

THE EFFECT OF GIVING COCONUT WATER (COCOS NUCIFERA L) TO OVERCOME DYSMINORRHEA IN STUDENTS OF SMAN 1 KRAGILAN SERANG BANTEN

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ABSTRACT

Dysmenorrhea has a detrimental impact on adolescent life, including: disrupted activities, lower academic achievement, disrupted performance and sleep quality, negatively impacted mood, and caused anxiety and depression. Management of menstrual pain (dysmenorrhea) can be done with non-pharmacological therapy, one of which is giving coconut water. The purpose of this study was to analyze the effect of giving coconut water (*cocos nucifera* L) on reducing menstrual pain. The design of this study was a quasi-experimental study conducted at SMAN 1 Kragilan, Banten in July - August 2024. The sample used was 60 female students. The intervention in this study was the provision of 250 ml of green coconut water drunk 2 times a day for 3 days. The outcome in this study was the degree of pain as measured by a verbal rating scale. The analysis used was chi square. In the control group, the majority of respondents had pain intensity above or equal to the average, namely 22 out of 30 female students or 36.7%. Meanwhile, in the intervention group, the lower pain intensity was mostly in the pain category below the average, which was 17 people or equivalent to 28.4%. The results of the study and bivariate analysis obtained odds ratio (OR) 2.7, p value 0.035 <0.05; 95% CI (0.09 - 0.82). giving coconut water intervention will reduce dysmenorrhea pain 2 times compared to not being given coconut water and this result is statistically significant.

Keywords: Coconut Water, *Cocos Nucifera* L, Dysmenorrhea

INTRODUCTION

Dysmenorrhea is a state of intense pain and can interfere with daily activities in women, especially adolescent girls. Dysmenorrhea is a symptomatic phenomenon including abdominal pain, cramps, and back pain (Fitriyah et al, 2020). There are several factors that cause dysmenorrhea, one of which is age, at the age of 12-25 years the prostaglandin hormone found in adolescent girls is sometimes still unstable and results in a disturbance

of prostacycline balance during menstruation which causes myometrial contractions and vasodilation, so that myometrium ischemia and uterine hypercontracting will occur so that dysmenorrhea pain will occur (Rismaya et al. 2020). The World Health Organization (WHO) in 2018 the number of dysmenorrhea in the world is very large, on average more than 50% of women in each country experience dysmenorrhea. Each

country has a different percentage of dysmenorrhea, for example, in Sweden around 75% in the United States it is estimated that almost 90% of women have dysmenorrhea and 10-15% of them have severe dysmenorrhea, which causes them to be unable to do any activities (Sinha et al. 2016).

In Indonesia, the incidence of dysmenorrhea is 64.25%, consisting of 54.89% primary dysmenorrhea and 9.36% secondary dysmenorrhea. Over the past 50 years, 75% of women have experienced menstrual pain. Usually, the symptoms of primary dysmenorrhea occur in women of productive age and women who have never been pregnant. Dysmenorrhea often occurs in women between the ages of 20 and 24 or before the age of 25. As many as 61% occur in unmarried women (Rismaya et al. 2020). Dysmenorrhea has a negative impact on adolescent life, according to (Putri et al. 2017) dysmenorrhea can result in impaired activities, lower academic achievement, interfere with performance and sleep quality, negatively impact mood, and cause anxiety and depression. In addition, adolescent girls who experience dysmenorrhea will feel limited in carrying out activities, especially learning activities at school (Handayani et al., 2016). Risk factors for dysmenorrhea include early menarche, family history of dysmenorrhea, abnormal Body Mass Index, habits of eating fast food, duration of bleeding during menstruation, exposure to cigarette smoke, coffee consumption, and alexythimia. Other risk factors that affect dysmenorrhea are the menstrual cycle and the length of menstruation.

Treatment of menstrual pain (dysmenorrhea) can be done with pharmacological and non-pharmacological therapy. The first

pharmacological effort that can be made is to administer analytical drugs that function as pain relievers. Non-pharmacological therapy can be done as an effort to treat without the use of chemical drugs. One of the nonpharmacological pain treatments is with green coconut water (Realita, et al. 2021). Green coconut water, compared to other types of coconuts, has the highest amount of tannins or antidotum (anti-toxin) (Nuryanih, 2020). Coconut water can reduce the level of menstrual pain in adolescents who are experiencing menstrual pain. The content of chemical substances contained in green coconut water which are anti-inflammatory substances that help relieve pain due to menstrual cramps. Green coconut water contains Calcium 14.11 Mg/100 ml, Magnesium 9.11 Mg/100 ml and Vitamin C 8.59 Mg/100 ml. Calcium and Magnesium contained in coconut water reduce muscle tension and Vitamin c which are natural anti-inflammatory substances that help relieve pain due to menstrual cramps by inhibiting *ezymsyclooxygenase* which has a role in promoting the process of prostaglandin formation (Sultana et al., 2017).

