DIFFERENCE IN EFFECTIVENESS OF WARM GINGER WATER COMPRESS AND SOUR TURMERIC ON REDUCING PRIMARY MENSTRUAL PAIN IN MIDWIFERY STUDENTS AT MARANATHA SCHOOL KUPANG, EAST NUSA TENGGARA

Matilda Bupu Ria, Clara Yunita Ina Ola, Damita Palalangan

Study Program of Diploma-III in Midwifery, Institute of Health Science Maranatha Kupang, East Nusa Tenggara

ABSTRACT

Background: Dysmenorrhea is pain during menstruation felt by adolescent women, usually felt with cramps and concentrated in the lower abdomen. Complaints of menstrual pain can vary, ranging from mild to severe. This study aimed to prove the difference between the effectiveness of warm ginger water compress and the consumption of sour turmeric on reducing primary menstrual pain in students of Study Program of Diploma-III in Midwifery, Institute of Health Science Maranatha, Kupang, East Nusa Tenggara.

Subjects and Method: This was a quasi-experiment conducted at Maranatha school, Kupang, East Nusa Tenggara, in 2019. A sample of 60 female students with menstrual pain was divided into two groups: (1) 30 students in the experimental group received warm ginger compresses, and (2) 30 students in the control group received turmeric and sour drinks. The dependent variable was menstrual pain, which was measured by visual analog scale (VAS). The independent variable was dysmenorrhea pain reliever herbal medicine (either warm compresses of ginger or tamarind turmeric). The data were analyzed by Mann-Whitney test.

Result: Mean pain score in tamarind turmeric drink group (Mean= 27.32; SD = 1.38) was lower than the mean pain score in the ginger warm compresses (Mean = 33.68; SD = 1.38), and it was statistically significant (p= 0.148).

Conclusion: Tamarind turmeric drink is more effective than the ginger warm compresses in relieving dysmenorrhea.

Keyword: Primary Menstrual Pain, Warm Ginger Compress, Consumption of Turmeric and Acid.

BACKGROUND

Dysmenorrhea is defined as pain during menstruation, usually with cramps and centred in the lower abdomen. Complaints of menstrual pain can vary from mild to severe. Dysmenorrhea divided into 2, namely primary dysmenorrhea and secondary dysmenorrhea. Primary dysmenorrhea is caused without any gynaecological problems that occur after menarche until the age of 25 years and secondary dysmenorrhea is caused by gynaecological abnormalities experienced over the age of 25 years. The age of 15-25 years is the age at which primary dysmenorrhea will reach its maximum, and as a consequence, the sufferer must leave his job for hours to rest (Andira, 2013).

According to the World Health Organization (WHO), the incidence rate of menstrual pain in the world is very high. The incidence of dysmenorrhea amounts to 1,769,425 people (90%) with 10-15% experiencing severe dysmenorrhea. On average more than 50% of women in each country experience menstrual pain. The prevalence of menstrual pain in the United States is estimated at 45-90%. Incidents of menstrual pain in adolescents are reported to be approximately 92%, from Sweden reported...
menstrual pain in 90% of women aged less than 19 years and 67% of women aged 24 years (Proverawati & Misaroh, 2012).

The prevalence of dysmenorrhea in the United States is estimated at 45-90% (Anurogo and Wulandari, 2011). In Mexico, the incidence of dysmenorrhea reached 64%, Italy 68%, Jordan 55.8%, Turkey 84.9%, and Malaysia 74.5% (Ortiz, 2010; Ping and Ming, 2010; Aljefout et al., 2014; Seven and Eski 2014; Zannoni et al., 2014).

The incidence of dysmenorrhea in Indonesia is also no less high compared to other countries, in Indonesia the incidence of dysmenorrhea consists of 54.89% of primary dysmenorrhea and 21.11% of secondary dysmenorrhea and the incidence rate of dysmenorrhea ranges from 9.36% among women of productive age (Astari & Audina, 2020).

