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Original Research

Influence of education with video on Posyandu cadres knowledge about contraceptive implant

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ABSTRACT

Background: The low uptake of Long-Term Contraceptive Methods, particularly implants, in Indonesia is often linked to limited community knowledge and prevalent misconceptions. Posyandu cadres, as frontline health promoters, play a pivotal role in providing counseling; however, their own knowledge levels are frequently inadequate, hindering effective family planning promotion.
Objective: Determine the influence of education using video media on the knowledge of Posyandu cadres about contraceptive implants in the working area of the Jejangkit Community Health Center.
Method: A quantitative pre-experimental study with a one-group pre-test-post-test design was conducted. A total of 30 cadres were selected via simple random sampling. Data were collected using a validated questionnaire administered before and after a single-session intervention featuring an educational video on contraceptive implants. The non-parametric Wilcoxon Signed-Rank Test was used for data analysis due to the non-normal distribution of the knowledge scores.
Result: The study revealed a significant improvement in cadres' knowledge post-intervention. Prior to the video education, only 23.3% of cadres had good knowledge. Following the intervention, this proportion rose dramatically to 83.3%, with the remaining 16.7% achieving a sufficient level. No cadres remained in the poor knowledge category. Statistical analysis confirmed this improvement was highly significant ($p < 0.001$).
Conclusion: Video-based education is a highly effective intervention for significantly enhancing the knowledge of Posyandu cadres regarding contraceptive implants. Integrating this media into regular training programs is recommended to empower cadres with accurate information, thereby improving community counseling and supporting national efforts to increase long-term contraceptive methods uptake.

1. Introduction

Family Planning (Indonesian: Keluarga Berencana [KB]) is one of the most important public health programs, as it contributes significantly to the improvement of women's health and family welfare. Through its ability to reduce unintended or high-risk pregnancies, family planning can decrease maternal mortality by approximately 28%–30%, particularly deaths resulting from pregnancies occurring at a young or advanced maternal age, pregnancies spaced too closely, or those occurring at high parity (Nugraha, 2020). Beyond its direct impact

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on maternal mortality, family planning also enhances family resilience and promotes the safety of mothers, children, and women overall. Recognizing its importance, Indonesia's Medium-Term Development Plan 2010–2014 emphasized the expansion of long-term contraceptive method (*Indonesian:* Metode Kontrasepsi Jangka Panjang [MKJP]) utilization, such as implants, as a strategic priority to support sustainable development in health and population control. Hence, family planning is not only a population policy but also a critical health strategy to strengthen national human resources.

Indonesia, as the fourth most populous country in the world, faces substantial challenges in controlling its population growth. The 2022 national census reported a population of 270.20 million people. While the national growth rate has declined by 0.24%, from 1.49% in the period 2000–2010 to 1.25% during 2010–2020, the absolute increase in population continues to exert pressure on national development (Fikri, 2023). Therefore, the government has sustained its commitment to implementing the KB program as a key strategy to reduce fertility rates and, consequently, the socioeconomic burden on the state. The program is designed to achieve not only demographic targets but also broader objectives such as family welfare and human capital development. Within this framework, encouraging the use of effective and sustainable contraceptive methods, particularly long-term options, remains a central government policy in ensuring that population control efforts are both efficient and equitable.

At the provincial level, data from South Kalimantan in 2020 revealed that family planning participation was still dominated by non-long-term contraceptive methods. The most widely used methods were injectables (57.8%) and oral contraceptive pills (32.8%), whereas long-term contraceptive use remained relatively low, with only 2.5% using intrauterine devices (IUDs) and 4.3% using implants (South Kalimantan Provincial Health Office, 2021). Male involvement in family planning was also limited, with vasectomy articipation at 0.2% and condom use at 1.4%. In Barito Kuala Regency, the number of implant acceptors has shown a slight decline, from 2,310 in 2022 to 2,298 in 2023 (BKKBN Barito Kuala, 2023). These figures highlight the ongoing challenge of promoting long-term contraceptive methods in the region. Low public awareness of the benefits of implants, coupled with limited availability of trained health personnel and supporting facilities, contributes to this situation, indicating a need for targeted interventions to strengthen acceptance of long-term

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contraceptive methods.

