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Effectiveness of the "Intip Aja Kalau Gak Percaya" Application in Improving Adolescents' Knowledge about Premarital and Preconception Health

Alfika Awatiszahro[1*], Betanuari Sabda Nirwana[2], Qotrunnada Aidatil Fitriya[3]
[1,2,3] Midwifery Study Program, Faculty of Health Sciences, Kadiri University, Indonesia
*Corresponding author: alfika90@unik-kediri.ac.id

ABSTRACT

Adolescence is a critical developmental period characterized by rapid physical and psychosocial changes that influence reproductive health behaviors. Limited knowledge about premarital and preconception health contributes to risky behaviors such as early marriage, unplanned pregnancy, and inadequate preparedness for future reproductive roles. Digital media provides an accessible platform for health education among adolescents. To evaluate the effectiveness of the "Intip Aja Kalau Gak Percaya" (Information and Tips for Teenagers to Prevent Premature Marriage and Pregnancy) application in improving adolescents' knowledge regarding premarital and preconception health. his study employed a one-group pre–post experimental design involving 35 adolescents in the Ngasem Community Health Center area, Kediri Regency. The application consists of four main features: educational materials, audiovisual videos, knowledge questionnaires, and premarital–preconception screening, including BMI and anemia assessment. Respondents completed a pre-test, accessed the educational features, and then completed a post-test. Data were analyzed using the Wilcoxon signed-rank test. Before the intervention, 71.6% of adolescents had low knowledge about premarital and preconception health. After the intervention, 80% demonstrated good knowledge. Statistical analysis showed a significant difference between pre-test and post-test scores ($p = 0.000$), indicating that the application effectively improved adolescents' understanding of premarital and preconception health. The "Intip Aja Kalau Gak Percaya" application is effective in enhancing adolescents' knowledge related to premarital and preconception health. Digital educational tools can serve as an innovative strategy to support adolescent reproductive health literacy and help prevent risky behaviors such as early marriage and unplanned pregnancy.

Keywords: adolescent health, digital health application, knowledge, preconception, premarital health

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BACKGROUND

Adolescence is a critical developmental stage characterized by rapid physical, psychosocial, cognitive, and emotional changes that influence the formation of reproductive maturity. During this transitional period, adolescents are highly vulnerable to external influences due to emotional instability, limited reasoning ability, and an ongoing search for identity. These conditions contribute to risky behaviors related to reproductive health, including dating, premarital sexual activity, unplanned pregnancy, and early marriage. Previous studies show that adolescent reproductive health problems remain prominent, such as the low awareness of pregnancy risk from a single sexual encounter (49.5% of girls and 45.5% of boys) (Kiki Rizky Anggraini1, Rosmawati Lubis2, 2023), and the high prevalence of poor reproductive health attitudes (Solisa, Khofi and Awatiszahro, 2023).

Premarital pregnancy among adolescents often leads to early marriage, despite their lack of psychological, social, and physiological readiness (Harvey et al., 2022). Inadequate preparation for premarital and preconception health exposes adolescents to risks such as anemia, chronic energy deficiency (CED), and infectious diseases, which may adversely affect pregnancy outcomes and the health of future offspring (Alfika, Irni, 2024). This is reflected in the increasing number of marriage dispensations, including 15,212 cases in East Java in 2022, with premarital pregnancy being a major contributor (Nur Lutfiana, Widhiyaningrum and Risko Faristiana, 2023). Factors such as low parental supervision, promiscuity, lack of reproductive health knowledge, and negative technological influences further exacerbate these issues (Syafril, Arif and Asmawi, 2024; Erna Kartinaningsih, 2022).

Given adolescents' extensive use of digital devices, mobile-based educational interventions offer a promising approach. Teenagers frequently access information through gadgets, making digital media a strategic platform for health education (Ratnasari, 2018). Digital health applications have been shown to effectively improve adolescent knowledge and attitudes toward reproductive health (Wiyanti et al., 2021; Sari et al., 2022), and counseling has been proven to significantly enhance preconception knowledge (Priani, Afiyanti and Kurniawati, 2019; Andayani et al., 2024).

Based on these conditions, researchers developed the "Intip Aja Kalau Gak Percaya" application (Information and Tips for Teenagers to Prevent Premature Marriage and Pregnancy). This application provides educational materials, videos, questionnaires, and premarital–preconception screening features aimed at improving adolescent knowledge and supporting healthier decision-making related to reproductive health. Through digital counseling and interactive features, this innovation is expected to help adolescents prepare themselves better and reduce the risk of early marriage and unplanned pregnancy.

