# EFFECTIVENESS OF CHAMOMILE TEA ON DYSMENORRHOEA PAIN SCALE IN ADOLESCENT GIRLS

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**ABSTRAK : EFEKTIVITAS PEMBERIAN TEH *CHAMOMILE* TERHADAP SKALA NYERI DISMENORE PADA REMAJA PUTRI**

Latar Belakang: Dismenore merupakan nyeri kram pada perut yang terjadi selama menstruasi. Di Indonesia angka kejadian dismenore sebesar 64,25 % yang terdiri dari 54,89% dismenore primer, sedangkan sisanya merupakan penderita tipe sekunder, yang mengakibatkan mereka tidak sanggup melakukan akivitas apapun dan ini akan menurunkan kualitas hayati dalam individu masing-masing. Keluhan ini berdampak pada menurunnya produktivitas dan kualitas hidup perempuan, seperti ketidak hadiran di sekolah atau pekerjaan, pembatasan aktivitas, penurunan performa akademik, gangguan tidur dan gangguan mood.

Tujuan: Untuk mengetahui efektivitas pemberian teh *chamomile* terhadap skala nyeri dismenore pada remaja dengan dismenore primer di MTs Darunnajah 2 Cipining Bogor tahun 2024.

Metodologi: Desain penelitian ini menggunakan *quasi eksperiment* dengan pendekatan *with control group pre-test post-test*. Sampel dalam penelitian ini berjumlah 30 responden tang terdiri dari 15 responden intervensi dan 15 responden kontrol. Data dianalisis menggunkan uji t *(paired t test)*. Instrumen yang digunakan adalah lembar observasi.

Hasil Penelitian: Analisis univariat pada kelompok intervensi diperoleh nilai rata-rata pretest sebesar 5,47 dan posttest sebesar 2,93. Sedangkan pada kelompok kontrol diperoleh nilai rata-rata pretest sebesar 4,67 dan posttest sebesar 4,20. Hasil uji *t paired t test* dengan nilai signifikansi *P-Value* 0.000 yang berarti ada pengaruh teh *chamomile* terhadap penurunan dismenore pada remaja

Simpulan : Teh *chamomile* efektif dalam menurunkan skala nyeri dismenore pada remaja di MTs Darunnajah 2 Cipining Bogor Tahun 2024.

Saran: *chamomile* dapat digunakan sebagai pengobatan dismenore secara non – farmakologis sehingga masyarakat bisa menbudidayakan untuk menanam tanaman teh *chamomile* ini mengingat khasiat yang dimiliki.

Kata kunci : *Chamomile*, Dismenore, Menstruasi, Remaja.

## ABSTRACT

Background: Dysmenorrhoea is a cramping pain in the abdomen that occurs during menstruation. In Indonesia, the incidence of dysmenorrhoea is 64.25% which consists of 54.89% primary dysmenorrhoea, while the rest are secondary type sufferers, which results in them not being able to do any activities and this will reduce the quality of life in each individual. This complaint has an impact on reducing women's productivity and quality of life, such as school or work absences, activity restrictions, decreased academic performance, sleep disturbances and mood disorders.

Objective: To determine the effectiveness of chamomile tea administration on dysmenorrhoea pain scale in adolescents with primary dysmenorrhoea at MTs Darunnajah 2 Cipining Bogor in 2024.

Methodology: This research design uses a quasi-experiment with a control group pre-test post-test approach. The sample in this study amounted to 30 respondents consisting of 15 intervention respondents and 15 control respondents. Data were analysed using paired t test. The instrument used was an observation sheet.

Research Results: Univariate analysis in the intervention group obtained an average pretest value of 5.47 and posttest of 2.93. While in the control group the average pretest value was 4.67 and the posttest was 4.20. The results of the paired t test with a significance value of P-Value 0.000 which means that there is an effect of chamomile tea on reducing dysmenorrhoea in adolescents.