Based on the initial survey conducted by researchers on May 15, 2019, in the D-III Midwifery Study Program of STIKes Maranatha Kupang, East Nusa Tenggara, data were obtained that of the 100 respondents who menstruated, 70 experienced dysmenorrhea and did not use pharmacological therapy or non-pharmacological therapy. They did not experience dysmenorrhea for more than two days but were quite disruptive to routine activities carried out. This indicates that there are still many young women who have dysmenorrhea, thus disrupting their activities.

Treatment of primary dysmenorrhea can be done pharmacologically and non-pharmacologically. Treatment of primary dysmenorrhea pharmacology can be done with drugs that can relieve menstrual pain (analgesics) while handling primary dysmenorrhea can be done non-pharmacologically, namely herbal herb therapy that has been believed to be beneficial from traditional plant ingredients. Some plant ingredients are lived to reduce menstrual pain, namely turmeric, acid, cinnamon, cloves and ginger (Anurogo, 2011).

Some herbs that can be used to relieve primary menstrual pain are ginger and turmeric acid. Ginger in traditional medicinal herbs serves as a stimulant remedy of large mucous membranes (a stimulant), digestion and flatulence (carminative), rheumatism, headaches, and anti-hardening of blood vessels. Ginger compresses contain cyclon oxygenation enzymes that can reduce pain in primary dysmenorrhea. Besides, ginger also has a heating effect where this heat can relieve pain, stiffness and muscle spasm or the occurrence or vasodilation of blood vessels (Susanti, 2014).

In addition to ginger, herbal ingredients that can be used to reduce menstrual pain is an acidic turmeric drink, curcumin content in turmeric and anthocyanins in acids will inhibit cyclooxygenase (COX) reactions from inhibiting or reducing the occurrence of inflammation so that it will reduce or even inhibit uterine contractions that cause menstrual pain (Leli, 2011).

Based on the description above, researchers are interested in research to analyze the difference in the effectiveness of warm compresses of ginger and the consumption of turmeric acid against the decrease in the scale of primary menstrual pain.

SUBJECTS AND METHOD

1. Study design
This study a quasi experiment with type two group pre post test design was conducted in study program D-III Midwifery Study STIKes Maranatha Kupang East Nusa Tenggara, June to July 2019. Sampling techniques in this study are purposive sampling.

2. Population and sample
A sample of 60 female students with menstrual pain was divided into two groups: (1) 30 students in the experimental group received warm ginger compresses, and (2) 30 students in the control group received turmeric and sour drinks.

3. Study variables
The dependent variable was menstrual pain, which was measured by visual analog scale (VAS). The independent variable was dysmenorrhea pain reliever herbal medicine (either warm compresses of ginger or tamarind turmeric).

4. Study Instruments
The data was collected using questionnaires and giving treatment to research subjects.

5. Data Analysis
The data were univariately analyzed using frequency and biavariate distribution tables using wilcoxon signed rank test and Mann
Whitney statistical test with the help of SPSS 22 application.

**RESULT**

Table 1 shows the characteristics of the samples in this study include age, menarche age, length of dysmenorrhea, time of perceived menstrual pain, and therapy performed during menstrual pain.

Based on table 1, it can be known that students who were given warm compresses of ginger almost half were aged 19-20 years, namely as many as 14 people (46.7%), while the students who were given the consumption of acidic turmeric drinks almost half were aged 19-20 years, namely as many as 13 people (43.3%).

Students who were given a warm compress of ginger half experienced menarche at the age of <12 years, namely as many as 15 people (50.0%), while the students who were given the consumption of turmeric acid mostly experienced menarche at the age of <12 years, namely as many as 16 people (53.3%).

Table 1 also shows that students who were given warm compresses of ginger and who were given the consumption of turmeric acid almost half experienced dysmenorrhea during >2 days which is as many as 12 people (40.0%). Students who were given warm compresses of ginger almost half had dysmenorrhea on the first day of menstruation, namely as many as 13 people (43.4%). Students who are given warm compresses of ginger or given the consumption of turmeric acid entirely do not do any therapy during dysmenorrhea (100%).

