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Research Article

Effectiveness of Giving Turmeric Tamarind on The Intensity of Dysmenorrhea Pain in Adolescents At Al-Ikhwan High School, Tasikmalaya City

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ABSTRACT

Dysmenorrhea is a health problem that is often experienced by adolescent girls and can interfere with daily activities. This condition is characterized by pain in the lower abdomen during menstruation that can last for several hours to days, reducing productivity and quality of life. One non-pharmacological method that can be used to relieve dysmenorrhea pain is consuming turmeric and tamarind. Turmeric and tamarind are believed to have anti-inflammatory and anti-pain properties that help reduce muscle tension and inflammation in the abdominal area, as well as increase comfort during menstruation. This study aims to determine the effectiveness of giving turmeric and tamarind on the intensity of dysmenorrhea pain in adolescents at Al-Ikhwan Integrated Vocational School, Cibeureum District, Tasikmalaya City. The study sample consisted of 18 respondents selected using purposive sampling techniques. Before the intervention, the average pain intensity experienced by respondents was 7.06 (severe pain category), while after the intervention it decreased to 3.78 (moderate pain category). The *Paired T-Test* was used to analyze the data. The *Paired T-Test* showed a p value = 0.001, which means there was a significant difference between before and after giving turmeric and tamarind. These results indicate that the administration of turmeric and tamarind is effective in reducing the intensity of dysmenorrhea pain in adolescents. The active compounds in turmeric and tamarind are thought to contribute to decreased inflammation and muscle tension, resulting in reduced pain during menstruation. It is hoped that this study can be a reference for adolescent girls as a natural alternative in overcoming dysmenorrhea. Health workers and educators are also expected to provide education on the use of turmeric and tamarind as a safe and affordable therapy option.

INTRODUCTION

Adolescence is a period of growth marked by rapid physical, mental, and psychosocial changes. One of the characteristics of this phase is puberty, which is when a girl experiences menarche or her first menstruation. This process is influenced by the hormones estrogen, androgen, and adrenal gland activity (Trisetiyaningsih, 2019). Furthermore, early menarche (before age 12) is a significant risk factor as it triggers earlier production of gonadotropin hormones, often leading to more severe menstrual symptoms (Akbar & Saleh, 2023).

Dysmenorrhea is a term derived from Greek which means painful monthly bleeding. Dysmenorrhea is pain in the lower abdomen that can spread to the waist, thighs, and lower back, especially before or during menstruation. This condition is often experienced by women of productive age throughout the world and can have an impact on their productivity and quality of life (Kementerian Kesehatan, 2022). Lifestyle factors also contribute to this condition; for instance, exposure to cigarette smoke acts as a vasoconstrictor inhibiting blood flow to the endometrium (Akbar & Saleh, 2023), while high consumption of fast food containing trans fats increases prostaglandin production, triggering more intense pain (Thania et al., 2023).

Dysmenorrhea is divided into two types, namely primary dysmenorrhea and secondary dysmenorrhea. Primary dysmenorrhea occurs without anatomical abnormalities in the reproductive organs and is commonly experienced by adolescents. While secondary dysmenorrhea is related to pathological disorders such as endometriosis, and is generally experienced by women over 25 years of age (Kamalah et al., 2023).

According to the World Health Organization (WHO) in 2020, 90% of women in the world experience dysmenorrhea, and 10–16% of them experience severe dysmenorrhea. In Indonesia, the prevalence reaches 72.89%, with 54% occurring in adolescent girls (Kementerian Kesehatan Republik Indonesia, 2020). Dysmenorrhea that occurs repeatedly every month can reduce the quality of life of adolescents and interfere with their learning activities at school (Fatimawati et al., 2020).

Various interventions can be used to overcome dysmenorrhea, both pharmacological and non-pharmacological. One of the non-pharmacological therapies currently being studied is the herbal drink turmeric tamarind. Turmeric (Curcuma longa) contains curcumin, while tamarind (Tamarindus indica) contains anthocyanins. Both compounds play an important role in inhibiting the cyclooxygenase (COX) enzyme, which triggers inflammation and uterine contractions (Asroyo et al., 2019). The phenolic compounds in turmeric act as natural analgesics (Rezkiyanti & Rusli, 2022), while the anthocyanins in tamarind affect the autonomic nervous system to reduce muscle contractions and provide comfort (Hermawati & Ayu, 2018).

