



The Relationship Between Digital Literacy of Family Planning Acceptors and the Selection of Long-Term Contraceptive Methods In 2026

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Abstract. Digital technology has become an increasingly vital source of reproductive health information, allowing family planning acceptors to access contraceptive resources through websites, social media, and mobile applications. However, the availability of online information does not guarantee adequate digital literacy to critically evaluate and utilize such information in decision-making. This study aimed to analyze the relationship between digital literacy and the selection of Long-Term Contraceptive Methods (MKJP) among family planning acceptors at the DP3AKB Office of South Halmahera in 2026. A quantitative correlational study with a *cross-sectional* design was conducted involving 95 respondents selected through purposive sampling. Data were collected using structured questionnaires and analyzed using univariate methods and Kendall's tau-b correlation test. Results showed that most respondents had high digital literacy (90.5%), with implants (57.9%) and intrauterine devices (31.6%) being the most chosen MKJP. Statistical analysis revealed no significant relationship between digital literacy and MKJP selection ($p = 0.654$; $r = 0.044$). These findings suggest that digital literacy alone does not determine contraceptive choices, as decisions are influenced by other factors such as individual characteristics, counseling, and access to reliable reproductive health information. Therefore, digital family planning promotion should be integrated with comprehensive counseling and evidence-based education to support informed decision-making and improve reproductive health outcomes.

Keywords: Contraceptive Choice; Digital Literacy; Family Planning Acceptors; Long-Term Contraceptive Methods; Reproductive Health.

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1. Introduction

The advancement of digital technology has significantly transformed the delivery of health information, including information related to family planning and contraceptive services. Women of reproductive age increasingly rely on digital platforms such as websites, social media, and mobile applications to obtain reproductive health information before making contraceptive decisions. However, the abundance of online information does not automatically ensure that individuals possess adequate digital literacy to critically evaluate the credibility and relevance of the information they access. Digital self-care platforms provide broad access to family planning information, yet the quality and completeness of contraceptive content remain inconsistent, potentially influencing users' understanding and decision-making (Brittingham et al., 2024). Likewise, online discussions regarding contraception often contain diverse personal experiences and conflicting information, making it difficult for users to identify evidence-based recommendations (McDowall et al., 2023).

Long-Term Contraceptive Methods (LTCMs), or *Metode Kontrasepsi Jangka Panjang* (MKJP), including intrauterine devices (IUDs), implants, female sterilization (MOW), and male sterilization (MOP), are recognized as among the most effective contraceptive methods due to their high effectiveness and long duration of protection. Nevertheless, the utilization of MKJP remains relatively low because many prospective acceptors still have insufficient

knowledge, misconceptions, and negative perceptions regarding these methods. Previous studies have shown that health education significantly improves knowledge, perceptions, and intentions toward contraceptive use. Educational interventions using web-based family planning media have successfully increased the knowledge of family planning acceptors (Asnel et al., 2025), while visual educational materials have also been proven effective in improving attitudes and contraceptive preferences among women with limited educational backgrounds (Güney et al., 2025). Similarly, structured health education has been reported to enhance knowledge and intended contraceptive use among reproductive-age populations (Kumar et al., 2024).

The rapid growth of digital health innovations has encouraged the development of online contraceptive counseling and digital decision-support tools to assist women in selecting appropriate contraceptive methods. Mobile applications and online contraception services enable users to obtain information more conveniently and support communication between healthcare providers and patients (Madan et al., 2024). Furthermore, a systematic review reported that online decision aids improve users' understanding of available contraceptive options and facilitate informed decision-making, particularly among women with specific health conditions (Gebresillassie et al., 2025). These findings indicate that digital health technologies have considerable potential to strengthen family planning services when accompanied by adequate digital literacy.

