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The effect of administration of green coconut (*Cocos nucifera* Linn Viridis Variety) water on reducing dysmenorrhea primary for teenage women in class X at State High School 1 Deli Tua Year 2024

Putri Krisna [1,*], Husna Sari Sitorus [1], Marlen Sadrina Sitepu [1], Shinta Andria Chairani [1], Deswizar Syaputri [2], Anita Damayanti Lubis[3] and Suriani [1]

[1] *Faculty of Midwifery Institut Kesehatan Deli Husada Deli Tua.*
[2] *Faculty of Midwifery Institut Teknologi dan Bisnis Indraggiri.*
[3] *Faculty of Midwifery Univeritas Haji Sumatera Utara.*

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Abstract

Primary Dysmenorrhea is menstrual pain that occurs in teenagers, which is usually not associated with other diseases. According to WHO, in 2018 the incidence of primary dysmenorrhoea was very high in the world. On average, more than 50% of women in each country experience primary dysmenorrhoea. One way to treat primary dysmenorrhoea is non-pharmacological therapy, namely using green coconut water. Green coconut water contains calcium and magnesium which can reduce muscle tension. Vitamin C, which is a natural anti-inflammatory, relieves menstrual pain by inhibiting the cyclooxygenase enzyme which plays a role in the process of forming prostaglandins. This study aims to determine the effect of giving green coconut water on reducing primary dysmenorrhoea in adolescent girls. The research will be carried out at SMA Negeri 1 Deli Tua starting in April-May 2024.

The research design uses a quasi-experiment method with one group pretest -posttest design. The sample in this study consisted of 22 respondents who were given green coconut water using a purposive sampling technique. The primary data used in this research was an observation sheet on the primary dysmenorrhoea pain scale before and after being given green coconut water as a research instrument. Based on the results of bivariate analysis using the Chi Square test, it shows that the p-value is 0.000. So it can be concluded that p <0.005, which means there is an effect of giving green coconut water on reducing primary dysmenorrhoea in young women.

Keywords: Adolescent girls; Primary Dysmenorrhea; Green coconut water; Menstruation

1. Introduction

Adolescence is a fundamental period of growth for teenagers, which starts from the maturity of the reproductive organs until they are able to produce. Adolescence is marked by transfiguration or changes such as hormonal, physical, psychological and social. This period is said to be puberty. One sign that women are experiencing puberty is menstruation (Puadiah & Sutarno, 2023).

Menstruation is a natural condition that occurs in a woman, namely a condition where the endometrium sheds which then flows out of the vagina. Menstruation includes physiological changes that occur from time to time which are influenced by reproductive hormones. Women experience menstruation every month, starting from puberty to menopause (Astuti & Kulsum, 2020).

* Corresponding author: Putri Krisna

Dysmenorrhea is cramps or pain in the lower abdomen that women experience during menstruation and can usually spread to the lower back, hips, upper thighs and calves. Cramps cause strong contractions in the uterine muscles when menstrual blood is released from the uterus, tightening the muscles and causing spasms and pain (Sumantri & Kurnia Sari, 2023).

Dysmenorrhea is divided into two, namely primary dysmenorrhea and secondary dysmenorrhea (Octorika et al., 2020). Primary dysmenorrhea is menstrual pain that is not related to other diseases. Primary dysmenorrhea is caused by prostaglandins which push and contract the endometrium until prostaglandin levels become higher and cause excessive tension and pain. Usually on the first day of menstruation, prostaglandin levels will be maximum (Sumantri & Kurnia Sari, 2023). Secondary dysmenorrhea is menstrual pain where there is a pathological condition (Octorika et al., 2020).

According to WHO 2018, the incidence of dysmenorrhoea in the world is very high. More than 50% of women in every country experience dysmenorrhoea. The presentation rate in Sweden is 72%, in the United States it reaches 60% and according to a study conducted in England, 10% of young women in high school are absent 1-3 days a month due to experiencing dysmenorrhoea (Harahap et al., 2023).

According to the SDKI, 58% of adolescent girls discuss menstruation with their friends and 45% with their mothers. One in 5 teenagers do not discuss menstruation with other people until they experience their first menstruation, 76% of teenage girls experience dysmenorrhoea while 58% of teenage girls do not experience dysmenorrhoea. (Harahap et al., 2023). In Indonesia, there are 54.89% of teenagers experiencing primary dysmenorrhoea and 9.36% of teenagers experiencing secondary dysmenorrhoea. Nearly 70-80% of women throughout the world experience menstrual pain, which is also called primary dysmenorrhoea (Hidayati & Hanifah, 2023).

