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Comparison of Green Coconut Water with Turmeric and Tamarind Concoction on Reducing Menstrual Pain in Adolescent Girls

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ABSTRACT

Background: Adolescence is a transition period or transition from childhood to adulthood which is marked by changes both physically and psychologically. Physical changes are more obvious, the body develops rapidly to reach an adult body shape accompanied by the development of reproductive capacity. One of the characteristics of female puberty is menstruation which is usually experienced by girls aged 10 years, but can also be later, during menstruation the blood that comes out is blood due to the shedding of the uterine wall. Purpose: This study aims to determine the Comparison of Green Coconut Water with Coconut Turmeric Concoction on Reducing Menstrual Pain in Adolescents at SMP Negeri 02 Panyabungan, Mandailing Natal Regency. Method: The type of research used is quasi-experimental research. The population in the study were female adolescents at SMP Negeri 02 Panyabungan. The sampling technique used purposive sampling with a sample size of 40 people. Data collection The research instrument was collecting questionnaire sheets with a Numeric Rating Scale (NRS) pain scale guide to find out respondents in experiencing menstrual pain (dysmenorrhea). Data analysis used the Wilcoxon test with a significance level of p <0.05). Results: The results of the analysis showed that there was an influence with a value of P = 0.000 where P = <0.05. Conclusion: It is recommended that this study can be used in providing nursing care in the reproductive system by providing complementary nursing that recommends green coconut water with turmeric and tamarind concoction as an alternative treatment for menstrual pain. as well as for teenagers who experience dysmenorrhea before using painkillers, it is better to use non-pharmacological treatment, one of which is green coconut water with turmeric and tamarind concoction.

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INTRODUCTION

Adolescence is a transitional period from childhood to adulthood, marked by both physical and psychological changes. Physical changes become more apparent, with the body rapidly

developing, reaching an adult body shape, and reproductive capacity developing. One of the hallmarks of puberty in girls is menstruation, which typically occurs around the age of 10, but can also occur later. The blood released during menstruation is the shedding of the uterine lining (Ayu, 2019).

Menstruation is the discharge of blood and endometrial debris from the uterus in response to the secretion of ovarian hormones, which causes pain, commonly known as dysmenorrhea. The frequency of dysmenorrhea is quite high, with almost 90% of women experiencing severe dysmenorrhea, which causes them to be unable to carry out any activities, and this reduces their quality of life (Ninda, 2021).

Menstrual pain is a medical condition that occurs during menstruation or menstruation which can interfere with activities and requires treatment, characterized by pain or soreness in the abdominal and pelvic areas (Hisyam, 2022).

Menstrual pain can range from mild to severe, as each woman experiences different levels of pain. Psychologically, dysmenorrhea can significantly interfere with physical activity (Ninda, 2021).

Dysmenorrhea has a negative impact on adolescents' lives, as it can disrupt activities, lower academic achievement, disrupt performance and sleep quality, negatively impact mood, and lead to anxiety and depression. Furthermore, adolescent girls who experience dysmenorrhea may feel restricted in their activities, especially school activities (Luky, 2021).

Risk factors for dysmenorrhea include early menarche, a family history of dysmenorrhea, an abnormal body mass index, fast food habits, duration of menstrual bleeding, exposure to cigarette smoke, coffee consumption, and other risk factors that influence dysmenorrhea, namely the menstrual cycle and the length of menstruation (Luky, 2021).

According to WHO (World Health Organization) data, 1,769,425 women (90%) experience dysmenorrhea, with 10-15% experiencing severe dysmenorrhea. This is supported by research conducted in various countries with astonishing results. Primary dysmenorrhea is more than 50% prevalent. The global incidence of menstrual pain (dysmenorrhea) is significant. On average, more than 50% of women in every country experience dysmenorrhea. The prevalence of primary dysmenorrhea in the United States is estimated at 45-90%. At Urmia University of Medical Science, West Azerbaijan, Iran, of 293 female students, 74.3% experienced painful dysmenorrhea, with 17.7% experiencing mild dysmenorrhea, 45.7% experiencing moderate dysmenorrhea, and 10.9% experiencing severe dysmenorrhea (WHO, 2021).

