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Research Article

The Effect of Turmeric, Tamarind, and Javanese Palm Sugar Herbal Drink on Menstrual Pain among Adolescent Girls at SMPN 31 Semarang

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Abstract: Warm compresses, exercise, Mozart therapy, and relaxation are non-pharmacological methods for relieving menstrual cramps, which typically occur in the lower abdomen but can also radiate to the lower back, waist, pelvis, upper thighs, and calves. Turmeric and palm sugar drink is a popular herbal remedy and has long been known to relieve menstrual cramps. This study aims to compare the effectiveness of herbal remedies for menstrual cramps made from palm sugar and turmeric in relieving symptoms experienced by female students at SMPN 31 Seimarang. With a total of 32 participants and data collected using a validated and reliable NRS (numerical rating scale) questionnaire, this study used a quantitative methodology with a pre-experimental approach and a single-group pretest-posttest design. The Wilcoxon test was used to analyze the data and analyze how the independent and dependent variables are related to each other. With a p-value of 0.000 ($p < 0.05$), the study's negative findings indicate a decrease in pain levels after the intervention. Female students at SMPN 31 Semarang reported less menstrual pain after consuming a herbal concoction containing turmeric, tamarind, and palm sugar. This indicates that the intervention successfully reduced pain, and the difference was statistically significant. To reduce the use of harmful drugs and increase the use of safe, non-pharmacological alternatives, it is crucial for schools to play an active role in educating students about reproductive health, particularly regarding non-pharmacological treatments for menstrual pain.

Keywords : Menstrual Pain; Palm Sugar; Tamarind; Teenagers; Turmeric.

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1. Introduction

The onset of menstruation is a major life change for girls and young women. Dysmenorrhea, or discomfort during menstruation, affects most women at this time. Worldwide, its incidence is quite high, ranging from 16% to 18%, especially among young adult women, according to the World Health Organization (WHO). An estimated 69.4% of women in Southeast Asian countries, including Malaysia, suffer from primary dysmenorrhea; 84% of women in Thailand experience the same problem; and 65% of women of reproductive age in Indonesia experience the same problem (Arlina et al., 2022).

Approximately 90% of Indonesian women suffered from dysmenorrhea in 2023. Of the total cases of dysmenorrhea in Indonesia, 64% were primary cases and 9% were secondary cases. According to the 2020 Basic Health Research (Riskesdas), the frequency of medically diagnosed dysmenorrhea in women (Amelia, 2024) . There were 63,968 female adolescents in Central Java in 2022, with a frequency of dysmenorrhea of 56%, according to statistics from the Provincial Health Office (Dewi & Noorratri, 2023) . Although 12.2% of women in Semarang who suffered from dysmenorrhea used painkillers, 87.8% continued their routine activities (Prabawati et al., 2024) .

As a natural part of menstruation, primary or physiological dysmenorrhea occurs when the uterine muscles contract too strongly to expel the uterine lining that is no longer needed (Worung et al., 2020) . Menstrual cramps caused by underlying problems in the reproductive system are known as secondary or pathological dysmenorrhea (Widjanarko, 2021) .

Although menstrual cramps most often affect the lower abdomen, they can radiate to other areas such as the lower back, waist, pelvis, upper thighs, and calves. Severe abdominal cramps can also accompany this discomfort. During menstruation, the uterine muscles contract violently, causing cramps. Afterward, the muscles tighten due to strong contractions, which may feel like cramps or pain. The muscles in the lower back, waist, pelvis, thighs, and calves, as well as the abdominal muscles, feel this pressure (Noor et al., 2022) .

Research conducted by (Kusnaningsih, 2021) found that the majority of female students at Madrasah Aliyah Darul Ulum (86%) suffered from dysmenorrhea during menstruation. The majority of participants had a personal or family history of the condition, and the average age of menarche was 12–18 years, with a range of 9–17 years.

