



Research Article

The Effect of Health Promotion Through the YouTube Digital Platform on Adolescents' Knowledge About Premenstrual Syndrome

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Article Information

Received: 04 December 2025
Revised: 12 January 2026
Accepted: 28 January 2026
Available online: 31 January 2026

Keywords

Adolescent Knowledge; Digital Platform; Health Promotion; Premenstrual Syndrome; Youtube

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Doi

10.35568/healthcare.v8i1.7469

ABSTRACT

Premenstrual syndrome (PMS) is a common condition characterized by physical and emotional symptoms experienced by about adolescent girls before menstruation. Limited knowledge PMS may lead to inadequate awareness and poor management of symptoms. Digital platforms such as YouTube offer accessible and engaging media for health education among adolescents. This study aimed to determine the effect of health promotion delivered through the YouTube digital platform on adolescents' knowledge about premenstrual syndrome (PMS) among students at MTS Al-Falaahiyah, Ganeas District, Sumedang Regency, in 2025. This quantitative study employed a pre-experimental design with a one-group pre-test post-test approach. A total of 93 respondents were selected using total sampling. Data were collected using a structured knowledge questionnaire and analyzed using the Wilcoxon signed-rank test due to non-normal data distribution. The findings showed a significant increase in knowledge scores after the intervention. The mean pre-test score was 56.45, increasing to 88.01 in the post-test. Statistical analysis revealed a significant effect of YouTube-based health promotion on PMS knowledge ($p\text{-value} = 0.000 < 0.05$). Health promotion through the YouTube digital platform effectively increases adolescents' knowledge about PMS. YouTube can serve as a recommended medium for reproductive health education in school settings.

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INTRODUCTION

Premenstrual syndrome (PMS) is a collection of physical, emotional, and behavioral symptoms that occur during the luteal phase and are experienced by most adolescent girls prior to menstruation (Sinaga et al., 2017). These symptoms include breast tenderness, bloating, headaches, fatigue, irritability, and anxiety (Nurbaety et al., 2024). PMS can significantly affect adolescents' quality of life, particularly their learning concentration, interpersonal relationships, and daily functioning (Gurning & Pademme, 2021). Evidence suggests that inadequate knowledge regarding PMS contributes to adolescents' unpreparedness in managing these biological changes, leading them to ignore symptoms demonstrated or fail to adopt appropriate coping strategies.

Globally, PMS is recognized as a prevalent reproductive health issue. Reported prevalence rates include 54.6% in Lebanon, 65.7% in Sri Lanka, 39% in Brazil, 44% in Australia, and 34% in Japan (Fatimah et al., 2016). A large-scale study published in the *Archives of Internal Medicine* found that approximately 90% of women experience PMS symptoms before menstruation (Susanti et al., 2017). In Indonesia, data from the Adolescent-Friendly Health Services (PKRR) in 2020 show that PMS prevalence among women of reproductive age reached 90%, with around 80% reporting symptoms that interfere with daily activities (Sutriawati, 2023). This highlights the need for targeted interventions, especially among adolescents. Knowledge plays a crucial role in the management of PMS.

Limited understanding of the causes, symptoms, prevention, and

management of PMS results in adolescents failing to recognize their condition or take appropriate action. A preliminary study conducted at MTS Al-Falaahiyah revealed that none of the interviewed students understood what PMS was, even though they reported experiencing symptoms such as breast tenderness, changes in appetite, acne, and emotional fluctuations (Daesfi et al., 2024). This indicates a substantial knowledge gap between the symptoms experienced and the students' understanding of PMS.

Although several studies have explored digital media for health promotion, there is limited empirical evidence examining the effectiveness of YouTube-based interventions specifically targeting PMS knowledge among adolescents, particularly within formal school settings. Furthermore, research addressing digital health promotion in religious-based schools remains scarce. This indicates a gap in evidence regarding the use of structured YouTube-based educational interventions to improve PMS knowledge among adolescent girls in such educational contexts. The rapid development of digital technology provides new opportunities to address this gap. Adolescents are among the most active users of digital platforms, making online media a strategic channel for health education. Among various digital platforms, YouTube was selected as the intervention medium in this study due to several considerations. First, YouTube allows the delivery of long-form, structured, and comprehensive audiovisual content, which is particularly suitable for explaining complex health topics such as PMS. Second, YouTube videos can be replayed, paused, and accessed repeatedly, enabling adolescents to learn at their own pace and reinforcing knowledge retention. Third, YouTube content does not disappear within a short time frame, unlike short-video platforms, making it more appropriate for educational purposes (Jamil, 2021). Previous studies have that video-based media is more