According to data from North Sumatra in the city of Medan in 2017, it showed that 29.8% of menarche age was >12 years, 70.2% had menarche age <12 years, and 47.4% had a menstrual period <7 days and 52% had a menstrual period >7 days. 6%. 73.7% experienced dysmenorrhea, 26.3% did not experience dysmenorrhoea, 78.9% had a family history of dysmenorrhea and 21.1% had no family history of dysmenorrhoea (Harahap et al., 2023).

Based on an initial survey conducted by researchers in April 2024 at SMA Negeri 1 Deli Tua, it is known that the number of female students in class X is 240 and those who have menstruated are 184 female students. Based on interviews conducted by researchers, it was found that 64 female students experienced primary dysmenorrhoea. There were 42 female students who took painkillers to relieve the pain. However, there were 22 female students who experienced dysmenorrhoea without taking any medication. Primary dysmenorrhoea was experienced by female students differently, namely 14 female students experienced mild pain, 5 female students experienced moderate pain, 2 female students experienced controlled severe pain and 1 female student experienced uncontrolled severe pain. Some female students who experience dysmenorrhea deal with it by applying eucalyptus oil to their stomachs and taking time off to rest at home during menstruation. Female students who experience dysmenorrhoea admit that they have difficulty concentrating when studying in class. Many female students don't know about the benefits of green coconut water as a pain reliever during menstruation.

There are ways that can be done to reduce primary dysmenorrhoea, namely pharmacological and non-pharmacological. Pharmacology is by providing analgesics, hormone therapy, and NSAIDs. As for non-pharmacology, namely warm compresses, breathing and relaxation exercises and giving green coconut water (Sumantri & Kurnia Sari, 2023). Green coconut water contains 14.11 mg of calcium per 100 ml, 8.59 mg of vitamin C per 100 ml and 9.11 mg of magnesium per 100 ml. Calcium, vitamin C and magnesium content can reduce primary dysmenorrhoea (Mundriyastutik et al., 2022).

Giving green coconut water does not take time, can be given in all places and is very practical. This can make things easier for every woman. Green coconut water is given on the first day of menstruation, namely 250 ml in the morning and evening for 3 days (Mundriyastutik et al., 2022)

2. Methods

This research method uses a quantitative research method (Quasi Experiment) with a one group pre-test and post-test design. Using Purposive Sampling sampling technique. The population in this study was all class X female students at SMA Negeri 1 Deli Tua who had experienced menstruation with a total of 184 female students. The sample in this study consisted of 22 respondents.

3. Results and discussion

Table 1 Frequency distribution based on respondent characteristics in class X teenage girls who experienced primary dysmenorrhoea at SMA Negeri 1 Deli Tua in 2024

Respondent Characteristics	Frequency	%
Length of Menstruation		
<3 Day	4	18.2
3-7 Day	7	31.8
>7 Day	11	50
Total	22	100
Menarche		
<12 Age	15	68.2
12-14 Age	7	31.8
Total	22	100
Family History of Primary Dysmenorrhea		
Ada	13	59.1
Tidak Ada	9	40.9
Total	22	100

Based on table 1, it was found that of the 22 female students who experienced primary dysmenorrhoea, the majority had a menstrual period of >7 days, namely 11 female students (50.0%) and the minority had a menstrual duration of <3 days, namely 4 female students (18.2%). The majority of female students experienced primary dysmenorrhoea at menarche when they were <12 years old, namely 15 female students (68.2%) and the minority when aged 12-14 years were 7 female students (31.8%). The majority of female students who experienced primary dysmenorrhoea had a family history of primary dysmenorrhoea, namely 13 female students (59.1%) and the minority had no family history of primary dysmenorrhoea, namely 9 female students (40.9%).

Table 2 Frequency distribution of primary dysmenorrhoea research before and after being given green coconut water to teenage girls in class X at SMA Negeri 1 Deli Tua in 2024

Pain Scale	Giving Green Coconut Water			
	Before		After	
	Frequency	%	Frequency	%
Not Painful	0	0	11	50
Mild Pain	14	63.6	8	36.4
Moderate Pain	5	22,8	3	13.6
Severe Pain Is Controlled	2	9.1	0	0
Severe Uncontrolled Pain	1	4.5	0	0
Total	22	100	22	100

Based on table 2, it shows that the majority of female students who experienced primary dysmenorrhoea before being given green coconut water had a mild pain scale of 14 female students (63.6%) and a minority with severe uncontrolled pain scale, namely 1 female student (4.5%). Meanwhile, after being given green coconut water, it was found that the

majority of female students did not feel any pain, namely 11 female students (50%) and a minority of female students experienced primary dysmenorrhoea with a scale of controlled severe pain and uncontrolled severe pain, namely (0%).