Based on data from table 2 shows that before giving warm compress ginger obtained mean value (average menstrual pain scale) is 4.33; median (middle value) is 4.00; mode (the scale of frequent menstrual pain) is 4; standard deviation is 1.322; the minimum value of the pain scale is 2, and the maximum value of the pain scale is 7.

Table 3 shows that before being given the consumption of turmeric acid obtained mean value (average menstrual pain scale) is 4.60; median (middle value) is 5.00; mode (the scale of frequent menstrual pain) is 5; standard deviation is 1,163; the minimum value of the pain scale is 3; the maximum value of the pain scale is 7. While after being given the consumption of turmeric acid obtained the mean value (average menstrual pain scale) is 3.43; median (middle value) is 3.00; mode (the scale of frequent menstrual pain) is 3; standard deviation is 1.278; the minimum value of the pain scale is 1; the maximum value of the pain scale is 6.

Based on table 4 can be interpreted that the average (mean) scale of menstrual pain before being given a warm compress of ginger is greater (4.33) than on the menstrual pain scale after being given a warm compress of ginger (4.00). Based on the mean results, it can be concluded that the administration of warm compresses ginger is effective to reduce menstrual pain. However, to test whether there is a difference in the effectiveness of decreasing the scale of menstrual pain is statistically significant, the Wilcoxon Signed Rank Test statistical test is carried out.

Statistical test results using Wilcoxon Signed Rank Test contained in table 5.8 showed that p-value 0.004 <α 0.05, then Ho was rejected and Hı received means that there is a significant difference in the effectiveness of menstrual pain reduction before and after being given a warm compress of ginger in students of Program study of D-III Midwifery STIKes Marana Kupangta East Nusa Tenggara Year 2019.

Based on table 5 can be interpreted that the average (mean) scale of menstrual pain before being given the consumption of turmeric acid is greater (4.60) than the scale of menstrual pain after the consumption of turmeric acid (3.43). Based on the mean results, it can be concluded that the consumption of turmeric acid is effective to reduce menstrual pain. However, to test whether there is a statistically significant difference in the effectiveness of menstrual pain scale reduction, the Wilcoxon Signed Rank Test statistical test was conducted.
Statistical test results using Wilcoxon Signed Rank Test contained in table 5.9 showed that p-value 0.000 < α 0.05, then H₀ was rejected and H₁ received means there is a significant difference in the effectiveness of menstrual pain reduction before and after being given the consumption of turmeric acid in D-III Midwifery STIKes Maranatha Kupang, East Nusa Tenggara Study Program student 2019.

In table 6, statistical test results showed using Mann Whitney statistical test that analyzed the difference in the effectiveness of ginger warm compressing and Tumeric acid consumption against the decrease in primary menstrual pain scale in STIKes Maranatha Kupang NTT Study Program D-III Midwifery students in 2019. The test results showed that p-value 0.148 > α 0.05, then H₀ accepted, and H₁ rejected means there is no significant difference in the effectiveness of the administration of warm compresses ginger and consumption of Turmeric Acid against the decrease in the scale of primary menstrual pain.

