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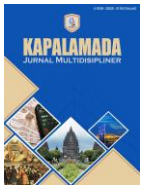

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EFFECTIVENESS OF VIDEO AND LEAFLETS ON KNOWLEDGE AND ATTITUDES IN DYSMENORRHEA SELF-MEDICATION

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Abstract: *Adolescence is a transitional period characterized by rapid physical and psychological development, including the onset of menstruation. Dysmenorrhea is a common problem among adolescent girls and can negatively affect daily activities, academic performance, and quality of life. In Indonesia, menstrual pain remains highly prevalent, as reported by the World Health Organization globally and supported by local studies. This study aimed to determine the effectiveness of video and leaflet educational media in improving knowledge and attitudes regarding self-medication for dysmenorrhea using turmeric and tamarind herbal medicine. A quasi-experimental pretest–posttest control group design was conducted at SMP Negeri 11 Jambi City, Jambi City, Indonesia. Results showed that both media significantly improved knowledge, while no significant difference was found in attitude change between groups. Educational interventions effectively enhance adolescents' understanding of dysmenorrhea management.*

Abstrak: Masa remaja merupakan periode transisi yang ditandai dengan perkembangan fisik dan psikologis yang pesat, termasuk dimulainya menstruasi. Dismenore merupakan masalah umum yang dialami oleh remaja putri dan dapat berdampak negatif terhadap aktivitas sehari-hari, prestasi akademik, serta kualitas hidup. Di Indonesia, nyeri menstruasi masih memiliki prevalensi yang tinggi, sebagaimana dilaporkan secara global oleh World Health Organization dan didukung oleh berbagai penelitian lokal. Penelitian ini bertujuan untuk mengetahui efektivitas media edukasi video dan leaflet dalam meningkatkan pengetahuan dan sikap terkait swamedikasi dismenore menggunakan obat herbal kunyit asam. Penelitian ini menggunakan desain quasi-eksperimental dengan pendekatan pretest–posttest control group yang dilaksanakan di SMP Negeri 11 Kota Jambi, Indonesia. Hasil penelitian menunjukkan bahwa kedua media edukasi secara signifikan meningkatkan pengetahuan, namun tidak terdapat perbedaan yang signifikan dalam perubahan sikap antar kelompok. Intervensi edukasi terbukti efektif dalam meningkatkan pemahaman remaja mengenai penatalaksanaan dismenore.

INTRODUCTION

Adolescence is a crucial transitional phase from childhood to adulthood, marked by rapid physical, hormonal, psychological, and social growth. In society, adolescents are seen as being somewhere between childhood and adulthood, typically between the ages of 10 and 19 (Pertiwi et al., 2024). One of the main characteristics of puberty in adolescent girls is the start of the menstrual cycle, which indicates that the reproductive system has begun to function (Santiya et al., 2022). Menstruation generally first occurs between the ages of 9 and 15 and continues monthly until women reach menopause around 45 and 55. The menstrual cycle typically lasts 28 days, with bleeding lasting between 3 and 8 days (Rahayu & Karmi, 2024).

During menstruation, most young women experience discomfort in the form of pain in the lower abdomen known as dysmenorrhea (Nadya Lestari et al., 2023). Dysmenorrhea is a common gynecological disorder in adolescents and can disrupt daily activities. This pain is often accompanied by additional symptoms such as nausea, dizziness, and even fainting. This condition can cause discomfort, reduce concentration in school, and increase school absenteeism (Wildayani et al., 2023). Although dysmenorrhea is often considered a normal part of menstruation, severe pain can be an early indicator of certain medical conditions, such as endometriosis, which can potentially affect fertility later in life (Febriani et al., 2024). Dysmenorrhea becomes a serious problem when the pain is so severe that it forces the sufferer to rest completely and stop daily activities for several hours or even several days (Mayangsari et al., 2024). The cramps you experience are caused by uterine contractions, a natural process during menstruation. These cramps generally begin when bleeding begins and last for 32 to 48 hours (Hidayati & Hanifah, 2023).

