

THE EFFECT OF GREEN COCONUT JUICE ON REDUCING DYSMENORRHEA IN FEMALE ADOLESCENTS AT THE DORMITORY OF MIDWIFERY STUDENT OF MEDAN HEALTH POLYTECHNIC

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ABSTRACT

Dysmenorrhea is pain in the lower abdomen, ranging from cramps in the uterus to pain in the back that can interfere with a woman's daily activities. Through data from the World Health Organization (WHO) in 2018, it is known that the incidence of dysmenorrhea in the world is very large, more than 50% of women in every country experience dysmenorrhea. The prevalence of dysmenorrhea in each country varies, in Sweden it reaches 75%, in the United States it is estimated that almost 90% of women experience dysmenorrhea and 10-15% of them have severe dysmenorrhea. Dysmenorrhea can interfere with activities, lead to lower academic performance, impede sleep performance and quality, negatively impact mood, and cause anxiety and depression. In addition, young women with dysmenorrhea will feel limited when doing activities, especially while studying at school. This study aims to determine the effect of green coconut water on reducing menstrual pain (dysmenorrhea) in young women.

This research is a pre-experimental study designed with one group pretest and posttest design, where 15 female adolescents with dysmenorrhea were taken as a sample which was obtained through accidental sampling technique. Data were analyzed univariately and bivariately and tested with the Wilcoxon test.

Through research, the average value of dysmenorrhea pain was obtained as follows: before consuming green coconut water it was 5.80, while after consuming it it was 2.00; Through statistical test results obtained a p-value of 0.000, with a mean difference of 3.8, which indicates that there is an effect of consumption of green coconut water on reducing menstrual pain (dysmenorrhea) in female adolescents.

There is an effect of consumption of green coconut water on reducing menstrual pain (dysmenorrhea) in female adolescents at the Dormitory of Midwifery student of Medan Health Polytechnic in 2023.

Keywords: *Adolescence, dysmenorrhea, Green coconut water*

INTRODUCTION

Adolescence is a transition phase from childhood to adulthood which is characterized by biological, cognitive and psychological changes (Sarwanto P, 2021). Puberty refers to the biological changes that occur in adolescents, which are marked by the start of menstruation. Menstruation is often associated with complaints, especially among women of reproductive age. These problems not only interfere with women's daily activities, but the most common complaint is menstrual discomfort, also known as dysmenorrhea. Menstrual cramps are a disorder characterized by discomfort in the lower abdomen caused by uterine cramps and back pain which can interfere with daily activities in women and teenagers (Rismaya et al, 2020).

According to the World Health Organization (WHO), in 2018 the incidence of dysmenorrhea in the world is very large, on average more than 50% of women in each country experience dysmenorrhoea. The prevalence of dysmenorrhea in each country is different, for example in Sweden it is around 75%, in the United States it is estimated that almost 90% of women experience dysmenorrhoea and 10-15% of them experience severe dysmenorrhea which makes them unable to carry out any activities (Fahriani et al, 2023). Data from the Association of Southeast Asian Nations (ASEAN) in 2018 the prevalence of dysmenorrhoea in Thailand was 65% among female adolescents, which caused a low school attendance rate (21.1%). The prevalence of dysmenorrhoea among students in Malaysia is 35-40% which affects their research concentration by 59.9% and social interactions by 58.6% and the prevalence of dysmenorrhoea in Singapore is 10-15% (Rismaya et al, 2020).

Based on Basic Health Research Data (Riskesdas) in 2018, the prevalence of dysmenorrhoea in women aged 13-19 years in Indonesia reached 64.25%, consisting of primary dysmenorrhoea 54,895 and secondary dysmenorrhoea 9.36%. Primary dysmenorrhoea is experienced by 60-75% of young women, with 75% experiencing mild to moderate pain and 25% experiencing severe pain. According to Riskesdas North Sumatra Province, it is estimated that the incidence of menstrual pain is around 30-45% of teenagers experiencing menstrual pain (Riskesdas, 2018). Meanwhile, in Deli Serdang district, the incidence of dysmenorrhoea is around 25-35%.

Based on North Sumatra data from research conducted by Nurul (2019) regarding dysmenorrhoea in Medan City, the prevalence of dysmenorrhoea among young women in Medan State High Schools in 2019 was (85.9%). With the highest prevalence in the 14-15 year age group (86%), menarche age <12 years (87.7%), menstrual duration <7 days (86.3%), normal menstrual cycle (87.4%), menstrual cycle over nutritional status (100%) and family history (90%).⁶ Based on an initial survey conducted by researchers in November, from the results of interviews conducted with 20 level 1 students of the Medan Health Polytechnic DIII Midwifery Study Program, there were 15 students who experienced dysmenorrhoea.