Conclusion: Chamomile tea is effective in reducing dysmenorrhoea pain scale in adolescents at MTs Darunnajah 2 Cipining Bogor Year 2024.

Suggestion: Chamomile can be used as a non-pharmacological treatment of dysmenorrhoea so that people can cultivate to plant this chamomile tea plant given its properties.

Keywords: Adolescent., Chamomile, Dysmenorrhoea, Menstruation

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## INTRODUCTION

In Indonesia, the incidence of dysmenorrhoea is 64.25% which consists of 54.89% primary dysmenorrhoea, while the rest are secondary type sufferers, which results in them not being able to do any activities and this will reduce the quality of life in each individual. The incidence of dysmenorrhoea ranges from 40-80% and 20-25% of women experience severe to unbearable dysmenorrhoea. Adolescents with severe dysmenorrhoea receive low grades (7.5%), decreased concentration (87.1%) and absence from school (80.6%).(Kemenkes RI, 2019).

In West Java, 51.86% of women experienced dysmenorrhoea. Women who experienced dysmenorrhoea, consisting of 21.8% mild dysmenorrhoea, 19.34% moderate dysmenorrhoea and 10.72% severe dysmenorrhoea. (Marisa et al., 2022). And in the Bogor area the incidence of primary dysmenorrhoea reached 88.4%.(Tristiana, 2019)

The impact of primary dysmenorrhoea causes several problems, including 76.6% of students not attending school due to menstrual pain and 6% of students experiencing a decrease in learning achievement. Primary dysmenorrhoea in adolescents must be treated with appropriate measures to avoid negative impacts that will arise. (Dhilon, 2020)

Many efforts are made to reduce the intensity of dysmenorrhoea pain, namely by taking pain management nursing actions. This pain management action consists of pharmacological and non-pharmacological pain management. Pharmacological action is by administering analgesic drugs to reduce pain, while non-pharmacological actions include warm compresses and drinking herbs or other things. (Widya nthi et al., 2021)

One way to reduce menstrual pain is to consume Chamomile tea. Chamomile is a medicinal plant that has a flower structure similar to daisies, with a yellow core and white florets. Chamomile belongs to the Asteraceae group. Chamomile tea contains essential oils and flavonoids that can inhibit the enzyme cyclooxygenase, which will reduce prostagladin, thereby reducing pain. And glycine is effective in relieving dysmenorrhoea pain. Chamomile tea is usually made from dried leaves and chamomile flowers. Chamomile tea can be consumed directly or compressed on the affected abdomen. (Crystallography, 2018)

In a study conducted by Mollabashi et al.,2021 stated that chamomile was more effective than placebo in reducing menstrual-related mood disorders (p<0.001). Flavonoids, one of the most important compounds in chamomile, increase progesterone levels through its direct effect on the pituitary gland, so this plant can be effective in modulating premenstrual mood symptoms, also, the calming and anti-anxiety effects of chamomile are due to the presence of compounds such as camazoline and flavonoids in this case the chamomile plant can be useful and provide the effect of relieving premenstrual mood symptoms.(Najafi Mollabashi et al., 2021)

Camomile flowers (Matricaria chamomilia L.) are widely used in traditional medicine for their flavonoids, coumarins, essential oils, terpenes, sterols, organic acids and polysaccharides. With different groups of compounds in it, this chamomile flower has the potential to have different uses in treatment with herbal plants that can potentially reduce side effects due to pharmacotherapy with soporific drugs (sleep-inducing drugs) Apigenin compounds in chamomile flowers have a function similar to benzodiazepine, namely as a GABA (gamma aminobutyric acid) receptor binder to relax muscles and stimulate drowsiness, thus improving sleep quality.(Aisah Dwi et al, 2023)

In a study conducted by Yuliana Feli Tri et al, 2022 found that there was a decrease in the primary dysmenorrhoea pain scale from before the intervention obtained results with a total of 11 respondents (50%) who fell into the mild pain category and 11 respondents (50%) who fell into the moderate pain category. After the intervention, results were obtained with 5 respondents (22.73%) falling into the no pain category and 17 respondents (77.23%). In this study there was an effect of giving chamomile tea on reducing the pain scale with a p-value of 0.000, therefore the p-value is <0.05. This shows that there is an effect of giving chamomile tea on reducing the pain scale of primary dysmenorrhoea.

