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Original Research

Improving the knowledge women of reproductive age about contraception through use of Klik KB

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ABSTRACT

Background: Family planning is a vital public health initiative aimed at enhancing reproductive health and ensuring sustainable population growth. Despite advancements, knowledge gaps persist, particularly in underserved areas, leading to misconceptions about contraceptive methods. Klik KB, a mobile application by BKKBN, has shown potential in improving contraceptive knowledge, yet its utilization remains limited.
Objective: This study evaluates the effectiveness of the Klik KB application in improving contraceptive knowledge among women of reproductive age.
Method: A pre-experimental one-group pretest-posttest design was employed, involving 30 women aged 15–49 years. Participants completed a structured questionnaire before and after guided use of the Klik KB application. Statistical analysis was performed using the Wilcoxon signed-rank test.
Results: The mean knowledge score significantly increased from 80.32 (SD = 11.82) pretest to 88.17 (SD = 8.74) posttest (p = 0.013). The proportion of participants with good knowledge rose from 70% to 93.3%, while no respondents remained in the poor knowledge category after the intervention.
Conclusion: The Klik KB application effectively improves contraceptive knowledge among women of reproductive age, highlighting its potential as a digital tool for enhancing reproductive health education and outcomes.

1. Introduction

Family planning is a critical public health initiative that aims to improve reproductive health, empower families, and ensure sustainable population growth. According to the World Health Organization (WHO) Expert Committee, family planning involves actions undertaken by couples to address various aspects of reproductive health. These include avoiding unwanted pregnancies, achieving desired births, spacing pregnancies, timing childbirth according to age, and determining the ideal number of children for the family (Ministry of

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Health – Republic of Indonesia, 2021). In Indonesia, family planning programs primarily target Fertile Age Couples, with a specific emphasis on Women of Reproductive Age aged 15–49 years (Ministry of Health – Republic of Indonesia, 2017).

Over the years, Indonesia has made significant strides in adopting modern contraceptive methods. Data from the National Population and Family Planning Agency (Badan Kependudukan dan Keluarga Berencana Nasional [BKKBN]) in 2022 indicate that injectable contraceptives are the most commonly used method (61.9%), followed by pills (13.5%), implants (10.6%), intrauterine devices (IUDs) (7.7%), female sterilization (tubectomy) (3.8%), condoms (2.3%), male sterilization (vasectomy) (0.2%), and the lactational amenorrhea method (0%). In South Kalimantan Province, Banjarmasin recorded 528,050 active family planning participants in 2023, with the majority using injectable contraceptives (34,525 users), followed by pills (23,525 users) and implants (2,676 users). This data reflects a broader trend in Indonesia, where short-term contraceptive methods are more commonly chosen over long-term options (Badan Pusat Stasistik Provinsi Kalimantan Selatan, 2023).

Short-term methods like injectables and pills are often preferred due to their convenience and flexibility. However, their lower effectiveness in controlling pregnancies compared to long-term methods such as IUDs and implants highlights the need for increased awareness and acceptance of long-term contraceptives. The choice of contraceptive method is influenced by several factors, including age, education, socioeconomic status, cultural beliefs, and, importantly, knowledge. Studies have shown that inadequate knowledge about the advantages, disadvantages, and side effects of contraceptive methods limits women's ability to make informed decisions. As noted, increasing awareness and knowledge about contraceptive options is essential to empower women to select the most suitable methods for their needs. Research indicates that while awareness of contraceptive methods is generally high, actual usage often lags due to misconceptions, socioeconomic barriers, and lack of access to information(Brandão et al., 2024; Thakur et al., 2024; Gbuchie et al., 2023).

Despite the efforts of Indonesia's family planning programs, misconceptions and inadequate understanding of contraceptive methods persist, especially in rural and underserved areas. Many women continue to rely on midwives' recommendations without fully understanding their options, while myths and misinformation further complicate their choices (Gafar et al., 2020; Utomo et al., 2023). To address these challenges, innovative

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approaches are required to improve knowledge and facilitate informed decision-making in family planning.