However, previous studies mostly focused on adult women or university students and were conducted in clinical or community settings. There is still limited research that specifically examines the effectiveness of turmeric tamarind drink among adolescent girls in senior high schools, especially in local settings such as Tasikmalaya City. In addition, few studies have measured changes in dysmenorrhea pain intensity using a structured pain scale after herbal intervention.

Therefore, this study aims to fill this gap by analyzing the effectiveness of turmeric tamarind drink in reducing the intensity of dysmenorrhea pain among adolescents at Al-Ikhwan High School, Tasikmalaya City. The novelty of this study lies in its focus on adolescent students as the target population, the school-based research setting, and the evaluation of pain intensity before and after the intervention using a standardized measurement approach.

Curcumin compounds are known to have anti-inflammatory effects by suppressing the production of prostaglandins—substances that trigger uterine contractions and menstrual pain (Suryati et al., 2020). Research by Suryati & Sutarno (2024) shows that consuming turmeric and tamarind can reduce the intensity of dysmenorrhea pain from moderate to mild pain. Research by Agustina et al. (2023) also proved a significant decrease in pain intensity in adolescents after consuming turmeric and tamarind drinks.

However, research on the effectiveness of turmeric and tamarind on dysmenorrhea pain is still limited, especially in school adolescents in the Tasikmalaya area. Therefore, further studies are needed to strengthen scientific evidence on the effectiveness of this herbal therapy in the local context.

This study aims to determine the effectiveness of giving turmeric and tamarind drinks to reduce the intensity of dysmenorrhea pain in female adolescents at Al-Ikhwan Integrated Vocational School, Cibeureum District, Tasikmalaya City.

METHOD

This study used a Quasi Experiment research design with One Group Pre-Test and Post-Test Design. The sample of this study was 18 respondents who experienced dysmenorrhea at Al-Ikhwan Integrated Vocational School. Sampling used purposive sampling. Statistical test analysis through two stages, namely using univariate and bivariate analysis. Univariate analysis aims to describe data characteristics by looking at the frequency distribution, average value (mean), median, mode, and standard deviation of pain intensity before and after turmeric tamarind intervention, so that changes in the pain scale in general can be known. Meanwhile, bivariate analysis is used to test the relationship between two variables, namely the administration of turmeric tamarind and changes in dysmenorrhea pain intensity, using the Paired T-Test statistical test to determine whether there is a significant difference before and after treatment.

RESULTS

A. Univariate Analysis

Table 1
Intensity of Dysmenorrhea Pain Before Turmeric Tamarind Intervention (Pretest)

N	Mean	Min-Max	Modus	Standard Deviasi
18	7.06	5-9	8	1,305

Table 1 shows that the average pain intensity experienced by respondents before the intervention was 7.06, which is included in the category of severe pain. The mode of 8 indicates that most respondents experienced severe pain. The standard deviation of 1.305 indicates that there is variation in the perception of pain felt by respondents.

Table 2
Intensity of Dysmenorrhea Pain After Turmeric Tamarind Intervention (Posttest)

N	Mean	Min-Max	Modus	Standar Deviasi
18	3,78	2-7	4	1,353

Table 2 shows a decrease in the average pain intensity to 3.78 after the turmeric and tamarind intervention. The mode of 4 indicates that most respondents experienced moderate pain. The standard deviation of 1.353 indicates that the pain still varies but with a lighter level than before.

B. Bivariate Analysis

Table 3
Effect of Turmeric and Tamarind Administration on Dysmenorrhea Pain Intensity

Group	Mean	N	Std Dev	*Std Error*	*95% CI*	*Sig.*
Before Intervention	7,06	18	1,305	0,308	2.801 -	0,001
After Intervention	3,78	18	1,353	0,319	3.754	

Table 3 shows the results of the Paired T-Test statistical test. There is a significant difference between the intensity of pain before and after the turmeric and tamarind

intervention, with a significance value (p) of 0.001. This proves that giving turmeric and tamarind drinks is effective in reducing the intensity of dysmenorrhea pain.