Although previous studies have demonstrated the effectiveness of digital education, online counseling, and digital decision-support systems in improving contraceptive knowledge, most have focused on intervention outcomes rather than examining whether an individual's level of digital literacy is associated with the actual selection of Long-Term Contraceptive Methods. Empirical evidence regarding this relationship remains limited, particularly among family planning acceptors in Indonesia. Therefore, this study aims to analyze the relationship between the digital literacy of family planning acceptors and the selection of Long-Term Contraceptive Methods (MKJP) at the DP3AKB Office of South Halmahera in 2026. The findings are expected to provide evidence for strengthening digital-based family planning education and developing more effective reproductive health promotion strategies.

2. Literature Review

Digital Literacy in Reproductive Health

Digital literacy refers to an individual's ability to access, understand, evaluate, and appropriately utilize digital information to support informed decision-making. Within the context of reproductive health, digital literacy extends beyond the ability to operate digital devices; it also encompasses the capacity to identify credible health information, distinguish scientific evidence from misinformation, and apply acquired knowledge when making decisions regarding contraceptive use. As internet-based health information continues to expand, digital literacy has become increasingly important for enabling family planning acceptors to make informed reproductive health decisions.

Brittingham et al. (2024) reported that digital self-care platforms have become an important source of family planning information. However, their assessment revealed considerable variation in the completeness, quality, and accuracy of contraceptive information available across different digital platforms. This finding suggests that although information is widely accessible, users still require adequate digital literacy to critically evaluate online health content before applying it in practice.

Similarly, McDowall et al. (2023) demonstrated that online discussions about contraception frequently combine scientific information with personal experiences and opinions. Such mixed information environments often complicate users' understanding of contraceptive methods and may contribute to misconceptions. Therefore, higher digital literacy is expected to improve individuals' ability to evaluate information critically and reduce the influence of inaccurate online content when selecting contraceptive methods.

Long-Term Contraceptive Methods (MKJP)

Long-Term Contraceptive Methods (LTCMs), known in Indonesia as *Metode Kontrasepsi Jangka Panjang* (MKJP), include intrauterine devices (IUDs), contraceptive implants, female sterilization (MOW), and male sterilization (MOP). These methods provide long-lasting pregnancy prevention with high effectiveness and minimal user dependence compared with short-term contraceptive methods. Consequently, MKJP is recommended as an effective

strategy for reducing unintended pregnancies and improving maternal and child health outcomes.

Despite these advantages, the utilization of MKJP remains relatively limited in many settings. According to Kumar et al. (2024), insufficient knowledge and inaccurate perceptions regarding contraceptive safety remain major barriers preventing individuals from selecting long-term contraceptive methods. Their study demonstrated that structured health education significantly improved contraceptive knowledge, perceptions, and intentions, indicating that adequate reproductive health literacy contributes to more informed contraceptive choices.

Supporting this finding, Güney et al. (2025) found that family planning education delivered through visual educational materials successfully improved women's attitudes toward contraception and influenced contraceptive preferences, particularly among women with limited educational backgrounds. These findings indicate that improving health literacy can increase confidence in selecting effective contraceptive methods such as MKJP.

The Role of Digital Health Education in Family Planning

Digital health education has emerged as an innovative strategy for expanding access to family planning information. Educational interventions delivered through websites, mobile applications, and other digital media enable healthcare information to reach broader populations while overcoming geographical barriers. Effective digital education may improve contraceptive knowledge, encourage positive attitudes, and support evidence-based reproductive health decisions.

Asnel et al. (2025) demonstrated that web-based family planning information media significantly improved the knowledge of family planning acceptors after educational intervention. Their findings indicate that digital educational media can effectively increase understanding of contraceptive methods when information is presented systematically and interactively. This suggests that digital literacy and educational quality complement each other in improving reproductive health outcomes.

Furthermore, Kumar et al. (2024) emphasized that educational interventions not only increase contraceptive knowledge but also positively influence perceptions and behavioral intentions regarding contraceptive use. Therefore, digital education represents an important component in strengthening family planning programs, particularly when supported by users' ability to understand and evaluate digital health information effectively.