Coconut water is very abundant in the research area, but it has not been widely used as a therapy for dysminorea pain. The researcher was interested in conducting a study entitled The Effect of Coconut Water (*Cocos Nucifera L*) on the Reduction of Menstrual Pain in SMAN 1 Kragilan Students Because Based on School Data Almost Every Month there are students who are absent from learning due to dysminorea. School data shows that on average about 2 students do not attend class / attendance due to dysminorea or around 40%. Based on this problem, the researcher wanted to analyze the effect of giving coconut water

(*cocos nucifera* L) on the reduction of menstrual pain.

LITERATURE REVIEW

Dysmenorrhea comes from Greek, where "dys" means difficult, painful, abnormal, "meno" means month, and "orrhea" means flow. Dysmenorrhea is a medical condition that occurs during menstruation which is characterized by pain or pain in the abdominal and pelvic areas that can interfere with daily activities and require treatment (Natasia, 2021).

Increased production of prostaglandins and their release (especially PGF2a) from the endometrium during menstruation causes uncoordinated and irregular uterine contractions, resulting in pain. During menstruation, adolescents with dysmenorrhea have higher intrauterine pressure and have twice the level of prostaglandins in menstrual blood compared to adolescents who do not experience pain. As a result of this abnormal increase in uterine activity, blood flow is reduced, resulting in uterine ischemia or hypoxia which causes pain. Other pain mechanisms are caused by prosteglandin fibers (PGE2) and other hormones that make pain sensory nerve fibers in the uterus hypersensitive to the action of badikinin and other physical and chemical pain stimulation (Nurbaiti, 2022). Risk Factors for Primary Dysmenorrhea are:

- a. Age at first menstruation is less than 12 years.
- b. Never been pregnant and given birth.
- c. Having prolonged or long periods.
- d. Smoking.
- e. Positive family history of the disease.

- f. Obesity or overweight (Kamalah, 2023).

Treatment of menstrual pain (dysmenorrhea) can be done with pharmacological and non-pharmacological therapy. The first pharmacological effort that can be made is to administer analytical drugs that function as pain relievers. Non-pharmacological therapy can be done as an effort to treat without the use of chemical drugs. One of the nonpharmacological pain treatments is with green coconut water (Realita, et al. 2021). Green coconut water, compared to other types of coconuts, has the highest amount of tannins or antidotum (anti-toxin) (Nuryanih, 2020).

RESEARCH METHODOLOGY

This study is a type of intervention with an experimental quasy design. The location used for this study at Kragilan senior high school in Serang - Banten from July to August 2024. The sample used was the female student who have a menstrual period during the research time as many as 60 people and divided into two groups (30 for control and 30 for intervention).

The intervention in this study is Giving 250 ml of green coconut water is drunk 2 times a day 1 glass and consumed in the morning and evening, for 3 consecutive days starting on the first day. The control group was not given any drinks and was declared not to use painkillers. The pain level of dysminorea was measured using a verbal rating scale and categorized based on average. Univariate analysis is carried out to be able to describe the characteristics or general overview of each other variable. It was shown to determine the distribution of pain frequency continuously and dichotomically in the control and intervention groups. The bivariate

analysis used in this study is to find out whether there is a relationship

between two variables, namely with *Chi-square test*.

RESEARCH RESULT

Table 1. Distribution Of Pain Frequency In Control And Intervention Groups

Respondent Group	Pain distribution					Total
	Mean	SD	Min	Max	Total mean	
Control Group	4.3	1.09	3	7		30
Intervention Group (coconut water)	3.6	0.77	3	5	4.1	30

Source: Primary data

The average pain from the total data was 4.1, so the researcher made an average cut off point of 4. As for the average of each group, it can be seen that the control group has an average of 4.3 and the group

3.6 with the maximum value in the intervention group is only 5. These results showed that the entire intervention group had lower levels of pain than the control group.

Table 2. Distribution Of Dysmenorrhea Pain In Respondents

Dysmenorrhea Pain Categories	Frequency	Percentage
Below-average pain	25	41.7 %
Pain above or equal to average	35	58.3 %
Total	60	100 %

Source: Primary Data

Based on the results of the study that was summarized and coded to the degree of pain, it was known that the majority of respondents experienced pain above or equal to the scale of 4 (above or

equal to the average), namely 35 respondents (58.3%). Meanwhile, there were 25 respondents who had a pain level below average or equivalent to 41.7%.

