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The Effect Of Kaliandra Honey On The Intensity Of Primary Dysmenorrhoea In Adolescent Girls At Smp 06 Diponegoro Wuluhan

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Kata kunci : Dismenorea primer, Madu Kaliandra, Remaja

Abstrak

Latar Belakang: Disminore primer disebabkan oleh zat kimia alami yang diproduksi oleh sel-sel lapisan dinding rahim yang disebut prostaglandin. Prostaglandin merangsang kontraksi otot polos pada dinding rahim yang mengakibatkan disminore primer. Angka kejadian disminore primer di Kabupaten Jember dengan remaja usia 20-24 tahun sebanyak 104 jiwa, 54,98% mengalami disminore primer. Peningkatan hormon prostaglandin dapat ditekan oleh zat *flavonoid*. Bahan herbal yang memiiliki kandungan zat flavonoid tertinggi untuk menurunkan rasa nyeri menstruasi terdapat pada madu kaliandra. **Tujuan** : Penelitian ini mengetahui pengaruh madu kaliandra terhadap intensitas dismenore primer pada remaja putri di SMP 06 Diponegoro Wuluhan**. Metode:** Penelitian ini berjenis penelitian *pre eksperimental* dengan rancangan *one grup pretest post test*. sample penelitian diambil secara *accidental sampling* sehingga di dapat 53 siswi remaja putri. Uji statistik menggunakan *uji Wilcoxon signed rank test*. **Hasil:** Intensitas nyeri sebelum diberikan madu mayoritas mengalami nyeri sedang sebanyak 41 siswi (77,4%), setelah diberikan madu intensitas nyeri turun menjadi nyeri ringan sebanyak 46 siswi (86,8%) dan hasil uji statistik wilcoxon p = 0,000. **Kesimpulan:** Terdapat pengaruh pemberian madu murni kaliandra terhadap intensitas dismenore primer pada remaja putri SMP 06 Diponegoro Wuluhan. **Saran**: penelitian ini dapat dikembangkan dengan modifikasi teknik pemantauan kadar prostaglandin melalui marker tertentu dengan pemeriksaan laboratorium, sehingga akan didapatkan tingkat keakuratan yang lebih handal dalam menentukan periode puncak disminore.

Keywords: *Primary dysmenorrhoea, Kaliandra honey. Adolescent*

Abstract

Background: *Primary dysminore is caused by natural chemicals produced by the cells lining the uterine wall called prostaglandins. Prostaglandins stimulate the contraction of the smooth muscles of the uterine wall resulting in primary dysminore. The incidence of primary dysminore in Jember Regency with adolescents aged 20-24 years is 104 people, 54.98% experience primary dysminore. An increase in prostaglandin hormones can be suppressed by flavonoid substances. Herbal ingredients that have the highest content of flavonoids to reduce menstrual pain are found in kaliandra honey.**Objective:** This study found out the effect of kaliandra honey on the intensity of primary dysmenorrhea in adolescent girls at SMP 06 Diponegoro Wuluhan. **Methods:** This study is a type of pre-experimental research with the design of one group pretest pot test. The research sample was taken by accidental sampling so that 53 adolescent girls were obtained. The statistical test uses the Wilcoxon signed rank test. **Results:** Results: The intensity of pain before being given honey was mostly moderate pain in 41 students (77.4%), after being given honey the pain intensity dropped to mild pain as many as 46 students (86.8%) and the results of the Wilcoxon statistical test p = 0.000. **Conclusion:** There is an effect of the administration of pure kaliandra honey on the intensity of primary dysmenorrhea in adolescent girls of SMP 06 Diponegoro Wuluhan. **Suggestion:** This study is expected to be developed by modifying the technique of monitoring prostaglandin levels through certain markers with laboratory examinations, so that a more reliable level of accuracy will be obtained in determining the peak period of dysminore.*

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INTRODUCTION

Adolescence is the stage of life betweena child and an adult, from 10 to 19 years old.There are several things that are the development of adolescent girls from the physical aspect such as menstruation. (1) Menstruation is affected byovulation-stimulating hormones, namely LHand FSH produced by the pituitary gland. When the ovulation phase occurs, an unfertilized egg will cause the endometrial wall to decay. The decay of the endometrial wall causes an increase in prostaglandin hormones that trigger contractions during menstruation, this is called primary dysmenorrhea. Primary dysmenorrhea is menstrual pain that occurs in young womenafter ovulation, and is characterized by the absence of abnormalities in the organs of thebody. (2)

