THE EFFECT OF RED GINGER RELEASE CONSUMPTION (Zingiber officinale var. Rubrum) AGAINST PRIMARY DYSMENORRHEA IN ADOLESCENT HIGH SCHOOL

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Abstract

Dysmenorrhea can be experienced by every woman who is in the menstrual period. Teenagers are an age group that is prone to dysmenorrhea. A preliminary study found that of 125 high school teenagers in the city of Bandung 90 of them experienced dysmenorrhea. The results of the interviews revealed various ways they performed when dysmenorrhea included rest, rubbing the stomach, consumption of young coconut water, analgesic drugs and red ginger. Red ginger or Zingiber officinale var. Rubrum is a type of spice that grows and is known as complementary ingredients in Indonesia. The purpose of this study was to determine the effect of consumption of red ginger stew on dysmenorrhea in high school adolescents. This type of research is quasi-experimental with non-equivalent control group design. Data collection was carried out by purposive sampling on 54 respondents. The instrument in this study uses a Numeric Rating Scale sheet. Data analysis was carried out using The Wilcoxon test with a p-value of 0.000 ($\leq \alpha$). The results of the study revealed that the administration of red ginger stew affected dysmenorrhea in high school adolescents. Health workers are advised to promote red ginger stew as a complementary therapy to overcome juvenile dysmenorrhea by involving officers in the School Health Unit.
Keywords: dysmenorrhea, red ginger stew, teenagers

INTRODUCTION

Hurlock (2016) explains that ages 13-17 years are categorized as teenagers or puberty. Puberty is characterized by the appearance of secondary sexual signs. Signs of secondary sexual teenage girls are starting to experience menstruation experienced by girls. Menstruation for the first time in teenage girls is called menarche.

Menstruation is the natural cycle experienced by women in the form of blood coming out of the vagina due to the decay of cells in the thickened uterine wall due to ovulation. Sometimes a woman's menstruation is accompanied by menstrual pain in the lower abdomen known as dysmenorrhea.

Dysmenorrhea occurs due to the incidence of uterine contractions due to an increase in excessive levels of prostaglandin. Savitri (2015) explained that uterine contractions can activate the large intestine so that uncomfortable symptoms appear in the abdominal area in the form of diffuse pain.

Savitri (2015) also explained that symptoms of dysmenorrhea can occur in women of productive age 3-5 years after experiencing menarche and women who have never been pregnant.

Dysmenorrhea in teenage girls is also explained by Ramli and Santy (2017), namely that teenagers who experience menstruation sometimes experience pain with different levels and properties ranging from mild pain to severe pain. Dysmenorrhea needs to be addressed immediately because if it is not addressed immediately it will affect the daily activities of adolescents in the form of not focusing on learning in schools and causing school absence (Savitri, 2015).

World Health Organization (WHO, 2012) describes 90% of women in the world who menstruate have experienced dysmenorrhea. Besides that WHO (2012) also explained that the incidence of dysmenorrhea in the United States is estimated to be 45-90% and from that percentage of 92% are rural workers. Ramli and Santy (2017) explained that the incidence of dysmenorrhea in Indonesia was 107,673 people. The West Java Health Profile 2014 also explained that the prevalence of dysmenorrhea in the West Java region was 54.9%, of which 24.5% had mild dysmenorrhea, 21.28% had moderate dysmenorrhea and 9.36% had severe dysmenorrhea (Savitri 2015).

In this study, researchers chose high school girls because high school age was the peak of dysmenorrhea, namely 3-5 years after menarche. Based on preliminary studies conducted by researchers from 125 first and second-grade high school adolescents, 90 adolescents claimed to experience dysmenorrhea every month, 62 adolescents (100%) of whom met the inclusion criteria with mild pain intensity of 27 adolescents (43.5%) and moderate pain 35 adolescents (56.5%).

When asked about efforts to overcome dysmenorrhea, adolescents answered bed rest, stroked the stomach, consumed young coconut water, and consumed the anti-pain

medication. There have been many other herbal studies in reducing the intensity of dysmenorrhea such as turmeric and acid which have been widely studied, but for the study of red ginger is still lacking so on this occasion researchers want to try introducing red ginger stew in relieving primary dysmenorrhea, as is known red ginger is an inner spice a large number and spread throughout Indonesia but in the use of red ginger itself is not widely used in reducing dysmenorrhea. Red jahe is an herbal plant that is easy to find, easy to process, almost no side effects, and the price is quite affordable has been used in several studies such as Afriana (2014) and Pratiwi (2017), who explained that red ginger is believed to be able to overcome dysmenorrhea. Red ginger is one variant of ginger that can be used for herbal therapy because the content of essential oil and oleoresin is higher than other ginger variants, therefore usually the reddest ginger is given in the form of ginger drinks.

