

THE EFFECT OF RED GINGER WATER ON REDUCE PAIN OF PRIMARY DYSMENORRHEA IN ADOLESCENT

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ABSTRAK PENGARUH AIR JAHE MERAH TERHADAP PENURUNAN NYERI DISMENOREA PRIMER PADA REMAJA

Latar Belakang Dismenorea primer adalah nyeri menstruasi yang dirasakan tanpa adanya kelainan pada alat reproduksi. Dengan kata lain adalah rasa nyeri yang biasa dirasakan oleh perempuan saat mengalami haid, bahkan sebagian perempuan yang selalu merasakan nyeri setiap menstruasi datang. Rasa nyeri ini biasanya terjadi disebabkan oleh zat Prostaglandin yang akan merangsang otot-otot halus dinding rahim berkontraksi, makin tinggi kadar prostaglandin kontraksi akan makin kuat, sehingga rasa nyeri yang dirasakan juga makin hebat (Laila Najmi, N 2021). Tujuan penelitian adalah untuk mengetahui adanya pengaruh dari pemberian Air Jahe Merah dan Tablet Ibuprofen terhadap penurunan nyeri dismenorea primer pada siswi yang mengalami dismenorea.

Metode penelitian ini dengan design *pra-eksperimental* dan pendekatan rancangan *two-group pretest-posttest*, alat uji normalitas menggunakan *Shapiro-Wilk* dengan p value $\alpha = 0,05$ dan alat uji pengaruh menggunakan statistik non-parametrik *Wilcoxon Signed Ranks Test* dan *Mann Withney*. Penelitian dilakukan pada bulan Maret – Juli 2023 dengan 60 responden yang di pilih secara *Purposive Sampling*, pengukuran skala nyeri menggunakan metode NRS sebelum dan sesudah diberikan intervensi.

Hasil penelitian adanya pengaruh perubahan yang signifikan terhadap penurunan intensitas nyeri dismenorea primer dengan pemberian *air jahe merah* dan *tablet ibuprofen* dengan nilai p sebesar 0,000 ($\alpha < 0,05$). Penurunan nyeri yaitu 30,68 untuk air jahe dan 30,32 untuk ibuprofen dengan begitu perbedaan pengaruhnya hanya berselisih 0,36. Kesimpulannya terdapat pengaruh pemberian air jahe merah dan tablet ibuprofen terhadap penurunan intensitas nyeri dismenorea primer. Diharapkan dapat dijadikan sebagai alternatif pengobatan secara non farmakologi dan kepada tenaga kesehatan dapat mengedukasi lebih banyak pada wanita yang mengalami dismenorea.

Kata Kunci : Air Jahe Merah, Tablet Ibu Profen, Dismenorea Primer, Nyeri

ABSTRACT

Back Ground Primary dysmenorrhea is menstrual pain that is felt without any abnormalities in the reproductive organs. In other words, it is a pain that is usually felt by women when experiencing menstruation, even some women who always feel pain every time menstruation comes. This pain usually occurs due to Prostaglandin substances that will stimulate the smooth muscle muscles of the uterine wall to contract, the higher the prostaglandin levels the contraction will be stronger, so the pain felt is also more intense (Laila Najmi, N 2021). The purpose of the study was to determine the effect of giving Red Ginger Water and Ibuprofen Tablets on reducing primary dysmenorrhea pain in female students experiencing dysmenorrhea.

This research method uses a pre-experimental design and a two-group pretest-posttest design approach, a normality test tool using Shapiro-Wilk with a p value of $\alpha = 0.05$ and an influence test tool using non-parametric statistics Wilcoxon Signed Ranks Test and Mann Withney. The research was conducted in March - July 2023 with 60 respondents selected by purposive sampling, measuring the pain scale using the NRS method before and after the intervention.

The results of the study showed a significant effect of change on reducing the intensity of primary dysmenorrhea pain by giving red ginger water and ibuprofen tablets with a p value of 0.000 ($\alpha < 0.05$). The decrease in pain is 30.68 for ginger water and 30.32 for ibuprofen so the difference in influence is only 0.36. In conclusion, there is an effect of giving red ginger water and ibuprofen tablets on reducing the intensity of primary dysmenorrhea pain. It is expected to be used as an alternative to non-pharmacological treatment and to health workers can educate more women who experience dysmenorrhea.

