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Article

# Effect of Herbal Therapy on Reducing Dysmenorrhea Pain Scale in Adolescents

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**A B S T R A C T**

Menstruation is an event that naturally (normally) occurs in women who are entering reproductive age. Menstruation occurs because the uterus sheds its endometrial lining periodically. One of the menstrual problems that often arises is dysmenorrhea. This study aims to analyze differences in dysmenorrhea pain scales with herbal therapy of papaya leaf decoction and red ginger decoction. The design used in this study is an experimental quesy through the Pretest-Posttest None equivalent Control Group approach. Samples were taken using non-probability sampling with accidental sampling techniques. The results of the research data were carried out by a bivariate test with a T-test with α: 0.05. Based on the results of the study, the difference after being given papaya leaf decoction and red ginger stew had a mean of 1.66 for papaya leaf decoction and a mean of 1.22 for red ginger stew. The results of the T-Test statistical test showed a result of 0.875 which is greater than α, so it can be concluded that there is no difference between the administration of papaya leaf decoction therapy and red ginger stew. Based on the results of these studies, a decoction of papaya leaves and ginger can be used as an alternative therapy to reduce menstrual pain.

## I. INTRODUCTION

Menstruation is an event that naturally (normally) occurs in women who enter reproductive age. Menstruation occurs because the uterus sheds its endometrial wall periodically (Andira, 2010). One of the menstrual problems that often arises is dysmenorrhea, namely abdominal pain that comes from uterine cramps. Uterine cramps that are felt usually have a characteristic pain that is felt like pain that radiates to the back and lower legs. The intensity of pain that is usually felt by some women may vary, some of the pain (cramping) feels like it arises and then disappears, or some women feel the pain is like being hit by a blunt object and the pain is felt continuously. The frequency and intensity of the onset of pain also vary. Some women experience menstrual pain before menstruation and continue during menstruation according to the cycle. Usually, menstrual pain with the highest pain scale (the most painful) is felt on the first and second day of menstruation, but the next day it will gradually disappear. Some women also experience dysmenorrhea accompanied by several other complaints such as headache, nausea and vomiting, constipation, and frequent urination or frequent urination (Taufan & Bobby, 2014).

The prevalence of menstrual pain in women of reproductive age in the world is very high, namely 45-95%, this data informs that almost all women of reproductive age experience menstrual pain. Based on a preliminary study conducted by researchers in March 2022 at the Al- Asror Mlajah Islamic boarding school, Bangkalan. By asking 36 MTS Class VII students, it was found that 30 students (83%) had dysmenorrhea and 6 students (16%) did not experience dysmenorrhea, 19 (63%) students experienced moderate dysmenorrhea and 11 (36%) students experiencing mild dysmenorrhea.

The factors that cause primary dysmenorrhea (menstrual pain) include psychological or psychiatric factors, factors originating from individual women include: the state of the vagina, the state of endocrine hormones, allergic reactions, and obstruction of the cervical canal (Yahya, 2010). Meanwhile, according to Anurogo (2011), one of the factors that cause dysmenorrhea includes organ abnormalities and intuition factors. Dysmenorrhea or menstrual pain can cause discomfort in the abdomen, especially the lower abdomen, and is often accompanied by other complaints such as nausea and vomiting. In some women, dysmenorrhea can cause more severe complaints that can interfere with daily activities. Some women have to leave their activities and work and have to rest for some time as a result of menstrual pain or dysmenorrhea (Icemi & Wahyu, 2013).

Some efforts or ways to reduce dysmenorrhoea pain, for example by resting and drinking more mineral water or water. According to Prasditya (2014) Carica papaya leaves have anti-pain or analgesic functions. In this study, it was explained about the effect of papaya leaves as an analgesic that can be used to reduce dysmenorrhea pain. In addition to papaya leaf decoction, other herbal drinks can reduce menstrual pain, such as a drink made from boiled red ginger (stew ginger). The content of several compounds in red ginger can function as an anti-inflammatory (inflammatory) so that it can reduce menstrual pain. Some of the compounds contained in red ginger include oleoresin with the bioactive compounds gingerol and shogaol, both of these compounds can block and inhibit the performance of prostaglandins so that the intensity of menstrual pain decreases or decreases.