According to data from the Association of Southeast Asian Nations (ASEAN) in 2018, the prevalence of dysmenorrhea in Singapore was around 10-15%, in Malaysia 35-40%, and in Thailand 65% (ASEAN, 2018). Meanwhile, in Indonesia, according to data from the Indonesian Ministry of Health, the incidence of dysmenorrhea was 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. Primary dysmenorrhea symptoms typically occur in women of reproductive age and those who have never been pregnant. Dysmenorrhea often occurs in women aged 20 or under 25 (Indonesian Ministry of Health, 2018).

Pain management is divided into two approaches: pharmacological and non-pharmacological. Pharmacologically, pain can be managed with drug therapy. Medications

should be used under a doctor's supervision, or with analgesics (pain relievers) widely available in drugstores, but the dosage should not exceed three times daily (Marien, 2021). Non-pharmacological therapies for dysmenorrhea include herbal remedies, supplements, relaxation, hypnotherapy, and acupuncture. Herbal concoctions can be made using traditional medicines derived from plant materials. Several plant ingredients are believed to reduce pain, including cinnamon, cloves, ginger, and Chinese herbs. In this study, green coconut water and turmeric and tamarind were used.

Green coconut water contains several minerals, including nitrogen, phosphorus, potassium, magnesium, chlorine, sulfur, and iron. The average caloric value of coconut water is around 17 calories per 100 grams. Coconut water contains calcium, magnesium, and vitamin C, which can reduce tension in the abdominal and uterine muscles, and can also help relieve pain caused by menstrual cramps (Marien, 2021).

People consume turmeric to help reduce menstrual pain. Many people are unaware of the health benefits of turmeric and tamarind. Tamarind drinks actually have numerous benefits, including analgesic and anti-inflammatory properties. The active ingredient in turmeric that functions as an anti-inflammatory is curcumin. Specifically, the curcumin in turmeric and tamarind and the anthocyanin in tamarind can inhibit and reduce inflammation, thereby reducing and inhibiting uterine contractions that cause menstrual pain (Narwastu & Siska, 2018).

Based on the results of interviews with researchers at SMP Negeri 06 Dumai, several female students said that when they experience menstrual pain, sometimes they cannot participate in activities at school, some even experience nausea and vomiting due to menstrual pain, and female students also do not know about non-pharmacological therapy treatment of green coconut water and turmeric and tamarind concoctions when experiencing menstrual pain. Therefore, the researcher is interested in the title "Comparison of green coconut water with turmeric and tamarind concoctions on reducing menstrual pain in female adolescents at SMP Negeri 02 Panyabungan, Mandailing Natal Regency in 2024"

METHODS

The research design used was a quasi-experimental study with a one-group pretest and posttest design. This quasi-experimental design involves conducting a pretest before administering treatment and a posttest after administering treatment. This research design has one experimental group without comparison and non-random sampling. Sampling was conducted using a purposive sampling technique. The research instrument used a numeric rating scale (NRS) pain scale, with a scale range of 0-10 (Pattiiha, Novelia, and Suciawati, 2021). The sampling technique in this study used purposive sampling, a sampling technique by selecting samples from the population according to the researcher's wishes (the objectives/problems in the research) so that the sample can represent previously known population characteristics (Nursalam, 2018).

RESULTS AND DISCUSSION

Research result

This chapter describes the results of a study comparing green coconut water with turmeric and tamarind concoctions on reducing menstrual pain in female adolescents at SMP Negeri

02 Panyabungan. Before and after the intervention of green coconut water with turmeric and tamarind concoctions was given. This study began on January 20 – February 8, 2025 at SMP Negeri 02 Panyabungan.

Univariate Analysis

Teenage girlsIn this study, there were 40 people. The characteristics in the study included age, age at first menarche.

Age

Respondent characteristics based on age can be seen in the following table.

Table 1 Distribution of Respondents by Age in Public Junior High SchoolsState 02 Panyabungan in 2025

No	Age	N	%
1	13 years old	10	25.0
2	14 years	26	65.0
3	15 years	4	10.0
	Amount	**40**	**100.0**

Based on table 1 above, it can be seen that the most respondents were 14 years old, namely 26 people (65.0%), and the fewest respondents were 15 years old, namely 4 people (10.0%).

