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TIKTOK-BASED REPRODUCTIVE HEALTH EDUCATION AND ITS IMPACT ON ADOLESCENT KNOWLEDGE AND ATTITUDES

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ABSTRACT
Adolescence is a period of rapid change marked by puberty, which often brings emotional instability and curiosity to explore new experiences. At this stage, adolescents require accurate and age-appropriate information about reproductive health. Adequate knowledge is expected to foster positive attitudes and encourage responsibility in managing their reproductive health. One effective approach to delivering such education is through digital platforms, particularly TikTok, which is widely used among teenagers. This study aimed to examine the effect of reproductive health education delivered through TikTok media on the knowledge and attitudes of students at MA Al Irtiqo' Malang IIBS. The research employed a pre-experimental design with a total of 45 participants. Findings indicated significant improvements in adolescents' knowledge and attitudes following exposure to TikTok-based reproductive health education. Most participants demonstrated good knowledge and a positive attitude after receiving the intervention. The study concludes that TikTok can serve as an effective medium for reproductive health education among adolescents. Continuous efforts are recommended to enhance adolescent participation, integrate classroom and peer-based education, and develop sustainable educational activities related to reproductive health.

Keywords: Adolescent; Reproductive health education; TikTok; Health literacy; Knowledge; Attitudes

INTRODUCTION

Adolescence is a critical period of human development, representing the transition from childhood to adulthood. According to the World Health Organization (WHO), adolescence spans the ages of 10–19 years. During this stage, individuals experience biological, psychological, and social changes (BKKBN & BPS, 2017). Puberty triggers hormonal activity that results in physical transformations (Howard, 2021). These changes can cause emotional instability and curiosity, which may lead adolescents to engage in behaviors they have not previously attempted. One risky behavior is premarital sexual activity, which may result in unintended pregnancy, sexually transmitted infections, sexual violence, or unsafe abortion attempts (Hestiyana et al., 2017).

Data from National Population and Family Planning Board (BKKBN) and Statistics Indonesia (BPS) (2017) indicate that 2.4 million abortions occur annually in Indonesia, with 800,000 cases involving adolescents. Surveys by the Indonesian Child Protection Commission (KPAI) and the Ministry of Health (2017) reveal that among adolescents, 92% reported holding hands, 82% reported kissing, and 63% engaged in petting (Mulati & Lestari, 2019). Moreover, a comparison of 2013 and 2017 data show an increase in premarital sexual activity among Indonesian adolescents from 43% to 62.7% (Ningsih, 2022). One significant factor contributing to risky sexual behavior is the lack of knowledge about reproductive health, particularly in East Java. The 2016 National Medium-Term Development Plan (RPJMN) indicated that adolescent reproductive health knowledge in East Java remains low, with an Adolescent Knowledge Index

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on reproductive health (KRR) of 55.3% and a Fertile Period Knowledge Index of only 30.8% (Kurniasari et al., 2018). This knowledge gap results in 74.89% of adolescents engaging in risky sexual relations, 53.74% of whom engage in these behaviors 1–2 times per week, while only 40.09% use contraception (Rizqiyah, 2018).

Reproductive health encompasses complete physical, mental, and social well-being, not merely the absence of disease or disability, in all aspects related to the reproductive system, its functions, and processes (Galbinur & Defitra, 2021). Adolescents require accurate reproductive health knowledge to understand reproductive processes and the factors influencing them. Adequate knowledge is expected to foster responsible attitudes toward reproductive health (Wardani & Pratiwi, 2022).

To address these issues, the government has implemented adolescent-targeted reproductive health programs, integrated into the Adolescent Health Program (PKR) (Arifah & Aninda, 2022). Additionally, BKKBN runs programs such as GenRe (Planned Generation), PIK-R (Youth Information and Counseling Center), and BKR (Youth Family Development) (Indriyani, 2021), often implemented in schools in collaboration with guidance and counseling teachers (BK) (Wanto & Erawati, 2020). The World Health Organization (WHO) also recommends incorporating reproductive health into health promotion in Indonesia.