## II. METHODS

In this study, the design used was an experimental question with a Pretest-Posttest approach to No equivalent Control Group. The sampling method uses a non-probability sample with the opportunity technique. The instrument for data collection using a pain scale sheet. To analyze the results of research data using Paired sample t-test and independent-sample t-test with a level of significance (level of significance) 0.05.

## III. RESULT

**Table 1. Frequency distribution of high school students at Al-Asror Islamic Boarding School Mlajah Bangkalan based on the menstrual pain scale (primary dysmenorrhea) who were given papaya leaf decoction therapy and not given papaya leaf decoction therapy**

| No | Pretest pain scale | Posttest pain scale | Difference | Between |
|---|---|---|---|---|
| 1 | 2 | 2 | 0 | Permanent |
| 2 | 4 | 2 | 2 | Decrease |
| 3 | 7 | 5 | 2 | Decrease |
| 4 | 5 | 4 | 1 | Decrease |
| 5 | 3 | 2 | 1 | Decrease |
| 6 | 5 | 3 | 2 | Decrease |
| 7 | 4 | 3 | 1 | Decrease |
| 8 | 7 | 4 | 3 | Decrease |
| 9 | 6 | 3 | 3 | Decrease |
| Mean | 4,77 | 3,11 | 1,66 | |
| | Statistic : *Paired t test* | | *a* = 0,05<br>*p value* = 0,005 | |

Based on table 1 regarding changes in the dysmenorrhea pain scale experienced by MTS students at the Al-Asror Mlajah Islamic Boarding School, Bangkalan, it is known that the mean before being given papaya leaf decoction was 4.77 while the mean after being given papaya leaf decoction was 3.11. Then a bivariate analysis was performed using a paired t-test statistical test with the results of p-value <a or (0.005 <0.5) so that it can be concluded that there are differences in the scale of dysmenorrhoea experienced by students who were given papaya leaf decoction therapy and those who were not given papaya leaf decoction therapy papaya. There was a decrease in the dysmenorrhea pain scale in female students who were given papaya leaf decoction therapy.

**Table 2. Frequency Distribution of High School Students at Al-Asror Mlajah Islamic Boarding School Bangkalan Based on Menstrual Pain Scale (Primary Dysmenorrhea) Before and After Given Red Ginger Wedang Therapy**

| No | Pretest pain scale | Posttest pain scale | Difference | Between |
|---|---|---|---|---|
| 1 | 4 | 5 | 1 | Decrease |
| 2 | 2 | 4 | 1 | Decrease |
| 3 | 5 | 2 | 2 | Decrease |
| 4 | 4 | 1 | 1 | Decrease |
| 5 | 3 | 3 | 2 | Decrease |
| 6 | 6 | 3 | 2 | Decrease |
| 7 | 3 | 3 | 0 | Permanent |
| 8 | 6 | 5 | 1 | Decrease |
| 9 | 5 | 2 | 1 | Decrease |
| Mean | 4,22 | 3,11 | 1,22 | |
| | Statistic : *Paired t test* | | *a* = 0,05<br>*p value* = 0,002 | |

Based on table 2 regarding changes in dysmenorrhea pain in MTS students at Al-Asror Islamic Boarding School, Mlajah Bangkalan, it is known that the mean before being given red ginger stew is 4.22 while after being given red ginger stew it is known the mean is 3.11. Then a bivariate analysis was carried out using a paired t-test statistical test with the results of p-value <a or (0.002 < 0.05) so that it can be concluded that there is a difference in the dysmenorrhea pain scale experienced by students who are given red ginger stew therapy with those who are not given red ginger stew therapy.