Keywords: Red Ginger Water, Ibu Profen Tablet, Primary Dysmenorrhea

INTRODUCTION

Adolescent or teenager is a transition phase

from children to adults, adolescence can be a difficult phase for some people. Starting from changes in physical form to menstrual problems, especially for adolescent girls. Teenagers who get their first menstruation become a physical milestone and a sign that they have become a woman. However, this can cause confusion, anxiety, and worry. Especially if she experiences problems during menstruation such as irregular menstruation, dysmenorrhea or it could be premenstrual syndrome (PMS) (Fitria Ika, A 2019).

Dysmenorrhea is a complaint that is often experienced by women in the lower abdomen. Derived from Greek, *dis* which means difficult, painful, or abnormal; *meno* means month; and *rhea* which means flow. If interpreted as a whole then dysmenorrhea is a painful or abnormal monthly flow. Menstrual pain is a disease that has been known for a long time. The pain felt during menstruation does not only occur in the lower abdomen. Some teenagers feel in the lower back, waist, pelvis, upper thigh muscles, and calves. The pain can be caused by abdominal muscle contractions that occur continuously while bleeding. These very mild contractions then cause the muscles to tighten. Muscle tension not only occurs in the abdominal muscles but also the muscles supporting the abdominal muscles found in the lower back, waist, pelvis, and thighs to calves.

Experts divide dysmenorrhea into two parts, namely Primary and Secondary Primary dysmenorrhea is menstrual pain that is felt without any abnormalities in the reproductive organs. In other words, it is the pain that is usually felt by women when experiencing menstruation. This pain usually occurs after 12 months or even more starting from the first menstruation. There are even some women who always feel pain every time menstruation comes (Laila Najmi, N 2021).

Primary dysmenorrhea is caused by Prostaglandins, which are natural chemicals produced by cells of the uterine wall lining that contract. In some women this event can feel strong and greatly interfere with their activities (Laila Najmi N, 2021).

Factors causing primary dysmenorrhea are: Menarche, Menstrual cycle, Excessive amount of menstrual fluid, Psychological factors (obesity), Smoking, Drinking Alcohol, History of mother or siblings experiencing dysmenorrhea. (Prmardika, Fitriana 2019). The characteristics of primary dysmenorrhea are: Irritability, Nausea and Vomiting, Diarrhea, Back, hip, uterus pain, Headache, Fever, Weakness (Pramardika, Fitriana 2019). Primary dysmenorrhea can be treated non-pharmacologically

such as:

Hot and cold therapy, exercise and yoga, massage, relaxation / breathing techniques, consuming foods / drinks containing Vit. A, B1, C, Gingerol, Zingiberene, Oleoresin, and Essential Oil Content (can be found in red ginger).

The World Health Organization (WHO) said that in 2017, the incidence of dysmenorrhea in the world reached 1,769,425 people (90%) of women who experience dysmenorrhea with 10-15% experiencing severe dysmenorrhea. The incidence is very large, on average almost more than 50% of women experience dysmenorrhea (Putri 2017 in Yuliani, E 2022). Secondary dysmenorrhea is usually found if there is a disease or disorder of the reproductive organs. Pain can be felt before, during, and after menstruation. The cause of the occurrence can be caused by chronic salpingitis, which is a long infection in the channel connecting the uterus (uterus) with the egg bladder (ovary). Treatment requires a doctor's consultation and treatment with antibiotics and anti-inflammatories (Laila Najmi, N 2021).

The prevalence of women experiencing dysmenorrhea in Indonesia is estimated to be 55% of women of productive age tormented by pain during menstruation. The incidence of primary type dysmenorrhea in Indonesia is around 54.89% which causes them to be unable to do any activities and this will reduce the quality of life in each individual. Dysmenorrhea is one of the most common gynecological problems and can affect more than 50% of women causing inability to perform daily activities for 1 to 3 days every month. The absence of adolescents in school is one of the consequences of primary dysmenorrhea reaching approximately 25% (Putri 2017 in Yuliani, E 2022). In Indonesia, the percentage of primary dysmenorrhea is 64.8% and secondary dysmenorrhea is 19.36%. In adolescent girls, primary dysmenorrhea symptoms are found 1 to 2 years after experiencing the first menstruation. Dysmenorrhea causes adolescents to be unable to carry out activities as usual (BKKBN 2014 in Mariza, A 2019).