Age of Menarche

Respondent characteristics based on age of menarche can be seen in the following table.

Table 2 Distribution of Respondents by Age of Menarche in Junior High SchoolState 02 Panyabungan in 2025

No	Age of Menarche	N	%
1	10 years	1	2.5
2	11 years old	8	20.0
3	12 years old	14	35.0
4	13 years old	17	42.5
	Amount	**40**	**100.0**

Based on table .2 above, it can be seen that the most respondents had a menarche age of 13 years, namely 17 people (42.5%) and the fewest respondents had a menarche age of 10 years, namely 1 person (2.5%).

Menstrual Pain Scale before being given green coconut water with turmeric and tamarind concoction

The scale of menstrual pain in young women before being given green coconut water with turmeric and tamarind concoction is as follows:

Table 3. Menstrual Pain Scale Table Before Being Given Green Coconut Water with Turmeric and Tamarind Concoction in Public Middle SchoolsState 02 Panyabungan in 2025

No	Pain Scale	N	%
1	Moderate Pain	40	100.0
	Amount	**40**	**100.0**

Based on table 3 above, it can be seen that the most respondents had moderate pain, namely 40 people (100.0%).

Menstrual pain scale after being given green coconut water with turmeric and tamarind concoction

The scale of menstrual pain in young women after being given green coconut water with turmeric and tamarind concoction is as follows:

Table 4. Menstrual Pain Scale Table After Being Given Green Coconut Water with Turmeric and Tamarind Concoction in Public Middle SchoolsState 02 Panyabungan in 2025

No	Pain Scale	N	%
1	No Pain	7	17.5
2	Mild Pain	24	60.0
3	Moderate Pain	9	22.5
	Amount	**40**	**100.0**

Based on table 4 above, it can be seen that the most respondents had a mild pain scale, namely 24 people (60.0%) and the fewest respondents had no pain, namely 7 people (17.5%).

Bivariate Analysis

Comparison of Green Coconut Water with Turmeric and Tamarind Concoction on Reducing Menstrual Pain in Grade VIII Adolescent Girls in Negeri 02 Panyabungan in 2025

Measurements were carried out on young women and then measured the pain scale of respondents before being given an intervention of green coconut water with turmeric and tamarind concoction. After obtaining respondents who met the predetermined sample criteria, they were then given an intervention, giving green coconut water with turmeric and tamarind concoction for 3 days. After the intervention was completed, the pain scale value felt by the respondents was re-observed. From these results, changes in the respondents' pain scale can be seen using an observation sheet. After all respondent data were collected, data analysis was carried out using a computer statistical program. Analysis using the Wilcoxon test. The results obtained showed that the data was not normally distributed with a total of 30 respondents. This is shown in the following table:

Table 5. Comparison of Green Coconut Water with Turmeric and Tamarind Concoction on Pain Reduction

Menstruation in 8th Grade Female Adolescents at SMP Negeri 02 Panyabungan in 2025

No	Treatment	N	Mean	Min-Max	P-Value	Z
1	Pretest	40	2.50	36.00	0.00	-5.173

2	Posttest	40	18.46	0.00

From Table 4.5 the results of the Wilcoxon test show that the pretest menstrual pain scale value (before the treatment of giving green coconut water with turmeric and tamarind concoction is 18.46 the mean value of the posttest menstrual pain scale (after the treatment of giving green coconut water with turmeric and tamarind concoction) is 18.46. This means that there is a decrease in the menstrual pain scale after the treatment of giving green coconut water with turmeric and tamarind concoction. Furthermore, based on the significant value (p-value) of 0.00, less than 0.05. This means that the treatment of giving green coconut water with turmeric and tamarind concoction has a significant effect on reducing the menstrual pain scale in adolescent girls. Thus, it can be concluded that the treatment of giving green coconut water with turmeric and tamarind concoction has a significant effect on reducing the menstrual pain scale in adolescent girls.