Contraceptive implants are among the most effective long-term methods, with a failure rate as low as 0.05%, significantly lower than IUDs, which range between 0.2% and 0.8% (Centers for Disease Control and Prevention [CDC], 2019). Implants are small, flexible rods inserted beneath the skin of the upper arm and function as hormonal contraceptives (Family Planning Association [FPA], 2015; Ministry of Health of the Republic of Indonesia, 2021). Despite their proven efficacy, several barriers hinder their acceptance. Research by Karyati (2019) reported negative perceptions among users, such as fears that implants could shift position during heavy work, as well as pain during insertion and removal. Additionally, maternal characteristics, including age and parity, were also found to influence implant acceptance (Arliana, 2018). These findings underscore the importance of addressing both misconceptions and informational gaps through effective educational approaches that enhance public trust and increase the use of implants.

Community health cadres, particularly Posyandu cadres, serve as frontline agents in the dissemination of family planning information, especially in rural settings. Their knowledge, motivation, and ability to communicate effectively play a decisive role in influencing women of reproductive age to adopt long-term contraceptive methods (Wahyuningsih & Fatmawati, 2019). However, limited knowledge among cadres remains a challenge. A preliminary study conducted in the Jejangkit Community Health Center area found that 7 out of 10 cadres lacked adequate understanding of the mechanism, benefits, and side effects of contraceptive implants. This limited knowledge corresponds with stagnant implant acceptance rates, with only 139 implant acceptors in 2022 and the same number in 2023. Considering that Jejangkit Health Center supervises seven villages and 12 Posyandu with 60 cadres, the lack of progress in implant uptake highlights a critical gap that must be addressed through strengthening cadres' educational capacity (Rakernas PKK, 2021; South Kalimantan Provincial Health Office, 2021).

Educational interventions using video media have been shown to be particularly effective in improving knowledge retention, as they engage both visual and auditory senses through images, sound, text, and animation (Hardianti, 2016; Lasmini et al., 2021). Compared to print media such as leaflets, video-based education has been demonstrated to produce stronger and more lasting improvements in knowledge about family planning among women

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of reproductive age (Desy et al., 2021). By utilizing video media, cadres may acquire clearer and more practical knowledge regarding contraceptive implants, which can subsequently be transferred more effectively to the community. In line with these considerations, the present study aims to determine the influence of education using video media on the knowledge of Posyandu cadres about contraceptive implants in the working area of the Jejangkit Community Health Center, Barito Kuala Regency. This research is expected to contribute to improving cadres' understanding, thereby supporting wider acceptance of long-term contraceptive methods in the community.

2. Method

Research Design

This study employed a quantitative pre-experimental design utilizing a one-group pre-test-post-test approach. This design was selected to evaluate the effect of a single intervention—educational video media—on the knowledge of Posyandu cadres about contraceptive implants. Data collection involved administering a knowledge questionnaire both before (O1) and after (O2) the intervention (X), which was the presentation of the educational video.

Participants

The study was conducted in the working area of the Jejangkit Community Health Center, Barito Kuala, Indonesia. The study population comprised all 60 Posyandu cadres across the health center's seven affiliated villages. The sample size was determined using the Slovin's calculator (Mukti, 2025) for finite populations with a margin of error (e) set at 0.1. A simple random sampling technique was employed to select 38 cadres from the sampling frame, which was a complete list of all 60 cadres. The selection process involved assigning each cadre a unique number and using a Microsoft Excel random number to choose 38 participants. However, 8 selected cadres were unable to complete the research intervention and post-test due to unavailability on the day of data collection, which was the sole exclusion criterion. Consequently, the final analysis was conducted on a total of 30 cadres who fully participated from pre-test to post-test.

Data Collection

Data were collected using a structured questionnaire designed to measure knowledge about contraceptive implants, covering aspects such as definition, mechanism of action,

advantages, indications, and side effects. The instrument's validity and reliability were established prior to the main study. The data collection process was conducted in a single session on July 10, 2024. After providing informed consent, participants completed the pre-test questionnaire. This was immediately followed by the intervention, which involved screening a video on contraceptive implants adopted from the 'Simple Midwifery ID' YouTube channel. Subsequently, participants completed the same questionnaire as a post-test to assess any changes in knowledge.