Medically, dysmenorrhea is divided into two types: primary dysmenorrhea and secondary dysmenorrhea. Primary dysmenorrhea is menstrual pain that is not caused by abnormalities in the reproductive organs, while secondary dysmenorrhea is caused by disorders such as endometriosis, adenomyosis, or uterine fibroids. One of the main causes of primary dysmenorrhea is increased prostaglandin levels during menstruation, which trigger excessive uterine contractions and cause pain (Pada et al., 2024). Data from the World Health Organization (WHO) in 2020 showed that as many as 90% of women in the world experience dysmenorrhea, with 10-16% of them suffering from severe dysmenorrhea ((2020)., n.d.). Several national literature reports the prevalence of dysmenorrhea in women in Indonesia at around 64.25% (54.89% primary dysmenorrhea

and 9.36% secondary dysmenorrhea). This figure is widely cited in local studies such as Asmarani (2020), but raw data from national surveys (Riskesdas/SDKI) supporting this figure has not been found (Asmarani, 2020). Primary dysmenorrhea is a menstrual disorder with a high prevalence in postmenarchal adolescent girls aged 12–20 years (Lghoul et al., 2020).

Official data reports from government agencies regarding primary dysmenorrhea in Jambi Province are not available, but research conducted at the Al-Hafidz Darussalam Islamic Boarding School in Jambi City indicates that as many as 80.6% of adolescent girls experience primary dysmenorrhea (Febrina, 2021). Furthermore, research conducted by Berliani et al. found that 85 of 97 female students (87.6%) at SMPN 26, Jambi City, experienced dysmenorrhea. This previous research data indicates a high incidence of dysmenorrhea among adolescents in Jambi City (Berliani et al., 2024). Based on data from the Jambi City Education Office, SMP Negeri 6 is recorded as the school with the largest number of female students in Jambi City, followed by SMP Negeri 11. However, due to limited access to research permits at SMP Negeri 6, the researchers chose SMP Negeri 11 in Jambi City as the research location. This selection was based on the consideration that SMP Negeri 11 has a large number of female students, including seventh-grade students who met the study's inclusion and exclusion criteria, as well as the school's willingness to collaborate. Therefore, SMP Negeri 11 is considered representative in describing the condition of adolescent girls regarding knowledge and attitudes toward dysmenorrhea in Jambi City.

The selection of junior high school respondents was also based on the consideration that by this age, most adolescent girls have experienced menstruation. This aligns with Fajriani's findings, which indicate that menarche in Indonesia generally occurs between 12 and 13 years of age, the age range identical to that of junior high school students. Therefore, junior high school students are a suitable group to be studied regarding the incidence of dysmenorrhea and its management efforts (Fajriani et al., 2023). Untreated dysmenorrhea has the potential to cause various negative impacts, both physically and psychologically. Recurrent menstrual pain without adequate treatment can develop into more serious pathological conditions, even increasing the risk of morbidity and fertility problems. Furthermore, dysmenorrhea also impacts the psychological aspects of adolescent girls, such as increased emotional tension, excessive anxiety, and discomfort that can disrupt their mental and social stability in carrying out daily activities. Therefore, it is important for adolescent girls to receive appropriate education regarding menstrual

pain management to minimize the physical and emotional impacts of dysmenorrhea (Horman et al., 2021).

Along with the high incidence of dysmenorrhea, many young women choose self-medication or independent treatment without consulting a medical professional (Garnadi et al., 2023). Self-medication is an effort to treat symptoms independently by seeking information on appropriate medications for minor ailments. This option is widely adopted by the public because it increases the affordability of treatment (Mulyani et al., 2025). Although self-medication can be a practical and affordable alternative, if done without adequate knowledge, it can pose a risk of irrational drug use and adverse side effects (Cahya Permata et al., 2023). Lack of understanding about proper self-medication causes many teenagers to consume chemical drugs directly without considering the long-term effects (Mulyani et al., 2025).

The surrounding environment provides herbal plants that have the potential to be used as a natural and safe alternative treatment. Some herbs known to have properties that relieve menstrual pain include turmeric (Curcumae domesticae rhizome), tamarind (Tamarindus indica), ginger (Zingiberis rhizome), and honey. Turmeric contains the active compound curcumin and essential oils that work like analgesics, inhibiting prostaglandin formation and blocking pain impulses. Meanwhile, tamarind contains anthocyanins and tannins that function to reduce muscle cramps in the myometrium during menstruation through a mechanism of action similar to non-steroidal anti-prostaglandin drugs (Sari et al., 2021),(Asroyo et al., 2019). The use of herbal plants is currently still not optimal among teenagers because it is influenced by a lack of knowledge and understanding of the benefits and how to use them, minimal education and counseling, changes in mindset and lifestyle that prioritize modern medicine, as well as limited access and availability of herbal plants in their environment (Wardhana et al., 2022). This situation indicates that adolescents need appropriate, engaging, and easy-to-understand education to understand alternative ways to manage dysmenorrhea independently and correctly, one of which is through the use of turmeric and tamarind herbal medicine. Educational media is an important tool in increasing adolescent knowledge and shaping attitudes regarding self-medication for dysmenorrhea. One medium currently widely used is video. Video is an audio-visual medium that can attract attention because it can convey information through sound, text, visuals, and animation in a more interactive manner (Sri Patnawati, Nilam Noorma, 2023). Apart from videos, leaflets are also a health education medium that is often used because they are simple,

