Jurnal Aisyah: Jurnal Ilmu Kesehatan

Volume 11, Issue 1, 03 2026, p. 95-117
ISSN 2502-4825 (print), ISSN 2502-9495 (online)

Digital Educational Media Innovations In Contraceptive Counseling and The Impact On Contraceptive Decision-Making: A Scoping Review

Ulfiana [1*], ***Mufdilah*** [2], ***Anjarwati*** [3]

[1] Master of Midwifery, Aisyiyah University Yogyakarta, Indonesia
[2]Lecturer of Master of Midwifery, Aisyiyah University Yogyakarta, Indonesia
[3]Lecturer of Master of Midwifery, Aisyiyah University Yogyakarta, Indonesia

Corresponding Email: * ulfiaiya08327@gamil.com

Article History

Submitted: *04-01-2025* ***Revision:*** *23-02-2026* ***Published:*** *31-03-2026*

ABSTRACT

Geographical barriers and robust social stigma continue to pose significant obstacles in developing nations to accessing precise reproductive health information. The integration of digital technology into family planning services has emerged as an innovative solution to address this access divide. The objective of this review is to depict the diverse forms of digital educational media innovations in contraceptive counseling and to evaluate their influence on the decision-making process regarding contraceptive use. A systematic search was conducted in the PubMed, Google Scholar, Wiley Online Library, and Cochrane databases as part of a scoping review that adhered to the PRISMA-ScR framework. The JBI Critical Appraisal instrument was employed to evaluate the quality of a total of 12 articles. The synthesis results indicate that digital innovations are implemented in the form of social media edutainment platforms, algorithm-based decision-support applications, and automated text/voice messages. In comparison to conventional methods, these interventions have been demonstrated to substantially enhance health literacy and increase the likelihood of modern contraceptive use by 1.6 to 2.4 times. Although the incorporation of privacy features and the use of local languages has been effective in enhancing women's autonomy, it continues to encounter challenges, such as gender disparities in access to digital devices and limited internet infrastructure. In summary, the incorporation of digital technology has the potential to revolutionize the experience of contraceptive counseling by making it more interactive and personalized. However, it is necessary to employ strategies that are adaptable to local cultural values and social structures in order to guarantee long-term acceptance.

Keywords: Women, Digital Media, Contraceptive, Counseling.

ABSTRAK

Akses terhadap informasi kesehatan reproduksi yang akurat masih menjadi tantangan besar di negara berkembang akibat kendala geografis dan stigma sosial yang kuat. Integrasi teknologi digital dalam layanan keluarga berencana hadir sebagai solusi inovatif untuk mengatasi kesenjangan akses tersebut. Tinjauan ini bertujuan untuk memetakan berbagai bentuk inovasi media edukasi digital dalam konseling kontrasepsi serta menganalisis dampaknya terhadap proses

pengambilan keputusan penggunaan kontrasepsi. Metode yang digunakan adalah scoping review dengan mengikuti kerangka kerja PRISMA-ScR, di mana pencarian sistematis dilakukan pada basis data PubMed, Google Scholar, Wiley Online Library, dan Cochrane. Sebanyak 12 artikel dan dianalisis kualitasnya menggunakan instrumen JBI Critical Appraisal. Hasil sintesis menunjukkan bahwa inovasi digital hadir dalam bentuk pesan teks/suara otomatis, aplikasi pendukung keputusan berbasis algoritma medis, hingga platform edutainment media sosial. Intervensi ini terbukti secara signifikan meningkatkan literasi kesehatan dan peluang penggunaan kontrasepsi modern hingga 1,6 sampai 2,4 kali lipat dibandingkan metode konvensional. Meskipun efektif meningkatkan otonomi perempuan melalui fitur privasi dan penggunaan bahasa lokal, implementasinya masih menghadapi tantangan berupa keterbatasan infrastruktur internet serta dominasi gender dalam penguasaan perangkat digital. Sebagai kesimpulan, integrasi teknologi digital mampu mentransformasi konseling kontrasepsi menjadi lebih interaktif dan personal, namun memerlukan pendekatan yang tanggap terhadap struktur sosial serta nilai- nilai budaya setempat agar dapat diterima secara berkelanjutan.

Kata kunci: *Women, Digital Media, Contraceptive, Counseling*

INTRODUCTION

Family planning (FP) services are an essential health intervention to reduce maternal mortality and ensure safe birth spacing globally. The World Health Organization (WHO, 2023) states that access to contraception is a fundamental human right to support reproductive health and economic empowerment (Meekers et al., 2024). However, millions of women worldwide still face barriers in accessing accurate information, often exacerbated by low health literacy and limited interactive educational media. At the national level, the Indonesian government, through the BKKBN Strategic Plan 2025–2029, has set strengthening family resilience as the main foundation for achieving the vision of Golden Indonesia 2045. This policy prioritizes management transformation by promoting social innovation and more inclusive digital services for the community, thereby emphasizing the importance of equitable access and improving the quality of integrated family planning and reproductive health services across all regions (Athey et al., 2023).

Stephenson et al. (2020) assert that conventional media frequently have restricted access to vulnerable populations, such as communities in remote regions, who necessitate private information. (Cartwright et al., 2022) note that at both national and local levels, one of the main challenges faced is the high rate of unmet need for contraception. In numerous developing countries, the efficacy of family planning messages conveyed through traditional mass media, such as radio and television, has begun to diminish in comparison to digital platforms. (Meherali et al., 2024) Emphasize that the absence of partner involvement in decision-making, the stigma associated with sexual health, and sociocultural issues are substantial obstacles to practice. (D'Souza et al., 2023) and (Scott et al., 2021) further emphasize these challenges. Decision-support tools that can address communication barriers and the myths that propagate within communities are necessary for health workers, including midwives (Stephenson et al., 2020).