The advancement of digital health technologies offers new opportunities to address gaps in family planning education and services. Mobile applications, such as Klik KB, launched by BKKBN in 2020, have shown promise in improving health literacy, increasing access to services, and addressing barriers like misinformation and limited service availability (BKKBN, 2021). Klik KB provides comprehensive information about contraceptive methods, facilitates consultations with midwives, and enhances access to healthcare providers. Research highlights that improved knowledge about contraceptive options significantly increases their adoption (Antarini, 2021). However, Klik KB's utilization remains limited, as traditional tools like flipcharts are still commonly used, restricting its potential to empower women with accurate and accessible information for informed decision-making.

The Midwife Independent Practice WM, Banjarmasin – Indonesia, offers a crucial setting to evaluate the Klik KB application's effectiveness in improving contraceptive knowledge among women of reproductive age. From September to December 2023, 370 visits were recorded, with most clients choosing injectable contraceptives based on midwife recommendations rather than informed decisions. Interviews with 23 women in February 2024 revealed limited knowledge about contraceptive methods, reliance on rumors, and no prior use of Klik KB. Midwives, as key providers of reproductive health services in Indonesia, can integrate Klik KB into routine counseling to enhance client understanding and decision-making. This study aims to assess the differences in contraceptive knowledge before and after using Klik KB at the clinic, providing valuable insights into the potential of digital health tools to improve family planning education and reproductive health outcomes.

2. Method

Research design

This study employs a quantitative research approach to assess the effectiveness of the Klik KB application in improving contraceptive knowledge among women of reproductive age. The research utilizes a pre-experimental design, specifically the *One-Group Pretest-Posttest Design*. In this design, a single group of participants receives a pretest, followed by an intervention, and then a posttest to measure changes in knowledge levels. This design is

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chosen to evaluate the direct impact of the intervention without a control group, acknowledging the limitation of potential confounding variables.

Respondent

The study population consists of women of reproductive age who visit the Midwife Independent Practice WM in Banjarmasin. A sample size of 30 respondents was selected using a purposive sampling technique to ensure participants meet specific inclusion criteria, such as being literate and having no prior experience with the Klik KB application. The sample size is considered adequate for a preliminary study, given the limited number of pregnant women available during the study period and location. Additionally, the sampling was adjusted based on the participants' ability to use the Klik KB application, and the calculation followed Slovin's formula (Mukti, 2025).

Data collection

Data collection involves administering a structured questionnaire to participants at three stages: a pretest (before the intervention), an intervention phase (introduction and guided use of the Klik KB application), and a posttest (three days after using the application). The questionnaire assesses various aspects of participants' knowledge about contraceptive methods, including their understanding of contraception, such as the definition and purpose of postpartum contraception (1 item); the benefits of contraception, which include the advantages of its use (9 items); the types of contraception, focusing on knowledge about various contraceptive tools and methods available (8 items); the side effects of contraception, highlighting potential drawbacks and harms associated with its use (2 items); the advantages of contraception, covering the benefits and strengths derived from its use (7 items); and the effectiveness of contraception, which measures the efficiency and reliability of contraceptive methods in achieving desired outcomes (5 items). During the intervention phase, participants are provided with detailed guidance on how to use the Klik KB application, including navigating its features, accessing accurate information about contraceptive methods, and applying this knowledge in their decision-making processes.

Data Analysis

Data processing in this study involves six stages: editing, where questionnaires are reviewed for completeness and consistency; scoring, which assigns numerical values to responses based on a scoring system; coding, to categorize responses for data entry; data

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entry, where information is inputted into statistical software; tabulating, to organize data into tables for analysis; and cleaning, to identify and correct errors in the dataset. Data analysis includes presenting categorical data in frequency distribution tables and numerical data as means and standard deviations. Since the data is not normally distributed, the Wilcoxon signed-rank test is used to evaluate differences in knowledge scores before and after the intervention. The analysis is conducted with the assistance of SPSS version 26.