<table>
<thead>
<tr>
<th>Table 1. Characteristic sample</th>
<th>Warm compress ginger</th>
<th>Acid Turmeric Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-20 years old</td>
<td>14</td>
<td>46,7</td>
</tr>
<tr>
<td>21-22 years old</td>
<td>11</td>
<td>36,7</td>
</tr>
<tr>
<td>23-25 years old</td>
<td>5</td>
<td>16,6</td>
</tr>
<tr>
<td>Age of menarche</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;12 years old</td>
<td>15</td>
<td>50,0</td>
</tr>
<tr>
<td>12-16 years old</td>
<td>11</td>
<td>36,7</td>
</tr>
<tr>
<td>16 years old</td>
<td>4</td>
<td>13,3</td>
</tr>
<tr>
<td>Old dismenorhea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 day</td>
<td>8</td>
<td>26,7</td>
</tr>
<tr>
<td>2 days</td>
<td>10</td>
<td>33,3</td>
</tr>
<tr>
<td>&gt;2 days</td>
<td>12</td>
<td>40,0</td>
</tr>
<tr>
<td>Menstrual pain time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before menstruation</td>
<td>10</td>
<td>33,3</td>
</tr>
<tr>
<td>First day of menstruation</td>
<td>13</td>
<td>43,4</td>
</tr>
<tr>
<td>During menstruation</td>
<td>7</td>
<td>23,3</td>
</tr>
<tr>
<td>Therapy performed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>30</td>
<td>100,0</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>0</td>
<td>0,0</td>
</tr>
<tr>
<td>Non Pharmacology</td>
<td>0</td>
<td>0,0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2. Distribution of Menstrual Pain Scale Before and After Given Ginger Warm Compress</th>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menstrual Pain Levels Before Being Given a Warm Compress of Ginger</td>
<td>30</td>
<td>4.33</td>
<td>1.32</td>
<td>2</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Menstrual Pain Level After Being Given a Warm Compress of Ginger</td>
<td>30</td>
<td>4.00</td>
<td>1.44</td>
<td>2</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3. Distribution of Primary Menstrual Pain Scale Before and After Acid Turmeric Consumption</th>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menstrual Pain Levels Before Being Given Turmeric Acid</td>
<td>30</td>
<td>4.60</td>
<td>1.16</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Menstrual Pain Levels After Being Given Turmeric Acid</td>
<td>30</td>
<td>3.43</td>
<td>1.28</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Analysis of Differences in Effectiveness of Decreased Primary Menstrual Pain Scale Before and After Given Warm Compress Ginger

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menstrual Pain Levels Before Being Given a</td>
<td>30</td>
<td>4.33</td>
<td>1.32</td>
<td>0.004</td>
</tr>
<tr>
<td>Warm Compress of Ginger</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menstrual Pain Level After Being Given a</td>
<td>30</td>
<td>4.00</td>
<td>1.44</td>
<td></td>
</tr>
<tr>
<td>Warm Compress of Ginger</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5 Analysis of Differences in Effectiveness of Decreased Primary Menstrual Pain Scale Before and After Consumption of Turmeric Acid

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menstrual Pain Levels Before Being Given</td>
<td>30</td>
<td>4.60</td>
<td>1.16</td>
<td>0.000</td>
</tr>
<tr>
<td>Turmeric Acid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menstrual Pain Levels After Being Given</td>
<td>30</td>
<td>3.43</td>
<td>1.28</td>
<td></td>
</tr>
<tr>
<td>Turmeric Acid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6 Analysis of Differences in Effectiveness of Warm Compresses of Ginger and Consumption of Turmeric Acid Against Decreased Primary Menstrual Pain Scale

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menstrual Pain Levels After Warm Compress</td>
<td>30</td>
<td>33.68</td>
<td>1.38</td>
<td>0.148</td>
</tr>
<tr>
<td>Ginger</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menstrual Pain Levels After Acid Turmeric</td>
<td>30</td>
<td>27.32</td>
<td>1.84</td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION

1. Menstrual Pain Scale Before Given Warm Compress ginger

   Based on data obtained from table 2 shows that the scale of menstrual pain of respondents before being given a warm compress of ginger is at most on a scale of 4, where the scale of menstrual pain is included in the category of moderate menstrual pain. Of the 30 students who experienced menstrual pain, 11 people (36.7%) moderate menstrual pain on a scale of 4.

   Primary dysmenorrhea is menstrual pain that is found without any abnormalities in the genitals. Primary dysmenorrhea occurs sometime after menarche usually after 12 months or more, therefore the menstrual cycles in the first month after menarche is generally anovulatory that are not accompanied by pain. The pain arises not long before or together with the onset of menstruation and lasts for several hours, although in some cases it can last several days. The nature of pain is an infected convulsive seizure, usually limited to the lower abdomen, but can spread to the waist and thigh area (Hermawan, 2012).