Beyond government programs, public health education plays a key role by disseminating health messages to communities, groups, or individuals, aiming to improve knowledge and influence behavior positively (Apriliani & Siregar, 2023). Various educational methods are utilized, including technology-based interventions. One innovative approach is using social media, such as TikTok, as a health education tool (Bower, 2019). TikTok offers short, engaging videos (under 10 minutes) that are easily accessible and free. While primarily an entertainment platform, TikTok is increasingly used for promotion, learning, and online education by individuals, groups, and institutions. With over 1 billion global users, the majority of active TikTok users in Indonesia are teenagers, or Generation Z (Aji & Setiyadi, 2020). Leveraging TikTok's popularity, this platform has significant potential to enhance adolescent knowledge and attitudes regarding reproductive health (Indahsari et al., 2023). Therefore, this study aimed to examine the effect of reproductive health education delivered through TikTok media on the knowledge and attitudes of students.

METHOD

This study employed a pre-experimental one-group pretest-posttest design. The population consisted of all students at MA Al Irtiqo' Malang IIBS. Since the total population comprised 45 students, a total sampling technique was applied, and all students were included as study participants. The school was relatively new and still developing, resulting in a limited population size. Data were collected using a validated and reliable questionnaire. Educational videos on reproductive health were developed and reviewed by material and media experts to ensure their appropriateness for dissemination. The study was conducted in three stages: preparation, implementation, and evaluation. Pre-test questionnaires were administered before the intervention, while post-test questionnaires were completed after students independently accessed TikTok-based reproductive health education videos over six days. Data processing included editing, coding, scoring, and tabulation. Data were analyzed using univariate and bivariate methods, and the Wilcoxon signed-rank test was used to assess changes in adolescents' knowledge and attitudes.

RESULTS AND DISCUSSION

A. GENERAL DATA

Table 1 The frequency distribution of respondents by gender, age, and prior reproductive health information.

No.	Respondent Characteristics	F	%
1.	**Gender**		
	Man	20	44
	Woman	25	56
2.	**Age**		
	<15 Years	0	0
	15-18 Years	45	100
	>18 Years	0	0
3.	**Reproductive Health Information**		
	Yes	45	100
	No	0	0

Source: Research Data, 2024.

Based on Table 1, the majority of respondents were female (56%). All respondents (100%) were aged 15–18 years, and all (100%) had previously received reproductive health information.

B. SPECIAL DATA

Table 2 Frequency distribution of students' knowledge on reproductive health before and after education using TikTok media.

Knowledge	Before		After	
	F	%	F	%
Good	7	15	35	78
Enough	22	49	8	18
Not enough	16	36	2	4
Amount	45	100	45	100

Source: Research Data, 2024.

Based on Table 2, there were notable differences in students' knowledge before and after receiving reproductive health education via TikTok media. The percentage of students in the good knowledge category increased from 15% to 78%, while those in the sufficient category decreased from 49% to 18%, and those in the less category decreased from 36% to 4%. These results indicate a significant improvement in students' knowledge following the educational intervention.

Table 3 Frequency distribution of students' attitudes toward reproductive health before and after education using TikTok media.

Attitude	Before		After	
	F	%	F	%
Positive	23	51	39	87
Negative	22	49	6	13
Amount	45	100	45	100

Source: Research Data, 2024.

Based on Table 3, there were notable changes in students' attitudes before and after receiving reproductive health education via TikTok media. The percentage of students in the cheerful outlook category increased from 51% to 87%, while those in the negative attitude category decreased from 49% to 13%. These results indicate a significant improvement in students' attitudes following the educational intervention.

C. STATISTICAL TEST ANALYSIS

Table 4 Hypothesis testing using the Wilcoxon signed rank test.

Variables	Normality Test		p-value
	Pre-test	Post test	
Knowledge	0.266	0.001	0.000
Attitude	0.154	0.000	0.000

Source: Research Data, 2024.