Data from the World Health Organization (WHO) in 2020, shows that the incidence rate of dysmenorrhea is 1,769 million (90%) of the female population experiencing primary dysmenorrhea, while 10% of the female population suffers from severe dysmenorrhea. In Indonesia, the prevalence of dysmenorrhea is 64.25%, consisting of 54.89% of primary dysmenorrhea and 45.11% of secondary dysmenorrhea. Based on data from the 2021 East Java Adolescent Reproductive Health (SKKR) survey, it was found that around 4,653 adolescents experienced dysminore. The incidence of primary dysmenorrhea was 4,297 (92.35%), and the incidence of secondary dysmenorrhea was 356 people (7.65%). The Statistics Center shows that the number of adolescents aged 15 to 19 years in Jember Regency is 95,973 people, and the number of adolescents aged 20 to 24years is 104 people. Judging from the data, 54.98% of adolescent girls have the main complaint during menstruation, namely primary dysminore.

Research on primary dysmenorrhea was carried out in Junior High School because menstruation is an important physiological phenomenon experienced by adolescent girls aged 12-13 years. This indicates that the reproductive organs have matured and play an important role in physical, mental and reproductive health. Women who have already experienced menstruation have a chance of experiencing primary dysmenorrhea.

The results of a preliminary study conducted at SMP 06 Diponegoro Wuluhanin October 2023, using the MSQ questionnaire form interview method showed that as many as 119 female students had experienced menstruation, 115 female students (96.64%) had primary dysmenorrhea and 4 female students(3.36%) did not experience dysmenorrhea

Primary dysminore is caused by natural chemicals called prostaglandins produced by the cells lining the uterine wall. Prostaglandins stimulate the contraction of the smooth muscles of the uterine wall, so the higher the level of prostaglandins, the stronger the contractions. (5) There are several risk factors for the occurrence of primary dysminore, namely early

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menarche age, longer menstrual periods (more than 7 days) called menarche, long menstrual cycles and a positive family history. (6)

Disminore is a natural occurrencethat occurs every month, although generallyharmless, but can be unsettling for women who experience it. The impact of menstrual pain is that adolescents can become more withdrawn from social activities, schoolwork, sports, difficulty sleeping, sensitivity and limited activities due to the discomfort felt. (7) Disminore can be treated using medicinal drugs (pharmacology) and herbalingredients (non-pharmacology).

Nonpharmacological treatment is often necessary because it is simple and does not require many tools in practice. One of the non-pharmacological treatments to reduce pain is using honey herbal ingredients. Sinceancient times, honey has been used in various kinds of medicine because it contains flavonoid compounds as anti-inflammatory that can reduce painduring menstruation. The mechanism of action of flavonoids in honey can control theuterine muscles so that it can reduce pain during menstruation. This study uses a type of cultivated honey, namely Kaliandra honey.

Based on this, the researcher's goal is to determine the effect of kaliandra honey on the intensity of primary dysmenorrhea inadolescent girls at SMP 06 Diponegoro Wuluhan.

METHOD

The research was carried out at SMP 06 Diponegoro Wuluhan, Jember regency, this study used a type of quantitative methodwith 2 variables (dependent and independent), pre-experimental design using a one grouo pretest posttest design. The population in this study is all adolescentgirls who experience primary dysmenorrhea at SMP 06 Diponegoro Wuluhan, which is as many as 115 students. Sampling was carried out using acciental sampling techniques. The sample totaled 53 students using the slovin formula, in accordance with the inclusion criteria: Female students of SMP 06 Diponegoro who experienced primary dysmenorrhea and were willing to become respondents, female students of SMP 06 Diponegoro who were able to complete the intervention. The exclusion criteria are: Female students of SMP 06 Diponegoro who experience allergies after the intervention and female students of SMP 06 Diponegoro who do not comply withSOP.