Table 3. Cross-Tabulation Of Pain Intensity In Each Group

Group	Categories of Dysminorea Pain				Total	
	Below average		Above or equal to the average		N	%
	n	%	n	%		
Control	8	13.3	22	36.7	30	50
Intervention	17	28.4	13	21.4	30	50
Total	25	41.7	35	58.3	60	100

Source: Primary Data, 2024

Based on the results of cross-tabulation between the respondent

group and pain intensity, it was reported that in the control group,

the majority of respondents had pain intensity above or equal to the average, namely 22 out of 30 female students or 36.7%. Meanwhile, in the intervention group, the pain

intensity was lower, most of which had a below-average pain category, namely 17 people or equivalent to 28.4%.

Table 4. Results Of Chi Square Bivariate Analysis Effect Of Coconut Water Administration To Overcome Dysminorea Pain

Just Square Test			
Odds Ratio (OR)	P value	95% Confident Interval	
		Upper limit	Lower limit
2.7	0.035	0.09	0.82

Based on the results of the study and bivariate analysis, the odds ratio (OR) was 2.7, p value $0.035 < 0.05$ which means that the administration of coconut water intervention will reduce

dysmenorrhea pain 2 times compared to not being given coconut water and this result is statistically significant. OR 2.7; P value 0.035; 95% CI (0.09 - 0.82).

DISCUSSION

Cross-tabulation between the respondent group and pain intensity was reported that in the control group, the respondents had a pain intensity above or equal to the average, namely 22 out of 30 female students or 36.7%. Meanwhile, in the intervention group, the pain intensity was lower, most of which had a below-average pain category, namely 17 people or equivalent to 28.4%. The results of the study and bivariate analysis obtained odds ratio (OR) 2.7, p value $0.035 < 0.05$ which means that the administration of coconut water intervention will reduce dysmenorrhea pain 2 times compared to not given coconut water and this result is statistically significant.

Based on a previous study in 2018, namely the effect of green coconut water on changes in the intensity of primary dysmenorrhea pain in adolescent girls in the S1 Midwifery Study Program, Faculty of Medicine, University of Brawijaya Malang with a dose of 980 cc with a rule of 330 cc every 4 hours in 12

hours given in 1 day is the best dose to reduce the intensity of dysmenorrhea intensity, there is an effect of green coconut water consumption on the intensity of dysmenorrhea pain with p value = 0.000 (Yuseva 2018).

Green coconut water contains many vitamins and minerals that can stimulate the body to stabilize the production of prostaglandin hormones during menstruation, then it can block the action of prostaglandins in uterine hypercontracture so that dysmenorrhea pain can be reduced. In addition, green coconut water also contains calcium and magnesium which can cause the uterine muscles to relax due to an increase in prostaglandins, causing myometric ischemia and excessive contraction of the uterine muscles (Wahyuni, 2020).

During menstruation, the body secretes fluid and blood. Coconut water contains a number of electrolyte fluids that can prevent dehydration. The folic acid

contained in it is also beneficial to replace the blood that comes out (Nugroho et al, 2022). Folic acid is one of the components needed in the production of red blood cells. With sufficient blood production, it will improve blood circulation. Smooth blood circulation will suffice cells with oxygen and nutrient needs (Widowati et al, 2021).

The electrolyte liquid contained in coconut water can prevent dehydration. Folic acid contained in coconut water can also replace the blood that comes out because it is a component needed in producing red blood cells. With sufficient blood production, it will cause blood circulation to become smoother. If circulation is smooth, the need for oxygen and nutrients in the cells will be met and the condition will cause the body to become more resistant to the pain sensations caused during dysmenorrhea. Coconut water can reduce dysmenorrhea by consuming 1 glass of 250 ml green coconut and 1 piece of palm sugar by mixing and stirring the two ingredients evenly, drunk 2 times a day 1 glass and consumed in the morning and evening, for 3 consecutive days (Dolang, 2021; Sinha et al., 2016).

Green coconut water can relax the uterine muscles. When muscle contractions in the uterus occur, the blood supply to the endometrium narrows (vasoconstriction) and this process is what causes pain during menstruation. According to the researcher's assumption, there is a difference in pain intensity after being given green coconut water and without being given green coconut water, because the coconut water given contains calcium and magnesium which can reduce muscle tension and vitamin C which can help relieve pain due to menstrual cramps (Puadiah & Sutarno, 2023).

The researchers assumed that giving coconut water in addition to refreshing would provide additional fluids to the respondents, Some respondents also said they lacked food and fluids during dysmenorrhea because the appetite disappeared, the condition of the hungry stomach and thirst would increase the pain. Giving young coconut water will make them a little full and be able to divert the pain. Coconut water is also very refreshing and makes them more energetic, with this condition, the body will be more resistant to the pain sensation caused during menstruation.

CONCLUSION

The results of the study and bivariate analysis obtained odds ratio (OR) 2.7, p value $0.035 < 0.05$ which means that the administration of coconut water intervention will reduce dysmenorrhea pain 2 times compared to not given coconut water and this result is statistically significant. OR 2.7; P value 0.035; 95% CI (0.09 - 0.82).

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