

The effect of cinnamon on pain among teenage girls with primary dysmenorrhea in Lampung-Indonesia

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Abstract

Background: Dysmenorrhea is an event that occurs during menstruation that occurs and causes teenage girls are absent from school and daily activities. Based on the results of the survey on November at Bandar Lampung high school, of the 10 teenage girls who had menstruation as many as 7 (70%) often complain of severe pain during menstruation.

Purpose: Knowing the effect of cinnamon on pain among teenage girls with primary dysmenorrhea in Lampung Indonesia

Methods: The quantitative research, the design of this study is Pre-experimental with the on-group pretest-posttest approach. The population was teenage girls in grade X and XI at Bandar Lampung high school and samples were 30 teenagers. Sampling of this research was using purposive sampling technique which was carried out from April, 2019 to Juli, 2019. The analysis used univariate analysis and bivariate analysis using the T test.

Results: The mean of dysmenorrhea before consumption was 6.67 and after consumption was 2.13 . The effect of cinnamon on pain among teenage girls with primary dysmenorrhea with p-value $0.00 < 0.05$.

Conclusion: The significant effect of cinnamon on pain among teenage girls with primary dysmenorrhea in at Bandar Lampung 13th high school in 2019. Finding in this study could be applied as alternative therapy for teenager and further research need more deep exploration.

Keywords: Cinnamon; Pain; Teenage girls; Primary dysmenorrhea

INTRODUCTION

Adolescence is a period of transition or transition from childhood to adulthood, which is marked by changes in both physical and psychological. Physical changes that appear more clearly the body develops rapidly reaching adult body shape which is accompanied by the development of reproductive capacity. In studies epidemiology of adolescent population in the United States, reported the prevalence dysmenorrhea 59.7% of which 12% severe pain, 37% moderate pain and 49% mild pain, and 14% of teenage girls are often absent from school. Conditions in Indonesia more teenage girls who are dysmenorrhoea do not report or visit doctors.

Embarrassment and the tendency to underestimate the disease often makes the sufferer not absolutely certain. It can be said that 90% of teenage girls in Indonesia have experienced dysmenorrhea (Anurogo, & Wulandari, 2011). The incidence of dysmenorrhea in Indonesia is 64.25%, with dysmenorrhea primary 54.89% while the rest are secondary type sufferers. Dysmenorrhea causes 14% of adolescent patients to be absent from school and not undergoing daily activities (Brunner & Suddart, 2015; Proverawati & Misroh, 2009). In Province Lampung Incidence of dysmenorrhea as many as 42, 56%, which resulted in adolescent visits to health professionals because according to debilitating. In Bandar Lampung City

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the incidence of dysmenorrhea was 12.05% (Dinas Kesehatan Provinsi Lampung, 2017).

Dysmenorrhea is pain around the abdomen that occurs during menstruation. Although the frequency of dysmenorrhea is quite high and the disease has long been known, but until now the pathogenesis has not been solved satisfactorily. Dysmenorrhea is one of complaints gynecological the most common in teenage girls who come to the clinic or doctor. A group of teenage girls who experience dysmenorrhea primary overcome and cure menstrual pain by consuming drugs. But the nature of these drugs only relieves pain, so the sufferer will experience drug dependence in the long run. If consumed continuously will have a negative impact on health (Hiltunen, & Holm, 1999; Manuaba, 2010). To overcome the pain can be done with pharmacological and nonpharmacological methods. Pharmacological therapy is a therapy that can help reduce dysmenorrhea by consuming non-steroidal anti-inflammatory drugs (NSAIDs) that can block prostaglandin synthesis through inhibition of the cyclooxygenase enzyme so that the conversion of arachidonic acid to prostaglandin is disrupted, each drug inhibits cyclooxygenase with different strengths and selectivity, prostaglandins can inhibit cause pain, especially those accompanying the inflammatory process, prostaglandins play a role in increasing the sensitivity of receptors to pain be a determinant of pain.therapy Non-pharmacological is therapy that can help reduce dysmenorrhea consisting of hot compresses, massage,distraction, cinnamon, soy, zinc, fish oil, rest and exercise or gymnastics (Price, Storn, & Lampinen, 2006; Zakiyah, 2015).