The procedure in this study had previously been tested and approved by the University ethics commission dr. Soebandi with No.205/KEPK/UDS/III/2024. In the implementation of data collection, the group of adolescent female respondents was givena pretest using a Nummerical Rating Scale (NRS) questionnaire before being given treatment at the peak of primary dysmenorrhea pain. Kaliandra honey is given 1 time when adolescent girls experience the peak of primary dysmenorrhea pain, the dose of each dose is25 milligrams equivalent to 2 tablespoons mixed with water as much as one glass, after which the researcher will conduct interview observations on respondents using a Nummerical Rating Scale (NRS) questionnaire after 24 hours of intervention.The data that has been obtained through the stages of analysis, editing, coding, data entry, and tabulating, the data that is already known will be

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analyzed using frequency distribution and wilcoxon tests and done using the help of the windows application system, namely SPSS.

RESULT

Tabel 1. Frequency distribution of research subject characteristics in adolescent girls of SMP 06 Diponegoro who experience primary dysmenorrhea.

Karakteristik	N	(%)
Umur		
12	1	1,9
13	23	43,4
14	29	54,7
Total	53	100
Usia Menarch		
11	10	18,9
12	35	66,0
13	5	9,4
14	3	5,7
Total	53	100
Siklus menstruasi Panjang (≥ 35 hari) Normal (21-35 hari) Pendek (< 21 hari)	14 37 2	26,4 69,8 3,8
Total	53	100
Banyaknya Menstruasi / ganti pembalut Normal (2-5x ganti)	53	100
Total	53	100
Lama menstruasi (hari)	59	92,5
4-7 hari	4	7,5
8-10 hari		
Total	53	100

Based on the results of the table above, there is data on the age of 14-year-old students as many as 29 students (54.7%), more than half of them have a 12-year-old menarch age of 35 students (66.0%). Meanwhile, the majority of menstrual cycledata had a normal cycle of 37 female students (69.8), in addition to that there were49 female students (92.5%) with a menstrualduration of ≤7 days and all had normal bloodoutput.

Tabel 2. The intensity of primary dysmenorrhea of adolescent girls in SMP 06Diponegoro before being given kaliandra honey.

Skala Nyeri	N	%
RinganSedang	11	20,8
Berat	41	77,4
	1	1,9
Total	53	100

Based on the results of the table above, it is known that, the intensity of primary dysminore of adolescent girls in SMP 06 Diponegoro before being given the kaliandra honey intervention as many as 41 students (77.4%) experienced moderate pain, while 11 female students (20.8%) experienced mild pain and there was 1 student (1.9%) experienced severe pain

Tabel 3. The intensity of perimenorrhea in adolescent girls of SMP 06 Diponegoro after being given kaliandra honey

Skala Nyeri	N	%
Ringan	46	86,8
SedangBerat	7	13,2
	0	0
Total	53	100

Based on the table above, it is knownthat the intensity of primary dysminore in adolescent girls in SMP 06 Diponegoro after being given Kaliandra honey intervention asmany as 46 female students (86.8%) experienced mild pain and 7 female students(13.2%) experienced moderate pain.

Tabel 4. Table of cross-degree of primary dysmenorrhea before and after administration of kaliandra honey.

	Sesudah Intervensi

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Sebelu m Intervensi	Ringan	Sedang	Berat	Total	Wilcoxon-test (*p-value*)
	N (%)	N (%)	N (%)	n (%)	0,00
Ringan	11 18,9	0 1,9	0 0,0	11 20,8	
Sedang	35 67,9	6 9,4	0 0,0	41 77,4	
Berat	0 0,0	1 1,9	0 0,0	1 1,9	
Total	46 86,8	7 13,2	0 0,0	53 100	

Based on the table above, the resultswere obtained that 41 female studentsexperienced moderate pain, after being given the intervention the pain scale decreased to 35 female students with mild pain and 6 female students remained on the moderate pain scale. It is also known that there were 11 students who experienced experienced severe pain before the intervention was 1 student, the severe pain scale decreased after the intervention to a moderate pain scale, so that the number of severe pain scales became 0 students. The results of the Wilcoxon test statistical test were obtained p = 0.00 which means that there was a difference in pain intensity that affected adolescent girls of SMP 06 diponegoro wuluhan who experienceddysmenorrhea before the administration of kaliandra honey and after the administration of kaliandra honey.

DISCUSSION

The intensity of perimer dysmenorrhea in adolescent girls of SMP 06 Diponegoro before being given Kalandra honey.