Curcumin and essential oils found in turmeric and tamarind have analgesic properties, meaning they relieve *dysmenorrhea,* or menstrual pain, by blocking pain impulses originating from the pain cortex *of the medulla oblongata* and inhibiting prostaglandin formation through biosynthesis (Ariantil & Milindasari, 2022) . Herbal remedies that relieve menstrual cramps without negative side effects are currently popular, especially among young women. To relieve menstrual cramps, many women turn to natural remedies such as tamarind and turmeric drinks. A traditional remedy for menstrual pain in Indonesia is a mixture of turmeric and tamarind. To make a turmeric and tamarind drink, you usually only need two ingredients: turmeric and tamarind. One method involves making a mixture of turmeric and tamarind. Traditional medicine widely uses this turmeric and tamarind concoction because of its many beneficial properties. The phenolic components in the turmeric and tamarind decoction provide antioxidant action; it also helps treat inflammation, pain, bacteria, and blood purification (Husna, 2021) .

When faced with menstrual discomfort, most female students turn to pharmaceutical treatments such as painkillers. These consequences include digestive disorders, allergies, and potential dependency from long-term use of synthetic drugs. Traditional herbal remedies, such as jamu (herbal medicine), are gaining popularity as people seek safer alternatives to conventional medicine (Irma et al., 2025) .

The severity of menstrual discomfort in adolescent girls can be significantly reduced by administering turmeric, tamarind, and palm sugar, according to research findings (Nisa, 2024) . The patient reported moderate discomfort on the numerical rating scale (NRS) when first examined, with a score of 6. One hundred milliliters of an herbal concoction containing turmeric, tamarind, and palm sugar was administered for three days, and the pain scale dropped to zero afterward. This proves that the use of tamarind, palm sugar, turmeric, and other similar ingredients can relieve menstrual discomfort.

Research has demonstrated the effectiveness of herbal remedies including turmeric and tamarind in alleviating menstrual pain in adolescent girls (Pibryana et al., 2025) . The pain score was 2.47 before administering the herbal remedy, indicating mild discomfort; after 150 cc of the herbal remedy was administered once daily, there was no pain at all. Herbal remedies including turmeric and tamarind are often used to relieve menstrual cramps. The natural composition of turmeric and tamarind herbal remedies is one of their main benefits.

A preliminary investigation conducted on April 22, 2025, found that 84 of 255 seventh- and eighth-grade girls at SMPN 31 Semarang experienced dysmenorrhea. Five seventh- and eighth-grade girls were also included in the study. During interviews, three girls reported cramping, one described a squeezing feeling, and one described pain radiating to the lower back, all symptoms of menstruation. One girl endured the pain for an hour, while the other four experienced discomfort that came and went. On the first day of menstruation, most girls reported mild to moderate discomfort, such as sporadic abdominal pain, while a small number reported extreme pain, such as cramps that radiated from hip to hip and lasted for several days.

A seventh-grade counselor at SMPN 31 Semarang was interviewed by researchers along with students. During her observations over the past month, the counselor observed a high frequency of students experiencing menstrual discomfort. Menstrual discomfort is a

common complaint among students, especially on the first day. After experiencing discomfort, students appear to endure it and leave class to rest at the health facility.

2. Research Methods

In October 2025, at SMPN 31 Semarang, researchers used a quantitative approach with an experimental design. Using the Wilcoxon test and a stratified bert sampling approach, the sample consisted of 84 individuals. For this study, we required three things: first, that the participants were female students; second, that they were not using any medication to relieve menstrual discomfort; and third, that they were willing to participate. Female participants who had not yet experienced menstruation or who refused to consume the herbal concoction consisting of turmeric, tamarind, and palm sugar were not included in this study. To measure the intensity of menstrual cramps, researchers used the NRS *(numerical rating scale)*. Ethical review was carried out by the Research Ethics Committee of Widya Husada University Semarang (Reference: 197/EC LPPM/UWHS/XI-2025).