easy to carry, can be read at any time, and allow the recipient of the information to repeat the material provided (Wonomulyo, 2024).

Several previous studies have shown that both media are effective in increasing adolescent understanding. Fitriyani et al. reported that video media significantly improved junior high school students' knowledge and attitudes toward dysmenorrhea. This finding was supported by Fithriyah et al., who demonstrated increased knowledge after education using leaflets. Another study by Patnawati et al. also found that video media is effective in menstrual health education. However, to date, there has been very limited research directly comparing the effectiveness of video and leaflets on students' knowledge and attitudes regarding self-medication for dysmenorrhea using turmeric and tamarind herbal medicine (Widyastutik3), 2023). Adolescents' knowledge of dysmenorrhea remains relatively low. Research by Relica C. et al. found that this low level of knowledge impacts adolescents' attitudes toward managing dysmenorrhea symptoms. Adolescents who receive appropriate education and information demonstrate a more positive, thoughtful, and appropriate response to proper management principles (Relica & Mariyati, 2024).

A person's knowledge plays a crucial role in shaping attitudes and determining decision-making regarding health issues they face. Similarly, adolescents' understanding of dysmenorrhea will influence how they cope with symptoms without underlying health conditions. Adolescents with a good level of knowledge generally demonstrate more appropriate attitudes, while a lack of knowledge can lead to less effective approaches to dysmenorrhea management (Meylawati & Anggraeni, 2021)**.** In the context of nursing, selecting appropriate educational media is a crucial part of health promotion efforts, particularly for adolescents in schools and communities. Educational media such as videos and leaflets can be effective tools for conveying health information. Video, as an audio-visual medium, offers an interactive display suited to adolescent characteristics, thus increasing learning interest, clarifying material, and encouraging independence in managing dysmenorrhea symptoms, while reducing dependence on chemical medications (Edward et al., 2025). Meanwhile, leaflets serve as supporting printed media that are easily accessible and can be read repeatedly, helping to reinforce memory and understanding of material presented verbally or digitally. The combination of these two media has the potential to increase the effectiveness of health education because it can address the diverse learning styles of adolescents (Korespondensi & Kunci, 2022). In addition, young women who regularly consume turmeric and tamarind herbal medicine

have a lower risk of experiencing dysmenorrhea compared to those who do not have this habit (Dismenor & Remaja, 2021). Consuming turmeric and tamarind water has a significant effect in relieving dysmenorrhea pain (Nadya Lestari et al., 2023). Based on the results of an initial survey conducted at SMP Negeri 11 Jambi City through interviews with 23 female students consisting of grades VII to IX, it was found that 18 female students did not know what dysmenorrhea was, and 19 female students did not know about turmeric and tamarind herbal medicine as an alternative traditional treatment for dysmenorrhea. In addition, 17 female students admitted to having experienced menstrual pain, with the largest number coming from grade VII as many as 8 female students. These results indicate that many female students still have low knowledge regarding dysmenorrhea and its natural management using turmeric and tamarind herbal medicine. Therefore, this study was conducted to determine the effectiveness of educational media in increasing female students' knowledge and attitudes regarding self-medication for dysmenorrhea using turmeric and tamarind herbal medicine.

METHOD

This study was a quantitative study with a quasi-experimental design using a pretest-posttest control group at SMP Negeri 11 Jambi City in January 2026. The population was 167 seventh-grade female students, with a sample of 64 students selected through simple random sampling based on the Slovin formula (e = 10%). The research instrument used a questionnaire on knowledge and attitudes about self-medication for dysmenorrhea with turmeric and tamarind herbal medicine.