Data Analysis

Collected data were processed and analyzed using Statistical Package for the Social Sciences (SPSS) version 26.0. Descriptive statistics (frequencies and percentages) were used to characterize the sample and describe the distribution of knowledge levels (categorized as good, sufficient, or poor). As the pre- and post-test knowledge score data were not normally distributed based on the Shapiro-Wilk test ($p < 0.05$), the Wilcoxon Signed-Rank Test was employed as the non-parametric statistical test to analyze the difference between the paired pre-intervention and post-intervention scores. A p-value of less than 0.05 was considered statistically significant.

Ethical Clearance

This study received ethical approval (No. 334/KEP-UNISM/VII/2024) from the Ethics Commission of Sari Mulia University. The principle of informed consent was strictly adhered to; all participants received a clear explanation of the study's purpose, procedures, potential risks, and benefits, and provided written consent before participation. Anonymity was maintained by not recording participants' names on the research instruments, using codes instead. Confidentiality was ensured by restricting access to the collected data to the research team only. The principle of justice was upheld by treating all participants fairly and without discrimination, with the option to withdraw from the study at any time without penalty.

3. Result

The demographic characteristics of the respondents were analyzed to establish a foundational understanding of the study's participants,. The sample consisted of 30 Posyandu cadres from the working area of the Jejangkit Community Health Center. Their profile is detailed based on three key variables: age, educational background, and occupation. This distribution is presented in Table 1, providing essential context for interpreting the research

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findings on the influence of video-based education on knowledge about contraceptive implants.

Table 1. Respondent characteristics

Characteristic	Frequency (n)	Percentage (%)
Age		
21-30 years old	9	30,0
31-40 years old	18	43,3
41 - 50 years old	8	26,7
Total	30	100
Education		
Elementary school	2	6,7
Junior high school	9	30,0
Senior high school	14	46,7
Tertiery education	5	16,6
Total	30	100
Work		
Housewife	13	43,3
Private Employees	9	30,0
Merchant	8	26,7
Total	30	100

The baseline knowledge level of the participants regarding contraceptive implants was measured prior to the educational intervention. The pre-test results, as detailed in Table 2, indicate that the majority of the cadres commenced the study with a limited understanding of the topic. Half of the respondents (50.0%) were categorized as having sufficient knowledge, while only 23.3% demonstrated a good level of understanding. A significant portion, 26.7%, were assessed to have poor knowledge before the video-based education was administered. This initial distribution underscores the necessity and starting point for the intervention.

Table 2. Distribution of Cadres knowledge before video education

Knowledge level	Frequncy (n)	Percentage (%)
Poor	8	26,7
Sufficient	15	50,0
Good	7	23,3
Total	30	100

Following the educational intervention, a significant improvement in knowledge was observed. The post-test results, detailed in Table 3, reveal that the vast majority of cadres achieved a high level of understanding. An overwhelming 83.3% of respondents were

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categorized as having good knowledge, while the remainder (16.7%) demonstrated sufficient knowledge. Notably, no participants remained in the poor knowledge category after the video-based education session, indicating the effectiveness of the intervention.

Table 3. Distribution of Cadres knowledge after video education

Knowledge level	Frequncy (n)	Percentage (%)
Poor	0	0
Sufficient	5	16.7
Good	25	83.
Total	30	100

The Wilcoxon Signed-Rank Test was employed to analyze the statistical significance of the difference in knowledge scores before and after the educational intervention. The comparative results of the pre-test and post-test distributions, along with the outcome of the statistical test, are presented in Table 4. The findings indicate a notable shift in knowledge levels, with the majority of cadres moving into the 'good' category post-intervention. The analysis yielded a p-value of <0.001, confirming that the increase in knowledge following the video-based education was statistically significant.

Table 4. Comparative analysis of knowledge levels before and after video education

Knowledge level	Frequency		Percentage (%)		P value
	Pre-Test	Post Test	Pre-Test	Post Test	
	F	%	F	%	
Poor	8	26,7	0	0	<0.001
Sufficient	15	50,0	5	16,7	
Good	7	23,3	25	83,3	
Total	30	100	30	100	

4. Discussion

The demographic profile of the participants indicates that the majority were in the 31-40 age group (43.3%), had a high school education (46.7%), and were homemakers (43.3%). This composition is representative of the typical Posyandu cadre population in rural Indonesia, where women of productive age often volunteer as community health workers (Kurniati, 2024). The educational background is crucial, as prior knowledge and cognitive ability can significantly influence the absorption of new health information. Research by

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Georgiadis and Penny (2017) suggests that educational attainment is a key social determinant of health literacy, which directly impacts an individual's capacity to understand and apply health-related instructions. The predominance of homemakers in the sample may also reflect the socio-cultural context where women are primarily responsible for family health matters, making them key agents for disseminating health information within their communities (United Nations Children's Fund, 2023).

