumping blood so that it can reduce pain.

According to Hamdayani (2018), it is stated that there is an effect of giving sour tamarind drink to the reduction of primary dysmenorrhea, namely the average pretest is 5.20 and the average posttest is 2.40, with statistical tests, the value of $p = 0.006$ ($p \leq 0.05$). Drink tamarind as much as 1 cup (100 ml) 2x a day for 1 week before menstruation. It was given for 10-15 minutes after the respondent drank the sour tamarind decoction (Nurul and Lisa, 2019).

Therapy to reduce pain can also be applied such as consuming sour tamarind drinks (i.e. tamarind drinks mixed with tamarind), because tamarind or curcuma longalcurcuma dosmetica is cooling, cleansing and affecting the stomach (Fauzi, 2014). Meanwhile, Tamarind or Tamarindus Indica is believed to have anti-inflammatory, antipyretic and sedative properties (Supriadi, 2014).

Based on a preliminary study obtained from interviews with 20 female students at SMK in Pulau Taliabu, North Maluku, it showed that 11 people said they had experienced mild pain, 6 people had moderate pain, 3 people had severe pain and many students did not know the benefits of drinking tamarind. warm compress therapy as a pain reliever during menstruation. Respondents handled dysmenorrhea by using eucalyptus oil, resting in bed, and some did nothing.

Based on these results and the results of the preliminary study that the researchers carried out, the authors innovated to examine the comparison between giving warm compresses and tamarind drinks to primary dysmenorrhea in vocational school students in Pulau Taliabu, North Maluku.

METHOD

This quasi-experimental study used a two group pretest and posttest design. The population in this study amounted to 75 female students from October to February 2022 at Public Vocational Secondary Schools 3 in Taliabu Island District, North Maluku. With a sample of 40 respondents for each of 20 respondents in group A and 20 respondents in group B. The sampling technique used was purposive sampling. The research instrument used the Faces Pain Rating Scale observation sheet. Data were analyzed using Independent T-test which previously tested for Skwennes and Kurtosis normality and homogeneity.

RESULT

Univariate Analysis

Table 1. Average Primary Dysmenorrhea Before and After Giving Warm Compress for Vocational High School Students in Taliabu Island District, North Maluku

	Hot Compress				
	mean	Mean Difference	Min	Max	Std. Dev
Before	5.50	4.4	2	8	1.433
After	1.10		0	4	1.294

Based on table 1, it is known that primary dysmenorrhea in vocational school students in Pulau Taliabu, North Maluku in the intervention group before being given a warm compress, the average value was 5.50 while the average after being given a warm compress was 1.10. so that the difference in the average value of primary dysmenorrhea before and after being given warm water compresses is 4.4. It can be concluded that there was a change before and after giving warm water compresses to primary dysmenorrhea pain in SMK students in Pulau Taliabu, North Maluku.

Table 2. Average Primary Dysmenorrhea Before and After Giving Tamarind Drink For Vocational High School Students in Taliabu Island District, North Maluku

	Tamarind Drink				
	mean	Mean Difference	Min	Max	Std. dev
Pretest	5.35	4.2	2	9	2.159
Posttest	1.15		0	4	1.496

Based on table 2, it is known that primary dysmenorrhea in vocational school students in Pulau Taliabu District, North Maluku in the intervention group before being given sour tamarind drink obtained an average value of 5.35 while the average after being given sour tamarind was 1.15. so that the difference in the average value of primary dysmenorrhea before and after being given tamarind was 4.2. It can be concluded that there was a change before and after giving tamarind to primary dysmenorrhea pain in vocational school students in Taliabu Island District, North Maluku.

Bivariate Analysis

Differences in the Effect of Giving Hot Compresses and Tamarind Drinks on Primary Dysmenorrhea in Vocational High School Students in Taliabu Island District, North Maluku

Primary Dysmenorrhea	Hot Compress	Tamarind	Mean difference	p-value
	mean	mean		
Pretest	5.50	5.35	0.15	0.797
Posttest	1.10	1.15	0.95	0.911

Calculation of the difference in the mean (mean) of primary dysmenorrhea pretest in vocational school students in the Taliabu Island District, North Maluku, warm water compresses and 0.15 sour tamarind drinks. The results of the Independent T-test showed that the significance value was 0.797 > 0.05, so it was concluded that before being given treatment there was no difference in the effect of warm water compresses and sour tamarind drinks on vocational school students in the District of Pulau Taliabu, North Maluku.

