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The Effect of Turmeric Tamarind Drink on Menstrual Pain Reduction in Adolescent Girls at SMP Islam Indonesia

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ABSTRACT

Menstrual pain in adolescents daughter show sufficient prevalence tall. In European countries, dysmenorrhea happen around 45-97% of women, with prevalence lowest in Bulgaria (8.8%) and highest in Finland (94%). Menstrual pain happen Because excessive amounts of prostaglandins. Content curcumine and anthocyanins in turmeric sour capable reduce release prostaglandins so that can lower painful menstruation in teenagers daughter. This use type study quasy experimental use design nonequivalent ik group design. Population in study This that is all over teenager daughter at Belik Islam Middle School who experienced it painful menstruation totaling 51 with amount sample of 42 teenagers daughter taken using purposive sampling technique. Analysis bivariate using the paired sample t test. This show that happen decline painful menstruation in teenagers daughter where p value = 0.000. The result is p value 0.000 < 0.05 which means there is influence drink turmeric sour to decline painful menstruation in teenagers daughter. There is change scale painful before and after in the control group and group experiments and there are influence drink turmeric sour to decline painful menstruation in teenagers daughter at Belik Islam Middle School.

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1. INTRODUCTION

The World Health Organization (WHO) stated that the number of people suffering dysmenorrhea Enough high all over the world. Between woman young, average sufferer *dysmenorrhea* around 16.8-81%. In European countries, *dysmenorrhea* happen around 45-97% of women, with prevalence lowest in Bulgaria (8.8%) and highest in Finland (94%). *Dysmenorrhea* generally occurs in teenagers woman, with prevalence between 20 to 90%. About 15% are teenagers reported experience *dysmenorrhea* heavy. *Dysmenorrhea* considered as most frequent cause teenager daughter in the United States No attend school. [1] It is estimated that 55% of women of productive age in Indonesia experience menstrual pain. Although generally not dangerous, women often find it disturbing. In Indonesia, the number of primary dysmenorrhea sufferers is around 54.89%. Secondary type sufferers represent the remaining part. [2]

Not a little women who experience it Sick approaching menstruation with various symptoms, such as dizziness, nausea, pain and cramps in the stomach, even someone has arrived faint so that they No can go to school or Work like usually. There are some people who don't feel Sick The same very. Pain not bearable during menstruation can affects 50% of activities daily Woman productive and 85% teenagers daughter dozens year. Although painful Menstruation is felt by some Woman Possible only in the form of pain that is not significant, for others, pain This can be very strong and even bother activity them. [3] According to the Central Agency for

Statistics on Incidence Rates *dysmenorrhea*, in 2011 there were 9,019,505 teenagers girls in Central Java, which constitutes 24.46% of the total population. Because of the teenage hormonal cycle daughter Not yet stable, *primary dysmenorrhoea* will cause they more often feel sick. [4]

Menstrual discomfort causes discomfort during daily activities. Repeated absences from school or work are the result of this disease, which can interfere with women's productivity. Menstrual pain can occur between 40% -70% during their reproductive years, and 10% interfere with daily activities. Around 70% -90% of cases of menstrual pain occur in adolescents and young adults, and this can have an impact on their academic, social, and sports activities. [5] A woman often complain about painful moment menstruation or period as the sensation is not comfortable. This is even applies Because painful the can bother activity and force sufferer For rest and leave activity or work routine during a few hours or a number of day. Pain in the stomach part lower before and during menstruation, accompanied with nausea caused by increased uterine contractions, is characteristic typical painful this is what emerged in a way regular and repetitive join menstruation. [6]

For school-age adolescents, dysmenorrhea can interfere with their daily activities. If female students experience dysmenorrhea, they will be disturbed and often unable to go to school. Adolescents also experience a decrease in quality of life. A female student who experiences dysmenorrhea cannot fully concentrate on lessons, and their desire to learn will decrease because pain or pain during menstruation can interfere with the learning process. Adolescents with dysmenorrhea must be treated in the right way to prevent negative effects. [7] Dysmenorrhea will have an impact on adolescent girls, including fatigue, pain in the lower back area, feelings of anxiety and tension, dizziness, confusion, nausea, vomiting, diarrhea, stomach cramps and stomach ache and impaired activity. The location of this pain is also felt in the lower abdomen, to the thighs and back of the pelvis. The problems that occur have an effect on the quality of life of adolescent girls who experience dysmenorrhea or menstrual pain. [8]