3. Research Result

The following table displays the findings of a survey conducted on female adolescents at SMP 31 Semarang to analyze the impact of taking herbal medicine of tamarind, turmeric, and Javanese sugar.

Table 1. Frequency Distribution of Respondents From Age a.

Age	Frequency (f)	Percentage (%)
10-14 years	27	84.4
15-17 years	5	15.6
Total	32	100.0

In the 10–14 age group, 27 respondents (84.4 %) were in the adolescent group, as shown in Table 1 above. The adolescent age group (15–17 years) had the lowest response rate, with only 5 people (15.6 %).

Table 2. Frequency Distribution of Respondents from Menstrual Cycle.

Menstrual Cycle	Frequency (f)	Percentage (%)
Regular	26	81.3
Irregular	6	18.8
Total	32	100.0

Data from Table 2 shows that the majority of respondents (81.3 %) had regular menstrual cycles. Furthermore, six respondents (18.8 %) reported experiencing menstrual pain that did not follow a regular pattern.

Table 3. Frequency Distribution of Respondents Based on Menstrual Duration.

Menstrual Period	Frequency	Presentation
2-3 days	4	12.5
5-8 days	28	87.5
Total	32	100.0

Of the individuals surveyed, 28 (87.5 %) had menstrual periods lasting between five and eight days, as shown in Table 3. In addition, four individuals (12.5 % of the total) had menstrual cycles lasting two to three days.

Table 4. Frequency Distribution of Respondents Based on the Day of Menstrual Pain.

Day Does Menstrual Pain Come ?	Frequency (f)	Percentage(%)
Day 1	10	31.3
Day 2	14	43.8
Day 3	8	25.0
Total	32	100.0

The majority of adolescents who experienced menstrual discomfort on day 1, 2, or 3 are shown in Table 4, which can be seen above. On day 1, specifically, there were 10 individuals (31.1 %). A total of 14 individuals (or 43.8 % of the total) appeared on day 2. Meanwhile, 8 individuals (or 25.0 % of the total) were included in the group who experienced menstrual discomfort starting on day 3.

Table 5. Frequency Distribution of Respondents from Pre-Intervention.

Pre-Intervention	Frequency (f)	Percentage(%)
Moderate pain	11	34.4
Severe pain	21	65.6
Total	32	100.0

As shown in Table 5, twenty-one patients (65.6 % of the total) reported significant discomfort before taking the herbal medicine containing turmeric, tamarind, and palm sugar. Finally, the group reporting the least discomfort consisted of 11 individuals (34.4 %).

Table 6. Frequency Distribution of Respondents from Post Intervention.

Post Intervention	Frequency (f)	Percentage(%)
No pain	3	9.4
Mild pain	25	78.1
moderate pain	4	12.5
Total	32	100.0

A herbal concoction made from turmeric, tamarind, and palm sugar caused mild discomfort in 25 individuals (78.1 %), as seen in Table 6 above. Furthermore, 3 individuals (9.4 % of the total) reported no discomfort, while 4 individuals (12.5% of the total) reported significant pain.

Table 7. The Effect of Consuming Turmeric, Tamarind, and Javanese Sugar Herbal Medicine on Menstrual Pain in Adolescent Girls at SMPN 31 Semarang.

	N	Mean Ranks	Sum of Ranks	P Value	Z
Negative Ranks	31 [a]	16.00	496.00	.000	-4.928 [b]
Positive Ranks	0 [b]	.00	.00		
Ties	1 [c]				
Total	32				

According to the data in Table 7, the intervention successfully relieved menstrual pain in 31 respondents (with an average rating of 16.00), as shown by the Negative Rating above. One respondent did not experience any change in pain levels after the intervention. The extent of menstrual discomfort experienced by respondents may be influenced by many other circumstances or health problems. At SMPN 31 Semarang, adolescent girls experienced a significant reduction in menstrual pain after consuming herbal medicine containing turmeric, tamarind, and palm sugar. The p-value was 0.000 ($p < 0.5$), and there was no difference between the pre- and post-test measurements, indicating no effect. This means that out of a total of thirty-two respondents, one reported improvement or reduction in discomfort.