Calculation of the difference in the mean (average) of primary dysmenorrhea postets in SMK students in Taliabu Island District, North Maluku on warm water compresses and 0.15 sour tamarind drinks. The results of the Independent T-test showed that the significance value was $0.911 > 0.05$, so it was concluded that after being given treatment there was no difference in the effect of warm water compresses and sour tamarind drinks on vocational school students in the District of Pulau Taliabu, North Maluku.

DISCUSSION

Based on the results of the study, the level of pain in primary dysmenorrhea before giving warm water compresses was mostly in the moderate pain category as much as 75.0%. 15.0% severe pain and 10.0% mild pain. And after being treated with warm compresses, most of the 50.0% respondents experienced mild pain, 45.0% did not experience pain and 5.00% experienced moderate pain. This shows that there is a decrease in the degree of pain after the warm compress treatment.

A warm compress is a method of providing a warm feeling to the client by using a liquid or device that causes warmth to the part of the body that needs it (Hawa, 2018). The physiological principle of giving warm compresses will be dilation of blood vessels, so that it will improve blood circulation in the tissue. In this way the distribution of s and nutrients to the cells is enlarged and the disposal of the removed substances will be improved, so there will be a better exchange of substances, there will be an increase in cell activity so that it will cause a decrease in pain. Giving warm compresses to areas of the body will give signals that the hypothalamus is stimulated, the effector system issues a signal that initiates sweating and is a peripheral vasodilator. Changes in the size of blood vessels will facilitate circulation of oxygenation, prevent muscle spasms, provide a warm feeling, make the muscles of the body more relaxed and reduce pain.

In accordance with the research results of Mustaghfiroh and Widyastuti (2021) research that warm compresses on the lower abdomen that feel painful using a jar or rubber bag filled with warm water at 40-45°C (measured using a water thermometer), wrapped with a cloth. Warm compresses are carried out for 10 minutes (replacement of warm water with an initial temperature of 40-45°C every 5 minutes to maintain optimal temperature), compresses are given 1x per day, for 2 days. after the respondent was given warm compress therapy for two days showed a decrease in the pain scale, each client experienced a decrease in 4 pain scales, for case I clients from a scale of 5 (moderate pain) to scale 1 (mild pain) while for case II clients from s stage 4 (moderate pain) to 0 (no pain).

Researcher assume Actions taken by giving warm compresses to meet the need for comfort, reduce or relieve pain, reduce or prevent muscle spasms, and provide a sense of warmth. perceived to be reduced or lost. The physiological principle of giving warm compresses will be dilation of blood vessels, so that it will improve blood circulation in the tissue. Respondents felt comfortable and relaxed, so giving for 2 days reduced pain and some even did not feel menstrual pain.

Based on the results of the study, it was known that primary dysmenorrhea in vocational school students in Pulau Taliabu, North Maluku in the intervention group before being given a sour tamarind drink, the average value was 5.35 while the average after being given a sour tamarind drink was 1.15. After 2 days of administration. so that the difference in the average value of primary dysmenorrhea before and after being given tamarind drink was 4.2. It can be concluded that there was a change before and after giving tamarind to primary dysmenorrheal pain in vocational school students in the District of Pulau Taliabu, North Maluku.

Tamarind sour drink is a drink that is processed with the main ingredients of tamarind. Tamarind is naturally believed to contain active ingredients that can function as analgesic, antipyretic and anti-inflammatory, as well as tamarind (tamarind) which has active ingredients as anti-inflammatory, antipyretic and sedative. The results of previous studies indicate that curcumin is safe and non-toxic when consumed by humans, the amount of curcumin that is safe for human consumption is 100 mg/day. Tamarind drink as a pain reliever in primary menstrual pain has minimal side effects and there is no danger if consumed as a habit (Winarno, 2014).

More specifically, it can be explained that the curcumine content in tamarind will inhibit the cyclooxygenase reaction so that it inhibits or reduces inflammation so that it will reduce or even inhibit uterine contractions that cause menstrual pain (Nair, 2012).

According to Sugiharti's research (2018), sour tamarind drinks can reduce primary menstrual pain in adolescents. This is because in tamarind there are active agents that function as anti-inflammatory, analgesic and antioxidant. The sour tamarind drink has basic properties as an analgesic and anti-inflammatory. The active agent in tamarind that functions as an anti-inflammatory and antipyretic is curcumine, while as an analgesic is curcumenol.

Research conducted by Fatmawati et al (2020) can be seen in the statistical test results of the Wilcoxon Signed Ranks Test showing that the average value before being given the jamu tamarind was 3.2188 and the standard

deviation value was 1.03906 while the average value after being given the jamu tamarind was 1.4062 and the standard deviation value is 0.66524. With a significant value = 0.000, meaning $p < 0.05$ then H_1 is accepted, meaning that there is a potential for herbal tamarind to affect the intensity of menstrual pain in adolescent girls. giving the tamarind herbal medicine, 150 ml once a day for 4 days, 2 days before menstruation until the 2nd day of menstruation.