Digital Decision-Making and Contraceptive Selection

The integration of digital technology into reproductive healthcare has facilitated the development of online counseling services, mobile applications, and digital decision-support tools designed to assist individuals in selecting appropriate contraceptive methods. These technologies provide personalized information that may improve users' confidence during contraceptive decision-making.

Madan et al. (2024) found that both patients and healthcare providers viewed online contraception platforms as useful tools for improving access to contraceptive counseling and facilitating communication. Digital platforms enable users to obtain information before consulting healthcare professionals, thereby supporting shared decision-making during contraceptive counseling.

Similarly, Gebresillassie et al. (2025) concluded in their systematic review that online decision aids enhance users' understanding of available contraceptive options and improve informed decision-making. However, the effectiveness of these digital tools depends on users' ability to understand and interpret the information correctly, highlighting the importance of adequate digital literacy as a prerequisite for successful implementation of digital reproductive health interventions.

Factors Influencing the Selection of Long-Term Contraceptive Methods

The selection of contraceptive methods is a complex process influenced by multiple individual, social, and informational factors. Besides demographic characteristics such as age and educational level, the availability of accurate reproductive health information and an individual's ability to understand that information play a crucial role in contraceptive decision-making. In the digital era, family planning acceptors increasingly obtain contraceptive information through websites, social media, and mobile applications before consulting healthcare providers. Consequently, digital literacy has become an important factor that may influence how individuals evaluate contraceptive options and ultimately choose an appropriate method.

Several studies have shown that improving knowledge through health education positively affects contraceptive preferences. Asnel et al. (2025) demonstrated that web-based family planning education significantly increased acceptors' knowledge, while Kumar et al. (2024) found that educational interventions improved contraceptive knowledge, perceptions, and intentions to use contraception. Likewise, Güney et al. (2025) reported that family planning education supported by visual materials successfully enhanced women's attitudes and preferences toward contraceptive methods, particularly among individuals with limited educational backgrounds. These findings suggest that better understanding of reproductive health information contributes to more informed contraceptive choices.

Digital technologies also support contraceptive decision-making through online counseling and decision-support systems. Madan et al. (2024) reported that online contraception platforms improve communication between patients and healthcare providers by providing accessible and personalized contraceptive information. Similarly, Gebresillassie et al. (2025) concluded that online decision aids enhance users' understanding of available contraceptive methods and facilitate informed decision-making. Nevertheless, Brittingham et al. (2024) emphasized that the quality of contraceptive information across digital platforms remains inconsistent, while McDowall et al. (2023) highlighted that conflicting information circulating on online platforms may confuse users during contraceptive selection. Therefore, adequate digital literacy is expected to enable family planning acceptors to critically evaluate online information and make more appropriate decisions regarding the selection of Long-Term Contraceptive Methods.

3. Research Method

This study employed a quantitative approach with a correlational design using a cross-sectional framework. This study aimed to analyze the relationship between the digital literacy level of family planning acceptors and the selection of Long-Term Contraceptive Methods (MKJP), where both variables were measured at the same point in time (Opatunji & Sowunmi, 2024; Athey et al., 2023). The study was conducted at the DP3AKB Office of South Halmahera in 2026. The selection of this topic was based on a preliminary study conducted in May 2026, which revealed that despite the ease of accessing family planning information online, interest in MKJP remained low, as 100% of the interviewed acceptors had limited understanding of reproductive health information-seeking patterns on social media.

Couples of childbearing age (PUS) who were family planning acceptors in the study area served as the study population. Sample size determination was conducted using the Lemeshow formula, yielding a minimum of 96 respondents (Gebremariam et al., 2025). However, based on the final data processed in the statistical analysis, the total sample successfully collected and analyzed was 95 respondents. The sampling technique employed was purposive sampling or quota sampling to ensure that the inclusion criteria were met (Zuhro et al., 2025).