   Based on table 1 shows that half of experienced respondents menarche at the age of <12 years, which is as many as 15 people (50.0%). From these results, respondents likely experience menstrual pain on a moderate scale, because menarche earlier in age <12 years is one of the factors that affect the scale of menstrual pain. This is following the opinion of Bare & Smeltzer (2002) which states that women who experience menarche at the age of <12 years because reproductive devices have not functioned optimally and are not ready to change so that pain arises during menstruation. Also, almost half of respondents aged 19-20 years, namely as many as 14 people (46.7%), this indicates that the younger the respondent, so that menstrual pain is felt more severe, this is following the opinion of Bare & Smeltzer (2002) who said that the younger a person’s age, the more likely to experience pain each time.

   Bare & Smeltzer (2002) also mentions other factors that can influence the occurrence of menstrual pain in addition to menarche age and age, these factors are the length of menstruation more than normal, nutritional status, and have never been pregnant and giving birth.

   Based on the researchers’ observations, respondents reacted to menstrual pain in the 7th International Conference on Public Health Solo, Indonesia, November 18-19, 2020 [5 https://doi.org/10.26911/the7thicph-FP.03.35
different ways. Respondents showed a variety of typical body movements and grinning facial expressions but were still able to indicate the location of the pain and were able to discuss the experienced and were able to follow the researchers' instructions well. Besides, physical activity disorders that occurred in respondents caused respondents to concentrate less on learning because of menstrual pain.

2. Menstrual Pain Scale After Being Given a Warm Compress of Ginger

Based on table 2 shows that respondents who have been given treatment in the form of warm compresses ginger in the lower abdomen obtained results that there is a decrease in the scale of menstrual pain, this is evidenced by the mean value that has decreased. The average (mean) menstrual pain scale before being given a warm compress of ginger is greater (4.33) than the menstrual pain scale after being given a warm compress of ginger (4.00). Based on the mean results, it can be concluded that the administration of warm compresses ginger is effective to reduce menstrual pain.

Based on the observations of researchers, after being given a warm compress of ginger on average respondents experienced 1 to 2 scales decreased menstrual pain than before given warm compress ginger, this is because in ginger (Zingiber Officinale Rosc) there is oleoresin content that can provide a warm taste effect that can relieve pain (Setiawan, 2015). Ginger compress, according to Susanti (2014), can reduce pain in primary dysmenorrhea. Ginger Compress is a traditional treatment to reduce primary dysmenorrhea pain. Ginger compresses have an enzyme content of cyclooxygenation that can reduce pain in primary dysmenorrhea. Besides ginger also has an effect that is hot and spicy taste, where this heat can relieve pain, stiffness and muscle spasm or the occurrence of vasodilation of blood vessels, the maximum benefit will be achieved within 20 minutes after the application of heat. The decrease in the intensity of menstrual pain experienced by the respondents of the experiment group was caused by the presence of impulses that suppressed the pain so that the pain was reduced. - Impulses - impulses in the form of a warm feeling that is the effect of compressing ginger that hits the part that feels a pain that is the lower abdomen. The local response to heat occurs through stimulation of nerve endings, which are inside the skin and sensitive to temperature. This stimulation sends impulses from the peripherals to the hypothalamus, which will cause awareness of local temperatures and trigger the onset of adaptive responses to maintain the body's normal temperature.

3. Menstrual Pain Scale Before Acid Turmeric Consumption

Based on data obtained from table 3 shows that the scale of menstrual pain of respondents before being given the most acidic turmeric consumption is on a scale of 5, where the scale of menstrual pain is included in the category of moderate menstrual pain. Of the 30 students who experienced menstrual pain, as many as 10 people (33.3%) moderate menstrual pain on a scale of 5.

Dysmenorrhea causes pain in the lower abdomen, which can radiate to the lower back and limbs. Pain is felt as missing cramps arise or as persistent blunt pain exists. Usually, the pain begins to arise shortly before or during menstruation, covering the peak within 24 hours, and after 2 days it will disappear. Dysmenorrhea is also often accompanied by headache, nausea, constipation, or diarrhea and often has a headache. Sometimes there is vomiting (Suparyanto, 2011).