The pre-intervention assessment revealed a concerning baseline knowledge level, with only 23.3% of cadres possessing good knowledge about contraceptive implants. Half of the respondents (50.0%) had sufficient knowledge, while a significant minority (26.7%) were categorized as having poor knowledge. This knowledge gap underscores a critical barrier to the promotion of Long-Term Contraceptive Methods like implants at the community level. Inadequate knowledge among health cadres can perpetuate myths and misconceptions, such as the belief that implants can migrate or cause excessive weight gain, which ultimately discourages potential acceptors (Kozuki et al., 2015). This finding aligns with studies on community health workers in other low-resource settings, which often identify a lack of continuous and structured training as a primary factor contributing to knowledge deficits (Bhutta et al., 2017). Without accurate information, cadres are ill-equipped to counsel couples of reproductive age effectively, hindering national efforts to increase MKJP uptake.

The post-intervention results demonstrated a dramatic and positive shift in knowledge levels. Following the video-based education, an overwhelming 83.3% of cadres achieved a good level of knowledge, and the remaining 16.7% were in the sufficient category. Notably, no cadres remained in the poor knowledge category. This substantial improvement highlights the efficacy of video media as an educational tool for health promotion. Audiovisual materials can effectively standardize training content, ensuring that all participants receive identical, comprehensive, and visually engaging information that is easy to understand and recall (Srinivas et al., 2017). The use of video leverages dual coding theory, where information is processed through both auditory and visual channels, leading to better retention compared to traditional lecture-based methods alone (Shinsugi et al., 2020). This method is particularly effective for conveying practical procedures, such as the insertion and removal of implants, and for addressing common concerns through visual proof.

The Wilcoxon Signed-Rank Test confirmed that the improvement in knowledge scores

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from pre-test to post-test was statistically significant ($p < 0.001$). This robust finding provides strong evidence that the video education intervention was the catalyst for the observed change. The significant reduction in poor knowledge and the concurrent increase in good knowledge categories indicate that the intervention was effective across all baseline knowledge levels. This is consistent with studies on the use of digital health interventions for training community health workers, which have shown that such tools can lead to rapid and significant gains in knowledge and confidence (Mishra et al., 2020). The success of this intervention suggests that video-based learning can overcome barriers related to educational diversity among cadres, making complex medical information accessible to individuals with varying levels of formal education. This approach is a viable strategy for conducting scalable and cost-effective refresher trainings to maintain cadre competency in promoting MKJP.

Despite the promising results, this study has several limitations. The pre-experimental one-group pre-test-post-test design lacks a control group, which makes it difficult to definitively rule out the influence of external factors, such as concurrent health campaigns or discussions among participants, on the knowledge gains. Furthermore, the study was conducted in a single geographic location within the working area of one community health center, which may limit the generalizability of the findings to cadres in different socio-cultural and economic contexts. The reliance on self-reported knowledge through a questionnaire also presents a potential for social desirability bias, where participants might have provided answers they believed the researchers wanted to hear.

Future research should employ a more robust design, such as a randomized controlled trial (RCT) with a control group that receives either a different form of training or no intervention, to strengthen the causal inference regarding the effectiveness of video education. Longitudinal studies are also needed to assess the long-term retention of knowledge gained from video interventions and to observe whether this improved knowledge translates into measurable changes in behavior, such as an actual increase in the number of new implant acceptors referred or counseled by the trained cadres. Investigating the specific components of video media (e.g., animation, storytelling, duration) that most contribute to learning outcomes could help optimize future educational materials for maximum impact.

5. Conclusion

This study conclusively demonstrates that a single-session educational intervention

using video media significantly improved the knowledge of Posyandu cadres on contraceptive implants. The findings confirm that video-based learning is a highly effective, efficient, and accessible method for training community health volunteers. The dramatic shift from insufficient to good knowledge levels among the majority of cadres underscores the potential of this tool to address critical knowledge gaps at the grassroots level. Therefore, the integration of standardized video education into regular training programs for Posyandu cadres is strongly recommended. This strategy can empower cadres with accurate information, equipping them to effectively counsel communities, dispel myths, and ultimately promote the uptake of Long-Term Contraceptive Methods. By enhancing cadre knowledge, this approach can serve as a crucial catalyst in supporting national efforts to improve family planning outcomes and maternal health.