Cinnamon is one of the many herbal herbs that have long been used by peoples around the world. Invivo and invitro studies show that the content of active compounds and their derivatives contained

in cinnamon has pharmacological effects, including as an antifungal, anti-cardiovascular, anti-cancer, anti-inflammatory properties,. anti-ulcer, antidiabetic, antiviral, anti-hypertensive, antioxidant, analgesic and fat-lowering and kolesterol.Kandungan active compounds found in cinnamon, among others cinnamaldehyde, eugenol, cinnzeylanine, cinzeylanol, arabinoxylan, 2- hydroxycinnamaldehyde, and 2- benzyloxy cinnamaldehyde. With Content analgesic in cinnamon can reduce pain in dysmenorrhea.

Based on the results of the pre-survey in April at Bandar Lampung High School, 10 teenage girls who had menstruated by interview and used a numerical pain scale where of the 10 teenage girls, 7 (70%) of them often experienced menstrual disorders ranging from mild pain to with severe pain. They complain of pain in the area around the lower abdomen with duration and intensity of varying pain. Some of these teenage girls during menstruation consume pain relievers such as mefenamic acid and others just leave it alone. Based on this background, researchers are interested in conducting research on " The effect of cinnamon on pain among teenage girls with primary dysmenorrhea in Lampung Indonesia 2019".

RESEARCH METHODS

Quantitative research, pre-experimental research design with approach one group pretest posttest with a population of 162 girls in grade X and XI at Bandar Lampung 13th high school in 2019, with purposive sampling obtained samples according to the inclusion criteria of 30 teenagers. The study was conducted in April 2019 until July 2019. The analysis used univariate analysis and bivariate analysis using T test

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RESEARCH RESULTS

Table 1. Frequency Distribution Characteristics of Respondents by age, BMI, Menarche age, Menstrual Cycle and Length of Menstruation

Variables	Frequency (f)	Percentage (%)	Pain (Pre)	Pain (Post)	A change score	p-value
N = 30						
Age of Respondents						
15 Years	8	26.7	6.25	3.75	2.50	0.00
16 Years	16	53.3	6.75	4.75	2.00	0.00
17 Years	6	20.0	7.00	5.00	2.00	0.00
BMI						
18	8	26.7	6.75	4.50	2.25	0.00
19	2	6.7	7.00	5.00	2.00	0.00
20	10	33.3	6.40	4.40	2.00	0.00
21	4	13.3	7.00	5.00	2.00	0.00
22	6	20.0	6.67	4.33	2.34	0.00
Age of Menarche						
10 Years	10	33.3	6.40	4.40	2.00	0.00
11 Years	10	33.3	6.60	4.40	2.20	0.00
12 Years	10	33.3	7.00	4.80	2.20	0.00
Menstrual Cycle						
21 Days	6	20.0	6.67	4.33	2.34	0.00
28 Days	24	80.0	6.67	4.58	2.09	0.00
Length of Menstruation						
4 Days	4	13.3	6.00	3.50	2.50	0.00
5 Days	8	26.7	6.50	4.50	2.00	0.00
6 Days	12	40.0	6.83	4.67	2.16	0.00
7 Days	6	20.0	7.00	5.00	2.00	0.00
Total	30	100.0				

Based on the table above it can be seen that the age characteristics of the respondents who experienced the highest reduction in menstrual pain were teenage girls with age 15 years where the average pain reduction was 2.5 with pain before intervention by 6.25 and pain after intervention by 3.75, the characteristics of BMI with the highest reduction in pain were 22 where the average pain reduction was 2.3 with pain before intervention 6.67 and pain after intervention 4.33, the age characteristic of menarche which had the highest decrease in pain was 12 years of age where the average a decrease in pain of 2.2 to pain before intervention 7:00 and 4.80 after intervention pain, cycle characteristics menstrual declined highest pain is a cycle of 21 days where the average - average decrease in pain of 2.3 to 6.67 before the intervention of pain and pain after intervention long characteristic 4:33 menstruation which experienced the highest pain reduction was 4 days where the average pain reduction was 2.5 with pain before intervention 6.00 and pain after intervention 3.50.

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Table 2. Test of Normality Data

The score test	Shapiro Wilk
Before Intervention	0,214
After intervention	0,231

Based on the above table it can be seen that the value Shapiro Wilk is 0.241 to 0.231 for the value of pretest and posttest value, which means the value of $p > 0.05$. Thus it can be concluded that the data of the two variables in this study are normally distributed.

Table 3. Average Dysmenorrhea Pain Before Consumption of Cinnamon
N = 30.