Based on table 1 shows that almost half of respondents aged 19-20 years, namely as many as 13 people (43.3%), the age of young respondents influenced the level of pain scale experienced because at a younger age the state of the cervix is still narrow. This is following the opinion of Bare & Smeltzer (2002) which states that older women will experience menstruation more often than the cervix increases in width so that in old age the incidence of dysmenorrhea is rarely found.

Also, some respondents experienced menarche at the age of <12 years, namely as many as 16 people (53.3%), menarche earlier in age <12 years is one of the factors that affect the scale of menstrual pain. This is following the opinion of Bare & Smeltzer (2002) which states that women who experience menarche at the age of <12 years because reproductive devices have not functioned optimally and are not ready to change so that pain arises during menstruation. As for other factors that can influence the occurrence of menstrual pain in

The 7th International Conference on Public Health
Solo, Indonesia, November 18-19, 2020 [6]
https://doi.org/10.26911/the7thicph-FP.03.35
addition to menarche age and age, these factors are the length of duration more than normal, nutritional status, and has never been pregnant and giving birth (Bare & Smeltzer, 2002).

All respondents (100%) do not take any action, both pharmacological therapy and non-pharmacological therapy, to reduce menstrual pain felt because respondents understand that menstrual pain is a physiological state that will heal by itself. However, many respondents recognized that menstrual pain felt is quite disruptive to their daily activities.

4. Menstrual Pain Scale After Being Given Acid Turmeric Consumption

Table 3 shows that respondents who had been given treatment in the form of acid turmeric consumption found that there was a decrease in the scale of menstrual pain, as evidenced by the mean value, mode, minimum menstrual scale and maximum menstrual scale decreased. Based on data from table 3 shows that before given the consumption of turmeric acid obtained mean value (average menstrual pain scale) is 4.60; mode (the scale of frequent menstrual pain) is 5; the minimum value of the pain scale is 3, and the maximum value of the pain scale is 7. While after being given the consumption of turmeric acid obtained the mean value (average menstrual pain scale) is 3.43; mode (the scale of frequent menstrual pain) is 3; the minimum value of the pain scale is 1, and the maximum value of the pain scale is 6.

Since a long time ago, the herb of turmeric acid is used to reduce menstrual pain during menstruation (Purwanto & Indarto, 2013). Turmeric has long been used as an anti-bacterial, anti-inflammatory, and anti-oxidant (Mary et al., 2012). Data according to Traditional Medicine Industry (IOT) and IKOT (Small Industry of Traditional Medicine) from 4, 1987 there are 40% of people using turmeric as a treatment, and 10% of people consume turmeric to reduce menstrual pain (Ningharmanto, 2008 in Leli, Rahmawati & Atik, 2011).

Acidic fruits have many medical benefits that have been trusted, especially the content of xylose, xyloglucans, and anthocyanins contained in the fruit. Xylose and xyloglucans are very useful in terms of anti-inflammatory and antipyretic and anthocyanin because the agent can inhibit the work of cyclohexyl genes enzymes (COX) to inhibit the release of prostaglandins to reduce pain. While the ingredients tannins, saponins, sesquiterpenes, alkaloids, and phlobatamins will be beneficial to reduce the activity of the nervous system (Hatcher et al., 2011). The content of flavonoids contained in acids also serves as pain relievers and sweat straighteners (Sina, 2012).

On that basis, the consumption of beverages that are a combination of turmeric and acid extracts given to respondents who experience menstrual pain has good effectiveness in lowering the scale of menstrual pain. This is evidenced by the results of research in which respondents who were given an average consumption of turmeric acid drinks experienced 1 to 3 scales of decreased menstrual pain than before being given the consumption of acid turmeric drinks, this is due to the combination of turmeric and acid extracts given to respondents efficacious to reduce the scale of menstrual pain felt.

5. Analysis of Effectiveness of Decreased Menstrual Pain Scale Before and After Given Warm Compress ginger

Based on table 4 can be interpreted that the average (mean) scale of menstrual pain before being given a warm compress of ginger is greater (4.33) than the scale of menstrual pain after being given a warm compress of ginger (4.00). Based on the mean results, it can be concluded that the administration of warm compresses ginger is effective to reduce menstrual pain.