Table 3 Chi Square Test for Primary Dysmenorrhoea Before and After Giving Green Coconut Water to Class X Adolescent Girls at SMA Negeri 1 Deli Tua

Classification	Pre-Test	Post-Test			
		Not Paintful	Mild Pain	Moderate Pain	P-Value
Mild Pain	14	11	3	0	0.00
Moderate Pain	5	0	5	0	
Severe Pain Is Controlled	2	0	0	2	
Severe Uncontrolled Pain	1	0	0	1	

Table 3 explains the Chi Square test which showed that there was a decrease in primary dysmenorrhoea before and after giving green coconut water, the p-value was 0.000<0.005, so it can be concluded that there was an effect of giving green coconut water on reducing primary dysmenorrhea in class X teenage girls in Old Deli 1 Public High School in 2024

4. Discussion

4.1. Characteristics Based on Length of Menstruation

In table 1, the results show that the majority of young women who experience primary dysmenorrhoea have a menstrual period of >7 days, namely 11 female students (50.0%) and a minority of menstrual duration of <3 days, namely 4 female students (18.2%).

The duration of menstruation is the period of time from the first day of menstruation to its completion, which occurs between 3-7 days when the amount of blood that comes out is no more than 80ml. The normal length of menstruation is 3-7 days and the length of menstruation is abnormal if it is <3 days or >7 days. (Shelly Sagita et al., 2023).

Menstruation lasts longer than normal, causes tension in the uterus, and more prostaglandins are produced. Producing more prostaglandins can cause pain, while continuous tension in the uterus can result in obstructed blood supply to the uterus and primary dysmenorrhoea occurs (Novia et al., n.d. 2020).

According to (Rika Handayani, 2022) at MAN Rantauprapat where the research results showed p=0.002<0.005, meaning that there is a relationship between the length of menstruation and the incidence of primary dysmenorrhoea in adolescents.

4.2. Characteristics Based on Menarche

The results of the study showed that the majority of young women who experienced primary dysmenorrhoea had menarche when they were <12 years old, reaching 15 female students (68.2%) and the minority when aged 12-14 years were 7 female students (31.8%).

The normal age of menarche is 12-14 years. Menarche aged <12 years will cause narrowing of the cervix which can cause pain during menstruation, this is because the reproductive organs have not yet developed and functioned optimally (J. S. Putri et al., 2023).

According to (Ni Ketut Ayu Rachma Nanda Sapitri, et al 2023) at SMA Negeri 2 Mataram where the results of the study explained that there was a relationship between the age of menarche and the incidence of primary dysmenorrhoea with a value of p=0.000<0.005.

4.3. Characteristics Based on Family History of Primary Dysmenorrhoea

The results of the study showed that the majority of young women who experienced primary dysmenorrhoea had a family history of primary dysmenorrhoea, namely 13 female students (59.1%), and the minority had no family history, namely 9 female students (40.9%).

A family history of primary dysmenorrhoea is genetically inherited in adolescents. This causes teenagers to suffer from primary dysmenorrhoea (Destariyani et al., 2023)

According to (Elvi Destariyani, et al 2022) in SMP 2 Bengkulu where there was a relationship between a history of primary dysmenorrhea in the family and the incidence of primary dysmenorrhea in adolescents where from the results of the chi-square test p-value = 0.002 <0.005.

4.4. The Effect of Giving Green Coconut Water (Cocos Nucifera Linn Varietas Viridis) on Reducing Primary Dysmenorrhoea in Class X Adolescent Girls at SMA Negeri 1 Deli Tua in 2024

Based on the research results, it shows that of the 22 female respondents who felt no pain, 11 female students (50.0%), 8 female students had mild pain (36.4%) and 3 female students had moderate pain (13.6%) . The results of statistical tests using the Chi-Square test show that the p-value is 0.000<0.005, so it can be said that there is an effect of giving green coconut water to young women who experience primary dysmenorrhoea.

This happens because green coconut water contains magnesium, calcium and vitamin C which can reduce menstrual pain by preventing the cyclooxygenase enzyme which plays a role in the stage of making prostaglandins (Mundriyastutik et al., 2022).

5. Conclusion

Based on data analysis and discussion on "The Effect of Giving Green Coconut Water (*Cocos nucifera* linn viridis variety) on the Decrease in Primary Dysmenorrhea in Class after being given green coconut water. Where statistically the p-value is 0.000<0.005, which means that there is an effect of giving green coconut water on reducing primary dysmenorrhoea in class X young women at SMA Negeri 1 Deli Tua in 2024.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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