Based on the sources provided, particularly the research documentation for Nurjana Djumula, the sample size calculation using the Lemeshow formula was applied to determine the minimum number of respondents required for the study (Lee et al., 2024). The following formula is applied:

$$n = \frac{Z^2 \cdot P(1 - P)}{d^2}$$

n: Minimum sample size.

Z: The standard normal deviate for a 95% confidence level, which is 1.96.

P: The estimated proportion of the event/incidence in the population. Since the specific proportion was unknown, a value of 0.5 was used to ensure the largest possible sample size.

d: The margin of error or absolute precision, set at 0.1 (10%).

Step-by-Step Calculation:

$$n = \frac{1.95^2 \cdot 0.5(1 - 0.5)}{0.1^2} = 96.04$$

Based on this calculation, the required sample size is rounded to 96 respondents. In the actual data analysis for this specific study, a total of 95 respondents were successfully analyzed.

The research variables consisted of an independent variable, namely the level of digital literacy (the ability to search for, evaluate, and understand online health information), and a dependent variable, namely the selection of contraceptive methods, categorized as MKJP (IUD, Implant, MOW, MOP) and Non-MKJP (Injectable, Pill, Condom). The data collection instrument used was a structured questionnaire adopting the Digital Literacy Scale standard

or a modified Health Literacy Questionnaire (HLQ) (Saragih & Damayanti, 2025). Data analysis was carried out using statistical software through the following two stages:

- Univariate analysis was used to describe the frequency distribution of respondent characteristics (age, education, parity) as well as an overview of digital literacy levels and contraceptive method selection (Apriani et al., 2025).
- Bivariate analysis was conducted to test the significance of the relationship between variables. Although a Chi-Square test was initially proposed in the study design, the final data analysis employed the Kendall's tau_b correlation test to determine the strength and direction of the relationship between digital literacy and MKJP method selection (Nurmasari et al., 2025). The test result was considered statistically significant if the significance value (p-value) was less than 0.05.

4. Result And Discussion

Data analysis is an effort undertaken by researchers to transform raw information into meaningful data in order to answer the research hypothesis. In this study, data analysis was used to objectively determine whether the level of digital literacy — defined as the ability to search for and understand online information — is associated with acceptors' decisions in selecting Long-Term Contraceptive Methods (MKJP) (Saragih & Damayanti, 2025). This is important for evaluating whether the digital family planning campaigns conducted thus far have been effective in changing contraceptive selection behavior among acceptors at the DP3AKB Office of South Halmahera.

Results of Data Analysis

Univariate Analysis

Univariate analysis describes the characteristics of respondents as well as an independent overview of the digital literacy variable and MKJP method selection.

Table 1. Distribution of Demographic Characteristics and Research Variables (n=95).

Characteristics	Frequency (n)	Percentage (%)	Cumulative (%)
Age			
20–35 years	80	84.2	84.2
>35 years	15	15.8	100.0
Total	95	100.0	—
Education Level			
Elementary School	41	43.2	43.2
Junior High School	44	46.3	89.5
Senior High School	10	10.5	100.0
Total	95	100.0	—
Parity			
Primipara	45	47.4	47.4
Multipara	50	52.6	100.0
Total	95	100.0	—
Digital Literacy Category			
Low (Score 10–50)	9	9.5	9.5
High (Score 51–100)	86	90.5	100.0
Total	95	100.0	—
Selection of Long-Term Contraceptive Method (MKJP)			
1–3 (Mild Pain)	5	14.3	14.3
4–6 (Moderate Pain)	30	85.7	100.0
Total	35	100.0	—
Selection of Long-Term Contraceptive Method (MKJP)			
IUD	30	31.6	31.6
Implant	55	57.9	89.5
MOW (Female Oterilization)	6	6.3	95.8
MOP (Male Sterilization)	4	4.2	100.0
Total	95	100.0	—

Based on Table 1, the majority of respondents were in the productive age group of 20–35 years (84.2%), with educational backgrounds predominantly consisting of junior high school graduates (46.3%) and elementary school graduates (43.2%). Regarding digital literacy,

90.5% of respondents were categorized as having high literacy levels. In terms of contraceptive method selection, the majority of acceptors chose Implant (57.9%) and IUD (31.6%).