6. Conflict of interest

All authors declare no conflict of interest.

7. References

Anitah, Sri. (2014). Media Pembelajaran. Surakarta: UNS Press.

Bagaskoro. (2019). Pengantar Teknologi Informatika Dan Komunikasi Data. Yogyakarta: CV Budi Utama.

BKKBN. (2020). Hasil Pelaksanaan Subsistem Pencatatan dan Pelaporan Pelayanan Kontrasepsi. Direktorat Pelaporan dan Statistik. Jakarta.

Fikri, D. (2020). “Pengaruh Konsentrasi Penduduk Indonesia Di Pulau Jawa.” Jurnal Ilmu Kesejahteraan Sosial “Humanitas” Fisip Unpas IV:55–70.

Franklin, S. G., O’Neal, M., Arneus, A., Colvin, C., Aung, M., & Jolly, P. E. (2021). Effectiveness of an intrauterine device informative intervention among post- natal women in Western Jamaica. Reproductive Health, 18(1), 1–6. https://doi.org/10.1186/s12978-021-01075-1

Gladys Susanty, D. (2019). Video Informasi Meningkatkan Jumlah Akseptor Alat Kontrasepsi Dalam Rahim (AKDR) Pascaplasenta. Indonesian Journal of Obstetrics and Gynecology, 7(4), 292–295.

Handajani, S. R. (2016). Modul Bahan Ajar Cetak Kebidanan Komunikasi Dalam Praktik Kebidanan. Jakarta: Kemenkes RI. 2016.

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Vol. x, No. x, Mount Year, pp. xxx – xxx
ISSN: 3026-5037 DOI: https://doi.org/10.71357/ hsij.vxix.

Hartini, L. (2019). Hubungan Pendidikan dan Pekerjaan Ibu dengan Pemakaian Alat Kontrasepsi Dalam Rahim (AKDR). Jurnal Kesmas Asclepius, 1(2),126–135.

Ita Arbaiyah. (2021). Penyuluhan Kontrsepsi IUD Kepada Pasangan Usia subur (PUS) di Desa Sigumuri Tahun 2020. Jurnal Pengabdian Masyarakat Aufa (JPMA), Vol.3(No.3), hlm.145.

Kemenkes. (2021). Profil Kesehatan Indonesia 2020. In Kementrian Kesehatan Republik Indonesia.

Maranata. (2017). Faktor-faktor yang mempengaruhi kegagalan IUD di Kota Yogyakarta Tahun 2013- 2016. Prodi D-IV Kebidanan Jurusan kebidanan.

Mardiah, D. (2019). Keterampilan Konseling Keluarga Berencana.In Statistical Field Theor (Vol. 53, Issue 9).

Niman, S., & M. Kep, S. K. J. (2021). Promosi dan Pendidikan Kesehatan. Jakarta: CV. Trans Info Media.

Notoatmodjo, S. (2018). Metodologi Penelitian Kesehatan, Jakarta. Rineka Cipta. Notoatmodjo, Soekidjo. (2010). Notoatmodjo, Soekidjo. Ilmu Perilaku Kesehatan. Jakarta. Rineka Cipta. 2010.

Nurjanah, D. (2021). Upaya Peningkatan Pengetahuan Kader Dengan Modul Konseling KB Pasca Persalinan Berdasarkan Information Motivation Behavioral Skills (IMB) Model. Jurnal Salam Sehat Masyarakat (JSSM), 2(2), 6–12.

Nurnainah, Bahrum, S. W., & Wulandari, P. S. (2020). Hubungan pengetahuan dan sikap ibu dalam penerapan toilet training pada anak usia pra sekolah. 12(4), 1089–1096. Paccerakkang., P. (2022). Laporan Tahunan Puskesmas

Pacerakkang 2022. Maksaar.

Soleh, Amini. (2019). Pengaruh Edukasi Kontrasepsi terhadap pengetahuan ibu hamil di Desa Sukoharjo. 10(4), 1887-1110.

Waryana. 2019. Promosi Kesehatan, Penyuluhan, dan Pemberdayaan Masyarakat.Yogyakarta : Nuha Medika.

Wulansari & Hartanto. 2022. Ragam Metode Kontrasepsi. Jakarta : EGC