Variable	Mean	Median	SD	Min	Max
Dysmenorrhea Pain Before Intervention	6,67	7,00	0,617	6	8

Based on the table above shown from 30 respondents, the mean value or the average value of menstrual pain before the intervention is 6,67, with a median value of 7.00, a standard deviation of 0.617, the lowest pain scale results or the minimum pain scale results of 6 and the highest pain scale results or the maximum pain scale results of 8.

Table 4. Average Dysmenorrhea Pain After Consumption of Cinnamon
N = 30.

Variable	Mean	Median	SD	Min	Max
Dysmenorrhea Pain After Intervention	2,13	2,00	0,516	2	4

Based on the table above it can be seen that from 30 study respondents, the mean value or the average value of menstrual pain after the intervention is 2,13, with a median value of 2.00, standard deviation of 0.516, the results of the lowest pain scale or the results of a minimum pain scale of 2 and the highest pain scale results or the maximum pain scale results of 4.

Table 5. The Effect of Cinnamon on Pain Among Teenage Girls With Primary Dysmenorrhea
N=30

Variables	Mean	SD	SE	p- value
Dysmenorrhea Pain Before Intervention	6,67	0,617	0,159	0.000
Dysmenorrhea Pain After Intervention	2,13	0,516	0,133	

Based on the table above can be known t test results obtained p value 0,000 < 0.05 means H_0 is rejected and H_a is accepted, which means there is an effect of cinnamon on pain among teenage girls with primary dysmenorrheain at Bandar Lampung 13th high school in 2019.

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DISCUSSION

Average Dysmenorrhea Before Consumption of Cinnamon Based on the results of the study found that from 30 research respondents, the results obtained mean or mean pain menstruation before intervention is 6.67, with a median value of 7.00, standard deviation of 0.617, the lowest pain scale results or the minimum pain scale results of 6 and the highest pain scale results or the maximum pain scale results of 8. This corresponds to the theory that, dysmenorrhea is a complaint that is often felt in the community so that it is the cause of the most loss of time k work or absence from school (Manuaba, 2010; Sormin, 2014). Almost all teenage girlsexperience discomfort during menstruation, such as discomfort in the lower abdomen and are usually accompanied by nausea, dizziness, even fainting (Anurogo & Wulandari, 2011; Marlinda, & Purwaningsih, 2013). The most common symptom caused is abdominal pain such as lower cramps which then spread to the back. Other symptoms include nausea, vomiting, diarrhea, headache, anxiety, fatigue, dizziness, and bloating. Usually occur before and last some days during menstruation, some feel better after menstrual bleeding in the form of lumps of tissue have come out, some are felt to disappear after one or two days of menstruation (Prawirohardjo, 2008; Annissa, 2018). Dysmenorrhea treatment can be done with herbal medicine, the Indonesian Nation has long known and used medicinal plants, one of which is in an effort to tackle health problems. Not only in Indonesia, herbal medicine has been widely accepted in almost all countries in the world. WHO has recommended the use of traditional medicines. in the maintenance of public health, prevention and treatment of diseases. Herbal remedies that can reduce menstrual pain are cinnamon, soy, cloves, turmeric, ginger, oso dresie, and Chinese herbs, and fish oil (Nurwanto, 2013).

Based on previous studies obtained their pain severity scores average and the average duration of pain Ibuprofen and Cinnamon each more effective than the group placebo at four hours after the intervention there was no statistically significant difference between the cinnamon and placebo

groups, but after eight hours of intervention, the average pain level in the cinnamon group was significantly lower than in the placebo group. At various time intervals, the average pain severity in the Ibuprofen group was significantly smaller than the cinnamon and groups placebo (Jafarpour, Biancalani, & Goldenfeld, 2015).