Discussion

Menstrual Pain Scale Before Green Coconut Water and Turmeric and Tamarind Concoction

Menstrual pain scale for adolescent girlsbefore being given green coconut water with turmeric and tamarind concoction at SMP Negeri 06 Dumai, it was obtainedthat the respondents with the most moderate pain scale were 40 people (100.0%).

Based on the distribution table of menstrual pain scale category data before being given green young coconut water intervention to adolescents in Ampera Hamlet, obtained from the results of observations conducted by researchers using questionnaires on 30 respondents who were sampled, it was found that 11 respondents (36.7%) experienced moderate pain, and 10 respondents (33.3%) experienced severe pain with ages ranging from 15 to 19 years. where the pain level scale is divided into 4 categories, namely no pain (0), mild pain (1-3), moderate pain (4-6) and severe pain (7-10). Many adolescents experience moderate and severe levels of pain according to researchers in Ampera Hamlet which is caused by a lack of physical activity that is different for each respondent because the lower the physical activity, the more severe the level of dysmenorrhea will be and vice versa (Novia et al., 2017).

Merry's Research (2022)Before the application of the turmeric and tamarind drink, the mild pain scale was 6 (15.8%) and the severe pain scale was 11 (28.9%).

The results of the study showed that the average pain level among respondents before therapy was moderate. Adolescent girls often experience moderate menstrual pain during menstruation, which disrupts learning, rest, and other activities. Furthermore, several factors such as stress, anxiety, age, noisy environments, and previous pain experiences also influence menstrual pain. Subjective perceptions result in varying pain responses. Women who experience menstrual pain typically produce 10 times more prostaglandins than women who do not experience pain. Prostaglandins cause increased uterine contractions, which cause pain.

This is in line with the theory (Wijayanti, 2014) that several causes that trigger dysmenorrhea pain include the release of prostaglandins, increased frequency of uterine contractions, uterine arteriolar vasospasm, endocrine factors, psychological factors (anxious

attitudes), hereditary factors, lack of exercise, narrowing of blood vessels and declining body condition.

Non-pharmacological management is safer because it doesn't cause side effects like medications. Several non-pharmacological methods can relieve dysmenorrhea, including consuming herbal products. One commonly consumed product to reduce menstrual pain is a coconut water and turmeric and tamarind drink. Some respondents experienced dysmenorrhea pain due to frequent stress, as well as a lack of exercise. A predisposition to dysmenorrhea can also influence the occurrence of dysmenorrhea. Anxiety due to unpreparedness for menstruation can lead to decreased pain levels. Not taking anything before or during menstruation can worsen menstrual pain.

Menstrual Pain Scale After Being Given Green Coconut Water and Turmeric and Tamarind Concoction

The scale of menstrual pain in female adolescents after being given green coconut water with turmeric and tamarind concoction at SMP Negeri 06 Dumai, was obtainedthat the most respondents had a mild pain scale, namely 24 people (60.0%) and the fewest respondents had no pain, namely 7 people (17.5%).

This research is in line with Nabillah (2021)It was found that 30 respondents who had been given the green young coconut water intervention, 16 respondents did not experience mild pain (53.3%) and 4 respondents experienced moderate pain (13.3%).

Respondents who are still in the category of mild and moderate pain caused by internal factors of the respondents, for example respondents experience anxiety so that when given treatment the respondents do not relax and the suggestion that is embedded is that the pain does not decrease. This is in accordance with the theory of Proverawati & Misaroh (2017), women who experience anxiety will experience hormonal imbalance in the control of uterine muscles by the autonomic nerves so that excessive sympathetic stimulation occurs so that hypotonia occurs in the isthmus sricular muscle fibers or the internal urethral osteum which causes excessive dysmenorrhea.

Turmeric and tamarind drink is a turmeric drink mixed with tamarind (Fauzi, 2014). Non-pharmacological treatment for dysmenorrhea can be done by consuming herbal products that are believed to have properties. One herbal product commonly consumed to reduce menstrual pain is turmeric and tamarind drink. The active agent in turmeric that functions as an analgesic is curcumin, while the content of tamarind as an anti-inflammatory and antipyretic is anthocyanin.

