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Giving Red Ginger Water and Green Coconut Water to Reduce Menstrual Pain in Adolescent Girls

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ABSTRACT

In Indonesia, the incidence of dysmenorrhea is around 55% and in West Java it is 54.9%. Nonpharmacological pain management can be done by giving red ginger and green coconut water. This study used a *quasi-experimental* research design with *two group pretest-posttes* research design. *The population was 30 female students. The sampling technique used total sampling. The instrument in this study was the NRS sheet. This research was implemented at AN-Naafi IT High School from October 10, 2022 to February 04, 2023.* Data analysis used paired t-test to determine whether there was an effect and independent t test to determine differences in the effect of ginger water and green coconut water on reducing menstrual pain. There is a significant effect of administration of red ginger water and green coconut water on reducing menstrual pain in young women. There is a significant difference between the effectsof red ginger water and green coconut water on reducing pain from a p value of 0.02 < α (0.05). There is an effect of giving red ginger water and green coconut water on reducing menstrual pain among adolescent girls at SMA IT An-Naafi, Bogor Regency, in 2022.

INTRODUCTION

Dysmenorrhea is menstrual pain that is felt before or after menstruation and is usually cramping. In Indonesia, the incidence of dysmenorrhea is around 55% and in West Java, 54.9% of adolescents experience dysmenorrhea (1). The prevalence of dysminorrhea based on its type is primary dysminorrhea as much as 54.9% while secondary dysminorrhea is only 9.36%. Dysminorrhea that usually occurs in adolescents is caused by primary dysmonorrhea (2).

Management of menstrual pain can be done with pharmacological or non-pharmacological therapies. Non-pharmacological pain management can be done by giving red ginger and green coconut water.

Red ginger *(Zingiber offcinale roscoe)* is one of the herbal drinks that serves to overcome menstrual pain that acts as an anti-inflammatory by inhibiting the work of the enzyme *cyclooxygenase* so that it can inhibit the release of these enzymes towards prostaglandins that cause inflammation. Red ginger can also inhibit contractions in the uterus that

can cause pain during menstruation (3).

Green coconut water contains Magnesium 9.11 Mg/100 ml, Calcium 14.11 Mg/100 ml and Vit C 8.59 Mg/100 ml. Magnesium and calcium can reduce muscle tension while Vitamin C which is a natural anti-inflammatory substance helps relieve pain due to menstrual cramps by inhibiting the enzyme *cyclooxgenase* which plays a role in encouraging the formation of prostaglandins (4).

The effectiveness of red ginger to reduce pain during menstruation has been proven by many studies. Research conducted by Siagian (2021) found that red ginger drink effectively reduces pain during menstruation according to the percentage of 29 female students with a percentage (69.0%) (5).

According to the results of research conducted by Nugroho (2020), it shows that menstrual pain after being given green coconut water intervention has decreased from moderate pain to mild pain compared to before being given green coconut water. So it can be said that consumption of green coconut water is effective for reducing menstrual pain (6).

Non-pharmacological therapy was chosen as an alternative option to reduce menstrual pain because it can minimize the risk of chemical drug dependence and can avoid side effects from the use of these drugs. In addition, the introduction of non-pharmacological therapy needs to be disseminated to the public so that it can be used in health maintenance efforts and overcome health problems. Based on this, researchers are very interested in conducting research to determine the effect of giving red ginger water and green coconut water on reducing menstrual pain in adolescent girls.

RESEARCH METHODOLOGY

This study used a quasi-experimental research design with a two-group pretest- posttest research design. The population was 30 female students. The sampling technique used total sampling. The instrument in this study was the NRS sheet. Data analysis used paired t-test to determine whether there was an effect and independent t test to determine differences in the effectof ginger water and green coconut water on reducing menstrual pain.

Pretest was conducted by calculating the average menstrual pain before being given the treatment of red ginger water and green coconut water. posttest was conducted by calculating the average menstrual pain after being given red ginger water and green coconut water.

Data collection was carried out in private and the identity of the respondent was kept confidential to maintain the privacy of the respondent.

RESULTS

Based on table 1, the mean value of menstrual pain intensity before giving red ginger water is 4.87 and the mean value after giving ginger water is 1.47, meaning that there is a decrease in menstrual pain intensity after being given red ginger water.

While the average value of menstrual pain intensity before giving green coconut water is 4.53 and the average value after giving ginger water is 2.93, meaning that there is a decrease in the intensity of menstrual pain after being given green coconut water.

