

THE EFFECTIVENESS OF SOCIAL MEDIA BASED REPRODUCTIVE HEALTH EDUCATION ON ADOLESCENTS KNOWLEDGE LEVEL

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ABSTRACT

Background: A lack of understanding regarding reproductive health remains a primary trigger for high clinical risks among adolescents in developing countries. In the modern era, digital media offers an alternative space to disseminate education massively. However, its effectiveness is hindered by the prevalence of vulgar content, the digital divide, and rigid conventional school curricula that focus solely on biological and medical threats. **Objective:** This study aims to examine and synthesize scientific literature regarding the effectiveness of structured and participatory digital interventions, as well as to formulate strategies for integrating technology into the formal school system. **Methods:** This study employed a literature review design with a narrative synthesis approach. Article searches were conducted electronically across Google Scholar, PubMed, ScienceDirect, and Sinta databases using specific keywords from recent publication years. Ten articles meeting the inclusion criteria were extracted and analyzed comprehensively. **Results:** The synthesis indicates that structured digital interventions, such as web-based programs, peer discussion spaces, and educational games, effectively improve knowledge and guide safe reproductive health behaviors among adolescents in the long term. Economically, interactive web-based programs are proven to be cost-effective and potentially cost-saving. However, the benefits of this technology remain unequal due to demographic biases favoring urban and wealthier adolescents. **Conclusion:** Digital media holds immense potential to modernize adolescent reproductive health education. To address access disparities and prevent exposure to negative content, valid and participatory digital educational tools must be integrated directly into formal school curricula. This integrated approach is crucial to guarantee safe, engaging, and equitable reproductive health education for all adolescents.

Keywords: Reproductive Health; Adolescents; Social Media, Knowledge Level; Literature Review

INTRODUCTION

WHO emphasized that the fulfillment of the right to reproductive health information is a fundamental right for the younger generation to support the achievement of the SDGs target by 2030 (WHO, 2023). It is hoped that every adolescent will have equal access to valid education to avoid various clinical risks in the future. However, the reality on the ground shows a contrasting gap. Based on global data from UNICEF, millions of adolescents in developing countries still experience reproductive health problems due to high rates of unplanned pregnancies and the transmission of sexually transmitted infections triggered by a lack of

literacy. This gap is exacerbated by the rampant digital information anomaly in cyberspace and uneven inequality of access to technology in the lower layers of society(Putri, 2025).

Protection efforts through education in formal schools have so far not gone as expected. International technical guidance from UNESCO shows that conventional health curricula in the field are considered too rigid and focus only on the cognitive side of biology and the threat of medical diseases, thus failing to meet the emotional needs and social realities of adolescents in real life(UNESCO, 2025). As a result, teens are caught between unsafe public digital spaces and less interactive classrooms. Realizing the complexity of the problem, this research was conducted through a literature review approach to integrate various global scientific evidence related to the effectiveness of the use of structured and participatory digital interventions(Cahyani, Sari and Tasikmalaya, 2025; Surbakti, Dewi and Manurung, 2025). Through this research, a new strategy was formulated to converge technology media into school institutions in order to create a future educational model that is safe, attractive, and fairly accessible to all levels of adolescents(Mayer, 2021).

METHODS

This research was designed using a *literature review* method with a narrative synthesis approach to integrate the results of previous studies on the influence of digital media on adolescent reproductive health behavior and knowledge. The literature search strategy is carried out electronically through several reputable scientific databases, including Google Scholar, PubMed, ScienceDirect, specific journal platforms such as JMIR and BMC, as well as the Sinta national index. The article search process combines specific keywords in Indonesian and English, such as "*social media*", "*digital intervention*", "*sexual and reproductive health*", "*adolescents*", and "*behavior*" by using Boolean operators to ensure the accuracy of search results.

To maintain the relevance and quality of the analysis, the selection of articles is based on strict inclusion and exclusion criteria. The inclusion criteria include original *research* articles with various study designs such as quantitative *cross-sectional*, *randomized controlled trials*, to systematic *review* or *scoping review*). The targeted population was limited to the early adolescent to late adolescent age group, with a range of cutting-edge publications. Meanwhile, the exclusion criteria apply to articles that do not provide *full-text*, articles that do not contain clear abstract data, and articles that focus purely on diseases without addressing aspects of digital educational media or adolescent behavior.