The integration of digital health technology, or mHealth, has emerged as an innovative solution to bridge this information divide. Women's self-efficacy and knowledge have been demonstrated to be enhanced by innovations such as interactive mobile applications, personalized advice websites, and innovative educational platforms like TikTok (Sserwanja et al., 2022). Mobile applications and SMS-

based interventions significantly increase the use of postpartum contraceptives by offering reminders and readily accessible consultation channels (Sampson et al., 2023). Additionally, these technologies provide women with the ability to select the most suitable method for their health requirements and personal preferences by utilizing objective decision-support features (Reyes-Martí et al., 2021).

In addition to improving access, digital media offers advantages in terms of confidentiality and user convenience, particularly for populations such as military personnel or adolescents who often avoid face-to-face consultations due to privacy concerns (Ngumbau et al., 2024). However, implementing this technology is not without challenges, such as users' perceptions of application complexity and the need for designs that are centered on local cultural contexts (Mengelkoch et al., 2023). In some contexts, digital interventions also face challenges that require more effective communication strategies to ensure that health messages are not overlooked by users (Kyamulabi et al., 2025). Therefore, the development of such applications must undergo rigorous testing and validation stages to ensure that the available features truly address the needs of users and healthcare providers (Nurcahyani et al., 2023).

The purpose of this evaluation was to illustrate the degree to which digital educational media innovations have been implemented and how they affect the decision-making process for contraceptives in developing countries (Siamalambwa et al., 2025). A scoping review approach was chosen because it is highly appropriate for comprehensively and systematically identifying and mapping literature from various sources and diverse research methods. Through this approach, researchers can provide a comprehensive overview of existing forms of innovation and identify research gaps for the future development of digital health services.

Although several previous reviews have discussed digital health interventions in reproductive health services, most studies have focused only on specific interventions such as mobile applications, SMS reminders, or contraceptive behavior change independently. Existing reviews also predominantly emphasize effectiveness outcomes without comprehensively mapping the characteristics of digital educational media innovations, decision-support mechanisms, sociocultural barriers, and women’s autonomy in developing countries. Furthermore, limited evidence synthesis integrates various forms of digital educational media within a single scoping review framework using the Population–Concept–Context (PCC) approach. Therefore, this scoping review aims to comprehensively map current evidence regarding the forms, characteristics, effectiveness, supporting factors, and implementation barriers of digital educational media innovations in contraceptive counseling in developing countries.

Therefore, this scoping review aims to comprehensively map the current evidence regarding digital educational media innovations in contraceptive counseling and their impact on contraceptive decision-making among reproductive-age women in developing countries. Specifically, this review identifies the characteristics of digital educational media innovations, evaluates their effectiveness in supporting contraceptive decision-making, explores determinant factors influencing technology acceptance, and analyzes barriers affecting implementation sustainability.

Theoretical Framework

This review is guided by two complementary theoretical perspectives: the Health Belief Model (HBM) and the Technology Acceptance Model (TAM).

The Health Belief Model explains that women are more likely to adopt contraceptive methods when they perceive higher benefits, lower barriers, and stronger self-efficacy. Digital educational media can improve these components by providing accessible information, personalized counseling, reminders, and confidential communication channels.

Meanwhile, the Technology Acceptance Model explains that digital health interventions are more likely to be accepted when users perceive them as useful and easy to use. Features such as local language adaptation, user-friendly interfaces, privacy protection, and personalized decision-support systems increase technology acceptance among women in developing countries.

These theoretical frameworks provide analytical guidance for understanding how digital educational media influences contraceptive decision-making and why contextual barriers may affect implementation outcomes.

METHOD

Study Design

This study employed a scoping review methodology following the PRISMA Extension for Scoping Reviews (PRISMA-ScR) guidelines. A scoping review approach was selected because it enables comprehensive mapping of heterogeneous evidence from various study designs regarding digital educational media innovations in contraceptive counseling.

The review protocol was registered in the Open Science Framework (OSF) with DOI: 10.17605/OSF.IO/73NFX to improve methodological transparency.

English Literacy Criteria

The Population, Concept, and Context (PCC) framework was employed in this study to identify articles, establish inclusion and exclusion criteria, and determine which studies were relevant. The review posed the question: "What are the innovative forms of digital educational media in contraceptive counseling, and what is their impact on contraceptive decision-making?"

PCC Framework (open table 1)

- **Population**: Couples of Reproductive Age or users of contraceptive services
- **Concept**: Innovative digital educational media, contraceptive counseling, and decision-making in contraceptive use
- **Context**: In developing countries

Identifying relevant studies

The research queries and objectives serve as the foundation for the search strategy. The researcher establishes the inclusion and exclusion criteria as illustrated in the subsequent table:

Article Inclusion and Exclusion Criteria (Table 2)

A. Article Inclusion Criteria

a) Studies focusing on:
- Couples of reproductive age or potential contraceptive acceptors
- The use of digital educational media for education, counseling, and contraceptive decision-making

b) Original articles with quantitative, qualitative, or mixed-methods research designs

c) Articles published in English or Indonesian that are accessible in full text

d) Studies conducted in developing countries

e) Articles published within the last five years (2020–2025)

B. Article Exclusion Criteria

a) Articles that are not available in full text

b) Articles that are duplicate publications or secondary reviews without new empirical data

Search Strategy

A systematic literature search was conducted between January and March 2025 using PubMed, Wiley Online Library, Cochrane Library, and Google Scholar. Additional gray literature was identified through the WHO website and manual searching of reference lists. The search strategy combined Medical Subject Headings (MeSH) and keywords using Boolean operators:

("women" OR "reproductive women" OR "family planning" OR "fertile couples") AND ("digital media" OR "digital education" OR "mHealth" OR "digital health" OR "digital technology") AND ("contraceptive counseling" OR "contraceptive methods" OR "contraceptive decision-making")

Filters were applied to include:

- Full-text articles
- English or Indonesian language
- Publications from 2020–2025
- Studies conducted in developing countries

Article Screening

The article selection process was conducted in stages and systematically followed the PRISMA guidelines. The selection yielded 660 articles, comprising 438 from PubMed, 200 from Google Scholar, 12 from the Wiley Online Library, and 10 from Cochrane. The next step involved importing these articles into the Mendeley software, and article screening was carried out using Rayyan, which identified 14 duplicate articles (Cherie et al., 2024). The titles and abstracts were screened by the researchers after the duplicates were removed. The initial screening stage was followed by a full-text review of the articles to verify their compliance with the predetermined inclusion and exclusion criteria. Twelve pertinent articles were acquired as a consequence of the screening procedure. Following the PRISMA framework, the article vetting process was conducted, as demonstrated in the PRISMA flow diagram below.

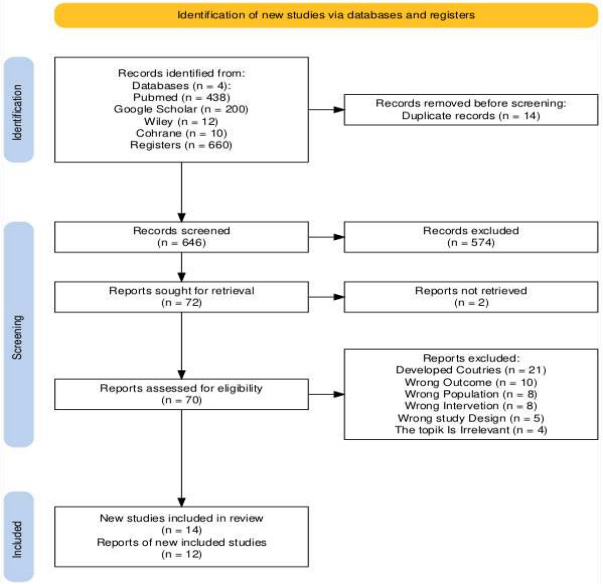


Table 3. Data Extraction

No	Title	Author and Year	Country	Aim of the study	Type of study	Method	Result
A1	Effectiveness of an Interactive Mobile Health Intervention (IMHI) to enhance the adoption of modern contraceptive methods during the early postpartum period among women in the Northeast	Cherie et al. (2024)	Ethiopia	Evaluating the effectiveness of a mobile health (mHealth) intervention in increasing the use of modern contraceptive methods in the early postpartum period	Cluster Randomized Control Trial (RCT)	Generalized Estimating Equations (GEE) marginal model with STATA 17	The results of this study showed that the proportion of contraceptive use in the intervention group (51.6%) was significantly higher than in the control group (38%). Mothers who received the mHealth intervention had a 1.6 times higher likelihood of using contraception (AOR: 1.6; 95% CI: 1.249–2.123; $p < 0.05$).
A2	Leveraging telemedicine to explore	Aga et al. (2025)	Pakistan	To determine the prevalence of	ObservationCross sectional Analysis	Digital surveys integrated into the clinic's	This study found that the prevalence of

	contraceptive use and attitudes among refugee women: an observational cross-sectional analysis		contraceptive use and to assess general perceptions and attitudes towards contraception.		electronic health record (EHR)	contraceptive use among refugees accessing telemedicine reached 68.1%. Short-term methods were the most preferred (condoms 46%, pills 30.7%). Most family planning decisions were still dominated by husbands (71.4%). Joint decision-making with partners and easy access to sexual and reproductive health (SRH) services were identified as key factors for success.
A3	Another voice in the crowd: the challenge of changing family planning and child feeding practices through mHealth messaging in rural central India	Scott et al. (2021) India	Exploring the reasons behind the effectiveness of mHealth messages in increasing uptake	Qualitative (studies attached to randomized control trials/RCTs)	Thematic analysis guided by Bandura's reciprocal determinism theoretical framework	The results of this study indicate that mHealth messages are trusted because they are perceived as a neutral, authoritative voice. However, the messages are filtered through social norms; family planning (FP) advice to delay pregnancy is accepted because it aligns with the family's economic aspirations,

							whereas IYCF recommendations are often ignored. After all, they conflict with the traditional practice of giving water or honey to infants. A technical issue also arises, as husbands often control their wives' mobile phones, preventing messages from reaching them.
A4	Influence TikTok, an Edutainment Platform on Female Students' Awareness And Use Of Contraceptives	G.U. & F.O. (2023)	Nigeria	Analyzing how exposure to "edutainment" content on TikTok influences awareness and practice of contraceptive use among female students.	Quantitative with Survey design	Descriptive statistics (frequency distribution, percentage, and mean score)	The results of this study indicate that the majority of respondents (70%) had a high level of exposure to contraceptive content on TikTok. Seventy-one percent of female students perceived the content as simultaneously educational, informative, and entertaining. The primary motivation for access (84%) was the appeal of the edutainment format, which combines visual and auditory aspects. The study demonstrated that this

							exposure significantly influenced responsible contraceptive use behavior, with an effect size reaching 80% ($p < 0.05$ based on valid data).
A5	Association between exposure to family planning messages on different mass media channels and the utilization of modern contraceptives among young women in Sierra Leone	Sserwanja et al. (2022).	Sierra Leone	Examining the relationship between exposure to family planning messages through various mass media channels and the use of modern contraception in young women.	Quantitative with a national-scale cross-sectional study design	Using SPSS version 25 with DHS sample weights. Using bivariate and multivariate logistic regression to calculate the Adjusted Odds Ratio (AOR).	The results of this study indicate that the prevalence of modern contraceptive use was 24.9%, with a higher rate in urban areas (26.5%) compared to rural areas (23.1%). Exposure to family planning messages through radio (AOR: 1.26) and mobile phones (AOR: 1.84) significantly increased the likelihood of contraceptive use. Internet access was also found to increase the probability of contraceptive use (AOR: 1.45) due to its ability to provide independent education regarding side-effect management. Socio-demographic