METHODS

Study Design

This study employed a quasi-experimental one-group pretest–posttest design to assess the effectiveness of the "Intip Aja Kalau Gak Percaya" (Information and Tips for Teenagers to Prevent Premature Marriage and Pregnancy) application in improving adolescents' knowledge regarding premarital and preconception health. This design allows measurement of changes in knowledge before and after the intervention within the same group of respondents.

Study Setting and Population

The research was conducted in the working area of the Ngasem Community Health Center, Kediri Regency. The study population consisted of adolescents residing within the health center's catchment area.

Sampling Technique and Sample Size

The sampling technique used in this study was simple random sampling, involving 35 adolescents who met the inclusion criteria. Prior to the main study, the application was tested

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on 35 other respondents to assess feasibility and usability.

Intervention: "Intip Aja Kalau Gak Percaya" Application

The application was conceptualized by the researchers and developed with the support of IT specialists. It contains four main features:

1. Educational materials in audiovisual PowerPoint format
2. Counseling videos summarizing key concepts
3. Knowledge questionnaires (pretest and posttest)
4. Premarital and preconception screening, including:
   a. Body Mass Index (BMI) calculation
   b. Anemia assessment
   c. Optional inputs for blood sugar, blood pressure, and upper-arm circumference (LILA)
   d. Automated information and personalized health tips based on results

Data Collection Procedure

Respondents accessed the application and completed the following steps:

1. Filling out demographic information and optional health screening data
2. Completing the pretest questionnaire
3. Viewing the educational materials (Features 1 and 2)
4. Completing the posttest questionnaire
5. Receiving automated results, conclusions, and health tips in Feature 4

Data Analysis

Changes in knowledge before and after the intervention were analyzed using the Wilcoxon signed-rank test, as the data did not meet parametric assumptions. A significance level of $p < 0.05$ was applied to determine statistical significance.

RESULTS

Tabel 1. Frequency Distribution Based on Respondents' Age

Respondent Age	Frequency (n)	Percentage (%)
Early Adolescence 10-12 Years	6	17.1%
Middle Teens 13-15	23	65.7%
Late Adolescence 16-18 Years	6	17.1%
Total	35	100%

Table 1 shows that the average respondent was in their mid-teens, at 23 (65.7%). At this age, adolescents begin to think abstractly and logically, but this is still limited. They begin to understand concepts of health, behavioral risks, and the future.

Tabel 2. Frequency Distribution Based on Information Sources on Premarital and Preconception

Resources	Frequency (n)	Percentage (%)
Schools/Teachers	13	37,1%
Social Media/Internet	19	54.3%
Healthcare Professionals(doctors/midwives)	0	0%
Family/Parents	3	8.6%
Total	35	100%

Table 2 shows that, on average, 19 respondents (54.3%) obtained information about premarital and preconception issues from social media. Social media provides a platform for teenagers to express themselves, share opinions, and interact with the community. Teenagers

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can also obtain information from social media or the internet, but they need guidance from parents or teachers.

Table 3. Adolescent Knowledge Levels about Premarital and Preconception before being given the "Intip Aja Kalau Gak Percaya" (Pre-Test) application

Knowledge Categories	Frequency (n)	Percentage (%)
Good	0	0 %
Enough	10	28,6%
Less	25	71,6%
Total	35	100%

Table 3 shows that the average respondent has less knowledge before being given a application “Intip Aja Kalau Gak Percaya” in premarital and preconception, namely 25 respondents or 71.6%. This illustrates that before being educated, most adolescents do not have a thorough understanding of premarital and preconception.

Table 4. Adolescents' Levels of Knowledge about Premarital and Preconception after being given the " Intip Aja Kalau Gak Percaya " application (Post-Test)

Knowledge Categories	Frequency (n)	Percentage (%)
Good	28	80 %
Enough	7	20 %
Less	0	0 %
Total	35	100%

Table 4 shows that the average respondent has good knowledge after being given an application about premarital and preconception, namely 28 respondents or 80%. This illustrates that before being educated, most adolescents do not have a thorough understanding of premarital and preconception.