This study shows that the data before being given the most pain scale intervention experienced by female students is the moderate pain scale of 41 students (77.4%), while the characteristics of female students in this study are the majority of 35 students (66.0%), the menstrual cycle of the majorityof female students is normal, namely 37female students (69.8%), while the data on the length of menstruation is ≤ 7 days as many as 49 female students (92.5%), and all of them have blood output within normal limits during menstruation.

Primary dysmenorrhea is menstrual pain caused by an increase in the hormone prostaglandins during menstruation. It usually occurs a few hours before menstruation and begins with discomfort on the pubic bones, upper thighs, and waist. Menstrual pain will peak within a few hoursand last for 1-2 days. The pain will decrease as the menstrual flow runs smoothly. [17] In determining the intensity of dysminore pain,it is divided into 3, namely 1-3 degrees mild,4-6 degrees moderate, and 7-10 degrees severe. [18] There are risk factors associated with the occurrence of primary dysmenorrhea, namely, early menarche age,menstrual duration more than normal (hypermenorrhea), a lot of blood during menstruation, and the duration of menstruation is more than 7 days. [6]

The incidence of primary dysminore experienced by female students isinfluenced by risk factors, one of which is the menstrual cycle, where the majority of this study had a normal menstrual cycle, namely 37 female students (69.8%). According to the theory, after the ovulation cycle occurs, the old follicle cells will form the corpus luteum. When the corpus luteum

undergoes degeneration due to fertilization and implantation failures, the circulating estrogen and progesterone levels drop dramatically. This

stimulates the release of prostaglandins on the uterine wall, which causes vasoconstriction of endometrial blood vessels so that the uterus will contract.If the prostaglandin levels are too high, it will cause dysmenorrhea. (11) The menstrualcycle refers to the time from the first day of menstruation to the next menstrual period. The menstrual cycle is said to be normal if the interval between the first day of menstrual bleeding and the first day of the next menstrual period is 21-35 days. (10) Changes in the length and shortness of the menstrual cycle reflect changes in reproductive hormones, the shortening of the follicular period shortens the menstrual cycle called polymenarche, while the lengthening of the menstrual cycle is called oligomenorrhea.

The age data of the menarch in the respondents of this study was dominated bythe age of menarch 12 years, which was as many as 35 female students in theory it stated that the risk factors for dysminore occurred, one of which was the age of menarch earlier < 12 years, (5) this data obtained was different from the theory. Early menarche can occur due to internal and external factors. Internal factors are genetic factors inherited by the family and external factors such as food, lifestyle and nutritional status. (8) In a study conducted byTitin, the most menarch age group experienced primary dysmonore morethan 11 years, so the study showed no relationship between menarche age and the incidence of primary dysminore. (9)

The amount of menstrual blood in each cycle is seen from how often you change pads and how long your period lasts. In this study, data was obtained that all female students had a normal amount ofblood output, according to the theory that changing sanitary napkins 2 - 5 times per day shows a normal amount of menstrual blood. But it is said to be menorrhagia or excess if the pads are changed more than 6 times per day. (12)

When menstruation is more, more prostaglandins are released. Excessive production of prostaglandins causes pain, called primary dysmenorrhea. This event has a data gap with the theory, but the incidence of menorrhagia in dysminore is also influenced by age, weight, physical activity, stress levels, genetics and nutrition.

(13) This study is in line with Arista's research, that the factor of the amount of menstrual blood is not the main factor in therisk of dysminore, this is because there is no relationship between the amount of menstrual blood and the incidence of primary dysminore. (14)

Abnormal menstrual periods can cause dysmenorrhea, physiologically irregular menstrual duration will cause an increase in prostaglandins because menstruation causesthe uterus to contract more often, this triggers pain during primary dysminore menstruation. (15) In this study, it was knownthat the most respondents, namely ≤7 days, 49 female students had normal menstrual periods. Generally, the normal menstrual period is 4–7 days, menstrual disorders with a menstrual duration of more than 7 days are called hypermenorrhea, menstrual bleeding that is shorter and/or less than refractive with less menstruation is called hypomenorrhea. (8) The results of the data in this study are in line with the research of Nancy et al., which means that the duration of menstruation is not

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the main factor in the incidence of primary dysminore because there is no relationship between the length of menstruation and the incidence of primary dysminore. (16)

According to the researcher'sassumption, every student who experiences menstrual pain, especially at the beginning of menstruation, has different levels of pain. There are several pains experienced by female students, namely mild, moderate, andsevere pain. Primary dysminore pain occurs

at several different points of the body in eachstudent, there are several pain points that are often experienced, namely the lower abdomen and radiating to the waist. The discomfort caused by dysminore if not givenany treatment causes pain to not go away sothat it will interfere with the activities of thestudents.