Dysmenorrhea has an adverse impact on teenagers' lives, according to Bernardi M (2017) dysmenorrhea can result in disrupted activities, lower academic achievement, disrupt performance and sleep quality, have a negative impact on mood, and cause anxiety and depression. Apart from that, young women who experience dysmenorrhoea will feel limited in carrying out activities, especially learning activities at school (Putri, 2014).

Treatment of menstrual pain (dysmenorrhea) can be done with pharmacological or non-pharmacological therapy. The first pharmacological effort that can be taken is to administer analgesic drugs which function as pain relievers. Non-pharmacological therapy can be carried out as an effort to treat it without using chemical drugs. One way to treat pain non-pharmacologically is green coconut water which contains 14.11 Mg/100 ml of Calcium, 9.11 Mg/10 ml of Magnesium and 8.59 Mg/100 ml of Vitamin C (Realita, dkk, 2022).

Green coconut water, compared to other types of coconut, contains the highest amount of tannin or antidote (anti-toxin) (Kurniah, 2012; Sartika F, 2019) Green coconut water can reduce the level of menstrual pain in teenagers who are experiencing menstrual pain. The chemical content in green coconut water is an anti-inflammatory substance that helps relieve pain due to menstrual cramps (Pattiiha, dkk, 2021).

Based on research conducted by several previous researchers, it shows that there is an effect of giving coconut water on reducing menstrual pain in teenagers who experience dysmenorrhea. (Latifah U, 2015; Khodijah, 2017; Kotangen et al, 2020; Rismaya et al, 2020; Nuryanih N et al, 2020; Pitriani et al, 2023). Other research that proves the effect of green coconut water on reducing pain is research conducted by MW Dolang (2021) in dormitories STIKES Pasapua Ambon where differences in pain intensity were found respondents who were given green coconut water and those who were not given water green coconut

Previous research conducted by Realita, et al (2022) at the Raudhatul Islamic Boarding School, Tasikmalaya City, found that there was an effect of giving green coconut water at a dose of 2 x 250 ml for three consecutive days on reducing dysmenorrhoea pain in young women. Several previous studies were different from the research we conducted where the dose of green coconut water we gave was 1 x 400 ml for three consecutive days. With this difference in dosage, we wanted to know whether green coconut water was still effective in reducing pain during menstruation. Therefore, we are interested in conducting this research.

METHOD

This type of research uses a pre-experimental design method with a one group pretest and posttest design research design. The population in this study were all students of the Diploma III Midwifery study program level I (one) Medan Health Polytechnic Midwifery Dormitory. The total sample was 15 female students who were menstruating and experiencing dysmenorrhoea. Pain measurements were carried out twice, namely before and after treatment. The treatment given was 400 ml of green coconut water every morning for 3 consecutive days during menstruation. The data source is primary data, namely data collected directly from respondents. Data analysis used SPSS Version 26 software. First, a data normality test was carried out using the Shapiro-Wilk Normality Test. To determine the level of menstrual pain (dysmenorrhea) before and after administering green coconut water, the Wilcoxon test was used because the data was not normally distributed.

This research was carried out after obtaining approval from the Medan Health Polytechnic Health Research Ethics Commission with No. 01-1480/KEPK/POLTEKKES KEMENKES MEDAN 2023.

RESULT AND DISCUSSION

Table 1. Characteristics of Respondents Based on Age of Young Women in Medan Health Polytechnic Midwifery Dormitory in 2023

Age Respondent	Frequency (F)	Percentage (%)
18 years	3	20,0
19 years	10	66,7
20 years	2	13,3
Total	15	100

Based on table 1, it was found that of the 15 respondents who were given green coconut water, most of the 10 respondents (66.7%) were in the 19 year age category, 3 respondents (20.0%) were in the 18 year age category and 2 respondents (13, 3%) in the 20 year category. So it is known that the majority of respondents were 19 years old, 10 people (66.7%).