Before being analyzed, the data were tested for validity using Pearson Product Moment correlation and declared valid if r-calculated > r-table ($\alpha = 0.05$), and reliability using Cronbach's Alpha with the help of SPSS. Data collection included preparation (permission, instrument preparation and testing, and preparation of video media and leaflets), dividing 64 respondents into intervention (video) and control (leaflet) groups, conducting a pretest, administering the intervention, and conducting a posttest after two weeks. Data were analyzed using SPSS through the stages of editing, coding, entry, and cleaning. Normality tests used the Shapiro–Wilk test, and differences between groups were analyzed using the Mann–Whitney test. Bias control efforts were carried out by separating time/place, prohibiting the distribution of materials, and completing the questionnaires individually and under supervision.

RESULTS AND DISCUSSION

Results

Respondent Characteristic

Table 1. Respondents' Age Characteristics

Characteristic	Intervention		Control	
Age	F	%	F	%
12	14	43.8	16	50
13	17	53.1	16	50
14	1	3.1	–	–
Total	32	100	32	100

Table 1 shows that in the intervention group, the majority of respondents were 13 years old (17 female students) (53.1%), followed by 14 female students aged 12 years (43.8%), and 1 female student aged 14 years (3.1%). In the control group, respondents were 12 years old and 13 years old, respectively, 16 female students (50%). This indicates that the majority of respondents in this study were in the 12–13 year age range, which is included in the early adolescent category.

Univariate Analysis

Table 2. Distribution of Knowledge and Attitude Scores Before and After Intervention

Variables	Group	Time	Good		Fair		Poor		Total
			F	%	F	%	F	%	
Knowledge	Intervention	Pre-test	1	3.1	23	71.9	8	25.0	32
		Post-test	25	78.1	7	21.9	0	0	32
	Control	Pre-test	15	46.9	12	37.5	5	15.6	32
		Post-test	29	90.6	3	9.4	0	0	32
Attitude	Intervention	Pre-test	32	100			0	0	32
		Post-test	32	100			0	0	32
	Control	Pre-test	32	100			0	0	32
		Post-test	32	100			0	0	32

Based on table 3, it can be seen that in the intervention group before the intervention (pre-test) most respondents had a level of knowledge in the sufficient category, namely 23 people (71.9%), the poor category was 8 people (25.0%), and only 1 person (3.1%) was in the good category. After the intervention (post-test), there was an increase in knowledge in the intervention group. Most respondents were in the good category, namely 25 people (78.1%), the sufficient category was 7 people (21.9%), and there were no respondents in the poor category (0%). Meanwhile, in the control group before the study (pre-test) most respondents were in the good category, namely 15 people (46.9%), followed by the sufficient category as many as 12 people (37.5%), and the poor category

as many as 5 people (15.6%). After re-measurement (post-test), most respondents were in the good category, namely 29 people (90.6%), while the sufficient category was 3 people (9.4%), and there were no respondents in the poor category (0%). In general, the results indicate an increase in the knowledge level of respondents in both the intervention and control groups after the post-test.

Regarding the attitude variable in the intervention group, before the intervention (pre-test), all 32 respondents (100%) had a good attitude, with no respondents in the poor attitude category (0%). After the intervention (post-test), the results obtained showed that all 32 respondents remained in the good attitude category, with no respondents in the poor attitude category (0%). In the control group, before the pre-test, all 32 respondents also had a good attitude category, with no respondents in the poor attitude category (0%). The results of the post-test showed that all 32 respondents remained in the good attitude category, with no respondents in the poor attitude category (0%). These results indicate that in both the intervention and control groups, all respondents had a good attitude both before and after the study.

Bivariate Analysis

Table 3. Testing the Differences in Students' Knowledge and Attitudes Before and After the Intervention

Variable	Group	Pre-test	Post-test	Test Statistic (Z)	P-value
Knowledge	Intervention	11.59	15.50	-6.750	0.000
	Control				
Attitude	Intervention	48.88	50.39	-2.557	0.011
	Control				

Based on the results of statistical analysis to determine the differences in knowledge and attitudes of female students before and after the intervention, the Wilcoxon Signed Rank Test was used. The results of the analysis showed that in the intervention group, the average knowledge score before the intervention (pre-test) was 11.59 and increased to 15.50 after the intervention (post-test). The results of the statistical test obtained a Z value = -6.750 with a p-value = 0.000 ($p < 0.05$). This indicates that there is a significant difference in the knowledge of female students before and after the intervention. Furthermore, in the attitude variable, the average attitude score before the intervention (pre-test) was 48.88 and increased to 50.39 after the intervention (post-test). The results of the statistical test showed a Z value = -2.557 with a p-value = 0.011 ($p < 0.05$). This means that there is a significant difference in the attitudes of female students before and after the intervention. Thus, it can be concluded that providing intervention in the form

of video media has an influence on increasing students' knowledge and attitudes in self-medication for dysmenorrhea using turmeric and tamarind herbal medicine.