Discussion

Age

Of the 27 female adolescents surveyed (84.4 % of the total) who reported menstrual discomfort in October 2025 at SMPN 31 Semarang, most were in the 10-14 age group. However, with only 5 respondents (15.6 % of the total), the adolescent group had the lowest response rate.

According to this data, one of the most prominent risk factors for menstrual discomfort is age. Therefore, the peak age for dysmenorrhea in girls is between twelve and fifteen years of age. This aligns with research findings (Astawan, 2022), which found that age between 11 and 14 years is a factor that can influence attitudes and actions when making choices. Menstrual discomfort, or dysmenorrhea, in girls can be influenced by age, which influences more than just attitudes and behavior.

The study's findings were based on the participants' ages, which ranged from 11 to 15 years. The study found that compared to older women, younger women were more likely to experience menstrual discomfort due to a smaller cervix that occurs when a woman first begins menstruating. Consistent with other research (Firdausi, 2020) , these findings suggest that dysmenorrhea becomes less common as women age due to cervical dilation caused by heavier menstruation. Fifteen female students (57.7 % of the total) reported experiencing menstrual discomfort, while eleven female students (42.5% of the total) reported experiencing it at other times. These findings suggest that dysmenorrhea most commonly occurs between the first three days of menstruation.

Two participants did not report a decrease in menstrual discomfort, which is consistent with previous research (Susilowati, 2021). Several variables, including advancing age, may be responsible. A person's capacity to experience pain increases with age. This finding was found among female students, with a total of 18 respondents (60% of the total) aged 15 years or younger. This finding is consistent with that of (Suci, 2022), which found that 52.0% of participants experienced menarche between the ages of 12 and 15, with 10.0% reporting menarche at an age below 12 years.

Menstrual Cycle

Among 26 adolescents reporting menstrual discomfort in October 2025 at SMPN 31 Semarang, 81.3% reported regular menstruation. Unexpected menstrual cramps were reported by 6 participants (18.8 %).

These findings suggest that menstruation, especially in adolescent girls, can be a cause of menstrual discomfort. Adolescent girls are more likely to experience menstrual cramps.

Based on the research findings and hypotheses, third-grade female adolescents at Hutama Abdi Husada Health College in Tulungagung showed a substantial correlation between menstrual discomfort and menstrual cycles (Farida, 2019) . This study supports the findings of a study by Dina (2021) , which found a strong correlation between body mass index and menstrual cycle regularity and irregularity. To prevent irregular menstrual cycles from becoming chronic, they must be addressed as soon as possible. It is recommended that people experiencing stress manage their emotions to alleviate factors contributing to their stress. Cortisol production can be normalized through emotional regulation. Their menstrual cycles will become regular and stress levels will decrease as a result. Hormones have an impact on menstrual periods.

Menstrual Period

Among adolescents enrolled at SMPN 31 Semarang in October 2025, 28 students (or 87.5% of the total) experienced periods lasting between five and eight days. Additionally, four students (12.5 % of the total) experienced periods lasting two or three days.

These findings suggest that menstrual duration is associated with an increased likelihood of experiencing menstrual discomfort. Because academic stress can manifest in a variety of ways in junior high school students, hormonal imbalance is a common cause of this condition.

According to a study conducted by (Juvenalda, 2019) , the majority of students in the Nursing Study Program at Ngudi Waluyo Health College (67.1%), or 51 people, had regular menstrual cycles. The study findings showed that 25 students (92.6%) had normal menstrual durations, and 19 students (65.5% of the total) with low stress levels had normal menstrual

durations. This is because regular menstruation is more common in students who do not experience stress, as this condition is associated with hormonal imbalances. Because stress in students can disrupt hormonal balance, which in turn disrupts menstrual patterns, including abnormal menstrual durations, abnormal menstrual durations were most frequently reported by the 13 students (65.0 %) who reported moderate stress levels.