The decrease in dysmenorrhea pain during menstruation above is due to the administration of young green coconut water and turmeric and tamarind concoction to adolescents who experience dysmenorrhea pain. The decrease in the intensity of menstrual pain experienced by respondents is due to the presence of calcium and magnesium contained in coconut water which can relax the uterine muscles due to increased prostaglandins which cause myometrial ischemia and uterine muscle hypercontractivity which causes dysmenorrhea pain and 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 process of prostaglandin formation (Kristina & Syahid, 2018).

Comparison of Green Coconut Water with Turmeric and Tamarind Concoction on Reducing Menstrual Pain in Eighth Grade Female Adolescents at SMP Negeri 02 Panyabungan in 2025

Based on the statistical test results, p = 0.000 was obtained, where p < 0.05. These results indicate that there is a comparison of green coconut water with turmeric and tamarind concoctions on reducing menstrual pain in female adolescents at SMP Negeri 02 Panyabungan.

This means that the treatmentcoconut water and turmeric tamarind concoction had a significant effect on reducing menstrual pain levels in adolescent girls. Therefore, it can be concluded that, based on the menstrual pain scale, the treatment of green coconut water with turmeric and tamarind concoction had a significant effect on menstrual pain levels in adolescent girls at SMP Negeri 02 Panyabungan in 2025.

The same previous research was conducted by Amiritha in 2017, reducing dysmenorrhea pain in nursing students with a P value of 0.000, (<0.05) the results of this statistical test indicate that Ho is rejected and Ha is accepted. The effect of giving young green coconut water therapy is young coconut water which contains a number of electrolyte fluids that can prevent dehydration.

Young green coconut water can relax muscles due to prostaglandin activity. During menstruation, the damaged uterine lining is shed and replaced with new ones. A molecule called prostaglandin is released, causing the uterine muscles to contract. When uterine muscles contract, the blood supply to the endometrium narrows (vasoconstriction), and this process is what causes menstrual pain. Other substances known as leukotrienes, which are chemicals that play a role in the inflammatory process and also increase during intercourse, cause menstrual pain.

The chemical composition of young green coconut water includes carbonic acid, or vitamin C, protein, fat, carbohydrates, calcium, and potassium. Calcium and magnesium reduce muscle tension (including uterine muscles). Vitamin C, which is a natural anti-inflammatory substance, helps relieve pain from menstrual cramps by inhibiting the enzyme cyclooxygenase, which plays a role in promoting the formation of prostaglandins (Kristina & Syahid, 2018).

According to Utami (2013), the benefits of turmeric and tamarind drink include relief and reduction of dysmenorrhea pain. This is because turmeric contains the highest levels of curcumin (a yellow pigment), which has pharmacological properties that are beneficial in reducing muscle spasms, as well as antibacterial, anti-inflammatory, antioxidant, and antiparasitic properties.

However, according to researchers' assumptions, pain intensity varies from individual to individual, influenced by their description of pain, perception, and experience. Each person has a different perception and reaction to the pain they experience. This is because pain is a subjective feeling; only the individual knows the level of pain they are experiencing. Researchers, on the other hand, rely solely on the instruments used to measure the respondents' pain.

CONCLUSION

Based on the results of the study, it can be concluded as follows: Comparison of Green Coconut Water with Turmeric Tamarind Concoction on Reducing Menstrual Pain in Female Adolescents of Class VIII at SMP Negeri 02 Panyabungan in 2025 before being given green coconut water with turmeric tamarind concoction 40 people with a reduction in menstrual pain scale, namely that the respondents had the most moderate pain scale, namely 40 people (100.0%). Comparison of Green Coconut Water with Turmeric Tamarind Concoction on Reducing Menstrual Pain in Female Adolescents of Class VIII at SMP Negeri 02 Panyabungan in 2025 after being given green coconut water with turmeric tamarind concoction 40 people with a reduction in menstrual pain scale, namely that the respondents had the most mild pain scale, namely 24 people (60.0%) and the fewest respondents had no pain, namely 7 people (17.5%). There is a Comparison of Green Coconut Water with Turmeric Tamarind Concoction on Reducing Menstrual Pain in Female Adolescents of Class VIII at SMP Negeri 02 Panyabungan in 2025 with a value of P = 0.00 where P = <0.05.

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