Table 4. The Effectiveness of Video and Leaflet Media on Students' Knowledge and Attitudes Before and After Intervention

Variable	Group	N	Mean Rank	Z	P-value
Knowledge	Intervention (Video)	32	37.97	-2.377	0.017
	Control (Leaflet)	32	27.03		
Attitude	Intervention (Video)	32	33.02	-0.222	0.824
	Control (Leaflet)	32	31.98		

Based on the Mann–Whitney test results to determine the effect of video and leaflet media on improving students' knowledge and attitudes, a significant difference was found between the two groups in the knowledge gain variable ($Z = -2.377$; $p = 0.017$). The mean rank value indicates that the knowledge gain score in the intervention group was higher than in the other groups. This indicates a difference in knowledge change after the intervention. For the attitude gain variable, the statistical test results showed no significant difference ($Z = -0.222$; $p = 0.824$). The mean rank values for both groups were relatively close, indicating that the attitude changes in both groups were at a statistically similar level. Thus, the results of the study indicate that the intervention had an effect on improving students' knowledge, while no significant difference was found in the attitude variable.

Discussion

Based on the research results, the majority of respondents in both the intervention and control groups were aged 12–13, which falls into the early adolescent category. In the intervention group, the majority of respondents were 13 years old, at 53.1%, while in the control group, the age distribution was relatively balanced, with 50% of respondents between 12 and 13 years old. Furthermore, all respondents in this study were female students, so the characteristics of the respondents in this study were dominated by adolescent girls who had entered puberty and were beginning to experience changes in their reproductive systems. The 12–13 age range represents early adolescence, a transitional period from childhood to adolescence marked by various biological, psychological, and social changes. During this phase, most adolescent girls begin their first menstruation, or menarche. Menstruation that begins in adolescence is often accompanied by complaints of menstrual pain or dysmenorrhea, especially in the first few years after menarche. This condition makes adolescent girls vulnerable to menstrual

disorders, requiring accurate information about reproductive health and how to properly manage dysmenorrhea. Recent research shows that dysmenorrhea is one of the most common menstrual disorders experienced by adolescent girls. A study involving thousands of adolescent girls reported that approximately 60.5% of them experience dysmenorrhea, which can impact their quality of life and daily activities (Li et al., 2023). Furthermore, various studies have shown that dysmenorrhea is common among school-aged adolescents. Another study reported that approximately 67.8% of adolescent girls experience menstrual disorders, with dysmenorrhea being the most common complaint during adolescence (Rizki et al., 2024). This is also supported by research which states that the age of menarche in adolescent girls generally occurs in the age range of around 11-13 years, so that in early adolescence most adolescents begin to experience menstrual cycles and have the potential to experience dysmenorrhea (Article, 2022) .

In terms of impact, dysmenorrhea in adolescents not only causes pain but can also affect daily activities, including schoolwork. Recent research shows that adolescents with dysmenorrhea are more likely to experience activity disruptions such as difficulty concentrating and school absences due to menstrual pain (Cameron et al., 2023). The uniformity of respondent ages across the two groups in this study indicates relatively homogeneous characteristics. Univariate analysis results showed an increase in respondents' knowledge after the educational intervention. In the intervention group, before the education (pre-test), the majority of respondents were in the "fair" category (23 respondents) (71.9%), while 1 respondent (3.1%) had good knowledge and 8 respondents (25.0%). After the intervention (post-test), there was a significant increase in knowledge, with 25 respondents in the "good" category (78.1%), 7 respondents in the "fair" category (21.9%), and no respondents in the "poor" category (0%).