According to Pratiwi (2017) and Trivedi (2016), ginger drinks are warm to the body, anti-inflammatory, and analgesics have been used in various cultures to reduce dysmenorrhea. Shogaol, gingerol, and zingeron compounds are effective in reducing pain, and anti-inflammatory by inhibiting the cyclooxygenase (COX) cycle so that it can block prostaglandins causing inflammation and inhibiting uterine contractions that cause dysmenorrhea. Besides that, the content of shogaol, and gingerol in red ginger is quite high with moderate spicy intensity among other types of ginger which can be used for herbal therapy because of the higher content of essential oils and oleoresins compared to other ginger variants, therefore usually the most abundant red ginger is given in the form of ginger drinks.

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prostaglandins causing inflammation and inhibiting uterine contractions that cause dysmenorrhea. The purpose of this study was to determine the effect of consumption of red ginger stew on dysmenorrhea in high school adolescents.

METHODS

This type of research is quasi-experimental with non-equivalent control group design. Data collection was carried out by purposive sampling on 54 respondents. The instrument in this study uses a Numeric Rating Scale sheet. The process in formulating the red ginger stew included 15 mg of peeled red ginger then washed, then cut into pieces. Then boiled with 400 ml of mineral water approximately 7 minutes with medium heat until the remaining 200 ml then add 2 tablespoons of sugar. Let the boiled water be cool until it can be drunk.

Data analysis was carried out in univariate and bivariate ways. Univariate analysis was carried out to see the number of respondents based on age, and the intensity of dysmenorrhea presented in table form. The data in this study were not normally distributed, so for bivariate analysis using the Wilxocon test for pretest and posttest, while to see the effect of the 2 groups using the Mann-Whitney test with moderate spicy intensity among other types of ginger.

RESULTS

1. Characteristics by Age of Respondents

In the results of this study, the average age of respondents ranged from 16-17 years. At this age range is the age most frequently experienced dysmenorrhea, this is related to the instability of the prostaglandin hormone and is related to the immaturity of the female reproductive organs namely the endometrium.

2. Characteristics of Dysmenorrhea

In general differences in the scale of dysmenorrhea in the intervention and control groups in pre-test and post-test. In the pre-test, the two groups were in the moderate pain range, and at posttest, 63% were in the painless range in the intervention group and 15% in the control group. this shows a difference in the decrease in the scale of dysmenorrhea of each group.

3. Effect of Consumption of Decoction of Red Ginger (Zingiber Officinale var. Rubrum) on Dysmenorrhea

In this study that can distinguish between the intervention group and the control group is the mean posttest of dysmenorrhea in the intervention group of 0.37, which means it tends to be on the scale of pain 0 (not painful), while the mean dysmenorrhea in the control group is 1.37 which means it tends to be on a scale of one to three (mild pain), meaning in the intervention group the mean value was better than the control group, in other words, the administration of red ginger stew had an effect on reducing the scale of dysmenorrhea

In addition, through the Mann-Whitney test results also prove that there are significant differences in dysmenorrhea scale with p-value 0.000 5 0.05 with the difference in mean between the two groups is 0.48 so that it means that more effective use of red ginger.

Table 4.1 Distribution of Age Frequency of Adolescents Who Have Dysmenorrhea in High School Adolescents in Bandung City

categori / age	Intervention group		Control group	
	f	%	f	%
14-15 years old	12	44,4%	14	52%
16-17 years old	15	55,6%	13	48%
	27	100%	27	100%

Table 4.2 Distribution Frequency of Pretest Dysmenorrhea Scale in Senior High School in Bandung City

Category / Scale	Intervention group		Control group	
	f	%	f	%
No pain (0)	0	0%	0	0%
Ligt pain (1-3)	5	18,6%	7	26%

Medium pain (4-6)	22	81,4%	20	74%
Severe pain (7-10)	0	0%	0	0%
	27	100%	27	100%

Table 4.3 Distribution Frequency of Posttest Dysmenorrhea Scale in Senior High School in Bandung City

category / Scale	Intervention group		Control group	
	f	%	f	%
No pain (0)	17	63%	4	15%
Ligt pain (1-3)	10	37%	23	85%
Medium pain (4-6)	0	0%	0	0%
Severe pain (7-10)	0	0%	0	0%
	27	100%	27	100%

Table 4.4 Distribution Frequency Of Differences in The Mean Value of Dysmenorrhea Scale Before and After The Intervention of Giving Red Ginger

category / Variabel	Intervention group		Control group	
	Pretest	Posttest	Pretest	Posttest
Mean	2,81	1,37	2,74	1,85
P-value	0,000		0,000	