Of the students at MTs Darunnajah 2 Cipining Bogor met by the researchers, the students did not know about the use of herbs with chamomile tea, those who experienced dysmenorrhoea/ menstrual pain would take painkillers, compress with warm water, rest/sleep and some overcame it by applying warm oil. There were no schoolgirls who overcame menstrual pain by consuming herbs that they had made themselves or that had been provided by school health centres or hostels.

Based on this background, the researcher aims to conduct a study to find out "whether the administration of chamomile tea is effective on the dysmenorrhoea pain scale in adolescents at MTs Darunnajah 2 Ciping Bogor year 2024".

## RESEARCH METHODS

This research is a type of quantitative research with a research design using a quasi-experiment with a control group pre-test post-test approach. The parallel design is used to compare between 2 independent groups (group comparison), namely the control group and the intervention group. In this study there were two groups of respondents, the control group and the intervention group. The intervention group was given chamomile tea and the control group was not given chamomile tea.

The population used in this study were female students at MTs darunnajah 2 cipining Bogor consisting of 6 classes with information on the total population of female students at MTs, namely 204 students. The research sampling technique using purposive sampling technique. The number of samples obtained was 30 respondents with the division of the intervention group of 15 respondents and the control group of 15 respondents. Researchers conducted an approach and introduction, approval

Respondents and measurement of dysmenorrhoea pain scale (pretest) then respondents were given chamomile tea as much as 24 grams per a tea bag for a drink and drunk for 2 days, and on the 3rd day the measurement of dysmenorrhoea pain scale (posttest).

The instrument used in this study was an observation sheet (pretest and posttest). Indicator or sign to be measured skala nyeri dismenore yaitu menggunakan skala Numeric Rating Scale (NRS) 1 - 10 with information 0: no complaints of pain, no pain. 1-3: pain begins and is tolerable, mild pain. 4-6: pain that is bothersome and requires effort to endure, moderate pain. 7-10: pain is very distressing and unbearable, grimacing, screaming and even shouting, severe pain.

Univariate analysis was performed to determine the mean value of the pretest and posttest dysmenorrhoea pain scale. Bivariate analysis was performed to determine the effect of chamomile tea on dysmenorrhoea in adolescents using paired t-test.

**RESEARCH RESULTS**
**Univariate Analysis**
**Table 1**
**Dysmenorrhoea Pain Scale mean scores before and after in intervention and control groups.**

| Group | n | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| Intervention | | | | | |
| Pre test | 15 | 2 | 10 | 5.47 | 2.475 |
| Post Test | | 0 | 5 | 2.93 | 1.624 |
| Control | | | | | |
| Pre Test | 15 | 1 | 9 | 4.67 | 2.257 |
| Post Test | | 1 | 8 | 4.20 | 2.042 |

Based on Table 1, it can be seen that in the intervention group, the mean value of the pain scale before the administration of chamomile tea is 5.47, while the mean value of the dysmenorrhoea pain scale after the administration of chamomile tea is 2.93, which means that there is a difference in the mean value of the reduction of dysmenorrhoea pain in adolescents after the administration of chamomile tea.

In the control group, the pre-test Dysmenorrhoea Pain Scale score was 4.67 and the post-test Dysmenorrhoea Pain Scale score was 4.20, which means that there was a difference of 0.47 in the average score of reduction in dysmenorrhoea pain in teenagers.

**Bivariate Analysis**
Based on Table 2 shows that in the intervention group there is a difference in the mean value of the dysmenorrhoea pain scale with a sig value of $0.000 < 0.05$, which means that there is an effect of giving chamomile tea in reducing dysmenorrhoea pain.