Table 2. Average Value of Menstrual Pain (Dysmenorrhea) Before and After Giving Green Coconut Water to Young Women in the Medan Health Polytechnic Midwifery Dormitory in 2023

Green Coconut Water	N	Max	Min	Mean	Different Means	Standard Deviation
Before Intervention	15	9	3	5,80		2,396
After Intervention	15	3	0	2,00	3,8	1,464

Based on table 2, it is known that the majority of the scale of menstrual pain (dysmenorrhea) before being given green coconut water was moderate pain as many as 6 people (40.0%) and the majority of the scale of menstrual pain (dysmenorrhea) after being given green coconut water was mild pain as many as 10 people (66.6%). Based on the table of pain levels before being given green coconut water, there were 6 people (40.0%) of young women in the moderate pain category, 5 people (33.3%) experienced mild pain and 4 people (26.7%) experienced severe pain and after being given green coconut water there were 10 people (66.7%) who experienced a decrease from moderate to light category as many as 6 people (40.0%), from heavy to light category as many as 4 people (26.7%) and 5 people (33.3 %) from mild to no pain category.

Table 3. Rate of Menstrual Disorders (Dysmenorrhoea) Before and After Giving Green Coconut Water to Young Women in the Medan Health Polytechnic Midwifery Dormitory in 2023

Intervention	No Pain		Mild Pain		Moderate Pain		Severe Pain	
	F	%	F	%	F	%	F	%
Before Intervention	0	0	5	33,3	6	40,0	4	26,7
After Intervention	5	33,3	10	66,7	0	0	0	0

Based on table 3, it is known that the majority of the scale of menstrual pain (dysmenorrhea) before being given green coconut water was moderate pain as many as 6 people (40.0%) and the majority of the scale of menstrual pain (dysmenorrhea) after being given green coconut water was mild pain as many as 10 people (66.6%). Based on the table of pain levels before being given green coconut water, there were 6 people (40.0%) of young women in the moderate pain category, 5 people (33.3%) experienced mild pain and 4 people (26.7%) experienced severe pain and after being given green coconut water there were 10 people (66.7%) who experienced a decrease from moderate to light category as many as 6 people (40.0%), from heavy to light category as many as 4 people (26.7%) and 5 people (33.3 %) from mild to no pain category.

Table 4. Normality Test for Menstrual Pain (Dysmenorrhoea) Before and After Giving Green Coconut Water to Adolescent Girls in Medan Polytechnic Midwifery Dormitory in 2023

Changes in Menstrual Pain	Shapiro-Wilk		
	Statistics	df	Sig.

Before Intervention	0.817	15	0.006
After Intervention	0.603	15	0.000

Based on table 4. using the Shapiro-Wilk Normality Test, the P-value was $0.006 < 0.05$ (before intervention), P-value $0.000 < 0.05$ (after intervention), which means that the pain scale data before and after being given green coconut water was not normally distributed, so it does not meet the requirements for an Independent t-test so this bivariate analysis uses the Wilcoxon Test.

Table 5. Effect of Giving Green Kekapa Water on Reducing Menstrual Pain (Dysmenorrhoea) in Adolescent Girls in Medan Health Polytechnic Midwifery Dormitory in 2023

Changes in Menstrual Pain	N	Mean	Different Means	Standard Deviation	Z	P-value
Before Intervention	15	5,80		2,396		
After Intervention	15	2,00	3,8	1,464	-3,578	0,000

Based on table 5, it was found that there was an effect of green coconut water on reducing menstrual pain (dysmenorrhea) in young women in the Medan Health Polytechnic Midwifery Dormitory in 2023, as evidenced by the results of the p-value (2-tailed) statistical test of $0.000 < 0.05$.

DISCUSSION

a. Average Value of Menstrual Pain (Dysmenorrhoea) Before and After Giving Green Coconut Water to Young Women in Medan Health Polytechnic Midwifery Dormitory in 2023

Based on the research results, it is known that the average value of the intensity of menstrual pain (dysmenorrhea) before being given green coconut water was 5.80 and the average value of menstrual pain (dysmenorrhea) after being given green coconut water was 2.00, where there was a decrease in menstrual pain (dysmenorrhoea) as evidenced by an average difference of 3.8. Before being given green coconut water there were 6 people (40.0%) of young women in the moderate pain category, 5 people (33.3%) experienced mild pain and 4 people (26.7%) experienced severe pain and after being given green coconut water there was 10 people (66.7%) experienced a decrease from the moderate category to light as many as 6 people (40.0%), from the heavy to light category as many as 4 people (26.7%) and 5 people (33.3%) from the mild to painless.