effective than printed materials in improving adolescents' knowledge of reproductive health (Fitrianingsih et al., 2018; Hadi, 2017). In Indonesia, YouTube is among the most frequently accessed platforms by adolescents, making it a strategic channel for disseminating health information. Papayungan (Kartini, S. et al., 2021; Papayungan et al., 2025). The novelty of this research lies in its application of YouTube-based health promotion specifically within an Islamic junior high school context (madrasah tsanawiyah), a setting that has been rarely explored in previous PMS education studies (Aldyan et al., 2024).

METHOD

Study Design

This quantitative study employed a pre-experimental one-group pre-test post-test design to assess changes in adolescents' knowledge before and after a YouTube-based health promotion intervention. The study involved all 93 female students in grades VII and VIII at MTS Al-Falaahiyah, selected using total sampling. Data were collected using a validated 15-item questionnaire on premenstrual syndrome knowledge and analyzed using appropriate statistical tests.

Data Collection Instrument

Data were collected using a structured questionnaire adapted from a previously validated instrument developed by Nurul Maulidah. (Maulidah, N 2016) The 15-item PMS Knowledge Questionnaire assesses knowledge about PMS, including definitions, causes, symptoms, and treatment. Answers are scored using the Guttman scale (1 = true, 0 = false). The adopted instrument had previously demonstrated

acceptable validity ($r = 0.478-0.739$) and high reliability (Cronbach's $\alpha = 0.8839$).

Intervention Procedure

The intervention consisted of a health promotion video on PMS delivered through the YouTube digital platform. The educational video covered the definition, causes, symptoms, prevention, and management of PMS. The video was shown twice to ensure comprehension.

Data Collection Procedure

Data collection was conducted on 5 June 2025 at MTS Al-Falaahiyah. Participants first received an explanation of the study objectives and signed informed consent forms. They then completed the pre-test questionnaire, watched the YouTube video intervention twice, participated in a short discussion, and finally completed the post-test questionnaire.

This research has obtained approval from the Faculty of Health Sciences, Sebelas April University, with Approval Number 091/Kep/FIKes-UNSA/III/2025. All research procedures were conducted in accordance with ethical principles to ensure the safety, confidentiality, and protection of individuals.

Data Analysis

Data were analyzed using descriptive and inferential statistics. Descriptive analysis included frequency, percentage, mean, median, minimum, maximum, and standard deviation. A Kolmogorov-Smirnov test was performed to assess data normality, and the results indicated a non-normal distribution for both pre-test and post-test scores. Therefore, the Wilcoxon signed-rank test was used to evaluate differences between pre-test and post-test knowledge scores. A significance level of $\alpha = 0.05$ was applied.

RESULTS

Characteristics of Knowledge Scores

The results of this study indicate an increase in knowledge associated with the pretest and posttest conducted on 93 respondents. Table 1 presents

descriptive statistics of pre-test and post-test knowledge scores related to premenstrual syndrome.. Table 1 presents the descriptive statistics of the pre-test and post-test knowledge scores related to premenstrual syndrome.

Table 1
Descriptive Statistics of Pre-test and Post-test Knowledge Scores

Variable	n	Mean	Median	SD	Min	Max
Pre-test	93	56.45	53	11.423	40	87
Post-test	93	88.01	87	10.629	60	100

Source: Primary Data 2025

The table 1. There was a notable increase in knowledge scores following the intervention. The mean score increased from 56.45 at pre-test to 88.01 at post-test, indicating a substantial improvement in students' understanding of PMS.

Distribution of Knowledge Categories
The distribution of respondents' knowledge levels before and after the intervention is shown in Tables 2.

Table 2
Distribution of Pre-test and Post-Test Knowledge Categories

Pre-test		
Category	Frequency	Percentage
Fair	83	89.2%
Good	10	10.8%
Post-Test		
Category	Frequency	Percentage
Fair	15	16.1%
Good	78	83.9%

Source: Primary Data 2025

The table 2. shows that the Pretest frequency of answers to the knowledge criteria before the intervention showed a score of 83 (89.2%) that was below the criteria. These results indicate that students' knowledge about premenstrual syndrome is still lacking. And table of Post test it can be seen that the frequency of knowledge answer

criteria after the intervention showed good results of 78 (83.9%). From the post-test data above, it shows that students' answers increased after the intervention in the form of health promotion through the YouTube digital platform about premenstrual syndrome. It can be seen from the good criteria before the health promotion, namely 10 (10.8%), and the good criteria increased after the health promotion to 78 (83.9%). These results indicate that students' knowledge is in the good category regarding knowledge about premenstrual syndrome after being shown videos through the YouTube digital platform.