Table 4.5 Differences in The Average Decrease in The Scale of Dysmenorrhea Pretest And Posttest Administration Of Red Ginger

	Mean	Standar Deviation	*P-value*
Intervention group	1,37	0,492	0,000
Control group	1,85	0,362	
	0,48	0,13	

DISCUSSION

Teenagers aged 14-17 years are aged with high stressor pressure compared to the age below. High stressors increase the production of prostaglandin hormones, causing constriction of the uterine blood vessels and pain. Besides being caused by hormonal factors, psychic factors also play a role in dysmenorrhea This is in accordance with the opinion of Rosi and Wilis (2017), under the influence of progesterone during the luteal menstrual phase, endometrium containing prostaglandin increases to the maximum level at the beginning of menstruation. Prostaglandins cause strong myometrial contractions and are able to constrict blood vessels resulting in ischemia and pain.

Dysmenorrhea can affect the pattern of adolescent exercise activities, in general, we know that activities in adolescence are so many other than having to learn, in adolescence

also physical activities such as sports and socializing are the main activities during school. Then in the pattern of sleep rest, a person with dysmenorrhea cannot rest comfortably, besides thinking about relieving the dysmenorrhea. This is the reason why dysmenorrhea needs to be treated in adolescence.

In this study, adolescents who experienced dysmenorrhea were divided into two groups: the group given the intervention of red ginger stew and the control group. When the adolescent experiences dysmenorrhea, then the menstrual pain scale will be measured on the first day, then the menstrual pain scale is measured again on the third day. With the results in the intervention group experiencing no pain on the third day more than the control group, this showed the effect of red ginger in reducing menstrual pain can be seen in table 4.3 intervention group.

Indonesia is known as the largest producer of spices in the world, one of the spices that naturally and has an analgesic effect is ginger. Jahe thrives in almost all of Indonesia, therefore ginger is easily found anywhere. One of the ginger variants that usually used for the use of drugs is red ginger. The effect produced by red ginger is the same as mefenamic acid, which is a pain reliever. In this study red ginger is used to reduce dysmenorrhea in adolescents. The content of shogaol, gingeron and zingerone can block the production of prostaglandins that trigger uterine contractions (Pratiwi, 2017). In addition to blocking prostaglandin, another advantage is the selling power of red ginger is relatively affordable, and almost has no side effects when consumed according to the recommended dosage. The recommended dose through the IBI East Java bond in his article 15 mg of red ginger once a day has been effective in reducing dysmenorrhea.

The above opinion is in accordance with the theory that the chemical content contained in red ginger such as gingerol, shogaol, and zingerone provides pharmacological

and physiological effects such as analgesic, antioxidant, and anti-inflammatory. In other words, red ginger is one option that can be used to relieve menstrual pain (Arfiana, 2014).

The above is in accordance with the results of research on the effect of red ginger drinks on the intensity of menstrual pain in D-IV students of STIKES Midwifery Ngudi Waluyo obtained results before being given red ginger drinks more than half of the students experienced severe dysmenorrhea levels and after being given red ginger drinks more than half of the students experienced a decrease in moderate dysmenorrhea pain scale. This shows that there is an effect of red ginger drinks on the level of dysmenorrhea pain (Arfiana, 2014). As is known that the effect of red ginger is to reduce menstrual pain this is related to the inhibition of prostaglandin activity. Besides that, red ginger is as effective as mefenamic acid and mother proven in relieving pain during menstruation (Ramli & Santy, 2017).

The research on the effectiveness of giving ginger (Zingiber officinale) and rosella tea (Hibiscus sabdariffa) to changes in the intensity of dysmenorrhea was obtained in the intervention group of red ginger two days before and three days after menstruation showed a reduction in the intensity of menstrual pain (Ramli & Santy, 2017).

The use of ginger as an analgesic not only domestically, ginger has spread widely in other countries such as the American mainland, which is one of the results of research from Howida, Tawheda and Tahany (2013), with the title The Use of Fresh Ginger Herbs As A Home Remedy To Relieve Primary dysmenorrhea, this study used 120 students with the results of the study found p-value of 0.001 which means that there is an effect of ginger herbal as a home remedy for treating dysmenorrhea.

CONCLUSION

The mean scale of dysmenorrhea in the pretest intervention group was 4.70 and post-test was 0.37. The mean scale of dysmenorrhea pretest control group was 4.78 and posttest was 1.37.

Based on the results of the statistical test p-value value of 0,000, which means H1 is accepted, it means that there is a significant influence on the consumption of red ginger stew (Zingiber Officinale var. Rubrum) on dysmenorrhea in high school teenagers in the city of Bandung.

Health workers are advised to increase complementary health promotion efforts on red ginger to reduce dysmenorrhea pain in high school teenagers through activating UKS activities.

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