Research article **Medical research**

The potential of cinnamon extract and honey for menstrual pain in young women with primary dysmenorrhea

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ABSTRACT

Background
Dysmenorrhea is menstrual pain that is felt before or during menstruation, cramps are centered on the lower abdomen to interfere with daily activities. Pharmacological therapy commonly cause side effects due to analgesic drugs inhibit the enzymes Cyclooxygenase (COX) which causes prostaglandin synthesis is inhibited thereby affecting kidney function and gastric mucosal defense. Handling is typically made public by taking herbs to relieve pain. One of the herbal products as an alternative to treat menstrual pain is the infusion of cinnamon and honey.

Purpose
Prove Potential Extract Cinnamon (Cinnamon) and Honey Against Menstrual Pain Intensity In Young Women With Primary Dysmenorrhea.

Method
Quasy Experiment with Pre Post Test Control Group Design. The number of respondents in this study of 32 people, 16 to 16 for the control group and intervention group.

Result
There are different before and after administration of the extract of cinnamon (cinnamon) and honey in reducing the degree of menstrual pain and prostaglandin levels in young women with primary dysmenorrhea. With indicators of pain level (p-value = 0.000), levels of prostaglandins (p-value = 0.003)

Conclusion
Extract cinnamon (cinnamon) and honey has the potential to reduce the degree of menstrual pain and levels of prostaglandins.

Keywords: Extract cinnamon (cinnamon) and honey, the degree of menstrual pain, levels of prostaglandins, primary dysmenorrhea.

INTRODUCTION

Menstruation is a luruhnya bleeding due to uterine lining (endometrium). Endometrial lining is prepared to receive the embryo attachment or prepare the uterus for fertilization. If fertilization does not occur, the lining of blood shed that will come out through the cervix and vagina. [1]

The incidence of dysmenorrhea in each country is different, the prevalence in Asia amounted to (84.2%), while in Southeast Asian countries like Malaysia amounted to 69.4%,

Thailand 84.2%, and Indonesia amounted to 64.25%, consisting of 54, 89% 9.36% primary dysmenorrhea and secondary dysmenorrhea. Dysmenorrhea in adolescent leads to a decrease in activity of 59.2%, leading to miss school or work by 56% and 35.2% did not feel disturbed. [2]

Dysmenorrhea can be reduced through the action of pharmacological and non-pharmacological. Pharmacological treatment with one of them by taking anti-pain medications such as aspirin, mefenamic acid and others. Pharmacological therapy is generally due to side effects of analgesic anti-inflammatory drugs (NSAIDs) work by inhibiting the enzyme Cyclooxygenase (COX), which led to the synthesis of prostaglandins can also be hampered thus affecting renal function and gastric mucosal defense.

The treatment usually made public by taking herbs to relieve pain. One of the herbal products as an alternative to treat menstrual pain is the infusion of cinnamon and honey. [1]

Cinnamon has anti-oxidants which are very high. The antioxidant activity of cinnamon amounted to 45.42% by extraction using distilled water. Cinnamon contains sinamaldehid, eugenol, cinnamic acid, epicatechin, and polyphenolic compounds. [3]

Honey is one of the non-pharmacological therapy and have a lot of content that are useful to reduce menstrual pain. Honey is often used in a variety of treatment because it has a therapeutic effect and high viscosity, has a low pH, antioxidant, anti-inflammatory, amino acids, vitamins, enzymes and minerals and flavonoids. Flavonoids are substances used to relieve pain because it inhibits the production of cyclooxygenase. , [4] Honey contains many vitamins such as vitamin A, vitamin B, vitamin D, vitamin E and vitamin K. Vitamin E contained in honey can reduce menstrual pain and inhibiting prostaglandin biosynthesis through post-translational activation and suppresses the activity of the enzyme phospholipase A and cyclooxygenase. [5]

MATERIALS AND METHODS

This research used a quasi-experimental with pre and posttest control group design. The population is young women who experience primary dysmenorrhea at MAN 1 Semarang. The sample Consist of 32 respondents, 16 treatment group and 16 control group. Each group was given the intervention for 3 days. The intervention group was given celery leaf extract of cinnamon (cinnamon) and honey, while the control group was only given a placebo. Data analysis using paired t-test, independent t-test. This study identified the effect of the extract of cinnamon and honey in adolescent girls who experience primary dysmenorrhea