The incidence of dysmenorrhea is based on data from the Lampung Provincial Health Office in 2007, data on dysmenorrhea cannot yet be classified. The incidence of primary dysmenorrhea in adolescents is estimated to be 1.2% to 1.35% of the number of patients who examine themselves to health workers. Based on information obtained from the Lampung Health Office, the last dysmenorrhea data was only found until 2007, because in Indonesia many women who experience dysmenorrhea do not report themselves to doctors or health workers

(Lampung Health Profile, 2007 in Pangesti A, R. Pranajaya, Nurchairina 2018). The survey results from the Indonesian Family Planning Association (PKBI) Bandar Lampung branch of dysmenorrhea are in the first place that is often complained of by women, which is 65.3%. In addition to irregular menstrual cycles. The incidence of dysmenorrhea is higher in a group of adolescents aged 10-20 years at 71.4% (PKBI Bandar Lampung, Nurchairina, 2018 in Yuliani, E. 2022).

From the results of a survey of researchers at the boarding school Tahfidz Al- Qur'an Daar Ashshofa Bandar Lampung city, the incidence of primary dysmenorrhea was higher at 85.71% with the number of adolescent female students suffering from primary dysmenorrhea as many as 60 people.

This study is in line with research entitled "The Effect of Giving Red Ginger Herb (*Zingiber Officinale* Roscoe) And Brown Sugar Against Changes in Menstrual Pain of Class VIII Students of SMPN 1 Bengkulu Tengah" with the results there is an effect of giving red ginger herb on changes in menstrual pain in class VIII students of SMPN 1 Bengkulu Tengah which is indicated by the results of the Wilcoxon Signed Rank- Test test by showing the value $Asymp. sig (2-tailed) = 0.000 < 0.05$ for both paired groups, meaning the results are significant (Ruri Maiseptya Ruri, Abasri 2019).

Ginger is useful for reducing dysmenorrhea pain due to the content of Zingiberene, Oleoresin, Gigerol, and Acirin Oil, Vitamins A, B1, C, and other compounds that are effective as anti-inflammatory agents as analgesics or pain relievers anti-coagulants prevent blood clots (Sakri M, F 2020). It can also regulate the production of prostaglandins which are known to be the main cause of menstrual pain and also help stimulate the body to control pain in the body. The essential oil content that the body receives increases the ability of a person's body to neutralize cramps, especially during menstruation. In the medical system, ginger is also used to treat menstrual pain by stopping the action of prostaglandins, which cause pain and inflammation in the blood vessels and relieve cramps. It is known that the oleoresin content in red ginger rhizome has antioxidant activity above that of vitamin E. Gingerol in ginger is anticoagulant, which can prevent blood clots. This is very helpful in menstrual blood discharge (Mariza, A., & Sunarsih. 2019).

RESEARCH METHODS

This study uses a pre-experimental design by using a two-group pretest- posttest design approach, namely by revealing the causal relationship by involving one group of subjects and a control group.

Subject and control groups were observed before the intervention, then observed again after the intervention to determine the effect of the treatment. Researchers used Shapiro-Wilk normality test analysis. After testing the normality of the data, then the effect test was carried out using the Wilcoxon Signed Ranks Test Non-Parametric statistical test as an alternative to the Paired Sample T-test parametric statistical test. Meanwhile, to find out the difference in the value of the two independent samples, the Mann Withney test was carried out again, the decision-making conditions were only two samples and the two were not related to one another, and the data must not be normally distributed, the number of samples in both groups was the same. This research was conducted from March 2023 - July 2023 with a population of 70 students then the sample was selected by purposive sampling so that 60 research samples were obtained. Data collected based on the results of questionnaires and observations using the NRS scale. This study was conducted during the first 3 days of menstruation. On day 1 the researcher gave the NRS scale sheet to determine the respondent's pain level before treatment, then the researcher gave 250 ml red ginger water treatment 4 times / day or with a calculation of time every 6 hours, after giving the treatment on day 3 the researcher gave the post test sheet back to the respondent to determine the value of the decrease in pain scale after treatment.