Statistical test results using Wilcoxon Signed Rank Test contained in table 4 showed that p-value 0.004 < α 0.05, then Howas rejected and Hı accepted means that there is a significant difference in the effectiveness of menstrual pain reduction before and after being given a warm compress of ginger in students D-III Midwifery STIKes Maranatha Kupang NTT Year 2019.

Based on the observations of researchers, after being given warm compress ginger on average respondents experienced 1 to 2 scales decreased menstrual pain than before given warm compress ginger. The results of this study are in line with the results of research conducted by Maidarti, et al. (2018) which shows that the administration of warm compresses ginger affects the effectiveness of decreasing the scale of primary menstrual pain.
from the results of maidarti research, et al. (2018) the average pain scale decrease is reduced by only 1 stage, such as from moderate to mild pain, or severe pain to moderate pain. Research conducted by Mintarsih and Sugihartingsih (2018) also showed the same thing. Namely, there is an influence of ginger compressing (zingiber officinale rosc.) in reducing primary dysmenorrhea pain.

Reduced menstrual pain after being given a warm compress of ginger in the lower abdomen of the respondent for 20 minutes due to the dilation of blood vessels resulting in impulse stimuli that block the perception of pain so as not to reach the hypothalamus. The hot and spicy effect on ginger also helps relieve pain, stiffness and spasm of the lower abdominal muscles that cause menstrual pain. Of the 30 respondents, 8 respondents experienced a decrease of 1 to 2 menstrual pain scales. In comparison, as many as 21 respondents did not experience a decrease in menstrual pain after being given a warm compress of ginger. This may happen because the treatment is only done once and then directly done the scale measurement of re-pain. However, from the results of this study alone can show that there is a significant difference in the scale of menstrual pain before and after being given the treatment of giving warm compresses ginger as evidenced by the Wilcoxon signed-rank test with a p-value of 0.004. Of course, the effect of decreasing the scale of menstrual pain will be more noticeable if the compress of menstrual pain is carried out not only once a day.

This research is in line with research conducted by Chen, Berrett, & Kwekkeboom (2016) as well as research conducted by Rahnama et al. (2012) where both concluded that ginger administration is more effective against the reduction of primary menstrual pain compared to placebo administration. Similar, systematic research reviews conducted by Xu, Xang, & Wang (2020) showed that the administration of herbal medicines such as cinnamon, anese, and ginger could lower the level of primary menstrual pain and statistically significant. Other research also mentioned that the administration of warm compresses ginger could relieve non-specific pain in the back waist, which means it can also be used to relieve primary had to pain where the pain during menstruation usually also spreads to the back waist (Lem & Lee, 2018).

6. Analysis of Effectiveness of Decreased Menstrual Pain Scale Before and After Acid Turmeric Consumption

Based on table 5 can be interpreted that the average (mean) scale of menstrual pain before being given the consumption of turmeric acid is greater (4.60) than the scale of menstrual pain after being given the consumption of turmeric acid (3.43). Based on the mean results, it can be concluded that the consumption of turmeric acid is effective to reduce menstrual pain. Of the 30 respondents who were given the consumption of turmeric acid drinks, only 2 respondents had a fixed pain scale. In contrast, 28 others experienced a significant decrease in pain scale from 1 to 3 pain scales. This indicates that the consumption of turmeric acid is very effective to reduce menstrual pain.

Statistical test results using Wilcoxon Signed Rank Test contained in table 5 showed that p-value 0.000 <α 0.05, then Ho was rejected and Hı received means there is a significant difference in the effectiveness of menstrual pain reduction before and after being given the consumption of turmeric acid in students of The Midwifery Study Program D-III STIKes Maranatha Kupang- NTT Year 2019. The results of this study are in line with research conducted by Sugiharti and Sundari (2018) which showed there was a significant difference in the decrease in the scale of primary menstrual pain before and after the acidic turmeric drink (p-value 0.001).