In the control group, there is a difference in the mean value of the dysmenorrhoea pain scale with a sig value of $0.004 < 0.05$, which means that there is an effect of the control group not receiving any treatment in reducing the dysmenorrhoea pain scale.

**Table 2**
**Differences in Dysmenorrhoea Pain Scale Pre Test and Post Test in Intervention and Control Groups**

| | Group | N | Mean | SD | t | Sig. (2-tailed) |
|---|---|---|---|---|---|---|
| Pre Test | Intervention Control | 15 | 2.533 | 1.302 | 7.536 | .000 |
| Post Test | intervention Control | 15 | 0.467 | 0.516 | 3.500 | .004 |

**Table 3**
**The effect of chamomile tea on the reduction of dysmenorrhoea**

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| Group | n | Mean | SD | Mean Difference | Sig (2 tailed) |
|---|---|---|---|---|---|
| Intervention | 15 | 2.93 | 1.62422 | -1.26667 | 0.000 |
| Control | 15 | 4.20 | 2.04241 | | |

Table 3 shows that there is a difference in the mean value between the intervention group and the control group with a sig value (2-tailed) 0.00, which means that there is a significant difference in the mean value of the dysmenorrhoea pain scale in the intervention group compared to the mean value of the pain scale in the control group with a difference in the mean value of the dimenorrhoea pain scale of -1. 26667, meaning that the intervention group has a lower pain scale after being given chamomile tea, it can be concluded that giving chamomile tea is more significant in reducing dysmenorrhoea pain.

## DISCUSSION

Based on the results of the study in the intervention group, the mean value of the pretest dysmenorrhoea pain scale was 5.47 and the mean value of the posttest dysmenorrhoea pain scale was 2.93, which means that there was a significant decrease in the mean value of the dysmenorrhoea pain scale after the administration of chamomile tea.

In the control group, the mean pretest dysmenorrhoea pain scale score was 4.67 and the mean posttest dysmenorrhoea pain scale score was 4.20, meaning that there was a significant decrease in the mean dysmenorrhoea pain scale score in the control group.

Research conducted by Putri Nur Fauziah (2019) on the review of effective plants to overcome dysmenorrhoea, based on the journal, where one of them is chamomile tea, it was reviewed that the reduction of the intensity of dysmenorrhoea pain using herbal plants has resulted in the reduction of pain intensity in the first 24 hours after drinking the herbal plant.

A study conducted by Elham Najafi (2017) at Guilan University of Medical Sciences. Participants were divided into two groups: chamomile and placebo. From this study, it was found that chamomile capsules were more effective than placebo in reducing the dysmenorrhoea pain scale experienced by the participants. From the two research journals, it can be concluded that there was a reduction in the pain scale after the intervention, which shows that the respondents actually intervened where during the trial the respondents only used non-pharmacological therapy, namely drinking chamomile tea, which was given as a pain-relieving therapy.

Chamomile contains apigenin compounds, which are compounds that can relieve menstrual pain by relaxing tense uterine muscles. chamomile has anti-spasmodic properties, which can relieve dysmenorrhoea.

From the research data above, according to the researcher, there was a decrease in menstrual pain (dysmenorrhoea) after the intervention, which shows that the respondents carried out the intervention seriously, whereas during the research the respondents only carried out non-pharmacological therapy, namely by drinking chamomile tea, which was given as a therapy to treat dysmenorrhoea.

**Effect of chamomile tea on dysmenorrhoea**

Based on the results of the study, there was a difference in the pain scale between before and after giving chamomile tea, which means that there was an effect of giving chamomile tea on reducing the dysmenorrhoea pain scale, but the reduction in the dysmenorrhoea pain scale was more significant in the intervention group than in the control group.