Through the screening process, 10 final articles were obtained that met all eligibility criteria for analysis. The next stage is to systematically extract data into a literature matrix to map the author's name, year of publication, title, method, and core clinical findings of each article. The data that has been collected is then analyzed using narrative synthesis techniques. This process is carried out by grouping field findings based on the main sub-themes, comparing the effectiveness between educational methods, and identifying scientific evidence gaps (*research gaps*) to draw a comprehensive conclusion

RESULTS AND DISCUSSIONS

Based on the literature screening process, as many as ten scientific articles were successfully identified and analyzed in depth. The results of the study show that digital media has a real positive contribution in increasing knowledge and shaping healthier adolescent

reproductive health behaviors. Daily social media access has been proven to encourage adolescents to take disease prevention measures and maintain the health of their reproductive organs(Intan, Wahyu and Safitri, 2026). This positive impact is found to be much stronger, measurable, and lasting in the long term if the information is packaged in the form of intervention programs or *structured* online modules(Guo, Pan, *et al.*, 2025) and (Guo, Xie, *et al.*, 2025)

The appeal of digital education is greatly influenced by the active involvement of adolescents through participatory methods, such as the provision of discussion rooms with peers, *online* consultations with professionals, and the use of educational games (Martin *et al.*, 2020). More than just clinically and behaviorally effective, the latest scientific evidence from economic modeling analysis shows that the implementation of an interactive web-based sexual health program is a very *cost-effective* intervention and even able to save health budgets (*cost-saving*) in the long run through successful prevention of sexually transmitted infections and other complications of reproductive diseases (W. Zhang *et al.*, 2023)

Although digital media offers great potential, the results of the literature synthesis also reveal serious challenges related to the quality, authenticity, and equitable distribution of information in cyberspace. Analysis on public video platforms such as YouTube shows that the digital space is currently still dominated by sexually explicit or vulgar content, while the portion of content that reviews reproductive health education in a healthy and scientific manner is still very minimal(Uhawenimana *et al.*, 2023) . This information reliability problem is reinforced by the fact that much of the digital intervention literature still has methodological limitations, so a rigorous global mapping is needed to filter out truly high-quality digital educational instruments (Meherali *et al.*, 2024). Furthermore, the benefits of social media exposure have not been spread evenly in society, where the positive impact of the internet tends to be felt exclusively by groups of adolescent girls who have a good level of education, live in urban areas, and come from a prosperous economic status(Pradesh *et al.*, 2022).

The condition of information imbalance and digital access gap confirm that formal pathways in schools continue to play a role as the main bulwark of defense in reproductive health education. In Indonesia, schools are recognized by adolescents as the first place where they gain basic knowledge about reproductive health, where they urgently need a special discussion space and place teachers as the most comfortable figures to communicate with (Utamidewi *et al.*, 2025). However, implementation on the ground still shows huge gaps; Conventional curricula in various developing countries are considered too rigid because they only focus on the biological side and the threat of medical risks. Adolescents consistently voice the need for more comprehensive materials, covering emotional and social dimensions, delivered through more interactive and inclusive digital teaching methods (Kabelka *et al.*, 2025)

Table 1. Tabel Matriks Jurnal

Author & Year	Design/Research Methods	Key Results (Key Points of Findings)
Lestari et al. (2026)	Cross-sectional <i>quantitative survey</i> .	The higher the adolescent's access to social media, the better their reproductive health behavior.
Guo et al. (2025)	Cluster <i>Randomized Controlled Trial</i> .	Online-based education programs have successfully improved students' knowledge, attitudes, and behaviors in the long run.
Guo, Xie, dkk.	Systematic review and meta-analysis.	Web-based digital education globally is effective in increasing knowledge, improving attitudes, and directing adolescents' sexual behavior to be safer.
Martin et al.	Systematic <i>Review</i> .	Active participation-based digital interventions (such as peer discussions and game activities) are in high demand among adolescents and are feasible.
Uhawenimana et al. (2023)	Content Analysis on YouTube videos.	Social media is dominated by sexually explicit/vulgar content, while the portion of healthy reproductive health education videos is still very minimal.
Utamidewi et al.	National online survey of internet users.	School is the first place for teenagers to get health information. Teenagers need a special space at school and consider teachers as the most comfortable figure to discuss.
Meherali et al. (2024)	Scientific evidence gap mapping protocol (<i>Evidence Gap Map</i>).	Much of the digital intervention literature still has limited data. Global mapping is needed to filter digital educational instruments that are truly valid and quality.
Kabelka et al. (2025)	A <i>Scoping Review</i> of 66 global studies.	Adolescents in developing countries are dissatisfied with rigid school curricula (only biology/risk focus). They want material on emotional, social, and teaching methods that are interactive.
Saha et al. (2022)	Large-scale quantitative survey (<i>cross-sectional</i>) on 10,425 respondents.	Exposure to social media increases women's health knowledge, but these digital benefits are only felt exclusively by groups that are educated, live in urban areas, and are economically affluent.
Zhang et al.	<i>Model-Based Cost-Effectiveness Analysis</i> .	Interactive web-based sexual health programs have proven to be very <i>cost-effective</i> and <i>cost-saving</i> through the prevention of sexually transmitted diseases in the long term.