							factors such as higher secondary education, employment status, older age (20–24 years), and visits to health facilities within the last 12 months showed a strong positive correlation with contraceptive use. Conversely, marital status was associated with a lower likelihood of contraceptive use (AOR: 0.33).
A6	Effects of Using an Application for Postpartum Contraceptive Use in Family Planning Counseling During Pregnancy	Nurcahyani et al. (2023)	Indonesia	Analyzing the effectiveness of family planning counseling during pregnancy using the application ("Si KB Pintar") on postpartum contraceptive use.	Quasi-experimental with control group design	Two-stage sampling (Random allocation of PHC & simple random sampling). Total: 110 respondents (55 control, 55 intervention)	Increased Odds: Participants who received counseling through the app were 2.4 times more likely (OR = 2, %CI: 1.080, 5.428) to use postpartum contraception compared to those who used conventional flipcharts. Distribution of Use: In the app group, 69.1% of mothers successfully used contraception, compared to only 45.5% in the flipchart group. Significant Factors: In addition to the

							counseling medium (p = 0.021), age significantly influenced family planning decisions (p = 0.039), with both the <20 and ≥35 age groups showing high compliance after the intervention.
A7	Perceptions Toward the Use of Digital Technology for Enhancing Family Planning Services: Focus Group Discussion With Beneficiaries and Key Informative Interview With Midwives	Yousef et al. (2021)	Yordania	Exploring the perceptions of Jordanian women, Syrian refugees, and midwives regarding the use of digital health technology to improve access to family planning services.	Descriptive qualitative	Inductive thematic analysis. Midwife interview transcripts were managed using Qualitative Data Analysis in R (RQDA) software.	This study found that implementing digital technology in family planning services is highly feasible, cost-effective, and well accepted by both service providers and users. Three main themes emerged: the benefits of technology (increasing awareness, cost efficiency, and women's empowerment), concerns (information accuracy, eHealth literacy, and limited internet access), and the characteristics of ideal media.
A8	Women's perceptions about mobile health solutions for selection and	Abrejo et al. (2022)	Pakistan	Exploring the feasibility and acceptability of mHealth interventions	Qualitative Exploratory.	Thematic content analysis using NVivo 11 software for coding data that	The results of this study indicate a high potential for mHealth

	use of family planning methods in Karachi: a feasibility study		for women in low socio-economic areas to increase family planning use.		has been transcribed from Urdu to English	implementation in Pakistan, given the widespread smartphone penetration. Women perceive that mHealth can help overcome barriers such as transportation costs and the limited quality of face-to-face counseling. The use of applications is predicted to increase self-efficacy, confidence in discussing issues with their husbands, and independence from reliance on field officers. From the provider's perspective, the application is also considered capable of making counseling more time-efficient because patients come with better prior knowledge.
A9	The Development of a Mobile Application to Aid and Educate Healthcare Practitioners and Women to Select the Most Appropriate	Hamad et al. (2020)	Yordania	Developing and testing the effectiveness of a mobile application in helping women and healthcare professionals choose the most	Quantitative	Descriptive statistics to measure increased awareness and use of services.	The results of this study show that the use of the application significantly increased women's knowledge of long-acting reversible contraceptive

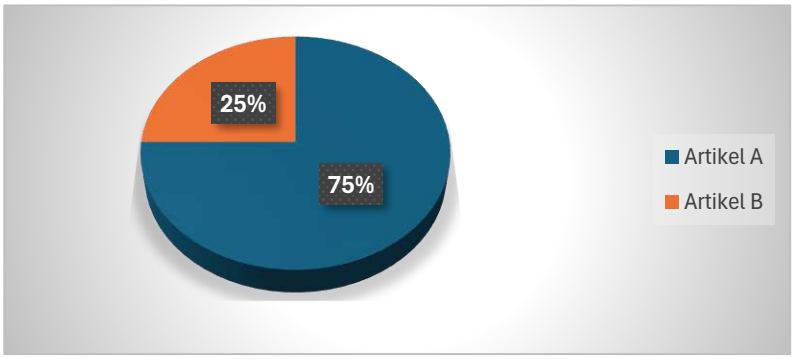
	Method of Contraception		appropriate contraceptive method.			(LARC) methods by 45%. The application also accelerated medical decision-making at the clinical level by using an accurate method-selection algorithm tailored to individual health conditions. **Media Innovation:** This mobile application is the first Arabic app to use an Integrated Decision-Making Algorithm. The innovation lies in its content, which includes a health profile questionnaire that automatically screens out contraindicated contraceptive methods (e.g., women with hypertension are advised not to use combined oral contraceptive pills) through an intelligent digital filtering system.
A10	Creating an Intercultural User-Centric Design for a Digital Sexual	Soehnchen et al. (2023).	Kenya	Designing a user-centered and culturally sensitive sexual health	Qualitative (Double Diamond Model)	Qualitative thematic analysis using the User-Centric	Research has identified significant cultural barriers, including