The impact of dysmenorrhea on adolescent girls is limitations in carrying out daily activities, causing absence from school, causing social withdrawal, decreased academic achievement, and increased medical costs due to health care. [9] In the study by Yesuf et al. (2018) it was found that 28.6% of respondents felt depressed and this affected the respondents' concentration in class. As many as 16.2% of respondents were absent from class. Although dysmenorrhea is not a life-threatening condition, the recurrence of dysmenorrhea symptoms every month is an important problem and requires proper treatment. [10] Dysmenorrhea has negative effects, both in the long term and short term. In the long term, dysmenorrhea can trigger infertility, even dysmenorrhea that occurs due to other pathological causes can cause death. While in the short term, dysmenorrhea can affect daily activities, especially for adolescents, including difficulty concentrating, frequent absence from lectures, emotional conflict, tension, anxiety, and disrupting the learning process, feeling uncomfortable, decreased activity in the learning process, some sleep in class during learning activities, limited physical activity, and absence from the learning process. [11]

How to relieve symptom *dysmenorrhoea*, can use method pharmacology and non-pharmacology. Pain can occur handled in a way pharmacology with giving analgesics, such as sour mefenamate, ibuprofen, paracetamol, and others. For teenager daughter who wants reduce pain they without effect side, herbal products or *phytopharmaca* moment This become option main. Turmeric sour is popular herbal medicine For reduce *dysmenorrhoea*. Most people in Indonesia believe it that consuming drinks containing turmeric can reduce complaint *dysmenorrhoea*. They believe it too that method get turmeric and make it more easy. [12] According to Sina (2012), herbal products now be one alternative reliever painful without effect anything, especially for teenager daughter. One of famous herbal products For relieve painful period is drink sour turmeric. In terms of This, the Indonesian people believe have habit drink drink turmeric sour For ease the feeling of no comfortable moment menstruation. Turmeric Sour is made from turmeric and tamarind Java as material mainly. Stew turmeric sour This own Lots benefit for health and much used in various treatment traditional. Drink turmeric sour have characteristic antioxidant Because exists compound phenolic and also beneficial as analgesic, anti -inflammatory, antioxidant, antibacterial and cleanser blood. Javanese acid contains *flavonoids* own anti- pain properties. Drink turmeric sour is Very effective drink For reduce painful menstruation (painful menstruation). [13]

The habit of drinking herbal medicine, one of which is turmeric and tamarind, is not something new for Indonesian people, especially Java and Madura. Jamu can be classified as a traditional drink because it uses natural ingredients such as efficacious plants that have been commonly used by the community for generations. Herbal products or phytopharmaceuticals are currently the main choice for young women who want to reduce pain due to dysmenorrhea without side effects. [14] According to IOT (Traditional Medicine Industry) and IKOT (Traditional Medicine Small Industry), 10% of 4187 people consume turmeric sour For reduce painful period . Turmeric sour can help launch menstruation and reduce pain, because turmeric contain curcumin and fruit sour Java is helpful launch blood menstruation and reduce cramps. [15] Based on studies preliminary information obtained from results interviews with 30 Pondok Middle School students Zamzam Muhammadiyah Modern Islamic Boarding School Cilongok show that 55% said painful mild, 40% pain moderate and 5% pain heavy and still Lots students who haven't know benefit drink turmeric as reliever painful moment menstruation. Respondent do handling painful period with rest, compress warm and some are not do nothing. Based on description

background problems behind so done study on "**The Effect Of Turmeric Tamarind Drink On Menstrual Pain Reduction In Adolescent Girls At Smp Islam Indonesia**".