Ethical consideration

This research has received ethical approval from the Research Ethics Commission of Sari Mulia University, Banjarmasin, Indonesia, with approval number 401/KEP-UNISM/VIII/2024. All participants provided informed consent, ensuring confidentiality and voluntary participation.

3. Results

Respondent characteristics

Based on Table 1, the distribution of respondent characteristics shows that the majority of women of childbearing age fall within the age group of 20–35 years, accounting for 23 respondents (76.6%), while the remaining 7 respondents (23.3%) are either younger than 20 years or older than 35 years. Regarding educational background, most respondents (27 individuals or 90%) have attained secondary or higher education, while only 3 respondents (10%) possess lower educational levels. In terms of occupation, 18 respondents (60%) are employed, while the remaining 12 respondents (40%) are housewives. These findings highlight that the sample primarily consists of young, educated women, with a higher proportion engaged in employment.

Table 1. Characteristics of respondents

Characteristics	Frequency (respondent)	Percentage (%)
Age (year)		
20 – 35	23	76.6
<20 or >35	7	23.3
Education		
Lower education	3	10
Secondary and higher education	27	90
Occupation		
Housewife	12	40
Employee	18	60
Total	30	100

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Distribution of knowledge levels before and after using Klik KB

Based on Table 2, the pretest results show that 21 respondents (70%) had a good level of knowledge about contraception, 7 respondents (23.3%) had an average level of knowledge, and 2 respondents (6.7%) had a poor level of knowledge. After the intervention using the Klik KB, the posttest results indicate a significant improvement. A total of 28 respondents (93.3%) demonstrated good knowledge, while 2 respondents (6.7%) exhibited an average level of knowledge. Notably, no respondents fell into the poor knowledge category after the intervention. This suggests that the Klik KB application is effective in improving contraceptive knowledge among women of reproductive age.

Table 2. Comparison of knowledge levels before and after using the Klik KB

Knowledge Level		Frequency	Percentage (%)
Pre-test			
	Good	21	70
	Avarge	7	23.3
	Poor	2	6.7
	Total	30	100
Post-test			
	Good	28	93.3
	Avarge	2	6.7
	Poor	0	0
	Total	30	100

Improvement of knowledge scores before and after using the Klik KB

Table 3 presents the mean knowledge scores of respondents before and after the intervention using the Klik KB application. The pretest mean score was 80.32 with a standard deviation (SD) of 11.82 and a 95% confidence interval (CI) ranging from 75.9 to 84.73. After the intervention, the posttest mean score increased to 88.17 with an SD of 8.74 and a 95% CI between 84.91 and 91.43. The Wilcoxon Signed Ranks Test revealed a statistically significant improvement in knowledge scores, with a p-value of 0.013. These results suggest that the Klik KB application effectively enhances knowledge about contraception among respondents.

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Table 3. Changes in knowledge scores before and after using the Klik KB

Knowledge Score	Mean	SD	95% CI		P-value*
			Lower	Upper	
Pre-test	80.32	11.82	75.9	84.73	0.013
Post-test	88.17	8.74	84.91	91.43	

Notes: SD is standard deviation; CI is coffident inferval; * is Wilcoxon Signed Rangks Test.

4. Discussions

The distribution of respondent characteristics reveals critical insights into the demographic profile of women of childbearing age, which has direct implications for public health interventions. The majority of the participants (76.6%) fall within the 20–35 age group, emphasizing a focus on women within their peak reproductive years. The researchers believe this is related to the productive age and the common timing of marriage in Indonesia, where couples of reproductive age tend to be more active and concerned about planning and managing their pregnancies. On the other hand, at a younger age, Indonesians generally have not yet reached the age of marriage. Meanwhile, those over 35 years old are usually more settled in the fertility programs they are undergoing. Such a concentration aligns with findings from previous studies (Purwanti et al., 2023), which demonstrate that this age group often exhibits a higher receptivity to health programs targeting maternal and child health. Meanwhile, the smaller proportion of respondents under 20 years or over 35 years (23.3%) necessitates a more tailored approach to engage these subgroups effectively.