Most respondents (94.3%) have menstrual cycles that last between three and eight days, according to a study of junior high school students in South Sulawesi (Ayu, 2019) . Most high school students (97.5% according to (Firdausi, 2020) also have menstrual periods that last between three and eight days. In addition, according to a study conducted by (Saputre, 2025) , the average duration of a woman's menstrual cycle is three to five days. However, some women experience lighter bleeding after one or two days, while others experience cycles that last up to seven or even eight days.

What Day Does Menstrual Pain Come?

Ten participants (or 31.1% of the total) reported menstrual discomfort on the first day of their period in a study conducted at SMPN 31 Semarang in October 2025, while the majority of adolescents in the study experienced pain on days 2, 3, and 4. Worse still, 14 individuals (43.8 %) reported menstrual discomfort on day 2. Menstrual pain on day 3 was experienced by 8 individuals, or 25.0 % of the total. From these findings, it appears that the number of days between menstrual episodes can influence the frequency of menstrual discomfort, especially in adolescent girls. The likelihood of menstrual cramps is greater in adolescent girls.

This is in line with the views expressed by (Hafizhah, Putri Nabila Ramadhan, 2023) , which states that primary menstrual pain is most noticeable on the first day of menstruation and intensifies on the second and third days due to increased progesterone production. Primary dysmenorrhea can also occur as a result of persistent uterine contractions, which temporarily cut off blood flow to the uterus.

Menstrual pain makes it difficult to engage in regular physical activity. Frequent absences from school or work related to this problem can negatively impact productivity. Menstrual discomfort affects nearly 70% of women of reproductive age, with 10% reporting pain severe enough to interfere with daily life. Menstrual discomfort affects between 70 and 90% of women throughout their teenage years, and it has a significant impact on how adolescents manage their social lives, sports, and schoolwork (Azrida, 2021) .

Menstrual discomfort can be caused by various medical conditions, including uterine tumors, pelvic infections, appendicitis, kidney disorders, digestive organ disorders, endometriosis (abnormal development of the endometrium outside the uterus), and kidney problems (Gustina, 2022) .

The Effect of Consuming Turmeric, Tamarind, and Javanese Sugar Herbal Medicine on Menstrual Pain Before Being Given Herbal Medicine

Among adolescents who experienced menstrual discomfort before taking herbal remedies containing turmeric, tamarind, and palm sugar, 21 (65.6%) reported severe pain as their main symptom.

Adolescents at SMPN 31 Semarang in October 2025 reported high proportions of severe pain (21 participants, or 65.6% of the total) and moderate pain (11 participants, or 34.4% of the total) before consuming an herbal concoction consisting of turmeric, tamarind, and palm sugar. The majority of respondents (21 of 66) reported very severe menstrual pain before consuming the turmeric and tamarind mixture, while eleven of thirty-four reported moderate discomfort.

When tissue is damaged, or is about to be damaged, the result is pain, which is an unpleasant emotional and sensory experience. Pain can be classified based on the patient's language skills and their ability to self-report their discomfort. During the secretory phase, just before menstruation begins, many women experience dysmenorrhea. Prolactin and estrogen hormones both increase at this time. Uterine contractions can be accelerated by the presence of prolactin. Dysmenorrhea also involves prostaglandins (Lestari, 2024) .

The Effect of Consuming Turmeric, Tamarind, and Javanese Sugar Herbal Medicine on Menstrual Pain After Being Given the Herbal Medicine

Study participants included 25 female adolescents (78.1 % of the total) who reported mild discomfort after consuming herbal remedies containing turmeric, tamarind, or palm sugar during menstruation.