2. RESEARCH METHOD

Type of research used in study This is study quantitative Where results research obtained later in the form of numerical data or form the numbers will be analyzed in a way statistics using the calculations that have been made set in study. Study This use method *quasy experiment* with *nonequivalent control group* design. Population used in research This is all over teenager girls at Belik Islamic Middle School, numbering 84 female students with retrieval techniques sample use *purposive sampling.* Research sample totaling 42 divided respondents into two groups namely 21 groups experiment and 21 groups control, respondent taken from representative grades 7-9 are appropriate with criteria inclusion. Sampling is a technique in taking samples and in this study using purposive sampling technique with the inclusion criteria are adolescent girls aged 10-15 years, female students who experience menstruation and pain in March-April-May.

Female students who experience menstrual pain on the first day of menstruation, female students who experience mild, moderate and severe pain during menstruation, female students who are willing to be respondents, obtain permission from parents/guardians to become research respondents and the exclusion criteria are female students who have not menstruated, female students who experience very severe pain, female students who use drugs or other therapies to relieve pain and have a disease or history of gynecological disease. Respondents in groups experiment given treatment form drink turmeric acid taken at the time menstruation day to 1-3 then measured the pain before given treatment on the day first and after given treatment on the day third, meanwhile respondents in the control group did not given treatment, however still measured painful menstruation on day first and third.

Instruments in research This use sheet measurement scale pain Numeric Rating Scale (NRS) that has been tested its validity and reliability. Data analysis uses 2 methods that is analysis univariate and analysis bivariate with paired sample t-test. Univariate analysis was used to obtain an overview of the characteristics of the respondents. Data collected using univariate analysis to describe the frequency distribution of respondents included age, age of menarche, duration of menstruation and intensity of pain experienced by female students before and after being given turmeric and tamarind drinks to adolescents, while in this study bivariate analysis was conducted to determine the effect of turmeric and tamarind drinks on reducing menstrual pain. The data scale used is interval. The Paired T test, also known as the paired T test, was used to analyze pretest and posttest data using the SPSS program. This is done because this test is a statistical test that measures the difference between two variables that are still in one group. In this study, the researcher conducted a research ethics test at the Muhammadiyah University of Purwokerto Health Research Ethics Committee (KEPK-UMP) with registration number KEPK/UMP/116/III/2024 and has been approved based on the principles of ethical research.

3. RESULTS AND DISCUSSIONS

3.1 Analysis Univariate

Based on **Table 1** the known that majority respondents before given treatment in groups experiment own painful currently as many as 12 respondents (57.1%) and were minorities respondents own painful light as many as 3 respondents (14.3%). Whereas majority respondents in the group control own painful currently as many as 10 respondents (47.6%) and were minorities respondents own painful light as many as 5 respondents (23.8%).

Table 1. Scale Group Pretest Pain Experiments and Groups Control

Category	Group Experiment		Group Control	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
No pain	0	0	0	0
Mild pain	3	14.3%	5	23.8%
Moderate pain	12	57.1%	10	47.6%
Severe pain	6	28.6%	6	28.6%
Total	21	100.0%	21	100.0%

Based on

Table 2 is known that majority respondents after given treatment in groups experiment own painful light as many as 12 respondents (57.1%) and the majority respondents in the group control own painful currently as many as 11 respondents (52.4%).

Table 2. Scale Group Posttest Pain Experiments and Groups Control

Category	Group Experiment		Group Control	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
No pain	9	42.9%	6	28.6%
Mild pain	12	57.1%	11	52.4%
Moderate pain	0	0	4	19.0%
Severe pain	0	0	0	0
Total	21	100.0%	21	100.0%

3.2 Analysis Bivariate

On measurements pretest pain in the group experiment obtained results that from 21 respondents has an average of 5.57 with scale painful lowest is 3 and once painful highest is 9 with mark standard deviation is 1,886, whereas For results measurement posttest pain in the group experiment obtained results that from 21 respondents has an average of 1.00 with scale painful lowest is 0 and highest is 3 with mark standard deviation is 1,095. Meanwhile on measurements group pretest pain control obtained results that from 21 respondents has an average of 5.24 with scale lowest namely 2 and scale highest namely 9 with mark standard deviation is 1,841, whereas For results measurement posttest pain in the control group was obtained that from 21 respondents has an average of 1.90 with mark lowest namely 0 and highest namely 5 with mark standard deviation is 1,640. This is shown in **Table 3**.