**Table 3. Differences in dysmenorrhea pain scales between the group given papaya leaf decoction and the group given red ginger decoction**

| No | Posttest Papaya Leaf Decoction | Posttest Red Ginger Stew |
|---|---|---|
| 1 | 0 | 1 |
| 2 | 2 | 1 |
| 3 | 2 | 2 |
| 4 | 1 | 1 |
| 5 | 1 | 2 |
| 6 | 2 | 2 |
| 7 | 1 | 0 |
| 8 | 3 | 1 |
| 9 | | 1 |
| *Mean* | 1,66 | 1,22 |
| | *Independent Samples T-Test* | *α = 0,05*<br>*Pvalue = 0,575* |

Based on table 3.3 the difference after being given boiled papaya leaves and stew red ginger there is a mean of 1.66 for boiled papaya leaves and 1.22 mean for stew red ginger in MTS students at Pondok Pesantren Al-Asror Mlajah Bangkalan. After the Independent Samples T- Test, a statistical test was carried out, and the p Value (0.575)>α (0.05) showed that there was no difference between the administration of papaya leaf decoction and red ginger stew therapy to female students who experienced dysmenorrhea pain. So it can be concluded that the decoction of papaya leaves and ginger stew can effectively reduce the intensity of dysmenorrhoea pain.

## IV. DISCUSSION

Then a bivariate analysis was carried out using a paired t-test statistic with the results of p- value <a or (0.005 <0.5) so that it can be concluded that there is a difference in the dysmenorrhea pain scale experienced by students who are given papaya leaf decoction therapy with those who are not given leaf decoction therapy papaya.

Some of the vitamin content is contained in papaya leaves (Carica papaya), one of which is the content of vitamin E, where vitamin E in papaya leaves can inhibit the formation of prostaglandins. The content of Carica papaya can inhibit the metabolism of the phospholipase A enzyme and can inhibit the activation process of the cyclooxygenase enzyme during the post- translational period during the production of prostaglandins. This can have an impact on the occurrence of a decrease in menstrual

pain or menstrual pain experienced by women periodically. In addition, the anti-pain effect of vitamin E in Carica papaya leaves is also caused by the activity of increasing prostacyclin and PGE2 production due to stimulation of activity by vitamin E. prostacyclin and PGE2 can relax uterine smooth muscle due to their vasodilator function to reduce menstrual pain (Marlina, 2012). The flavonoids contained in papaya leaves have an anti-pain function or analgesic effect, this can happen because the flavonoid content in papaya leaves can inhibit the production and metabolism of the cyclooxygenase enzyme. By inhibiting the activity of the cyclooxygenase enzyme by flavonoids, the mechanism of action and production of prostaglandins is also inhibited. The reduced synthesis of prostaglandins causes the production of arachidonic acid to also be inhibited, resulting in reduced pain (Anarogo, 2019).

Based on the results of the study, the mean before being given red ginger stew was 4.22, while after being given red ginger stew, the mean was 3.11. Then a bivariate analysis was carried out using a paired t-test statistical test with the results of p-value <a or (0.002 < 0.05) so that it can be concluded that there is a difference in the dysmenorrhea pain scale experienced by students who are given red ginger stew therapy with those who are not given ginger stew therapy. red.

The content of several vitamins in the red ginger rhizome can calm nerves and relax muscles so that it can reduce pain. Some of the vitamins contained in red ginger such as vitamins A, B1, and C, in addition to red ginger rhizome vitamins also contain several minerals such as calcium (ca +), magnesium (mg), iron (Fe), and beta carotene (the initial form of vitamin A). . Red ginger contains several important compounds that can suppress pain such as shogaol and gingerol compounds. Shogaol and gingerol have a higher antioxidant effect than the antioxidant properties contained in vitamin E (El Siddigetal. 2006). Red ginger also contains the oleoresin, the content of oleoresin substance that can reduce pain through pain-inhibiting activities which is almost the same as ibuprofen in reducing pain. In addition to the content of vitamins, minerals, and several important compounds in red ginger as mentioned above, red ginger also reduces the metabolism of prostaglandin formation. If the number of prostaglandins decreases, the pain will also decrease (Ozgoli, Goli, & Moattar, 2009 in Arfiana 2014). Red ginger contains compounds that function as an anti-inflammatory (Grontvedetal. 1986 in Hernani & Winarti, 2012)

## V. CONCLUSION

Papaya leaf decoction and ginger stew can both reduce the intensity of dysmenorrhea pain effectively.

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