Based on the results of the study found the level of pain felt by the teenage girlsbefore given cinnamon is different because it is caused by age, BMI, Age Menarche, menstrual cycles and menstrual periods as well caused by pain responses felt by these teenage girls also vary. Average Dysmenorrhea After Consumption of Cinnamon Based on the results of the study obtained from 30 study respondents, it is known that the results of the pain scale experienced the greatest effectiveness in reducing pain at 2 hours after the intervention with a decrease in value of 2 from the previous measurement. In addition, the results obtained mean or average value of menstrual pain after intervention is 2.13, with a median value of 2.00, standard deviation of 0.516, the lowest pain scale results or the minimum pain scale score of 2 and the pain scale results the highest or maximum pain scale results of 4. Essential oils from cinnamon have the power to kill microorganisms (antiseptic), arouse appetite or strengthen the stomach (stomakik) also has an effect to release the wind (carminative). In addition, the oil can be used in the industry as a mouthwash and paste, soap scent freshener, detergent, perfume lotion and cream. In the processing of food ingredients and cinnamon oil drinks are used as fragrances or flavor enhancers, including for liquor, soft drinks (soft drinks), jelly, cakes, confectionery, curry spices and soups (Hariana, 2007; Jafarpour, Biancalani, & Goldenfeld, 2015). On cinnamon bark is used as an antidiarrheal drug, stomach cramps, and to reduce intestinal secretions (Hariana, 2007).

The pharmacological effects of cinnamon include fart (carminative), sweating (diaphoretic), antirheumatic, appetite enhancer (stomachica) and pain relievers (analgesic) (Hariana, 2007). Cinnamaldehyde 90% and eugenol 5-18%. Cinnamaldehyde has been reported to have

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antispasmodic effects. Also, eugenol can prevent prostaglandin biosynthesis and reduce inflammation so as to prevent menstrual pain.

Bivariate analysis t test sample dependent obtained p value of 0.000 means that H₀ is rejected and H_a accepted, which means there effect of Cinnamon Against dysmenorrhea Based on the theory of treatment of dysmenorrhea can be done with herbal medicine, the Indonesian teenager have long been familiar with and use of medicinal plants one in an effort to tackle health problems. Not only in the country, herbal medicines have been widely accepted in almost all countries in the world. WHO has recommended the use of traditional medicines in the maintenance of public health, prevention and treatment of diseases. Herbal remedies that can reduce menstrual pain are cinnamon, soy, cloves, turmeric, ginger, oso dresie, and Chinese herbs and fish oil.

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The pharmacological effects of cinnamon include fart (carminative), sweating (diaphoretic), antirheumatic, appetite enhancer (stomachica) and pain relievers (analgesic) (Hariana, 2007). Cinnamaldehyde 90% and eugenol 5-18%. Cinnamaldehyde has been reported to have antispasmodic effects. Also, eugenol can prevent prostaglandin biosynthesis and reduce inflammation so as to prevent menstrual pain. (Syamsuhidayat, & Hutapea, 1991; Nurwaini, & Wikantyasning, 2011). According to the study of researchers giving cinnamon to teenage girls who experience menstrual pain is a very effective

alternative seen from the results of research on average menstrual pain in adolescent girls before given cinnamon is 6.67 while the average menstrual pain after given cinnamon of 2.13. this shows if teenage girls who experience menstrual pain and given cinnamon and then consumed during menstrual pain can reduce the frequency of pain felt by teenage girls during menstruation.

Based on the results of research in which the decrease in pain scale measurement before and after given cinnamon is different, it happens because it is influenced by other factors such as age, BMI, age of menarche, menstrual cycle and menstrual length this is in accordance with the theory (Anurogo, & Wulandari, 2011). Pain response in each teenage girl is different so that the decrease in pain scale perceived by teenage girls is also not the same among teenage girls. From 30 samples obtained; the age factor of the respondents who experienced the most pain was 16 years old as many as 16 teenager (72.2%), who experienced the most pain was BMI 20 as many as 10 teenager (33.3%). The age of menarche of 10 years respondents was 10 teenager (33.3%), 11 years were 10 teenager (33.3%) and 12 years were 10 teenager (33.3%). In the menstrual cycle of the respondents there were 6 teenager (20.0%) with the menstrual cycle of the respondents 21 days, and the most experienced pain levels were the menstrual cycles of the respondents who had 28 days of 24 teenager (80.0%). Then the most experienced menstrual pain that is long menstruation 6 days, 12 teenager (40.0%) and the least that long menstrual 4 days as many as four teenager (13.3)

CONCLUSION

That there is a significant an effect of cinnamon on pain among teenage girls with primary dysmenorrheain at Bandar Lampung 13th high school in 2019. This study could be applied as alternative therapy for teenager and further research need more deep exploration.

RECOMMENDATION

As an information and education material so that teenage girls to know that cinnamon as non-

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pharmacological drugs for the management of menstrual pain, because it has been proven to reduce menstrual pain.

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