Table 3. Pre and Post Group Pain Scale Table Experiments and Groups Control

	Group Experiment					Group Control					P Value
	N	Min	Max	Mean	Std. Deviation	N	Min	Max	Mean	Std. Deviation	
Pre	21	3	9	5.57	1,886	21	2	9	5.24	1,841	0,000
Post	21	0	3	1.00	1,095	21	0	5	1.90	1,640	0,000

Based on the **Table 4** above show results statistical analysis of paired sample t-test on groups experiments and groups control there is mark significance 0.000. A significance value of 0.000 < 0.05 indicates exists influence drink turmeric sour to decline painful menstruation in teenagers daughter.

Table 4. Drink Turmeric Sour to Decline Painful Menstruation in Teenagers Daughter

	Paired Differences							
				95% Confidence Interval of The Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	P value
Group experiment	4,571	1,076	,235	4,082	5,061	19,475	20	,000
Group control	3,333	1,017	,222	2,871	3,796	15,027	20	,000

Based on the *Paired T Test*, it was obtained group average results respondents in the group experiment is 4,571 and group control 3.333, p This show exists difference between group experiments and groups control with the average difference is 1,238. Significance value in groups experiments and groups control worth 0,000 which is value its significance more small from 0.05. So Ha is accepted and H0 is rejected, which means There is influence drink turmeric sour to decline painful menstruation in teenagers daughter at Belik Islam Middle School. This matter in line with study Winarso (2013) about influence drink turmeric sour to decline level painful *dysmenorrhea* to Madrasah Tsanawiyah Negri Jatinom students Klaten, which was obtained results there is influence drink turmeric sour to decline level painful *dysmenorrhea* with level No experience dysmenorrhea as much as 38.6%, pain light as much as 47.7% and pain currently as much as 13.6%. This matter reinforced by research by Anindita (2010) which shows results , there are influence habit consume drink turmeric sour to complaint dysmenorrhea in adolescents daughter in the Municipality of Surakarta. [16]

One of the traditional drinks that is very popular in society, especially in Java, is the turmeric and tamarind drink. This was previously known as jamu, but due to the development of the times and the effects it

causes, this drink is no longer known as jamu. The main ingredients of this drink are turmeric and tamarind. Currently, turmeric and tamarind drinks can be obtained by making it yourself or by buying finished products made by factories. [17] Turmeric has many benefits that are often used as a kitchen spice, coloring, beauty scrub, and to increase children's appetite. Turmeric functions as an antioxidant, antitumor, anticancer, antimicrobial, and antitoxin in the health sector. Traditionally, turmeric is used to treat smallpox, insect bites, diarrhea, constipation, bloating, asthma, digestive problems, itching, and reduce pain. [18] Turmeric and tamarind contain ingredients such as curcuminoids, essential oils, flavonoids and others that are useful as analgesics (pain relievers), anti-inflammatories and so on, so that the pain felt during menstruation can be reduced by consuming turmeric and tamarind drinks regularly. This is in line with Setyowati and Suryani (2013) turmeric contains curcuminoids which are one type of antioxidant and have properties including as bacteriostatic, spasmolytic, antihepatotoxic, and anti-inflammatory. Tamarind is a fruit that has high antioxidant levels and its antioxidant levels will increase when combined with other spices. The antioxidant properties of tamarind fruit can be increased when combined with other spices such as turmeric. Tamarind functions to smooth blood circulation so that it can prevent blood vessel constriction during dysmenorrhea. [19]