Table 3
Normality Test

Kolmogorov-Smirnov				
	Statistic	N	Sig.	Description
Pre-test	.264	93	.000	Not normal
Post-test	.164	93	.000	Not normal

Source: Primary Data 2025

Based on table 3. it shows that in the significant column (Sig) the pre-test data is 0.000 or less than 0.05, so H_0 is accepted, which means the population is not normally distributed, and in the significant column (sig) the post-test data is 0.000 or less than 0.05, so H_0 is accepted, which means the population is not normally distributed.(B. Raharjo, 2014)

Table 4
Wilcoxon Signed-Rank Test

	N	Mean	Standar Deviasi	P-value
Pre-test	93	56.45	11.423	.000
Post-test	93	88.01	10.629	.000

Source: Primary Data 2025

Based on Table 4, after conducting the Wilcoxon test, it was found that the average score for all 93 female students experienced an increase in knowledge. With a P-value of $0.000 < \alpha 0.05$, it can be concluded that there is a significant influence between adolescent knowledge and the intervention provided, namely health promotion through the digital platform YouTube about premenstrual syndrome.

DISCUSSION

The findings of this study demonstrate that health promotion delivered through the YouTube digital platform significantly increased adolescents' knowledge about premenstrual syndrome (PMS). The mean knowledge score increased substantially from 56.45 in the pre-test to 88.01 in the post-test, and the Wilcoxon signed-rank test confirmed a statistically significant difference ($p = 0.000$). This indicates that the YouTube-based health education intervention was effective in enhancing students' understanding of PMS (Jamil, 2021; Ramadhi, 2023). These findings are consistent with broader evidence showing that foundational knowledge strongly influences health behavior. For example, prior research reported that primary informants had good knowledge about HIV/AIDS recognizing it as a virus attacking the human immune system and transmitted through blood and sexual contact

which directly shaped their health-care behaviors (Nisak et al., 2019). Strengthened community support has also been shown to improve individuals' ability to absorb health information, as demonstrated in the Mijen study, reinforcing that accessible digital platforms like YouTube can effectively increase adolescents' knowledge, including on PMS-related topics (B. B. Raharjo et al., 2016). In contrast, cultural norms and limited access to health information in the Samin community illustrate how restricted educational exposure leads to low health literacy, further supporting the role of widely accessible digital media in improving adolescents' understanding (B. B. Raharjo & Kameo, 2016). Structured health interventions consistently demonstrate improvements in knowledge and preparedness, aligning with the present study's findings that YouTube-based education effectively enhances PMS knowledge among students (B. B. Raharjo et al., 2025).

The improvement in knowledge observed in this study aligns with the theoretical framework of health promotion, particularly the concepts presented in Notoatmodjo's behavioral theory. Knowledge is a predisposing factor influencing health behavior, and increasing adolescents' understanding of PMS plays an essential role in shaping their attitudes and readiness in dealing with menstrual-related changes (Haidar & Apsari, 2020; Notoatmodjo, 2010). The audio-visual nature of YouTube videos supports the multisensory learning process, which enhances comprehension and retention, especially among adolescents who are digital natives (Amelia, D. et al., 2023; Hadi, 2017)

Comparable results have been reported in previous studies. Marlina (2020) found that video-based health education significantly improved knowledge regarding PMS among adolescent girls. Similarly, Kartini et al. (2021) reported that YouTube as an educational

platform led to significant increases in students' awareness of PMS, reinforcing the effectiveness of digital media in reproductive health education (Kartini, S. et al., 2021; Marlina, 2020). These findings support the results of the present study, suggesting that video-based interventions are superior to traditional print-based materials. Audio-visual media offer dynamic visual cues, narration, structured explanations, and contextual examples that make complex concepts easier to understand (Hadi, 2017; Leonita & Jalinus, 2018).