Furthermore, the data in table 2 is the data from the results of the

difference test between the two intervention groups using the *independent t test*. From this data, it is known that the Sig. value is 0.02 <0.05. so it can be concluded that there is a significant difference between the administration of red ginger water and green coconut water on reducing menstrual pain in adolescent girls.

Based on Table 3 above, the results of the average difference after being given red ginger water is 3.40 with a standard deviation of 1.40, while the average difference after being given green coconut water is 1.60 with SD = 0.73, and p-value <0.05 means that there is an effect of giving red ginger water and green coconut water on reducing menstrual pain in adolescent girls.

Table 1. Mean value of menstrual pain level in the intervention group

	N	Min.	Max	Mean	SD	CI
Red Ginger Water						
Pretest	15	2	7	4,87	1,885	95%
Posttest	15	0	5	1,47	1,642	
Green Coconut Water						
Pretest	15	1	8	4,53	1,807	95%
Posttest	15	0	5	2,93	1,668	

Table 2. Effect of red ginger water and green coconut water on the reduction of menstrual Pain

Intervention	N	Mean	Mean Difference	t	Sig
Ex. Red Ginger Water					
Pretest	15	4.87	3.4	0.49	0.62
Posttest	15	1.47			
Kel. Green Coconut Water					
Pretest	15	4.53	1.6	-2.42	0.02
Posttest	15	2.93			

Table 3. Mean difference in menstrual pain reduction in the intervention group

Mean Difference	SD	T	p-value	CI
Red Ginger Water Group				
3.40	1.40	9.37	0.00	95%
Green Coconut Water Group				
1.60	0.73	8.41	0.00	95%

DISCUSSION

Average Intensity of Menstrual Pain Before and After Giving Red Ginger Water

Based on table 1, the average intensity of menstrual pain before giving red ginger water is 4.87, so it can be concluded that the intensity of menstrual pain before the intervention is moderate.

The average result of menstrual pain intensity after the intervention, namely by giving red ginger water is 1.47. This result shows a change in pain intensity from moderate pain to mild pain with a decrease in pain by 3.4.

The decrease in the intensity of menstrual pain after giving red ginger water has been proven by research conducted by Intiyaswati (2022) on the effect of giving red ginger on reducing menstrual pain in adolescent girls. Statistical tests with the Wilcoxon test obtained a p-value of 0.00, the p-value < α < 0.05, which means that H0 is rejected and H1 is accepted, meaning that there is an effect of giving red ginger to menstrual pain (7).

Researchers assume that the decrease in menstrual pain is related to the content contained in red ginger. In addition, respondents' compliance in following the course of this study also greatly influenced the results obtained.

Average Intensity of Menstrual Pain Before and After Giving Green Coconut Water

The examination results in table 1 are the results of the examination of menstrual pain intensity after and before giving green coconut water. The mean value of menstrual pain intensity before being given green coconut water is 4.53. This result shows that menstrual pain is included in moderate pain.

While the average value after giving green coconut water is 2.93, meaning there is a decrease of 1.6. Based on this data, it can be concluded that the intensity of menstrual pain changes from moderate pain to mild pain. After the intervention, adolescent girls who experience menstrual pain no longer need painkillers, only need rest and can continue their activities as usual.

The decrease in the intensity of menstrual pain experienced by respondents after consuming green coconut water has been proven by the results of research conducted by Rismaya et. al (2020) Based on the results of the study, it is known that the average pain before treatment was 8.40 then became 2.73 after being given green coconut water intervention. Meanwhile, in the control group, the average pain on the first day was 8.67 and on the third day was 4.00. The results of data analysis with the independent T-test test showed a p-value of 0.006 <0.05, then Ha was accepted and Ho was rejected, meaning that there was an effect between the administration of green coconut water on reducing menstrual pain in midwifery students at level I and II of Malahayati University (4).

Researchers assumed that the decrease in pain scale occurred because respondents consumed green coconut water regularly for three consecutive days in the morning and evening. Respondent compliance in this study greatly influenced the course of the research process and results.

Effect of Ginger Water and Green Coconut Water on the Reduction of Menstrual Pain

Table 4 shows the mean value of menstrual pain after administration of red ginger water and green coconut water. The average value of menstrual pain intensity after giving red ginger water is 1.47 with an SD value of 1.40. The results of data analysis using *paired t test* obtained a P-value of 0.00 > α = 0.05, meaning that there is an effect of giving red ginger water on reducing menstrual pain in adolescent girls. Based on these results, it can also be concluded that there is a decrease in the intensity of menstrual pain from moderate pain to mild pain with a mean difference of 3.4.