This research is in line with previous research, namely Metha Fahriani, et al (2022) which shows that before the intervention the average respondent (20 people) experienced 7.85 degrees of severe pain and after the intervention 250 ml of green coconut water 2 times a day for 3 days during menstruation. The average result for respondents (20 people) was moderate pain, 4.7, with

18 respondents having their pain scale down and 2 people having their pain scale remaining the same.

Researchers provided a different intervention from previous researchers, namely 1 x 400 ml of green coconut water for 3 consecutive days and the intervention was stopped when menstrual pain (dysmenorrhea) had stopped. According to the researchers, the results of this study are more significant than the results of research by Metha Fahriani, et al (2022) which provided 250 ml of intervention as evidenced by the 20 respondents before being given the intervention the pain scale was in the severe pain category and after being given the intervention for 18 people the pain scale dropped and 2 people's pain scale was constant, so there were 10% who did not experience a decrease in pain, whereas in this study 100% experienced a decrease.

The level of pain in each individual has different levels because the pain felt by each individual has a subjective and individual perception, and it is possible that pain of the same intensity can be felt by two people who are related to experience, knowledge regarding how to deal with pain, stress levels. experienced and the intake consumed.

From the description above, researchers are of the opinion that the scale or level, the feeling of pain felt by each person is different. Only that person can indicate the scale or level of pain they are experiencing.

b. The Effect of Green Coconut Water on Reducing Menstrual Pain (Dysmenorrhea) Before and After Giving Green Coconut Water to Adolescent Girls in the Medan Health Polytechnic Midwifery Dormitory in 2023

Based on table 5, it is known that there is an effect of giving green coconut water on reducing menstrual pain (dysmenorrhea) in young women. Researchers used the Wilcoxon test because there was a sig value. < 0.05 which means the data is not normally distributed. Based on the research results, it was found that the average menstrual pain scale (dysmenorrhea) before being given green coconut water was 5.80, the average menstrual pain scale (dysmenorrhea) after being given green coconut water was 2.00, the average difference before and after giving green coconut water is 3.8 and the p-value obtained is 0.000 with a significance level of $\alpha = 0.05$, because the p-value is $0.000 < 0.05$, the hypothesis is accepted.

This states that there is a significant difference between being given green coconut water and changing the scale of menstrual pain (dysmenorrhea) in young women. Based on the category, a scale of menstrual pain (dysmenorrhea) was obtained in young women before being given green coconut water, 5 female students experienced mild pain, 6 female students experienced moderate pain and 4 female students experienced severe pain, then after being given green coconut water

it changed to 5 female students experiencing no pain. and 10 female students experienced mild pain.

The results of research conducted by Mariene and Marjen 2021 and several other researchers who showed that there was a significant difference in reducing the level of dysmenorrhea pain before and after giving green coconut water, because coconut water is very effective in reducing dysmenorrhea. Respondents who had undergone treatment found a decrease in menstrual pain after being given coconut water, this is because during menstruation the body releases fluid and blood.

The calcium and magnesium contained in green coconut water reduce tension in the stomach muscles, uterine muscles and 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 process of forming prostaglandins. Green coconut water also contains high levels of tannin and antidote (anti-toxin) and is able to reduce toxic properties which can stabilize the production of prostaglandin hormones.

This happens because pain is subjective and only someone who experiences this condition can describe the amount of pain they feel. So it will have an effect on reducing the pain intensity score for each respondent.

Based on the description above, researchers assume that giving green coconut water is a technique that can be used to reduce dysmenorrhea. In this study, most of the respondents' dysmenorrhea scale after being given green coconut water experienced a change, namely a decrease. From the results of research conducted by researchers with theoretical concepts and the results of existing related research, it can be defined that there is a significant influence between giving green coconut water on changes in the scale of dysmenorrhea. So green coconut water can be used as an alternative that can be used to treat dysmenorrhoea.

CONCLUSIONS

Based on the results of research and discussion regarding the effect of giving green coconut water on reducing menstrual pain (dysmenorrhea) in young women in the Medan Health Polytechnic Midwifery Dormitory in 2023, it can be concluded:

1. The average value of pain intensity before being given green coconut water on reducing menstrual pain (dysmenorrhea) was 5.80 and the average value after being given green coconut water was 2.00, where there was a decrease in menstrual pain (dysmenorrhea) which was proven with the results of an average difference of 3.8.

2. There is an effect of giving green coconut water on reducing menstrual pain (dysmenorrhea) in young women in the Medan Health Polytechnic Midwifery Dormitory in 2023, the results of the p-value statistical test (2-tailed) were $0.000 < 0.05$.

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