Other studies further strengthen this conclusion. Research by Papayungan et al. (2025) showed that YouTube videos effectively increased students' knowledge of reproductive health topics, emphasizing the role of new media in promoting health literacy (Papayungan et al., 2025). The present study adds to this evidence by demonstrating that digital health education can also be effective within the context of religious-based schools (madrasah), a setting that has not been extensively examined in prior research (Haniv, 2024).

The significant increase in the "good knowledge" category from 10.8% to 83.9%—indicates that the intervention successfully reached its intended target. This improvement suggests that digital platforms such as YouTube may serve as accessible and familiar learning resources for adolescents, who are increasingly exposed to online content (Suharsono et al., 2024; Yusra & Sesmiarni, 2025). Moreover, the structured two-cycle video screening used in this study, followed by a guided discussion session, likely strengthened the learning process by reinforcing key concepts and providing opportunities

for clarification.

From a practical perspective, the findings highlight the potential of YouTube as an alternative or complementary medium for health education in school settings, particularly in areas where access to conventional health education resources may be limited (Aldyan et al., 2024; Amelia, D. et al., 2023). The use of YouTube also offers cost-effective, scalable, and user-friendly advantages, allowing schools to integrate digital content into their health promotion activities (Leonita & Jalinus, 2018).

In addition, the novelty of this study lies in its implementation within an Islamic junior high school setting. This context highlights the adaptability of digital health promotion strategies across different educational environments. The success of the intervention in such a setting indicates that digital platforms can transcend cultural and institutional boundaries, making them valuable tools for widespread reproductive health education (Haniv, 2024).

Despite these strengths, the study has limitations. The pre-experimental design without a control group does not allow the researchers to fully rule out external influences that may have contributed to the observed improvements. (Additionally, the knowledge assessment was performed immediately after the intervention, limiting long-term conclusions about knowledge retention. Future research should include control groups, follow-up assessments, and comparisons of different digital platforms to further examine the effectiveness of digital health education interventions (Denishtany, 2025).

Overall, the findings of this study support the growing body of evidence indicating that YouTube-based health promotion is an effective method for increasing adolescents' knowledge of PMS (Fitrianingsih et al., 2018; Jamil, 2021). The results also provide valuable insights for educators, health professionals,

and policymakers in designing digital-based reproductive health education programs tailored to adolescents' learning needs (Aldyan et al., 2024; Papayungan et al., 2025).

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that health promotion delivered through the YouTube digital platform is effective in increasing adolescents' knowledge about premenstrual syndrome (PMS). The intervention resulted in a substantial and statistically significant improvement in knowledge, with the mean score rising from 56.45 (pre-test) to 88.01 (post-test). The Wilcoxon signed-rank test confirmed that this increase was significant ($p = 0.000$). The majority of students shifted from the "poor" and "fair" knowledge categories to the "good" category after the intervention. These findings indicate that YouTube-based digital health education is a powerful and accessible medium for enhancing understanding of PMS among junior high school students.

The study also demonstrates the feasibility of implementing digital health education within a religious-based school environment, highlighting the adaptability of YouTube as a platform for reproductive health promotion. The structured two-cycle video intervention combined with discussion sessions further enhanced comprehension and retention of key concepts.

Based on the results of this study, several recommendations can be proposed to support the use of digital platforms as effective tools for reproductive health education among adolescents. Schools are encouraged to

adopt YouTube-based educational videos as part of their regular health education curriculum, particularly for topics related to premenstrual syndrome (PMS). Structured video sessions followed by guided discussions may enhance students' comprehension and help reinforce key concepts. Health promotion practitioners should also consider integrating digital media into their community outreach strategies, as the accessibility and appeal of platforms such as YouTube make them suitable for adolescent audiences. Developing culturally appropriate, age-specific, and scientifically accurate educational content is essential to ensure its relevance and impact.

At the policy level, decision-makers are advised to support the broader implementation of digital health education by promoting digital literacy programs and ensuring that schools have adequate access to technology. Policies that encourage the use of credible online resources for health learning may further strengthen adolescents' awareness and knowledge. For researchers, future studies should employ more rigorous designs, such as including control groups or conducting long-term follow-up assessments, to evaluate retention of knowledge over time. Comparative studies involving different digital platforms such as Instagram, TikTok, or dedicated e-learning modules could provide valuable insight into which medium is most effective for various types of health education. By adopting these recommendations, stakeholders can contribute to the development of more effective, engaging, and scalable digital health promotion strategies for adolescents.

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