	Health Education App for Young Women in Resource-Poor Regions of Kenya		education app for young women in resource-poor areas.		Design (UCD) approach.	religious stigma, social taboos, and the dominance of traditional text-based communication. There is an urgent need for digital platforms due to the low level of sexual literacy in school curricula and the prevalence of misinformation (hoaxes) regarding contraception.
A11	Mobile solutions to empower reproductive life planning for women living with HIV in Kenya (MWACh EMPOWER): Protocol for a cluster randomized controlled trial	Ngumbau et al. (2024)	Kenya	Evaluating the effectiveness of digital health interventions (tablet-based decision aids and SMS support) on rates of contraceptive discontinuity, dual method use, and family planning needs fulfillment among women living with HIV (WLWH).	Systematic review and meta-analysis	An intent-to-treat (ITT) analysis to compare outcomes between intervention and control groups. Statistical tests will measure Odds Ratios (OR) for categorical variables and regression models for continuous variables with adjustment at the cluster level.	This study identified the primary outcomes as the proportion of consistent modern contraceptive use and the reduction in the unmet need for family planning. The main focus was to ensure the integration of family planning services into routine HIV care through the use of technology. The media innovation implemented (MWACh EMPOWER) is a patient-centered counseling platform consisting of two main components: (1)

						an Interactive Decision Support Tool (DST) delivered via tablet, which uses a logical algorithm to assist patients in mapping their reproductive goals and selecting appropriate contraceptive methods based on medical eligibility criteria; and (2) a two-way SMS system that provides continuous support for 24 months by sending automated weekly messages.
A12	Addressing barriers to accessing family planning services using mobile technology intervention among internally displaced persons in Abuja, Nigeria	Sampson et al. (2023).	Nigeria	Assessing the impact of the Linking Underserved Populations to Sexual and Reproductive Health Services Intervention on improving sexual and reproductive health services among women of reproductive age in the Wassa internally displaced persons camp	Quasi-experimental (Baseline and Endline Design).	Descriptive statistics and Chi-square inferential test using Stata version 15.	The results of this study indicate that awareness of family planning among WRA in the Wassa refugee camp increased dramatically from 54.2% to 98%. The results showed that approximately half of the respondents (46%) linked awareness of the FP method to the LUPSS implementation of the counseling

	program. The barrier of husband's permission decreased significantly from 29.5% to only 7%. The contraceptive use rate (CPR) increased from 18.1% to 26.2% with the addition of 133 new users during the intervention period ($p < 0.05$).

The quality of the journals was evaluated by examining potential methodological biases or systematic errors in the research after the data was charted. This allowed reviewers to consider the findings in the context of these biases. The JBI, a critical appraisal instrument that is readily available, was employed to evaluate the articles in order to identify the methodological constraints of primary research studies. The Critical Appraisal assessment determined that the selected items were of high quality, with 9 articles receiving a grade of A and 3 receiving a grade of B.



Digaram 1 Analysis by Article Level

The analysis by country revealed that all articles were from developing countries, as per the inclusion criteria of this scoping review. Ethiopia had one article, Pakistan had two, India had one, Nigeria had two, Sierra Leone (Africa) had one, Indonesia had one, Jordan had two, and Kenya had two.

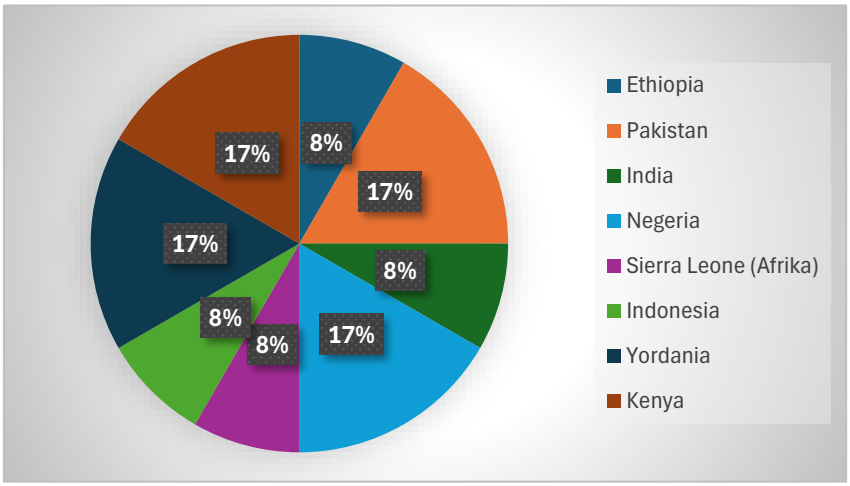


Diagram 2. Analysis by Country Type

Based on the diagram below, the research designs of the 12 included articles comprise 5 qualitative, 3 RCT, 2 cross-sectional, and 2 quasi-experimental studies.

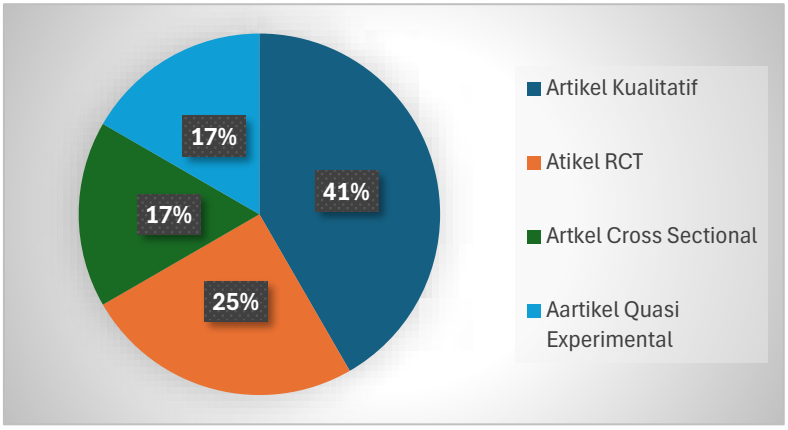


Diagram 3. Analysis based on study type

RESULTS AND DISCUSSION

The findings demonstrate that digital educational media interventions produce varying levels of effectiveness depending on intervention complexity, accessibility, and contextual adaptation. Studies using randomized controlled trial (RCT) and quasi-experimental designs generally reported stronger evidence regarding improvements in contraceptive uptake compared to qualitative studies. The synthesized data included the research focus, key variables, study context, and key findings relevant to digital educational media innovations in contraceptive counseling and their impact on contraceptive decision-making (Abrejo et al., 2022). Based on a review of the 12 included articles, the data synthesis indicates that integrating digital technology into contraceptive counseling in developing countries has created a new paradigm in reproductive health services. This discussion is grouped into four main themes: identifying the characteristics of innovations, their impact on decision-making, supporting factors, and barriers to implementation.