An in-depth synthesis of ten global and local digital literature confirms that digital media plays a crucial role in transforming the adolescent reproductive health education landscape. The integration of scientific evidence shows that exposure to information through cyberspace, whether accessed independently through social media or through structured web programs, contributes significantly to increasing knowledge, improving attitudes, and forming safe sexual behaviors in the younger generation (Lestari *et al.*, 2024; Guo, Xie, *et al.*, 2025). In fact, when these digital interventions are interactively packaged and used by a wide range of target populations, the program has proven to be not only clinically effective but also provide significant economic benefits to the health system through its ability to save the state budget (*cost-saving*) due to the success of long-term prevention of sexually transmitted diseases (Y. Zhang *et al.*, 2023). This long-term effectiveness positions health technology (*eHealth*) as a public health promotion instrument that has great potential for mass adoption (Herna Rinayanti, Manurung *et al.*, 2025).

However, behind the massive potential offered by technology, the digital space also brings great challenges that risk obscuring the essence of education itself. The phenomenon in the field shows that there is an anomaly of information on public social media, such as the YouTube platform, which is dominated by sexually explicit or vulgar content compared to healthy and science-based reproductive health education content (Pradesh *et al.*, 2022). This imbalance is exacerbated by the fact that many digital educational instruments circulating in society are developed without rigorous methodology and reporting, thus triggering a global urgency to conduct scientific mapping to filter *digital knowledge translation tools* that are truly valid, safe, and accountable (Ratih Mahendra, Rifa Yanti, Hirza Rahmita, no date). Furthermore, there is an aspect of unequal access justice, where the benefits of exposure to digital media are still exclusive and demographically biased because they tend to only be felt by adolescent girls who are pursuing higher education, living in urban areas, and coming from a prosperous economic status (Pradesh *et al.*, 2022). This digital *divide* is a yellow light that technology has not been able to fully reach marginalized adolescents in rural areas who are actually most vulnerable to reproductive health risks (Sinaga *et al.*, 2024) (Rinayanti *et al.*, 2024).

The limitations of independent digital media in filtering the quality of content and reaching all levels of society fairly place formal school institutions again as the main bulwark of defense. Empirical data shows that schools remain the first and most important institution for adolescents to obtain basic reproductive health information, where the figure of the teacher is seen as the safest and most comfortable figure to discuss in depth (Utamidewi *et al.*, 2025). The challenge is that the formal education system in developing countries is currently considered to fail to meet the real expectations and needs of adolescents. Conventional curriculum applied in schools tends to be rigid, narrow, and scary because it only focuses on the cognitive side of biology and the threat of medical disease alone. On the other hand, adolescents consistently voice the need for a more comprehensive form of approach—touching the emotional, physical, and social aspects in their entirety—and conveyed through participatory, inclusive digital teaching methods that involve active interaction with *peers* (*peer interaction*) and engaging educational games (Kabelka *et al.*, 2025).

Overall, this chapter of discussion crystallizes a new strategic direction: the use of digital technology in the future must no longer run wildly alone in cyberspace, but must be directly converged into the formal school education system (W. Zhang *et al.*, 2023). To break the chain of economic access gap and prevent exposure to graphic content, health practitioners and educators must collaborate to design digital platforms or reproductive health education

applications that are structured, interactive, and culturally sensitive to local culture (Sinaga, 2022). Through this integration step, schools can leverage technology as a modern teaching tool that appeals to adolescents, while technology gains legal umbrella and oversight from schools to guarantee that every adolescent—regardless of their geographic and economic status—receives the right to a scientific, safe, equitable, and equitable reproductive health education (Elna, Novita and Syahradesi, 2025).

CONCLUSIONS

To break the chain of economic access gap and prevent exposure to graphic content, health practitioners and educators must collaborate to design digital platforms or reproductive health education applications that are structured, interactive, and culturally sensitive to local culture. Through this integration step, schools can leverage technology as a modern teaching tool that appeals to adolescents, while technology gains legal umbrella and oversight from schools to guarantee that every adolescent—regardless of their geographic and economic status—receives the right to a scientific, safe, equitable, and equitable reproductive health education.

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