RESEARCH RESULT

Based on table 1, it can be seen that the average value of minimum menstrual pain is 5 before being given red ginger water treatment in the intervention group with 30 samples including the moderate dysmenorrhea category and a maximum value of 8 categories of severe diemenorrhea but can still be controlled by respondents with an average mean value of menstrual pain of 6.20%.

Controlled by respondents with an average mean value of menstrual pain of 6.20% while the average value of minimum menstrual pain after being given the red ginger water intervention, the value dropped to 3 and a maximum value of 6 with an average mean value of 4.27%.

While for the control group, it is known that the average value of menstrual pain before being given Profen tablets is the minimum value 5 is in the category of moderate dysmenorrhea and the maximum value of 7 is in the category of severe dysmenorrhea but can still be controlled by respondents with an average mean value of menstrual pain of 6.23% while the average value of minimum menstrual pain after being given Mrs.

Profen's intervention is 2 and a maximum value of 6 with an average mean value of 4.23%.

Table 1
Mean Value of Pre Test and Post Test Primary Dysmenorrhea Pain Intensity Test

Variabel	N	Min	Max	Mean (%)
Red ginger water pre test	30	5	8	6.20
Red ginger water post test	30	3	6	4.27
Ibuprofen Tablet Pre Test	30	5	7	6.23
Ibuprofen Tablet Post Test	30	2	6	4.23

Table 2
Test Of Effect of Red Ginger Water
Wilcoxon Signed Ranks Test

Variabel		N	Mean Rank	p- value
Red ginger water pre test	Negative Ranks	30	15,50	,000
	Positive Ranks	0	,00	
Red ginger water post test	Ties	0		

It can be seen from table 2 the value of Asymp. Sig. (2-tailed) in the pre-test and post-test with a value of 0.000 where the value is smaller than 0.05, thus there is a difference in value before and after the treatment of giving red ginger water to the

dysmenorrhea pain scale in 30 respondents. The value of negative ranks or the difference that is negative from the Pre-test and Post-test is 30, meaning that there is a change in value before and after being given red ginger water.

Table 3
Effect Test of Ibuprofen Tablets
Wilcoxon Signed Ranks Test

Variabel		N	Mean Rank	p- value
Ibuprofen Tablet Pre Test	Negative Ranks	30	15,50	,000
	Positive Ranks	0	,00	
Ibuprofen Tablet Pre Test	Ties	0		

Can be seen from table 3 the value of Asymp. Sig. (2-tailed) in the pre-test and post-test with a value of 0.000 where the value is smaller than 0.05,

thus there is a difference in value before and after the treatment of giving profen tablets to the dysmenorrhea pain scale in 30 respondents.

Table 4
Difference Analysis of Result Value
Mann Withney Test

	Group	N	Mean Rank	Sum Of Ranks
Post Test	Red Ginger Water	30	30,68	920,50
Dysmenorrhea	Ibuprofen Tablet	30	30,32	909,50

By using the Mann Withney test, which compares the difference between two independent groups in the same test and the same number of samples with data not normally distributed. It can be seen from table 4.10 that the mean rank in the red ginger water group is 30.68 and the mother profen tablet group is 30.32, so there is a difference of 0.36

between the two groups, there is a difference in the sum of rank with a difference of 11 between the two groups, and there is a difference in the final value in Mann Withney U which is 444,500 and in Wilcoxon W which is 909,500.

Tabel 5

Test Statistics^a
Post Test

Mann-Whitney U	444,500
Wilcoxon W	909,500
Z	-,088
Asymp. Sig. (2-tailed)	,930

RESEARCH RESULTS

Univariate Analysis

Based on the results of statistical data processing of this study, it is known that the mean value of primary dysmenorrhea menstrual pain before being given the Red Ginger Water intervention (pre-test) is 6.20% before being given the intervention (pre-test) the minimum value is 5 using the calculation of the NRS 0-10 pain scale so that it is included in the moderate dysmenorrhea category, and the maximum value of 8 is included in the severe dysmenorrhea category. Then the researchers gave treatment to the intervention group in the form of Red Ginger Water for 3 days, the results showed a decrease from the pre-test value to the minimum post-test value of 3 including the mild dysmenorrhea category and a maximum value of 6 including the moderate dysmenorrhea category with a mean value of 4.27%.