RESULT

Univariate Analysis

Table 4.1 Test Levene's Test Homogeneous confounding variables Age, menarche, and Old Menstruation

characteristics	Intervention group (N = 16)		Control group (N = 16)		*P*
	n	%	N	%	
Age					
15-18 years	9	56.3	13	81.3	.444
18-21	7	31.3	3	18.8	
Mean ± SD	18.31 ± 0.873		17.81 ± 0.750		
menarche					
<12 years	5	31.3	4		
12-6 years	11	68.8	12	25.0	.738
≥17 years	-		-	75.0	
Mean ± SD	13.44 ± 1.263		13.44 ± 1.263		
long periods					
<3 days					
3-7 days	7	43.8	10	62.6	.340
> 7 days	9	56.3	6	37.5	
Mean ± SD	7.44 ± 0.964		7.38 ± 0.719		

Based on Table 4.2 shows that the majority of the respondents aged between treatment and control groups was not much different, ie 15-18 years. In the treatment group, respondents aged 15-18 years by nine respondents (40.9%). Whereas in the control group were 13 respondents (30%). Menarche in the intervention group and the control is not much different that occurs in the 12-16 year age of 11 respondents in the intervention group and 12 respondents in the control group with an average length of menstrual ie 3-7 days each month. Homogeneity test showed the value of P-Value> 0.05, which means the data age, menarche and Old Menstruation is homogeneous or not the data is no significant difference between the two groups.
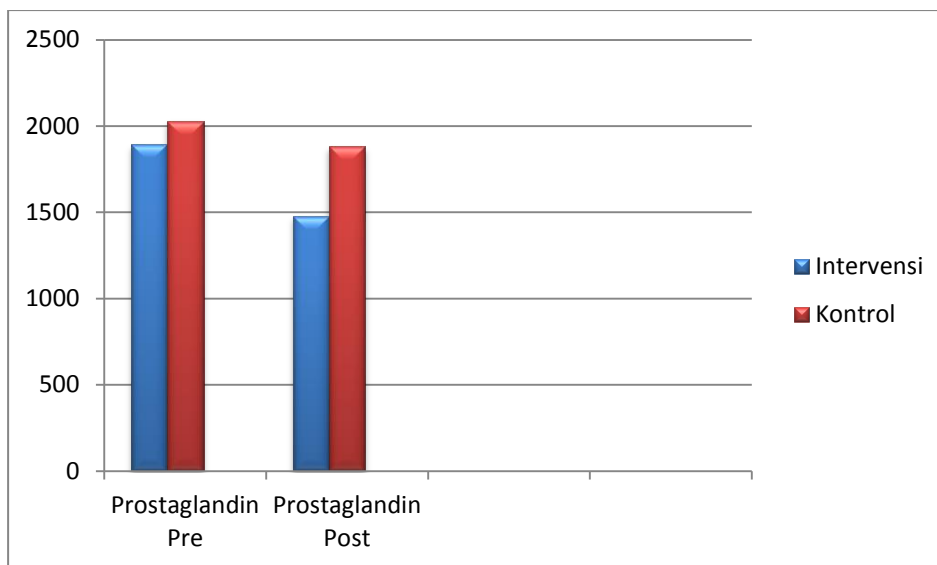
Graph 4.1 Level of Pain Before And After Cast Intervention In Treatment Group and Control Group.
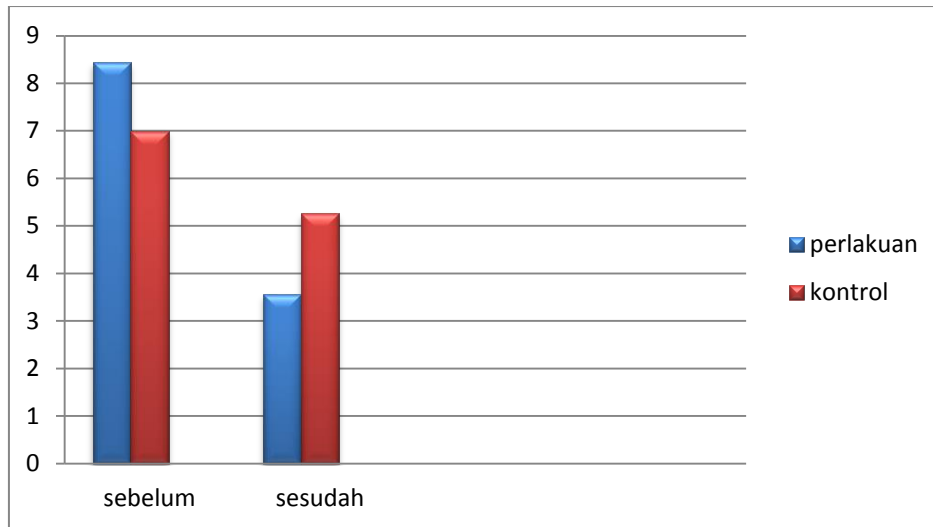
Graph 4.1 Difference in the degree of pain before and after