Bivariate Analysis

Bivariate analysis was conducted to test the correlation between digital literacy and MKJP method selection using the Kendall's tau_b correlation test.

Table 2. Kendall's tau_b Correlation Test Results.

	Digital Literacy Category	Correlation Coefficient	Digital Literacy MKJP Selection	Method Selection
Kendall's tau_b	Digital Literacy Category	Correlation Coefficient	1.000	.044
		Sig. (2-tailed)	.	.654
		N	95	95
	Selection of MKJP Method	Correlation Coefficient	.044	1.000
		Sig. (2-tailed)	.654	.
		N	95	95

The statistical test results showed an Asymp. Sig. (2-tailed) value of 0.654 with a correlation coefficient of 0.044. Since the significance value (0.654) > 0.05, it is concluded that there is no significant relationship between digital literacy and MKJP method selection among acceptors at the DP3AKB Office of South Halmahera.

Discussion

The findings of this study reveal a unique phenomenon in which the high digital literacy rate among respondents (90.5%) did not directly correspond to the selection of long-term contraceptive methods (MKJP). Statistically, a significance value of 0.654 demonstrates that acceptors' ability to access information digitally has not yet become the primary determining factor in their decision to switch to MKJP.

This is consistent with the preliminary study findings, where 100% of acceptors reported limited understanding of MKJP due to an inability to navigate reproductive health information correctly on social media. Although respondents were capable of using digital devices (high literacy), the information they absorbed appears to have been insufficient to build confidence in choosing IUD, MOW, or MOP. The predominantly low educational background of respondents, with 89.5% being junior and elementary school graduates, is suspected to be a barrier in filtering and evaluating complex medical information on the internet.

Therefore, future family planning counseling should not rely solely on providing information online, but must be accompanied by direct facilitation to explain digital content in an accessible manner. Educational efforts must be directed toward deepening understanding of MKJP, so that acceptors at the DP3AKB Office of South Halmahera can utilize their digital information access for improved reproductive health outcomes.

5. Conclusion And Recommendations

Conclusion

This study demonstrates that the level of digital literacy among family planning acceptors was not significantly associated with the selection of Long-Term Contraceptive Methods (MKJP) in the study setting. These findings indicate that the availability of digital information and the ability to access online resources alone are insufficient to influence contraceptive choices. Decision-making regarding MKJP appears to involve broader considerations that extend beyond digital competencies, emphasizing the complexity of reproductive health behavior.

The findings contribute to the growing body of evidence that improving reproductive health outcomes requires not only expanding access to digital information but also ensuring that such information is meaningful, trustworthy, and supported by appropriate counseling. Digital literacy should therefore be viewed as one component of a comprehensive family planning strategy rather than as an independent determinant of contraceptive selection.

Overall, this study provides empirical evidence that can support the development of more integrated family planning promotion programs. Strengthening collaboration between digital health initiatives and direct educational services may help create a more informed decision-

making environment, enabling family planning acceptors to make contraceptive choices that are consistent with their reproductive needs and preferences.

Recommendations

Healthcare providers and family planning program managers should integrate digital education with face-to-face counseling to ensure that online information is interpreted accurately and translated into informed contraceptive decisions. Digital educational materials should be designed using clear, evidence-based, and user-friendly content that is easily understood by individuals with diverse educational backgrounds. Continuous evaluation of digital family planning communication strategies is also recommended to improve the quality and credibility of online reproductive health information.

Future researchers are encouraged to investigate additional factors that may influence the selection of Long-Term Contraceptive Methods, including family support, cultural beliefs, socioeconomic status, healthcare accessibility, perceived service quality, and counseling effectiveness. Studies involving larger and more diverse populations, as well as longitudinal or mixed-method approaches, are recommended to provide a more comprehensive understanding of contraceptive decision-making and the role of digital literacy in different community settings.

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