Education is a critical determinant of health outcomes, as evidenced by the 90% of respondents who attained secondary or higher education. This statistic is consistent with global trends where higher educational attainment correlates with improved health literacy (Albayrak & Arslan, 2024). Health programs targeting contraceptive knowledge and use may find this demographic advantageous due to their baseline level of understanding. Conversely, the 10% with lower educational levels could benefit from simplified and visually-oriented educational materials, ensuring inclusivity in intervention strategies. Addressing such educational disparities is crucial for creating equitable health outcomes.

The occupational status of the respondents indicates that 60% are employed, while 40% are housewives. This balance underscores the need for flexible program delivery methods, such as digital platforms, to accommodate both working women and homemakers. Digital

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interventions, have proven effective in bridging gaps in maternal healthcare (Vetsa et al., 2024), as seen on the Klik KB. These findings highlight the importance of tailoring interventions to the specific socioeconomic contexts of target populations.

The findings underscore the necessity of leveraging the young, educated, and largely employed demographic to maximize the reach and impact of interventions like Klik KB. By designing age-appropriate and context-specific strategies, health practitioners can ensure higher participation rates and improved outcomes. This aligns with recommendations from recent public health reviews that advocate for personalized and community-tailored approaches (Okunlola et al., 2023). Addressing these factors holistically can significantly enhance the success of health programs.

The comparison of knowledge levels before and after using the Klik KB application demonstrates its effectiveness in enhancing contraceptive awareness among women of reproductive age. The pretest data revealed that 70% of respondents possessed good knowledge about contraception, with 23.3% exhibiting average knowledge and 6.7% displaying poor knowledge. Post-intervention results showed a marked improvement, with 93.3% demonstrating good knowledge and only 6.7% retaining average knowledge levels. Notably, no respondents remained in the poor knowledge category, underscoring the application's success in bridging knowledge gaps. These findings resonate with evidence from other digital health initiatives, which report significant knowledge gains through interactive and user-friendly platforms (Choiriyah et al., 2022). Digital tools have consistently been found to play a transformative role in public health education.

The Klik KB ability to address varying levels of baseline knowledge highlights its adaptability and broad appeal. Its design likely incorporates elements of adult learning theory, which prioritizes self-directed and experiential learning—a critical factor in its effectiveness. Future iterations could further enhance outcomes by integrating gamification elements, which have been shown to improve engagement and retention of health information. Additionally, periodic updates and user feedback can sustain its relevance over time.

The statistically significant improvement in knowledge scores before and after using the Klik KB application ($p = 0.013$) demonstrates its efficacy as a digital intervention. The mean pretest score of 80.32 (SD = 11.82) improved to 88.17 (SD = 8.74) post-intervention. These results are consistent with findings from digital health studies, which report similar gains in

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knowledge scores following targeted interventions (Nkabane-Nkholongo et al., 2024). The improvement reflects the potential of digital solutions to address critical health literacy gaps.

The narrowing standard deviation post-intervention suggests a homogenization of knowledge levels among respondents, indicating that the application effectively addresses disparities in baseline understanding. Ensuring equal access to such tools can further amplify their societal impact. The use of the Wilcoxon Signed Ranks Test further validates these findings, providing robust statistical evidence of the intervention's impact. Future studies could explore long-term knowledge retention and behavioral changes, as these are critical for sustained health outcomes. Additionally, longitudinal studies could examine the ripple effects of enhanced knowledge on broader community health metrics.

5. Conclusion

The Klik KB application represents a promising tool for improving contraceptive knowledge among women of reproductive age. By leveraging digital platforms, health practitioners can address disparities and enhance overall health literacy, contributing to better reproductive health outcomes. The scalability and adaptability of such interventions make them valuable assets in contemporary public health strategies.

6. Conflict of interest

All authors declare no conflict of interest.

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