Increased knowledge after health education is common, especially when the material is presented through engaging and easily understood media. Research conducted on adolescent girls showed that providing health education on dysmenorrhea management through video significantly increased knowledge after the intervention compared to before the intervention. This is because visual media can help respondents understand health information more clearly and engagingly, thus facilitating the information-receiving process (Cahyati & Bahtiar, 2025). Furthermore, other research has shown that health education combined with the use of educational media such as leaflets and audiovisual media can increase adolescents' knowledge about dysmenorrhea and how to treat it. Educational media helps simplify health information, making it easier

for school-aged adolescents to understand (Nyoman et al., 2023). A good understanding of dysmenorrhea and how to manage it is crucial for adolescent girls, as it is one of the most common reproductive health issues experienced by adolescents. Dysmenorrhea can disrupt daily activities, such as schoolwork, physical activity, and concentration. Therefore, increasing knowledge about how to manage dysmenorrhea, including the use of non-pharmacological therapies such as turmeric and tamarind herbal medicine, is crucial for adolescent girls (Safitri & Gustina, 2022).

Turmeric and tamarind herbal medicine (jamu kunyit asam) is a traditional remedy widely used by Indonesians to help reduce menstrual pain. The curcumin in turmeric is known to have anti-inflammatory and analgesic properties, which can help inhibit prostaglandin formation, thereby reducing uterine contractions that cause menstrual pain. Therefore, turmeric and tamarind herbal medicine can be a relatively safe and readily available alternative treatment for dysmenorrhea among adolescents (Sutrisno1,Vitri Dyah Herawati2, n.d.). Based on the above description, it can be concluded that the provision of educational media in this study was proven to increase respondents' knowledge regarding self-medication for dysmenorrhea using turmeric and tamarind herbal medicine. This increase in knowledge demonstrates that educational media plays a crucial role in conveying health information to adolescents, thereby helping to increase their understanding and awareness of reproductive health.

The results of the univariate analysis in this study indicated that respondents' attitudes toward self-medication for dysmenorrhea using turmeric and tamarind herbal medicine were in the good category both before and after the intervention. In the intervention group, the pre-test results showed that all 32 respondents (100%) were in the good category, and none were in the poor category (0%). Similar results were obtained in the post-test, where all 32 respondents (100%) remained in the good category. A similar finding was observed in the control group, where all 32 respondents (100%) were in the good category during the pre-test, and none had poor attitudes. After the post-test, all 32 respondents (100%) remained in the good category. Although there was no change categorically, the analysis of average attitude scores showed an increase in respondents' attitude scores after receiving the health education intervention. The average attitude score at the pre-test was 48.88 and increased to 50.39 at the post-test. This increase in scores indicates a tendency for more positive attitudes toward self-medication for dysmenorrhea after respondents received health education. Previous research has shown that health education provided to adolescents can increase positive attitudes toward

preventing and treating reproductive health problems, including menstrual disorders such as dysmenorrhea. Adolescents who receive health education tend to be more open and receptive to the health information provided and are better prepared to implement recommended health behaviors (Eduhealth et al., 2024). Furthermore, other research suggests that providing health education through learning media can influence an individual's affective component because the information conveyed can shape respondents' perceptions and beliefs about a health practice. Information presented clearly and systematically can increase respondents' understanding, thus indirectly influencing their attitudes toward that health behavior (Herlianty et al., 2025). In the context of adolescent reproductive health, education about dysmenorrhea plays a crucial role in improving adolescents' attitudes toward self-management of menstrual pain. Research shows that adolescent girls who have good knowledge about dysmenorrhea tend to have more positive attitudes toward using both pharmacological and non-pharmacological methods of menstrual pain management (Ardela et al., 2024).

This suggests that increased knowledge gained through health education can contribute to the development of better attitudes. Furthermore, other research has shown that the use of health education media can help increase adolescents' acceptance of traditional healing methods as an alternative to addressing health problems. Information conveyed through educational media can increase respondents' trust in the benefits of herbal ingredients used in traditional medicine, including the use of turmeric as a natural ingredient with anti-inflammatory and analgesic effects that can help relieve menstrual pain (Rizki et al., 2024). However, attitude change typically takes longer than knowledge change. Attitudes are formed through repeated internalization of information and experiences, so changes after a single educational intervention tend to be modest. This aligns with research suggesting that attitude change requires ongoing information reinforcement for individuals to truly accept and implement recommended health behaviors (Li et al., 2023).

Based on the results of this study, it can be concluded that providing health education through educational media has the potential to influence respondents' attitudes toward self-medication for dysmenorrhea using turmeric and tamarind herbal medicine. Although the average increase in attitude scores was not significant, the results still indicate a tendency for more positive attitude changes after respondents received health information. This suggests that health education plays a significant role in shaping

adolescent attitudes toward better health behaviors, particularly regarding self-management of dysmenorrhea using traditional medicine.