This study found that most adolescent girls (25 out of 78.1 %) felt mild discomfort after consuming a herbal concoction consisting of turmeric, tamarind, and palm sugar at SMPN 31 Semarang in October 2025. In addition, three people (or 9.4 % of the total) reported no discomfort, while four people (12.5% of the total) reported quite severe pain. Administering the herbal concoction consisting of turmeric, tamarind, and palm sugar significantly alleviated menstrual discomfort in adolescent girls, according to the findings of this study.

There are many methods for relieving menstrual cramps, including the use of pharmaceutical and non-pharmacological remedies, such as the time-tested practice of herbal remedies (Rahmatika, 2022) . Turmeric and tamarind are two plant compounds known to relieve menstrual discomfort. A turmeric and tamarind drink is an alternative herbal remedy that young women can use to relieve menstrual discomfort. On the first day of menstruation, drink 200 cc of turmeric and tamarind drink (10 g turmeric, 6 g tamarind, 0.25 oz brown sugar, 300 cc boiling water dissolved to 200 cc by boiling, add a pinch of salt after cooling), according to the journal research.

Turmeric contains essential oils and curcumin, which, according to the hypothesis, can relieve dysmenorrhea discomfort by inhibiting prostaglandin production, similar to analgesic drugs. This means that turmeric can relieve menstrual cramps. (Arianti & Milindasari, 2022).

The Effect of Consuming Turmeric, Tamarind, and Javanese Sugar Herbal Medicine on Menstrual Pain in Adolescent Girls at SMPN 31 Semarang

The Wilcoxon test revealed a highly significant relationship between the use of herbal medicines of Javanese sugar, turmeric, and tamarind on menstrual pain in female adolescents at SMPN 31 Semarang (p value = 0.000, mean rank = 16.00).

Menstrual Pain Relief: Thirty-one participants reported reduced menstrual pain after the intervention, with a mean rating of sixteen, indicating that the intervention successfully relieved menstrual pain and discomfort (the score remained the same). One participant reported significant menstrual discomfort both before and after the protocol was implemented. A person's level of menstrual pain can be influenced by various circumstances or other health problems. However, there was a significant shift toward reduced pain levels, indicating that the herbal remedy containing turmeric, tamarind, and palm sugar had an effect on menstrual pain in adolescent girls at SMPN 31 Semarang. The p-value was 0.000 ($p < 0.5$), indicating that the pain reduction was statistically significant, confirming that the intervention successfully relieved pain. There was no change in scores between the pre- and post-test measurements. Simply put, of the 32 participants, 1 did not experience a reduction in pain levels; this may be because each participant responds differently to the intervention. Another possibility that could have contributed to the less than satisfactory findings is if the duration of the intervention was too short.

A p-value of 0.000 ($p<0.05$) indicates that the use of turmeric, tamarind, and palm sugar as natural remedies significantly reduced pain levels in female adolescents attending SMPN 31 Semarang. These findings clearly indicate that treatments including the use of herbal remedies such as turmeric, tamarind, and palm sugar can alleviate menstrual discomfort and minimize its impact on students' ability to concentrate in class. Therefore, natural remedies such as turmeric, tamarind, and palm sugar can alleviate menstrual discomfort, consistent with the findings of this study.

According to this theory, curcumin and essential oils found in turmeric and tamarind are almost as effective as analgesic drugs in relieving the pain of dysmenorrhea and menstrual cramps by blocking pain impulses originating from the pain cortex of the medulla oblongata and inhibiting the formation of prostaglandins through a biosynthetic mechanism. (Ariantil & Milindasari, 2022) and (Husna, 2021)

There is some evidence that a drink made from turmeric and tamarind helps relieve menstrual pain, further strengthening these findings. The two main ingredients in this preparation method are tamarind and turmeric. A turmeric and tamarind decoction is one method

for this. Traditional medicine widely uses this turmeric and tamarind infusion due to its numerous beneficial properties. The phenolic components in the turmeric and tamarind decoction provide antioxidant action; it also helps with inflammation, pain, bacteria, and blood purification.