Researcher assume that turmeric sour the own content like *curcuminoids, essential oil, flavonoids* and others that are useful as analgesic (pain reliever), anti-inflammatory and so on, while acid functions For launch circulation blood so that can prevent happen constriction vessels blood when dysmenorrhea, so pain felt at the time menstruation can reduce with consume drink turmeric sour routinely. This matter in line with Setyowati and Suryani (2013) turmeric contain *curcuminoids* which is one type antioxidant and nutritious including, among others *bacteriostatic, spasmolytic, antihepatotoxic*, and anti-inflammatory. Acid is fruit that has rate antioxidant high and will increase level the antioxidant if combined with spice other. Antioxidant properties fruit sour can improved if combined with material spice other like one of them turmeric. [20] Tamarind can be used as a traditional medicine for coughs, fever, rheumatism, stomach ache, allergies, canker sores, wounds, boils, swelling from bee stings, venomous snake bites, hair loss, acne, vaginal discharge, and menstrual pain. Tamarind flesh can help smooth blood circulation, cool, and function as a laxative. Tamarind leaves also contain flavonoids that function as anti-inflammatories and diaphoretics which means they help sweat. [21]

Tamarind fruit has many medical benefits. Among the contents of the fruit are xylose, xyloglycans, and anthocyanins. Xylose and xyloglycans are very useful for medical cosmetics. Anthocyanins are the most effective as anti-inflammatories and antipyretics because of their ability to stop the enzyme cyclooxygenase (COX) from working, which in turn stops the release of prostaglandins. On the other hand, ingredients such as phlobatamines, tannins, saponins, sesquiterpenes, and alkaloids can help calm the mind and reduce psychological stress. [22] Drink turmeric sour as an analgesic, anti-inflammatory and antioxidant that is consumed in a way repeated will creates a feeling of comfort. There is a feeling of comfort this is the end increase tolerance somebody to painful. People who have tolerance good pain will capable adapt to pain and will own mechanism good coping too. Apart from improving tolerance pain , discomfort can also be felt increase threshold painful so initial pain is on a scale of 4 (pain being) be scale 1 (pain light) after consuming drink turmeric acid. [23]

In the group control experience decline painful because *prostaglandins* experience decrease by day third cause scale painful experience decline. Researcher assume that painful will reduce although No given intervention whatever because with on the day third increased progesterone levels will decreases and so does the body can adapt with painful So schoolgirl Already used to For feel the pain. This matter in line with Asroyo, Nugraheni and Masfiroh (2019) explained that *dysmenorrhea* happened on the day first and second painful menstruation will reduce after blood out enough many and of factor endocrine that is increase *the hormone prostaglandin* increases during the day before menstruation and time menstruation happen *prostaglandins* decrease. [15] According to Azizah, Nisak and Nisa (2015) explained that dysmenorrhea happened on the day first and second painful menstruation will reduce after blood out enough many and of factor *endocrine* that is increase *the hormone prostaglandin* increases during the day before menstruation and time menstruation happen *prostaglandins* decrease. [24] According to Abdy (2018), turmeric and tamarind drink can be used to relieve menstrual pain by drinking it twice a day on days 1, 2 and 3 as much as 250 milliliters. However, it should not be consumed more than three times a day. In addition, this drink can last for three days in the refrigerator. [25]

4. CONCLUSIONS

A. Conclusion

Based on research entitled influence drink turmeric sour to decline painful menstruation in teenagers daughter. Can be concluded as following :

a. Menstrual pain in groups experiment majority own painful currently amounted to 57.1% and in group control majority respondents own painful currently amounting to 47.6%.
b. There's a difference the average difference between group experiments and groups control amounting to 1,238 with the group average experiment is 4,571 and group control is 3,333.
c. There is influence drink turmeric sour to decline painful menstruation in teenagers daughter at Belik Islamic Middle School with p value 0.000 < 0.05.

B. Suggestion

a. For Researchers Furthermore

The results of existing research explained researcher furthermore expected Can do study about dysmenorrhea in adolescents with other herbal drinks and can do measurement scale painful every after given other herbal drinks.

b. Respondents

Study This expected capable understand and add knowledge in handle painful menstruation (dysmenorrhea), namely with non- pharmacological therapy use drink turmeric sour.

c. For Belik Islamic Middle School

It is hoped that research This can made as information or innovation that can considered to be used by School Health Unit (UKS) officers so that they can handle incident painful menstruation in teenagers daughter at Belik Islam Middle School.

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