Judging based on the characteristics thathave been described in the data in this study,the incidence of dysminore experienced by female students does not all have risk factors for dysmenorrhea. This is theoretically because there are many factors that cause primary dysminore in female students in addition to internal factors such asmenarche, the amount of menstrual blood, the length of menstruation, besides that there are also external factors such as food, lifestyle and nutritional status. In accordancewith the research of Arista et al., that factorsrelated to the rate of dysmenorrhea, namely menarche, menstrual cycle, length of menstruation, a lot of menstrual blood, body condition before menstruation, and the duration of dysmenorrhea are not related to the rate of dysmenorrhea. (14)

1. **Intensity of Perimer Dysmenorrhea in Adolescent Girls of SMP 06 Diponegoro After Being Given Kalandra Honey.**

The results of the intensity data on the degree of primary dysmenorrhea of adolescent girls in SMP 06 Diponegoro afterbeing given kaliandra honey were 46 students (86.8%) with mild pain, 7 female students (13.2%) with moderate pain.

The reduction of dysmenorrhea pain can be reduced with herbal ingredients, namely honey, this is in accordance with the intervention research of honey administration to reduce dysmenorrhea. (7) In Indonesia, there are various types of honey, this is influenced by the region of origin, nectar source plants, types of bees, bee sniffing styles (cultivated or wild), harvesting methods and post-harvesthandling. Based on the 2018 Indonesia National Standard, honey is classified into three categories, namely forest honey, cultivated honey, and stingless bee honey.

(19) In the market, honey is also classified based on the origin of the type of flower nectar used by bees, namely multifloral honey and monoflora honey, such as longan honey, kaliandra honey, and randu honey.

Honey has a high osmolarity, so honey can reduce pregnancy. Honey contains vitamins and one of them is flavonoid compounds as anti-inflammatory which can reduce pain during menstruation. The mechanism of action of flavonoids in honeycan control the uterine muscles so that it canreduce pain during menstruation. (9) The

honey used in this study is honey derived from bees that suck various natural flower nectar (multiflora honey) from the tropical forests of Indonesia. Honey with a high content of flavonoids is kaliandra honey which is 156.27 ±5.62 mg QE/100g. [20] Thebioactive components of honey showed the highest content of phenolics or flavonoids was Kaliandra honey which was 156.27

±5.62 mg QE/100g, the second batch of rubber honey was 63.40±3.78 mg QE/100g, the third was randu honey 47.25±1.49 78 mgQE/100g. [20] Many studies have been conducted using honey herbal ingredients toreduce the symptoms of primary dysminore pain, research was conducted using Kaliandra type honey and acacia honey type Honey harvested from cultivated Apis mellifera honey bees in the forest has a comparison of its effectiveness, such as a study conducted by Triyana, about the intervention of giving kaliandra honey to reduce dysmenorrhea with the conclusion that there was a difference in the average reduction of menstrual pain in the group before and after the intervention with a scaleof severe pain to no pain. [7] Meanwhile, theresults of the study using acacia honey on the largest scale moderate pain to mild pain.21)

The decrease in the scale of pain felt in female students with moderate pain complaints becomes lighter, this is due to thecontent of flavonoids in kaliandra honey as acyclooxygenase and oxidative that functionsto suppress the increase in hormones so thatpain is reduced. Kaliandra honey has become an alternative ingredient to overcome dysminore, this has been proven by various studies using Kaliandra honey herbal ingredients.

2. Effect of Kaliandra Pure Honey on Changes in the Intensity of Primary Dysmenorrhea in Adolescent Girls ofJunior High School 06 DiponegoroWuluhan.