Researchers assume that naturally tamarind is believed to contain active ingredients that can function as analgesic, antipyretic and anti-inflammatory, as well as tamarind (tamarind) which has active ingredients as anti-inflammatory, antipyretic and sedative. The curcumin content in tamarind will inhibit the cyclooxygenase reaction so that it inhibits or reduces uterine contractions that cause menstrual pain. However, there are some respondents who don't really like the aroma of tamarind, but after giving it up to day 2, the pain they feel is reduced.

Based on the results of the analysis using the Paired Sample T-Test, the asymp value was obtained. Sig. (2-tailed) the warm water compress group was $0.000 < (0.05)$ meaning H_0 was rejected and H_a was accepted, namely the effect of warm water compresses on primary dysmenorrhea in vocational school students. The value of asymp is also obtained. Sig.(2-tailed) in the tamarind group of $0.000 < (0.05)$ means H_0 is rejected and H_a is accepted, namely the effect of drinking sour tamarind on primary dysmenorrhea in vocational school students.

The results of the calculation of the difference in the mean (average) of primary dysmenorrhea pretest in students of SMK N 3 Taliabu Utara in warm water compresses and drinking tamarind 0.15. The results of the Independent T-test showed a significance value of $0.797 > 0.05$, so it was concluded that before being given treatment there was no difference in the effect of warm water compresses and drinking sour tamarind on female students of SMK N 3 Taliabu Utara. Calculation of the difference in the mean (average) posttests of primary dysmenorrhea in students of SMK N 3 Taliabu Utara in warm water compresses and drinking tamarind 0.15. The results of the Independent T-test showed a significance value of $0.911 > 0.05$, so it was concluded that after being given treatment there was no difference in the effect of warm water compresses and drinking sour tamarind on students of Public Vocational Secondary Schools 3 Taliabu Utara.

The results of research from Agussafutri (2017) about the difference in the intensity of menstrual pain between the consumption of tamarind and warm compresses for the Stikes Kusuma Husada student in Surakarta that the results of the Mann Whitney test on the difference in the intensity of menstrual pain between the consumption of sour tamarind and warm compresses on the research subjects saw the value of $p = 0.743$, meaning that there is no difference in the intensity of menstrual pain between the consumption of sour tamarind and warm compresses. This means that there is no difference between the two interventions in reducing the intensity of menstrual pain. Both are equally effective in reducing menstrual pain.

According to Anggraini's research (2021) on the Comparison of Effects of Giving Warm Compresses and Tamarind Drinks in Reducing Menstrual Pain (Dysmenorrhea) in Young Women in Mojosongo District. tamarind with a value of 0 and 4, with a p value of 0.313 so that it can be concluded that there is no significant difference between the warm compress group and the sour tamarind drink, both of which have the same effect on reducing the menstrual pain scale.

According to the researcher's assumption, warm water compresses and sour tamarind drinks are equally effective for reducing menstrual pain, and there is no significant difference between the two techniques in reducing menstrual pain. In addition, the initial response to pain before being treated in the two intervention groups was also the same. After being given the intervention, the results in the two intervention groups were also the same, namely most of the changes from moderate pain to mild pain. Several related studies have also proven that both interventions, consuming sour tamarind and warm compresses are effective in reducing or reducing menstrual pain so that the two intervention groups are equally good and there is no difference between the two in reducing menstrual pain.

CONCLUSION

In the intervention group before being given a warm compress, the average value was 5.50, while the average after being given a warm compress was 1.10. in the intervention group before being given sour tamarind drink, the average value was 5.35 while the average after being given sour tamarind was 1.15. 3. There is no difference in the effect between before and after giving warm water compresses and sour tamarind drink on primary dysmenorrhea in vocational school students in the District of Pulau Taliabu, North Maluku. The school can provide counseling about reproductive health, especially dysmenorrhea because there are still many respondents who lack knowledge about dysmenorrhea and many respondents experience dysmenorrhea. Dysmenorrhea requires good handling so as not to interfere with the learning activities and concentration of young women. Especially parents can provide information about reproductive health, especially dysmenorrhea because young women are in a period of growth and development so that they are ready to accept the changes that occur in their bodies. For clinical midwife as non-pharmacological treatment is

one of the main choices of treatment of menstrual pain so that side effects are often obtained from analgesic therapy can be minimized or even avoided.

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