Table 4. Data Theme

No	Main Theme	Subtheme	Article (Code)
1	Identification of Types and Characteristics of Digital Educational Media Innovation	Message-Based Interventions (SMS & Voice Messaging): The use of asynchronous communication for scheduled and interactive education.	A1, A3, A5, A11, A12
		Mobile Application Platform & Decision Support System: Application with a clinical algorithm (Decision Support System) for personalized family planning methods.	A6, A8, A9, A10, A11
		Social Media & Telemedicine: Leveraging TikTok for edutainment and real-time video consultation for special populations such as refugees.	A2, A4, A5, A7
2	Media Effectiveness on Contraceptive Decisions	Increasing Knowledge and Awareness: Transforming health literacy through massive and accurate digital educational content.	A4, A7, A9, A12
		Increased adoption and Continuity of Contraceptive Use: Significant impact on increasing the Contraceptive Prevalence Rate (CPR) and the use of modern methods.	A1, A5, A6, A11, A1
3	Determinant Factors of Technology Acceptance	Accessibility and Personalization: Ease of anonymous access to information, use of local languages, and privacy features for users.	A5, A7, A8, A10
		Women's Empowerment and Autonomy: Increased self-confidence in independent decision-making and negotiations with partners.	A2, A6, A7, A8
4	Barriers to Digital Media Implementation	Infrastructure and Technical Barriers: Limited internet signal, device costs, and digital literacy issues in certain populations	A1, A2, A3, A12
		Sociocultural Norms and Gender Control: Partner (husband) dominance over mobile device ownership, and in contraceptive decision-making, as well as local cultural value barriers.	A1, A2, A3, A12

Theme 1. Identification of Types and Characteristics of Digital Educational Media Innovation,

There are three main forms: asynchronous communication (SMS and Voice Messages); interventions such as the Kilkari program in India and the IMHI program in Ethiopia, which use two-way text and voice messages to provide scheduled and private education. This strategy is effective in reaching areas with limited internet access. Mobile Applications and Decision Support Systems (DSS): Innovations such as the "Si KB Pintar" application in Indonesia or algorithmic systems in Jordan help personalize contraceptive choices based on the user's medical condition (WHO MEC criteria), making counseling more accurate and scientific. Edutainment and Telemedicine Platforms: The use of social media platforms such as TikTok in Nigeria and real-time video consultation services in Pakistan demonstrates a shift toward more interactive, entertaining communication, which young people and refugee populations highly seek.

Theme 2. Media Effectiveness on Contraceptive Decisions

Digital media has been shown to increase health literacy and contraceptive prevalence rates significantly. This means that increased knowledge, gained through exposure to vast amounts of digital content, helps destigmatize reproductive health issues and debunk prevailing myths. Increasing the use of modern contraception: Studies show that mothers exposed to mHealth interventions are up to 1.6 to 2.4 times more likely to use postpartum contraception than those who only receive conventional counseling.

Theme 3. Determinant Factors of Technology Acceptance,

Aspects of personalization and autonomy strongly influence the acceptance of digital technology in family planning. With the implementation of privacy and local-language features, digital media with privacy buttons and local-language support (such as Amharic, Urdu, or Swahili) increases users' sense of security and understanding, especially in areas with strict social norms (Aga et al., 2025). Furthermore, there is women's empowerment, where digital media enables women to gain independent knowledge before discussing their reproductive rights with medical personnel or partners, ultimately increasing their confidence in negotiating their reproductive rights.

Theme 4. Barriers to Implementing Digital Media

Despite its enormous potential, there are real challenges in implementing this technology. Geographical and infrastructure issues, including unstable internet connectivity, device costs, and low digital literacy, remain major obstacles in rural areas (Wahyuni, 2025). Furthermore, gender control in some developing countries, the dominance of husbands over decision-making, and the use of wives' mobile phones mean that educational messages do not always reach their intended audience. This is exacerbated by the strong influence of cultural and religious norms, which sometimes still act as inhibiting factors in contraceptive use decisions.

Based on the results of a review involving 12 relevant articles, the integration of digital technology in contraceptive counseling has brought major changes to reproductive health services, especially in developing countries, one of which is Indonesia.

1. **Identification of Types and Characteristics of Digital Educational Media Innovation**

   Educational media innovations in contraceptive counseling have transformed conventional methods into more dynamic and interactive platforms. The integration of digital health technology, or mHealth, enables more private and scheduled information delivery via text and voice messages, thereby overcoming geographical barriers, as demonstrated by the Kilkari program in India and the IMHI program in Ethiopia (G.U. & F.O., 2023). A key advantage of

this digital media is its ability to provide a Decision Support System (DSS) based on medical algorithms. For example, the "Si KB Pintar" application in Indonesia and a platform in Jordan help prospective acceptors map their reproductive goals and choose the safest contraceptive method according to medical eligibility criteria (MEC).