Analysis using the Mann–Whitney test showed an increase in female students' knowledge regarding self-medication for dysmenorrhea using turmeric and tamarind herbal medicine in the group receiving the video media intervention ($p = 0.017$). Video media can convey information in the form of moving images and sound, thus facilitating the process of information absorption by students. Furthermore, video media presents material simultaneously in audio and visual form, which can increase participants' attention during the learning process, making the information easier to understand and remember. Previous research by Lestiawati et al. stated that video media in health education is effective in increasing adolescent knowledge due to its engaging and easy-to-understand nature (Lestiawati et al., 2024). Dwihestie et al. also found that educational videos made the delivery of material more interactive and engaging, thereby increasing adolescent girls' knowledge of health issues (Tengaran, 2025). Faizaturrahmi and Aprianti added that video media can influence the improvement of adolescents' knowledge and attitudes by facilitating the understanding of the health information presented (Faizaturrahmi & Aprianti, 2024). Theoretically, the simultaneous activation of the senses of sight and hearing in video media helps increase information absorption.

Meanwhile, leaflets are also used as a health education tool. Leaflets convey information in the form of text and static images, allowing participants to learn independently and can serve as a reference for repeated reading. This media can focus participants' attention on specific material and provide them with the opportunity to understand the information gradually. Although they do not involve audio or moving visuals, leaflets remain a useful medium in health education due to their portable nature and ease of distribution. Based on research findings and support from previous literature, both video and leaflets can be used as health education tools (Studi et al., 2025). Video media emphasizes interactive audio-visual engagement, while leaflets allow participants to learn information independently and repeatedly. Both can be optimally utilized to meet the health education needs of adolescents regarding self-medication for dysmenorrhea using turmeric and tamarind herbal medicine.

The Mann–Whitney test for attitude change showed no statistically significant improvement ($p = 0.824$). Although there was variation in the mean rank values, the results did not show statistical significance. This indicates that the interventions in this study did not significantly influence the change in attitudes among respondents. Attitude

is a more complex psychological component than knowledge. Attitude formation involves cognitive, affective, and behavioral tendencies toward an object or phenomenon. Attitude change is not solely determined by information received but is also influenced by personal experience, cultural values, social norms, social environment, and internal individual factors. In the context of adolescent reproductive health, attitudes toward self-medication for dysmenorrhea can be influenced by experiences with menstrual pain, family support, peer influence, and access to health information. Therefore, the process of attitude formation requires time and continuous reinforcement of information. Previous research has shown that health education media, both videos and print media such as leaflets, can influence respondents' attitudes. However, improvements in attitudes do not always occur immediately after providing information in a single intervention. Several studies have shown that attitude change is influenced by an individual's level of understanding, experience, and readiness to receive and internalize the information they receive. This suggests that health education plays a supporting role in attitude formation, but is not the sole determinant of instant attitude change.

CONCLUSION

Based on the results of a study examining the effectiveness of video and leaflet media on students' knowledge and attitudes regarding self-medication for dysmenorrhea using turmeric and tamarind herbal medicine (jamu kunyit asam), it was found that students' knowledge levels before the education varied, indicating that their understanding of dysmenorrhea and how to manage it independently was suboptimal. After the education, both video and leaflet media improved students' knowledge. The video media helped students understand health information more clearly through a presentation that combined visual and audio elements, while the leaflet media presented information concisely and systematically, allowing respondents to review the material.

Meanwhile, students' attitudes toward self-medication for dysmenorrhea before the intervention also varied, indicating that some students did not yet have a strong attitude toward the use of turmeric and tamarind herbal medicine. After the intervention, both media were able to encourage a more positive attitude change. The video media, through its audiovisual presentation, and the leaflet media, through its clear presentation of information, both influenced the formation of more positive attitudes toward self-medication for dysmenorrhea. Statistical analysis showed that the increase in knowledge in both groups was significant, as seen in the Wilcoxon test, while the difference between

video media and leaflets in terms of knowledge increased showed significant results in the Mann–Whitney test. Conversely, for the attitude variable, no significant difference was found between the two media. Thus, educational interventions have an effect on increasing students' knowledge, while changing attitudes requires a more complex process and does not depend solely on the type of educational media used.

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