Table 5. The Effect of the " Intip Aja Kalau Gak Percaya " application on adolescents' knowledge about premarital and preconception

Difference in knowledge average	N	Average	Std Deviation	P value
Pre Test	35	1.29	0.458	0.000
Post Tes	35	2.80	0.406	α = 5%
From	: -5.321			
Positive Ranks	*:* 35			

Table 5 shows that the results of the Statistical Test using wilcoxon obtained a p value of 0.000 smaller than 0.05 and there is an effect of the application "Intip Aja Kalau Gak Percaya" on adolescents' knowledge about premarital and preconception. This study shows that educational interventions through the "Intip Aja Kalau gak Percaya" application improve adolescents' understanding. The majority of respondents who previously had less knowledge at the pre-test stage, experienced an increase in good knowledge. Good knowledge is expected to be able to form positive attitudes and healthy behaviors related to reproductive health in the future.

DISCUSSION

The findings of this study demonstrate a significant improvement in adolescents’ knowledge regarding premarital and preconception health after receiving education through the “Intip Aja Kalau Gak Percaya” application. Before the intervention, the majority of

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respondents displayed low knowledge scores, whereas post-intervention results showed that most adolescents achieved good knowledge levels. The Wilcoxon analysis confirmed a statistically significant difference between pretest and posttest scores, indicating that the application effectively enhances adolescents' understanding.

These results support the view that adolescence is a vulnerable phase in which cognitive development is still progressing, making adolescents susceptible to misinformation and risky reproductive health behaviors (Welina Sebayang, Eva Royani, 2018; Solisa, Khofi and Awatiszahro, 2023). Limited awareness about the consequences of early sexual behavior and the importance of premarital and preconception health is well-documented, as shown by low levels of accurate reproductive health knowledge among adolescents (Kiki Rizky Anggraini1, Rosmawati Lubis2, 2023). Therefore, interventions that provide accessible and accurate information are essential.

Digital health approaches have emerged as powerful tools to improve adolescents' health literacy. Teenagers are digital natives, spending substantial time using mobile devices and accessing information through social media (Freeman, Caldwell and Scott, 2023). As such, mobile-based educational interventions align well with adolescents' learning preferences. This is consistent with studies showing that digital health applications can significantly improve users' knowledge, attitudes, and preventive behaviors (Wiyanti et al., 2021; Sari et al., 2022; Wong et al., 2020). The effectiveness of the "Intip Aja Kalau Gak Percaya" application observed in this study reinforces this evidence.

Moreover, the application's combination of audiovisual materials, videos, interactive questionnaires, and health screening features provides a comprehensive learning experience. Such multimodal education has been shown to enhance information retention and engagement among adolescents. This aligns with research indicating that premarital and preconception education significantly improves knowledge of nutrition, reproductive planning, and stunting prevention (Priani, Afiyanti and Kurniawati, 2019; Andayani et al., 2024).

In addition to increasing knowledge, the application includes BMI and anemia assessments, enabling adolescents to monitor their nutritional and health status. Given that many adolescents adopt unhealthy dietary patterns influenced by fast food trends and technological lifestyles (Erna Kartinaningsih, 2022), such features provide added value by promoting self-awareness and preventive behavior. This is particularly important because poor nutritional and reproductive readiness in adolescence can lead to negative pregnancy outcomes, including anemia, LBW, and stunting (Alfika, Irni, 2024; Lidra Maribeth et al., 2024).

The improvement observed in this study suggests that using digital-based interventions may help mitigate factors contributing to early marriage and premarital pregnancy, such as lack of parental supervision, inadequate reproductive health knowledge, and negative exposure through digital media (Syafril, Arif and Asmawi, 2024; Nur Lutfiana, Widhiyaningrum and Risko Faristiana, 2023). By providing accurate, engaging, and easily accessible information, the application serves as a preventive tool that can guide adolescents toward healthier decision-making.

Overall, the findings indicate that the "Intip Aja Kalau Gak Percaya" application is an effective innovation for improving adolescent reproductive health knowledge. This aligns with global evidence that digital interventions are practical, cost-effective, and scalable solutions for supporting adolescent health literacy. Continued development and wider implementation of similar digital tools may contribute to reducing early marriage, unplanned pregnancy, and adverse reproductive health outcomes among adolescents.

CONCLUSION

This application is a real medium to provide education in helping to increase adolescent knowledge so that teenagers can have healthier behaviors in the hope of avoiding courtship

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behavior, free sex, out-of-wedlock pregnancy and early marriage. This application can help parents, teachers and health workers provide education and assistance to adolescents. This application can be used during teaching and learning activities at schools, counseling at health centers and used by parents to accompany their children directly related to dating, free sex, pregnancy out of wedlock, early marriage, premarital and preconception. Through this application, it is hoped that teenagers have enough ability to get along well and can become qualified teenagers so that they can have an ideal marriage and an ideal pregnancy for the ideal generation. Here is the research procedure.

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