2. Media Effectiveness on Contraceptive Decisions

The integration of technology into family planning services has been shown to improve health literacy and modern contraceptive use significantly. A review found that women exposed to mHealth interventions were 1.6 to 2.4 times more likely to use contraception compared to those who received only conventional counseling. Innovative platforms like TikTok also serve as effective edutainment tools, helping destigmatize reproductive health issues among younger generations by packaging complex medical information into entertaining, easily digestible content (Opatunji & Sowunmi, 2024). Through independent and anonymous access to information, digital media provides a space for women to build self-efficacy before discussing it with partners or health workers.

3. Determinant Factors of Technology Acceptance

The success of digital technology implementation is heavily influenced by cultural sensitivity and user privacy assurance. The use of local languages and security features such as "privacy buttons" in apps has been shown to increase a sense of security for women living in environments with strict social norms or high stigma related to sexual health (Witkop et al., 2021). Furthermore, the use of telemedicine and automated voice messaging provides a crucial bridge for vulnerable populations, such as refugees or communities in remote areas, to maintain access to accurate information despite physical limitations to visiting health facilities in person.

4. Obstacles in Implementing Digital Media

Despite offering significant opportunities, the effectiveness of digital media remains limited by geographic, infrastructural, and sociocultural barriers, stigma surrounding sexual health, and the lack of partner involvement in decision-making, which are real obstacles in practice (Meekers et al., 2024). This suggests that innovation in digital educational media requires a more comprehensive approach, focusing not only on sophisticated features but also considering social and cultural structures, partner involvement (husbands), and digital literacy at the community level to ensure sustainable acceptance.

CONCLUSIONS

The integration of digital technology into contraceptive counseling in developing countries has transformed reproductive health services through innovations such as automated text messaging, algorithm-based decision-support applications, and edutainment platforms. This review demonstrates that digital interventions significantly improve health literacy and increase the likelihood of modern contraceptive use by 1.6 to 2.4 times compared to conventional methods. The main advantage of these media lies in their ability to provide access to private, autonomous, and sensitive information in local languages and cultural contexts, thereby strengthening women's autonomy in making decisions about contraceptive use. Despite its strong potential, the effectiveness of this technology is still constrained by limitations in internet infrastructure, low levels of digital literacy, and gender dominance in device ownership and decision-making. Therefore, the success of digital health services in the future will depend not only on the sophistication of technological features but also on a comprehensive approach

that considers the social structures and cultural values of local communities in order to generate sustainable impacts.

LIMITATIONS

Although this review provides a comprehensive overview of digital innovations in contraceptive services, several limitations should be acknowledged. The primary focus of this study is limited to articles originating from developing countries; therefore, the literature scope does not yet reflect the broader dynamics of technological innovation at the global level, particularly in developed countries. This limits the generalizability of the findings due to significant differences in technological infrastructure and health systems across regions. By comparison, the use of web-based media, particularly those developed in developed countries such as the platforms Contraception Choices and My Health My Choice, offers more detailed functional advantages than conventional media. One of the main advantages is wider accessibility. As web-based platforms, they do not require app downloads (thus saving device storage) and can be accessed anytime on devices such as smartphones, tablets, or computers. In addition, the effectiveness of digital interventions in developing countries is highly dependent on external factors that are difficult to control, such as unequal internet infrastructure and low levels of digital literacy within the community. Sociocultural barriers, particularly gender dominance in mobile phone use and decision-making, also represent systemic challenges that may hinder educational messages from reaching the intended target population optimally.

REFERENCES

Abrejo, F. G., Iqbal, R., & Saleem, S. (2022). Women's perceptions about mobile health solutions for selection and use of family planning methods in Karachi: a feasibility study. *BMC Women's Health*, *22*(1). https://doi.org/10.1186/s12905-022-02086-1

Aga, I. Z., Khurram, S. S., Muzzamil, M., Karim, M., & Hashmi, S. (2025). Leveraging telemedicine to explore contraceptive use and attitudes among refugee women: an observational cross-sectional analysis. *BMJ Open*, *15*(3). https://doi.org/10.1136/bmjopen-2024-092240

Athey, S., Bergstrom, K., Hadad, V., Jamison, J. C., Özler, B., Parisotto, L., & Dohbit Sama, J. (2023). *Can personalized digital counseling improve consumers' search for modern contraceptive methods?* https://www.science.org

Cartwright, A. F., Alspaugh, A., Britton, L. E., & Noar, S. M. (2022). mHealth Interventions for Contraceptive Behavior Change in the United States: A Systematic Review. *Journal of Health Communication*, *27*(2), 69–83. https://doi.org/10.1080/10810730.2022.2044413

Cherie, N., Wordofa, M. A., & Debelew, G. T. (2024). Effectiveness of an Interactive Mobile Health Intervention (IMHI) to enhance the adoption of modern contraceptive methods during the early postpartum period among women in Northeast Ethiopia: A cluster Randomized Controlled Trial (RCT). *PLoS ONE*, *19*(11 November). https://doi.org/10.1371/journal.pone.0310124

D'Souza, P., Phagdol, T., D'Souza, S. R. B., Anupama, D. S., Nayak, B. S., Velayudhan, B., Bailey, J. V., Stephenson, J., & Oliver, S. (2023). Interventions to support contraceptive choice and use: a global systematic map of systematic reviews. In *European Journal of Contraception and Reproductive Health Care* (Vol. 28, Number 2, pp. 83–91). Taylor and Francis Ltd. https://doi.org/10.1080/13625187.2022.2162337

G.U., N., & F.O., N. (2023). Influence of TikTok as an Edutainment Platform on Female Students' Awareness and Use of Contraceptives. *Journal of Advanced Research and Multidisciplinary Studies*, *3*(3), 65–77. https://doi.org/10.52589/jarms-vjd3aknw