DISCUSSION

A. Pain Intensity Before Intervention

In the pretest stage, the average intensity of dysmenorrhea pain experienced by 18 respondents was 7.06 with a mode value of 8, which indicates that most respondents experienced severe pain. These results are in line with research conducted by Baiti, C. N., et al. (2021) which reported an average pain intensity before being given turmeric and tamarind of 6.72 with a mode of 7.00. Factors that influence the intensity of dysmenorrhea pain include earlier age of menarche and fast food consumption patterns. Research by Wardani, P. K., et al. (2021) also found a significant relationship between age of menarche and the incidence of primary dysmenorrhea, where the earlier the age of menarche (<12 years), the greater the risk of experiencing primary dysmenorrhea. This is influenced by the gonadotropin hormone which stimulates the ovaries before the age of 8 years, causing secondary sexual characteristics and menstruation before the time it should be.

B. Pain Intensity After Intervention

After being given an intervention in the form of consuming turmeric tamarind infusion, the average pain intensity decreased significantly to 3.78 with a mode of 4.00. This indicates that most respondents experienced a decrease in pain levels from severe to moderate. This decrease is in line with the results of a study by Baiti, C. N., et al. (2021) which showed a significant effect of turmeric tamarind in reducing the intensity of dysmenorrhea pain in adolescents, with a mean value after treatment of 3.67 and a mode of 4.00. The standard deviation which still shows variation indicates that the effects of the intervention vary in each individual, possibly due to biological and environmental factors that influence pain perception.

C. The Effect of Turmeric and Tamarind on the Intensity of Dysmenorrhea Pain

The results of the Paired T-Test statistical test showed a significance value of 0.001 ($p < 0.05$), which means there is a significant difference in pain intensity before and after the turmeric tamarind intervention. This supports the hypothesis that giving turmeric tamarind infusion is effective in reducing the level of dysmenorrhea pain in female adolescents at Al-Ikhwan Integrated Vocational School.

Pharmacologically, turmeric contains curcuminoids and essential oils which function as analgesics and anti-inflammatories by inhibiting the formation of prostaglandins through the biosynthesis mechanism, thereby reducing uterine contractions and pain. Meanwhile, tamarind contains anthocyanins which can inhibit the cyclooxygenase (COX) enzyme.

From a nursing perspective, this intervention is also supported by Katharine Kolcaba's Comfort Theory, which emphasizes fulfilling the needs for relief, ease, and transcendence (Kolcaba, 2003). By reducing pain, adolescents achieve a state of 'relief' and 'ease,' allowing them to reach 'transcendence' where they can function normally and return to their school activities effectively despite their menstrual cycle (Antarika & Herawati, 2021). This finding is also supported by research by Romlah, S. N., et al. (2024) which states that the combination of active compounds in turmeric tamarind can effectively reduce pain intensity. This holistic approach not only addresses physical pain but also aligns with the application of comfort theory in nursing care, ensuring the patient's overall well-being (Uki et al., 2024).

Based on these findings, the researchers concluded that warm turmeric and tamarind infusion has an effect on changes in pain levels at Al-Ikhwan Integrated Vocational School, as evidenced by

significant differences before and after the intervention. Therefore, female students are advised to continue consuming turmeric and tamarind infusion to obtain more optimal benefits in relieving menstrual pain.

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the results of the study on the effectiveness of giving turmeric and tamarind on the intensity of dysmenorrhea pain in adolescents at Al-Ikhwan Integrated Vocational School, it can be concluded that giving turmeric and tamarind has been proven to significantly reduce the intensity of dysmenorrhea pain. The average pain intensity before the intervention was classified as severe with a value of 7.06, while after the intervention it decreased to 3.78 which is included in the moderate pain category. The results of the Paired T-Test statistical test strengthen these findings with a significance value of p = 0.001, confirming that turmeric and tamarind is an effective non-pharmacological method and is worthy of being an alternative therapy to reduce menstrual pain in adolescents.

Recommendation

For female students of Al-Ikhwan Integrated Vocational School, it is recommended to consider consuming turmeric and tamarind as a natural therapy to reduce dysmenorrhea pain regularly in order to obtain optimal benefits. Health workers and educators in schools are also expected to provide education on the benefits of turmeric and tamarind as well as other natural methods as part of safe and easily accessible menstrual pain management. For further research, it is recommended to conduct studies with larger and more diverse samples, and to compare the effectiveness of turmeric and tamarind with other alternative methods such as relaxation techniques, acupressure, or pharmacological therapy, in order to obtain a more comprehensive picture of dysmenorrhea management.

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