Marsaid, et al. (2018) also showed the same results, namely the administration of turmeric acid extract could lower dysmenorrhea. Marsaid research results, et al. (2018) showed before being given turmeric acid extract most respondents experienced moderate menstrual pain, namely 14 respondents (53.8%). Meanwhile, after being given turmeric acid extract, most respondents did not experience menstrual pain as many as 19 respondents (73.1%).

Therefore, it is recommended that young women consume turmeric acid regularly to reduce the symptoms of perceived menstrual pain. Research conducted by Khayat et al. (2015) also found the same thing is that turmeric acid can also reduce the symptoms of cramps caused before menstruation.

The 7th International Conference on Public Health Solo, Indonesia, November 18-19, 2020 [8 https://doi.org/10.26911/the7thicph-FP.03.35
7. Analysis of Effectiveness of Ginger Warm Compressing and Acid Turmeric Consumption Against Decreased Menstrual Pain Scale

In this study, the results were obtained that the administration of warm compresses of ginger and the consumption of turmeric acid were equally effective against the reduction of menstrual pain scale in students of the D-III Midwifery Study Program STIKes Maranatha Kupang NTT Year 2019. This is because, in ginger and turmeric acid, there are active substances that can lower the pain scale that has a function as an anti-inflammatory, analgesic, and anti-oxidant. This is following the opinion of Sugiharti and Sundari (2018), who mentioned that the content of ginger and turmeric acid is effective against decreasing the scale of menstrual pain. The results of statistical tests can prove this both were before and after the administration of warm compresses, ginger shows a value of p 0.004 while before and after the administration of Tumeric acid consumption shows a value of p 0.001.

However, if the analysis of differences in the effectiveness of the administration of warm compresses ginger and the consumption of turmeric acid to decrease the scale of menstrual pain showed that there was no significant difference. Statistical test results using Mann Whitney contained in table 6 showed that p-value 0.148 > α 0.05, then H0 received and H1 rejected means that there is no significant difference in the effectiveness of the administration of warm compresses ginger and the consumption of turmeric acid to decrease menstrual pain in students of the D-III Midwifery STIKes Maranatha Kupang-NTT Year 2019 study program. This can happen because the administration of warm compresses of ginger and the consumption of turmeric acid both have good effects in terms of decreasing the scale of menstrual pain.

However, when viewed from its effectiveness by looking at the distribution of both data, then the researchers have the conclusion that the consumption of turmeric acid is more influential on the decrease in the scale of menstrual pain when compared to the administration of warm compresses ginger. The first reason is the difference in average value (mean) of the consumption of turmeric acid is greater than the difference in average value (mean) the administration of warm compresses ginger. In the administration of warm compress ginger, the difference in mean value is 0.33, while in the consumption of turmeric acid, the difference in mean value is 1.33. So this indicates that the effectiveness of the administration of turmeric acid is greater in lowering the scale of menstrual pain than the administration of warm compresses ginger.

The second reason is when seen from the average decrease in the scale of menstrual pain, in the administration of turmeric acid compresses, there is a decrease of 1 to 3 scales of menstrual pain. In comparison, in the administration of warm compresses, ginger only occurs a decrease of 1 to 2 scales of menstrual pain. So this indicates that the effectiveness of the administration of turmeric acid is greater in lowering the scale of menstrual pain than the administration of warm compresses ginger.

The next reason is if seen from the results of statistical analysis, then the consumption of turmeric acid is more effective against the decrease in menstrual pain scale because ma has a smaller signification value (p) (0.001) compared to warm compress ginger (0.004). From these analyzes, it can be concluded that the consumption of turmeric acid is more effective against the decrease in the scale of primary menstrual pain. This is in line with research conducted by Ekawati (2017) which showed the same results that the administration of turmeric acid is more effective in terms of lowering the scale of menstruation pain compared to the administration of ginger spices. Similarly, research conducted by Sugiharti and Sundari (2018) showed the same, that the administration of turmeric acid is more effective against decreasing the scale of menstrual pain compared to the administration of sour ginger.

Ginger and turmeric acid, both are very effective in according to the scale of primary menstrual pain, but which are both more effective and also require further research (Rahman, et al. 2020).
REFERENCES