This study stated that the administrationof kaliandra honey when menstrual pain occurred for 24 hours with a dose of (25 mg)experienced a decrease in the intensity of dysminor pain, from a scale classified as moderate pain of 41 female students (77.4%) to mild pain of 46 female students (86.8%), with the result of the wilcoxon testp = 0.00 which means that there is an effect of kaliandra honey on the intensity of primary dysminore.

Primary dysmenorrhea is caused by the production of prostaglandin hormones that stimulate the smooth muscles of the uterine wall to contract. The higher the level ofprostaglandins, the stronger the contractions. [17] The intensity of primary dysmenorrhea physiologically will decrease

gradually over time, this is in line with the research of Prihatin et al., the higher the level of prostaglandins, the stronger the contractions, so that the pain felt is stronger.

[17] On the first day of menstruation, prostaglandin levels are very high. On the second and subsequent days, the lining of the uterine wall begins to detach and prostaglandin levels decrease. To reduce the intensity of dysminore so that the pain decreases faster, you can use alternative herbal ingredients, one of which is honey. Research conducted by Nurfitri, dysnomial pain can be reduced after drinking 2 tablespoons of honey every day. [19] Primary dysmenorrhea is caused by the production of prostaglandin hormones that stimulate the smooth

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decreases faster, you can use alternative herbal ingredients, one of which is honey. Research conducted by Nurfitri, dysnomial pain can be reduced after drinking 2 tablespoons of honey every day. [19]

Honey is a sweet material that is collected and transformed from flower nectar and scrape from plants by bees from their hives. [19] One type of honey that can beused to treat dysmenorrhea is kaliandra honey, which is a type of honey from the kaliandra flower plant. The Kaliandra plant is a leguminosa animal feed plant that has flowers and nectar, often consumed by honey bees with a lighter honey color and has a sweet taste. The bioactive component of honey showed the highest content of phenolics or flavonoids was Kaliandra honey which was 156.27 ±5.62 mg QE/100g, the second batch of rubber honey was 63.40±3.78 mg QE/100g, the third was randu honey 47.25±1.49 78 mg QE/100g. Inaddition, the total flavonoid content of rambutan, longan, coffee, randu, and kaliandra flower honey was 3.80 respectively; 4,94; 23,94; 12.92 and 33.46
mg quercetin/ 100 g honey. [20]

According to the researchers' assumption, although physiologically the pain of dysminore will gradually decrease, the administration of kaliandra honey at the time of a high increase in the intensity of

dysminore pain can reduce pain symptoms faster in 24 hours but not to the point of eliminating pain overall compared to dysminore pain before the intervention of kaliandra honey is given. The results of thisstudy showed that before and after being given kaliandra honey, the pain scale remained at a moderate pain scale, but this in nominal pain decreased. In addition, in this study, the decrease in pain intensity did not reach the painless scale because the intervention was given only in a short time, namely 24 hours, while in the study conducted by Titin et al, the pain results before and after the intervention was given from the end of January 2018 to April 2019 the mild scale decreased to the painless scale. [9]

The results of this study are in accordance with the study in primary disminore respondents who were given honey decreased faster than respondents who were not given any intervention. [7] Thisis because the flavonoid content in honey functions to reduce the excessive production of prostaglandins in the uterine wall during contractions, so that it will reduce the incidence of

dysmenorrhea.

Based on the results of the effect of consuming kaliandra honey as much as 250 ml for 1x24 hours at the peak of primary disminore intensity in adolescent girls ofSMP 06 Diponegoro Wuluhan, it can be concluded as follows.

It is known that the intensity of primary dysmenorrhea in adolescent girls at SMP 06 Diponegoro Wuluhanbefore being given Kaliandra Honey has data on the majority of femalestudents with a moderate pain scale.

It is known that the intensity of primary dysmenorrhea in Adolescent Girls at SMP 06 Diponegoro Wuluhanafter being given Kaliandra Honey hasdata on the majority of female students with mild pain scales.

There is an Effect of Kaliandra Honey on the Intensity of Primary Dysmenorrhea in Adolescent Girls at SMP 06 Diponegoro Wuluhan.

. LIMITATIONS

The researcher's way to find out the peak of dysminore is only based on the subjective data of the respondents and the difference in the incidence of the peak of dysminore in each student, so that not all respondents can be known to be at the peak of dysminore for sure.

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