Before conducting the statistical analysis, the researcher first performed a normality test on the pre-test and post-test data for students' knowledge and attitudes using the Shapiro-Wilk test. This step was important to determine whether the data met the assumptions for parametric testing.

For the knowledge data, the pre-test results indicated that the data were normally distributed ($p=0.266$, $p>0.05$), suggesting that students' initial knowledge levels were reasonably consistent and symmetrical. However, the post-test data were not normally distributed ($p=0.001$, $p<0.05$), indicating that the distribution of knowledge scores after the intervention was skewed. Due to the presence of non-normally distributed data, the researcher used the Wilcoxon signed-rank test, which is a non-parametric test suitable for comparing paired data that do not meet normality assumptions. The results of the Wilcoxon test showed a p-value of 0.000 ($<\alpha=0.05$), which led to the rejection of H_0 and the acceptance of H_a. This finding demonstrates a significant increase in students' knowledge at MA Al Irtiqo' Malang IIBS after receiving reproductive health education via TikTok media. The result confirms that the intervention effectively improved students' understanding of reproductive health topics.

Similarly, for the attitude data, the normality test revealed that the pre-test scores were normally distributed ($p=0.154$, $p>0.05$), indicating consistency in students' initial attitudes toward reproductive health. In contrast, the post-test scores were not normally distributed ($p=0.000$, $p<0.05$), showing variability in students' attitudes after the intervention. Consequently, the Wilcoxon signed-rank test was again applied. The analysis yielded a p-value of 0.000 ($<\alpha=0.05$), indicating a statistically significant improvement in students' attitudes following the provision of health education through TikTok media.

Overall, these findings suggest that the use of TikTok as an educational medium had a positive and measurable effect on both knowledge and attitudes of adolescents. The pre-test results provided a baseline measure, while the post-test results highlighted the effectiveness of the intervention, confirming that short, engaging educational videos on social media platforms can be an effective tool for health education among adolescents. This analysis also underscores

the importance of selecting appropriate statistical methods when dealing with non-normally distributed data to ensure the validity and reliability of the research findings.

DISCUSSION

A. Differences in knowledge before and after being given education using TikTok media about adolescent reproductive health

Based on the knowledge data, there was a noticeable change in respondents' knowledge before and after receiving education on adolescent reproductive health through TikTok media. The pre-test results showed that nearly half of the respondents (49%) were in the sufficient category, while after the intervention, the post-test results indicated that the majority of respondents (78%) were in the good category.

TikTok media can influence respondents by enhancing their knowledge of adolescent reproductive health, which may be affected by several internal and external factors (Ramadhanti, 2022). According to the researcher, internal factors relate to the media itself, including ease of use, video design, duration, selection of colors and illustrations, and the voice and sound used. These internal factors can stimulate external factors in respondents, such as increased interest and motivation for enjoyable learning.

In a study conducted by Muthemainnah et al. (2022), it was found that the knowledge of high school adolescents before receiving education through TikTok media was mostly insufficient, with 27 adolescents (94.4%) in that category. After the intervention, the majority of students (20 adolescents, 71.4%) were in the sufficient category. Similarly, a study by Indahsari et al. (2023) on the effectiveness of TikTok media in increasing knowledge and attitudes about personal hygiene (menstruation) among adolescent girls found a p-value of 0.001, indicating a significant influence of TikTok media on students' knowledge.

Providing education on adolescent reproductive health using TikTok media has been proven to increase knowledge, as reflected in higher post-test scores. However, in this study, two respondents (4%) remained in the poor knowledge category, correctly answering only 11 out of 20 questions. The first respondent was 15 years old and the second was 18 years old, indicating that age does not necessarily determine knowledge levels. Another factor observed was that during post-test data collection, these respondents were not fully focused while completing the questionnaire, which affected their answers. This suggests that the lack of knowledge was primarily due to internal factors within the respondents themselves.

Based on the results of the study and discussion, it can be concluded that providing education through TikTok media is effective in increasing adolescent knowledge. This effectiveness is supported by concise and systematic explanations, clear illustrations, and accompanying audio, which facilitate understanding of the material. However, successful learning also requires respondents' attention and focus during the educational process to ensure that the content is properly comprehended.