Based on the graph 4.1 shows that there are differences in the degree of pain before and after the intervention in the treatment group and the control group respectively 0.000 and 0.004 (<0.05), meaning that there is a significant difference before and after being administered the extract of cinnamon and honey either on the treatment group and the control group.

Graph 4.2 difference prostaglandin levels before and after

Based on the graph 4.2 shows that there are different levels of prostaglandins before and after the intervention in the treatment group and the control group respectively 0.000 and 0.000 (<0.05), meaning that there is a significant difference before and after being administered the extract of cinnamon and honey either on the treatment group and the control group.

Bivariate analysis

Table 4.2 Level of Pain Before And After Cast Intervention In Treatment Group and Control Group.

variables degrees of Pain	Treatment mean±SD	Control mean±SD	p-value
Before	8.44±1.094	7.00±.894	0,004
After	3.56± 1,209	5.25±1.732	0,000

* Paired t test

Based on Table 4.2 shows that there are differences in the degree of pain before and after the intervention in the treatment group and the control group respectively 0.000 and 0.004 (<0.05), meaning that there is a significant difference before and after being administered the extract of cinnamon and honey either on the treatment group and the control group.

Table 4.3 Levels of Prostaglandin Before And After Cast Intervention In Treatment Group and Control Group.

variables Prostaglandin levels	Treatment mean±SD	Control mean±SD	p-value
Before	1893.81 ±210.113	2030.54±211.289	0,000
After	1477.94±271.712	1882.13 ±286.303	0,000

* Paired t test

Based on Table 4.3 shows that there are different levels of prostaglandins before and after the intervention in the treatment group and the control group respectively 0.000 and 0.000 (<0.05), meaning that there is a significant difference before and after being administered the extract of cinnamon and honey either on the treatment group and the control group.

Table 4.4 The average difference of extract of cinnamon and honey on the degree of menstrual pain in the control group and the treatment group.

Level Dysmenorrhea	N	Treatment	Control	p-value
		mean±SD	mean±SD	
Before	16	8.25±1,291	7.00±.894	0,000
After	16	3.75±1,000	5.25±1.732	0,003
Δ		4.50±211.289	1.75±1,000	0,003

* Independent t-test

Based on Table 4.4 shows that the results of statistical tests given after an intervention by using t-test Independent test on the mean degree of menstrual pain are significant differences in values between the intervention group and the control group p <0.05. The mean difference in the degree of menstrual pain in the treatment group and the control group 4.50 -1.75 with p = <0.05, which means there is a difference in the difference between the degree of menstrual pain in the control group and the treatment group. It can be concluded that cinnamon and honey has the potential to reduce the degree of menstrual pain and levels of prostaglandins.

DISCUSSION

In young women who consume cinnamon and honey extract decreased the degree of menstrual pain. This is because the content contained in the essential oils of cinnamon as an anti-pain. In addition, honey has compounds that can reduce the degree of menstrual pain, such as flavonoids, amino acids and phenols. [6] This study is in line with research conducted by Gita Herayani that one of the compounds possessed in honey are flavonoids (apigenin, pinocembrin, kaempferol, queretein, galangin, chrysin and hespretin) can prevent the production of enzyme cyclooxigenase to reduce the production of prostaglandins that can reduce pain. [7]

CONCLUSIONS

Cinnamon and honey extract has the potential to reduce the degree of dysmenorrhea and prostaglandin hormone levels in young women with dysmenorrhea.

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