These results are consistent with research findings (Nisa, 2024) , which found that menstrual discomfort in adolescent girls was significantly reduced after consuming turmeric, tamarind, and brown sugar. The initial pain assessment showed a pain level of 6, indicating significant discomfort, according to the Numerical Rating Scale (NRS). The pain score dropped dramatically to 0 after a three-day intervention with 100 cc of an herbal concoction of tamarind, turmeric, and brown sugar. Turmeric, tamarind, and brown sugar work together to relieve menstrual discomfort.

This is consistent with the findings of a study (Rahmatika, 2022) , which found an average pain scale score of 3.50 before and 1.46 after administering a turmeric and tamarind drink. Therefore, the null hypothesis (Ho) is rejected in this study, as the P-value analysis was 0.000 < 0.05. This indicates that the turmeric and tamarind drink has an effect on alleviating dysmenorrhea, or menstrual discomfort, in adolescent girls.

This is also supported by a study by (Pibryana et al., 2025) which found that menstrual discomfort in adolescent girls was significantly reduced after consuming herbal remedies containing turmeric and tamarind. The pain score was 2.47 before the herbal remedy was administered, indicating mild discomfort; after 150 cc of the herbal remedy was administered once daily, there was no pain at all. For adolescent girls who suffer from severe menstrual cramps, herbal remedies containing turmeric, tamarind, and palm sugar can provide some relief.

Chintya (2021) confirmed this with their research, which found a Wilcoxon test with a p-value of 0.000, or $p < 0.05$. Overall, the average score dropped from 5.0 to 1.06 after administering the turmeric drink. The researchers found that the turmeric drink reduced the severity of menstrual cramps.

This is consistent with the research findings (Selvy, 2022) , which showed that 92 female students in grades X and XI who experienced menstrual discomfort participated in this study, with a purposive sampling sample size of 30 people. A pain measurement sheet from the Numeric Rating Scale was used. Data were analyzed using the Wilcoxon test in a quasi-experimental study that used a non-equivalent group design for pre- and post-tests. The research findings showed that the p-value of 0.000 $<\alpha$ (0.05) indicated that reducing menstrual discomfort was a possible benefit of administering turmeric tamarind drink. The turmeric tamarind drink used in this experiment was in powder form, and contained 8.7 grams of turmeric extract, 1.9 grams of tamarind extract, 25 grams of sugar, and other ingredients. After dissolving, add 200 milliliters of warm water. Take one sachet daily for three days. Eighteen participants (60.0 %) reported moderate menstrual discomfort, seven (23.3%) reported mild pain, and five (16.7%) reported severe pain before drinking the turmeric-tamarind drink. Eighteen (or 60% of the total) reported mild discomfort after drinking the turmeric-tamarind drink; six (20%) reported no pain, and six (20%) reported significant pain. A classic drink, the turmeric-tamarind drink combines the flavor of tamarind with the spice turmeric. This mixture is a potent pain reliever for menstrual cramps due to its high concentration of anthocyanin and curcumin components. The anti-inflammatory properties of turmeric and tamarind help relieve uterine contractions by reducing or suppressing inflammation. Furthermore, turmeric-tamarind is beneficial as an analgesic.

4. Conclusion

According to the Wilcoxon test, adolescent girls at SMPN 31 Semarang who suffer from menstrual pain can benefit greatly from consuming herbal remedies made from turmeric, tamarind, and brown sugar. The study findings showed a statistically significant reduction in pain, with a p-value of 0.000 and a mean score of 16.00 ($p < 0.5$), indicating that the intervention was successful in relieving pain. There was no difference between pre- and post-test measurements for the same score. One respondent out of thirty-two did not report any improvement in pain levels; this finding is likely due to variations in how each participant responded to the intervention. Better findings could also have been achieved if the intervention had not been prolonged for an adequate period. To reduce the use of potentially harmful

medications and increase the use of safe non-pharmacological methods for managing menstrual cramps, this study hopes to demonstrate that schools should play an active role in teaching students about reproductive health.

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