B. Differences in attitudes before and after being given education using TikTok media about adolescent reproductive health

Based on the data, there was a noticeable change in respondents' attitudes before and after receiving education on adolescent reproductive health through TikTok media. The pre-test results showed that most respondents (51%) were in the cheerful outlook category, while the post-test results indicated that the majority of respondents (87%) were in the positive category following the intervention.

One of the key factors in shaping attitudes is knowledge. Knowledge is acquired through experience and observation, enabling individuals to understand objects or phenomena, which then influences their attitudes toward them (Darsini et al., 2019). This finding aligns with research conducted by Nurjannah et al. (2023), which examined students' knowledge and attitudes regarding early marriage at Sei Rampah 1's Senior High School. The study showed a significant difference in knowledge and attitudes before and after counseling with TikTok video

media ($p<0.05$), indicating that improvements in attitudes can be influenced by increased knowledge after the intervention.

In addition to knowledge, the media itself is a crucial factor influencing attitudes. Media can generate interest, facilitate the transfer of information, and make complex information easier to understand. This is consistent with the study by Anisa et al. (2022), which found that digital media, specifically TikTok videos, are effective tools that teachers can use in Social Sciences subjects to enhance learning.

Based on the results and discussion above, it can be concluded that providing education through TikTok media is effective in increasing knowledge, which subsequently has a positive impact on improving adolescents' attitudes toward reproductive health. This effectiveness is attributed to TikTok's accessibility, allowing respondents to engage in independent learning anytime and anywhere. However, some respondents remained in the negative attitude category due to certain internal factors that could not be controlled by the researcher.

Although this study followed established procedures, several limitations were encountered during implementation. First, during the development of the educational media, the researcher faced difficulties in finding illustrations that accurately matched the content and in locating a soundproof room for recording the voice-over. Second, uploading the educational videos to TikTok presented challenges due to the high resolution of the videos and the sensitive nature of the content, which caused several uploads to be rejected by the platform.

CONCLUSION

Respondents' knowledge before receiving reproductive health education was nearly half in the sufficient category, while after the intervention, almost all respondents were in the good category. Similarly, respondents' attitudes were mostly positive before the education, and after the intervention, nearly all demonstrated positive attitudes. The analysis of differences in knowledge and attitudes before and after education showed p-values of $0.000 < \alpha=0.05$, indicating significant improvements in both areas. These results demonstrate that reproductive health education using TikTok media is effective in enhancing adolescents' knowledge and attitudes. The observed improvements may be associated with the accessibility, engaging content, and interactive features of TikTok-based educational videos.

Based on these findings, schools may consider integrating digital media into both formal learning and extracurricular activities. Incorporating platforms such as TikTok into educational programs can make learning more engaging and accessible, particularly for adolescent students who are already familiar with social media. Furthermore, education and health authorities can use these findings to promote school-based digital reproductive health programs to expand information dissemination, improve knowledge, and reduce the risk of risky sexual behavior among adolescents. Teacher training in the use of digital media is also essential to ensure effective content delivery. Educators who are trained in creating and facilitating digital learning experiences can better guide students, reinforce understanding, and maintain engagement. Policies supporting the use of digital media in health education can therefore strengthen the overall reproductive health curriculum, enhance adolescents' comprehension, and foster sustained positive attitudes and responsible behavior.

Overall, the findings of this study suggest that digital media, particularly TikTok, can serve as an effective educational tool to support adolescent reproductive health programs. By leveraging technology, schools and policymakers can provide innovative and accessible approaches to learning, helping students gain critical knowledge and develop positive attitudes that may contribute to healthier choices and outcomes in the long term.

Artificial Intelligence (AI) Use Disclosure

The authors used AI tools to assist in grammar editing and language refinement. All ideas, analyses, interpretations, and conclusions are the sole responsibility of the authors. No AI tool was used to generate data, conduct analysis, or replace the authors' critical thinking.

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