Kyamulabi, A., Oberle, E., Olisaeloka, L., Kamya, I., Nyesigire, I., Norman, W. V., & Abdulai, A. F. (2025). Digital health technologies for accessing contraceptive services among young people in Sub-Saharan Africa: A scoping review protocol. *PLOS Digital Health*, *4*(7 July). https://doi.org/10.1371/journal.pdig.0000748

Meekers, D., Elkins, A., & Obozekhai, V. (2024). Tools for patient-centred family planning counselling: A scoping review. In *Journal of Global Health* (Vol. 14), University of Edinburgh. https://doi.org/10.7189/JOGH.14.04038

Meherali, S., Hussain, A., Rahim, K. A., Idrees, S., Bhaumik, S., Kennedy, M., & Lassi, Z. S. (2024). Digital knowledge translation tools for sexual and reproductive health information to adolescents: an evidence gap-map. *Therapeutic Advances in Reproductive Health*, *18*. https://doi.org/10.1177/26334941241307881

Mengelkoch, S., Espinosa, M., Butler, S. A., Prieto, L. J., Russell, E., Ramshaw, C., Nahavandi, S., & Hill, S. E. (2023). Tuuned in: use of an online contraceptive decision aid for women increases reproductive self-efficacy and knowledge; results of an experimental clinical trial. *BMC Digital Health*, *1*(1). https://doi.org/10.1186/s44247-023-00034-z

Ngumbau, N., Unger, J. A., Wandika, B., Atieno, C., Beima-Sofie, K., Dettinger, J., Nzove, E., Harrington, E. K., Karume, A. K., Osborn, L., Sharma, M., Richardson, B. A., Seth, A., Udren, J., Zanial, N., Kinuthia, J., & Drake, A. L. (2024). Mobile solutions to empower reproductive life planning for women living with HIV in Kenya (MWACh EMPOWER): Protocol for a cluster randomized controlled trial. *PLoS ONE*, *19*(4 APRIL). https://doi.org/10.1371/journal.pone.0300642

Nurcahyani, L., Widiyastuti, D., Iman, A. T., Cahyati, Y., & Fitrianingsih, Y. (2023). Effects of Using an Application for Postpartum Contraceptive Use in Family Planning Counseling during Pregnancy. *Kesmas*, *18*(2), 137–144. https://doi.org/10.21109/kesmas.v18i2.6860

Opatunji, F. O., & Sowunmi, C. O. (2024). The Role of Digital Health Tools in Improving Contraceptive Use Among Reproductive Age Women. *International Journal of Health and Psychology Research*, *12*(1), 18–33. https://doi.org/10.37745/ijhpr.13/vol12n11833

Reyes-Martí, L., Rubio-Rico, L., Ortega-Sanz, L., Raigal-Aran, L., de la Flor-López, M., Roca-Biosca, A., Valls-Fonayet, F., Moharra-Francés, M., Escuriet-Peiro, R., & de Molina-Fernández, M. I. (2021). Contraceptive counselling experiences in Spain in the process of creating a web-based contraceptive decision support tool: a qualitative study. *Reproductive Health*, *18*(1). https://doi.org/10.1186/s12978-021-01254-0

Sampson, S., Oni, F., Ayodeji, O., Oluwatola, T., Gab-deedam, S., Adenipekun, O., Adenipekun, A., & Atobatele, S. (2023). Addressing barriers to accessing family planning services using mobile technology intervention among internally displaced persons in Abuja, Nigeria. *AJOG Global Reports*, *3*(3). https://doi.org/10.1016/j.xagr.2023.100250

Scott, K., Ummer, O., Shinde, A., Sharma, M., Yadav, S., Jairath, A., Purty, N., Shah, N., Mohan, D., Chamberlain, S., & Lefevre, A. E. (2021). Another voice in the crowd: The challenge of changing family planning and child feeding practices through mHealth messaging in rural central India. *BMJ Global Health*, *6*. https://doi.org/10.1136/bmjgh-2021-005868

Siamalambwa, Q., Chatziioannou, S. S., Papasideri, V., Salvanos, G., & Chalwe, C. (2025). A Systematic Review of the Effectiveness of Contraceptive Mobile Apps in Preventing Unintended Pregnancies in Women of Reproductive Age Group in Comparison to Standard Care or Alternative Digital Interventions. *Journal of BioMed Research and Reports*, *8*(4), 1–17. https://doi.org/10.59657/2837-4681.brs.25.200

Sserwanja, Q., Turimumahoro, P., Nuwabaine, L., Kamara, K., & Musaba, M. W. (2022). Association between exposure to family planning messages on different mass media channels and the utilization of modern contraceptives among young women in Sierra Leone: insights from the

2019 Sierra Leone Demographic Health Survey. *BMC Women's Health*, *22*(1). https://doi.org/10.1186/s12905-022-01974-w

Stephenson, J., Bailey, J. V., Gubijev, A., D'Souza, P., Oliver, S., Blandford, A., Hunter, R., Shawe, J., Rait, G., Brima, N., & Copas, A. (2020). An interactive website for informed contraception choice: randomised evaluation of Contraception Choices. *Digital Health*, *6*. https://doi.org/10.1177/2055207620936435

WAHYUNI, C. (2025). The Use Of Mobile Applications For Reproductive Health Education And Family Planning With Participatory Learning and Action (PLA) Method Among Child-Bearing Age Couples. *Journal of Community Engagement in Health*, *8*(2), 290–301. https://doi.org/10.30994/jceh.v8i2.740

Witkop, C. T., Torre, D. M., & Maggio, L. A. (2021). Decide + Be Ready: A Contraceptive Decision-Making Mobile Application for Servicewomen. In *Military Medicine* (Vol. 186, Numbers 11–12, pp. 300–304). Oxford University Press. https://doi.org/10.1093/milmed/usab194