The exact cause of primary dysmenorrhoea is still unknown (idiopathic), but several factors have been suggested as triggers of menstrual pain, including: psychological factors: adult women who are emotionally unstable are more likely to experience dysmenorrhoea. Endocrine factors: the onset of menstrual pain is thought to be due to excessive uterine contractions. Prostaglandin factor: This theory states that menstrual pain is caused by increased production of prostaglandins (by the uterine wall) during menstruation. This assumption underlies treatment with antiprostaglandins to relieve menstrual pain (Atikah, 2009).

Primary dysmenorrhoea is caused by natural chemicals produced by the cells in the lining of the womb called prostaglandins. Prostaglandins stimulate the smooth muscles of the uterine wall to contract. The higher the level of prostaglandins, the stronger the contraction and the more pain you will feel. Prostaglandin levels are usually very high on the first day of your period. On the second and subsequent days, the lining of the womb starts to shed and the prostaglandin levels fall. Menstrual pain and soreness will also decrease as prostaglandin levels fall.

According to research by Cicilia (2013), primary dysmenorrhoea is most common in

adolescents who have a menstrual period of 3 to 7 days, which is 69.7%. A study by Puspitsari, et al (2008) also showed a similar thing, namely that 70.2% of the incidence of dysmenorrhoea was experienced by adolescents who had a menstrual period of 3-7 days, this was due to the decay of endometrial tissue..

According to a study published in the Iranian Journal of Obstetrics, Gynaecology and Infertility, this flowery-scented tea can help reduce menstrual pain that is not caused by disease.Chamomile tea was studied because it contains a compound called hippurate. Hippurate is originally a natural compound in the body that fights inflammation. This anti-inflammatory compound may help to reduce the production of prostaglandins, thereby relieving menstrual pain.

From the description of the test results of the data above, it is consistent with a study (Khalesi et al, 2019) showing that chamomile tea is effective in the treatment of dysmenorrhoea. The study was a double-blind, randomised clinical trial. It was given to students living in the dormitory of Guilan University of Medical Sciences in 2017, who were suffering from moderate to severe dysmenorrhoea. The study was divided into 2 groups, namely the chamomile group, which received 250 mg of chamomile powder, and the placebo group, which received placebo tablets. The results after treatment showed that the perceived dysmenorrhoea pain scale decreased significantly in both groups. However, chamomile was more effective than placebo tablets in reducing the pain scale and the severity of physical and psychological symptoms in patients with dysmenorrhoea.

Another study was conducted by Khalesi, 2019) using a literature review using 8 research journals conducted from 2011 to 2018 using chamomile in capsules, extracts and tea dictapatham the results of the 8 research journals chamomile tea can reduce the dysmenorrhoea pain scale using a comparison that is placebo and mefenamic acid.

A compound found in chamomile called apigenin helps reduce the effects of neurotransmitters and excitatory hormones on the mind and body, and helps calm an overactive sympathetic nervous system. Chamomile also works to reduce the sensation of pain by inhibiting the COX enzyme. COX inhibition can provide relief from inflammation and pain symptoms. Another ingredient in chamomile tea is flavonoids, one of the main compounds in chamomile, which increases progesterone levels by acting directly on the pituitary gland, so it can be effective in modulating premenstrual mood symptoms. Chamomile has been used to treat dysmenorrhoea due to its therapeutic properties such as anti-inflammatory, antispasmodic, antihistamine and anti-anxiety effects according to the ingredients described above. (Miguel, 2018)

From the description above, researchers believe that chamomile tea is quite effective in reducing the dysmenorrhoea pain scale because the content of chamomile tea is a substance that can reduce dysmenorrhoea pain. In addition, there have been several studies showing that chamomile is indeed effective in reducing dysmenorrhoea pain..

## CONCLUSIONS

There is an effect in both the intervention and control groups in reducing the dysmenorrhoea pain scale, but the provision of chamomile tea is more significant in reducing dysmenorrhoea pain than in the control group who received no treatment.

## SUGGESTION

There is a need to improve adolescent reproductive health services by informing adolescents about the use of chamomile tea as a non-pharmacological method that can be used for menstrual pain (dysmenorrhoea).

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