Research conducted by (Giti Ozgoli, M.Sc, Marjan Goli, M.Sc, and Fariborz Moattar, Ph.D, 2009) with the title "Comparison of the Effects of Ginger, Mefenamic Acid, and Ibuprofen on Pain in Primary Dysmenorrhea Women".

Primary dysmenorrhea is defined as pelvic pain around the time of menstruation in the absence of an identifiable pathological lesion, presenting from menarche. It is a frequent cause of absenteeism and medical visits, and affects both personal and economic aspects of life. Some patients with primary dysmenorrhea do not respond to treatment with NSAIDs or oral contraceptives. In addition, some women have contraindications to these treatments.

As a result, researchers have investigated many alternative/complementary treatments such as herbal and dietary therapies 6 behavioral interventions 7 acupressure 8 and aromatherapy 9 Zingiber rhizome ginger. Each group took their medication four times a day for three days from the start of their menstrual period. In the first group, patients received capsules containing 250 mg of ginger rhizome powder. The second group got 400 mg ibuprofen capsules. The conclusion was that ginger was as effective as mefenamic acid and ibuprofen in relieving pain in women with primary dysmenorrhea. Further studies regarding the effects of ginger on other symptoms associated with

dysmenorrhea, the efficacy and safety of various doses and durations of ginger treatment, and the exact mechanism of action are needed.

Bivariate Analysis

Based on the results of research and data processing using the SPSS version 24 application with the Wilcoxon Sign Rank Test, the Asymp. Sig. (2-tailed) pre-test and post-test with a value = 0.000 <0.05 thus

There is a difference in the value before and after the treatment of giving Red Ginger Water and Mrs. Profen Tablets on the dysmenorrhea pain scale in each of the 30 adolescent respondents of Pondok Tahfidz Al-Qur'an Daar Ashshofa. The results also show that the value of the decrease in pain intensity of each individual varies, there are some who experience constant pain intensity but there is a change in the value of pain intensity numbers. Meanwhile, to find out the difference in values between the intervention group and the control group, the Mann Whiney Test was carried out, the results of the difference between the mean rank value with a difference of 0.36 and the sum of rank with a difference of 11 in both groups. Thus the conclusion is that the administration of Red Ginger Water is more recommended than Profen Tablets because of the more significant decrease in sensitivity.

This research is in line with a study entitled "The Effect of Giving Red Ginger Decoction Water on Decreasing Dysmenorrhea in 8th Semester Students of Stikes Widya Dharma Husada Tangerang" with the results of research on dysmenorrhea on a mild scale 15 respondents (50%) while on a moderate scale 14 respondents (46.7%). Based on data analysis, the mean value is 1.100 and the probability (p) is 0.000, it can be concluded that there is an effect of red ginger boiled water on reducing Dysmenorrhea (Betty, Ayamah. 2021).

In the opinion of researchers from the results of the assessment and provision of treatment for both the intervention group (Red Ginger Water) and the control group (Mrs. Profen Tablets), both of them have the same effect on reducing primary dysmenorrhea pain but with a difference in the value of a decrease of 0.36, so the level of sensitivity of red ginger water is less than that of profen tablets. Then the comparison of age and duration of menstruation affects the results of treatment. Pharmacological therapy such as the administration of Profen tablets which are included in the category of non-steroidal anti-inflammatory drugs whose use must be in accordance with the doctor's recommendations, while the chemicals contained if used in the long term

can have harmful effects on health.

CONCLUSION

It is known the effect of red ginger water and Profen tablets on the intensity of menstrual pain in adolescents of Pondok Tahfidz Al- Qur'an Daar Ashshofa. There is a significant effect on reducing the intensity of primary dysmenorrhea menstrual pain by giving red ginger water intervention and profen tablets control group with a value (Asym Sig 2 Tailed in Wilcoxon Sign Rank Test $0.000 < 0.05$). And Mann Withney test with a mean difference of 0.36 and sum of rank 11 between the two groups, thus the sensitivity of the effect of red ginger water is better than profen tablets.

SUGGESTION

The results of this study are expected to be an additional reference for education in providing insight to students as additional teaching materials. And for adolescents to use non-pharmacological therapy of Red Ginger Water when experiencing dysmenorrhea so that it can reduce menstrual pain.

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