The results of the analysis in the green coconut water group obtained an average after intervention of 2.93 with an SD value = 0.73. The results of the analysis using the paired t test

obtained a P-value of 0.00 < α = 0.05. Based on these results, it can be concluded that there is a decrease in pain scale and changes in pain intensity from moderate pain to mild pain with an average difference of 1.6. This means that there is an effect of giving red ginger water and green coconut water on reducing menstrual pain in adolescent girls.

Previous research conducted by Siagian (2021) suggested that there was an effect of giving red ginger on reducing the scale of menstrual pain in female students at Imelda University Medan. Another similar study has also been conducted by Kusumastuti et. al (2021) found that the dysmenorrhea pain scale after giving red ginger mostly experienced mild pain, namely 6 respondents, moderate pain 10 respondents, and no one experienced severe pain. Based on the results obtained, it can be seen that the administration of red ginger has a significant effect on changes in the pain scale in the intervention group (8).

Red ginger is the most suitable type of ginger for herbs because of its higher content of volatile oil and aleoresin than other types of ginger, therefore red ginger can be used as a traditional medicine and is usually given in the form of a drink.(9). Ginger has the same effectiveness as mefenamic acid and ibuprofen (10).

Red ginger has the same effectiveness as ibuprofen for reducing menstrual pain. Ibuprofen is known to be highly effective and rapidly absorbed after peroral administration. The peak concentration in plasma is very short, between 15 minutes and 1 hour. The mechanism of ibuprofen is the same as ginger, which inhibits prostaglandin synthesis. Drugs or herbs similar to ibuprofen are easily absorbed by the digestive system (7).

The results of another study by Nuryanih (2020) concluded that there was an effect of consuming green coconut water on reducing menstrual pain with a value of (0.00 <0.05). Similar results were also obtained from research conducted by Kotangon (2020), found a decrease in the pain scale before and after being given green coconut water with a value of 0.01 <0.05. This shows that the administration of green coconut water has a positive change in reducing menstrual pain (11).

Green coconut water contains a number of electrolyte fluids that can prevent dehydration during menstruation. Vitamins and minerals found in coconut water can stimulate the production of progesterone which is sufficient to facilitate the process of endometrial decay so that pain can be reduced (12). Compounds that can relax the uterine muscles are calcium and magnesium contained in green coconut water. Vit c in coconut water provides anti-inflammatory effects that play a role in inhibiting the enzyme cyclooxygenase which encourages the process of progtaglandin formation that causes pain during menstruation. Based on the results of research green coconut water is effective to reduce menstrual pain with a significance level of 0.001 (13).

Based on the data analysis that has been done, the researcher assumes that giving red ginger water and giving green coconut water both have an effect on reducing menstrual pain. This is because red ginger and green coconut have ingredients that are useful as anti-inflammatory so that they can help relieve menstrual pain felt by respondents who

consume red ginger water and green coconut water.

Differences in the Effect of Ginger Water and Green Coconut Water on Reducing Menstrual Pain

The data in the table above are the results of the two-group difference test using the *Independent t test*. From the data, it is known that the Sig. value is 0.02> 0.05, which means that there is a significant difference between the effect of red ginger water and green coconut water on reducing menstrual pain.

The analgesic effect of red ginger is related to the elements contained in red ginger itself. Gingerol compounds are known to inhibit the enzyme cyclooxygenase so that there is a decrease in the formation of prostaglandids which causes reduced pain during menstruation (14).

The effect of giving green coconut water on menstrual pain is also in line with the theory put forward by Pattiha (2021) who reported that the decline was due to the provision of green coconut water to adolescent girls experiencing menstrual pain. This decrease is due to the presence of magnesium and calcium which can relax the uterine muscles due to increased prostaglandins and cause myometrial ischemia and hypercontractivity of the uterine muscles, causing dysmenorrhea pain. Green coconut water also contains vitamin c which is a natural anti-inflammatory substance that helps relieve pain due to menstrual cramps by inhibiting the enzyme cyclooxygenase which has a role in encouraging the formation of prostaglandins (15).

Based on the results of data analysis and the theory that has been put forward, the researcher assumes that there is a significant difference in the effect between giving red ginger water and green coconut water because when drinking red ginger water, respondents indirectly inhale the distinctive aroma of the ginger. So in this case red ginger water not only functions as a herbal drink but also as aromatherapy.

CONCLUSIONS

There is an effect of giving red ginger water and green coconut water on reducing menstrual pain among adolescent girls at SMA IT An-Naafi, Bogor Regency, in 2022.

ADVICE

It is hoped that the results of this study can be input and as additional information in health services and can add alternative treatments using herbal ingredients to overcome menstrual pain or dysmenorrhea in adolescent girls using red ginger and green coconut.

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