Original Research

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

Rohma Suharniati[1*], Laurensia Yunita [1], Frani Mariana [1], Elvine Ivana Kabuhung [1]

[1]Department of Midwifery, Faculty of Health, Sari Mulia University, Indonesia

[*]Corresponding author: harnitohir@gmail.com

ARTICLE INFO	ABSTRACT
	Background: The low uptake of Long-Term Contraceptive Methods, particularly implants, in Indonesia is often linked to limited community knowledge and prevalent misconceptions. Health 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 37.5 – 43.1%, particularly deaths resulting from pregnancies occurring at a young or advanced maternal age, pregnancies

spaced too closely, or those occurring at high parity (Khan & Harris, 2023; Nyongesa et al., 2023; OECD/WHO, 2022; Utomo et al., 2021). Beyond its direct impact on maternal mortality, family planning also enhances family resilience and promotes the safety of mothers, children, and women overall (Huber, 2023; Karra et al., 2022; Shah et al., 2025). 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. As of 2022, Indonesia's population is approximately 275.8 million, most populous country globally, following China, India, and the United States (United Nations Conference on Trade and Development, 2023). Population growth significantly influences Indonesia's economic indicators, including GDP and unemployment rates. A larger population can enhance purchasing power but also strains resources (Busari et al., 2022). 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 (Adam et al., 2021; Marbun et al., 2025). 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 (Dinas Kesehatan Provinsi Kalimantan Selatan, 2025). Male involvement in family planning was also limited, with vasectomy articipation at 0.2% and condom use at 1.4% (Armayanti et al., 2025; BKKBN, 2020). Barito Koala district faces significant birth control problem, including education, religiosity, access

to health facilities, and spousal support, with spousal support being the most dominant factor affecting birth control issues (Anggraini et al., 2024). 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 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% (Grentzer et al., 2013; Polis et al., 2016). Implants are small, flexible rods inserted beneath the skin of the upper arm and function as hormonal contraceptives (Hassan Ilegbusi, 2022; Nurdiawan, 2025). While contraceptive implants offer numerous advantages, some women may experience challenges such as the need for trained personnel for removal and potential irregular menstrual cycles (Wathoni et al., 2018). Additionally, negative perceptions among users, such as fears that implants could shift position during heavy work, as well as pain during insertion and removal (Farias et al., 2025; Sothornwit et al., 2022). 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, 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 (Armini et al., 2020; Ilmiya, 2025; Marbun et al., 2025; Zuliyanti & Karomah, 2023). Inadequate knowledge regarding health issues limits the effectiveness of health interventions. Video can clarify complex health information, making it more engaging and accessible (Damayanti et al., 2021; Fitriana, 2023; Laraeni et al., 2023).

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 (Aisah 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 of reproductive age (Tertiana et al., 2022; Yuliasih et al., 2025). 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 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 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 Enebeli (2025) and Kolnik (2020) 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 (Fernandes et al., 2024; Salimah et al., 2025; Veras, 2019)

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 (Budiasri & Endimar Septiyana, 2022; Shaikh et al., 2021). 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 (Martinez et al., 2019; Mulekhwa & Nakasolo, 2022). 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 (Fadhilah & Subkhi, 2024). 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 (Prieto-Pinto et al., 2019). 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

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 (Martahayu & Yuanita, 2021). 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

Adam, M., Salomo, R. V., & Riady, Y. (2021). Implementation of population control policy at the department of empowerment, child protection, and population control of DKI Jakarta Province [*in Indonesia*}. *Jurnal Ilmiah Ekotrans & Erudisi*, *1*(1), 109–116. https://doi.org/10.69989/mf8r2v02

Anggraini, F., Kania, N., Febriana, S. K. T., Suhartono, E., & Triawanti. (2024). Factors associated with unmet need for contraception among couples of reproductive age at the Kalahien Community Health Center [*in Indonesia*]. *Media Ilmu Kesehatan*, *13*(3), 322–331. https://doi.org/10.30989/mik.v13i3.1332

Armayanti, L. Y., Mentari, K. S., & Pratama Karma, P. R. (2025). The level of knowledge as a predictor of husband's participation in vasectomy: A study at Buleleng I Community Health Center, 2023. *Sriwijaya Journal of Medicine*, *8*(1), 38–46. https://doi.org/10.32539/sjm.v8i1.330

Armini, N. K. A., Triharini, M., & Nastiti, A. A. (2020). Empowerment of posyandu cadres in promoting family planning and contraception [*in Indonesia*]. *Jurnal Layanan Masyarakat (Journal of Public Services)*, *4*(1), 109. https://doi.org/10.20473/jlm.v4i1.2020.109-115

BKKBN. (2020). *Results of the implementation of the contraceptive service recording and reporting subsystem [in Indonesia].* BKKBN.

Budiasri, A., & Endimar Septiyana, M. (2022). Increased knowledge of implant contraceptive acceptors regarding the side effect of weight gain [*in Indonesia*]. *Jurnal Pengabdian Dan Pemberdayaan Masyarakat ALIFA*, *2*(1). https://doi.org/10.70371/jppma.v2i1.160

Busari, A., Rochaida, E., Hasid, Z., & Kurniawan, E. (2022). Population and economic growth nexus: evidence from Indonesia. *Economic Alternatives*, *28*(4), 697–710. https://doi.org/10.37075/EA.2022.4.08

Damayanti, D. F., Sulistiawati, R., & Marsita, E. (2021). The use of video media to enhance the knowledge and skills of posyandu cadres in conducting stunting detection [*in Indonesia*]. *Jurnal Vokasi Kesehatan*, *7*(2). https://doi.org/10.30602/jvk.v7i2.704

Dinas Kesehatan Provinsi Kalimantan Selatan. (2025). *Health profile compilation - 2024 (in Indonesia).* Dinas Kesehatan Provinsi Kalimantan Selatan.

Aisah, S. H., Ismail, S., & Margawati, A. (2021). Health education using animated video media: A scoping review [*in Indonesia*]. *Jurnal Perawat Indonesia*, *5*(1). https://doi.org/10.32584/jpi.v5i1.926

Enebeli, M. O. (2025). Relationship between health literacy and level of education on health-related behaviours of the Nigerian population in Anambra State. *African Journal of Health, Nursing and Midwifery*, *8*(3), 28–56. https://doi.org/10.52589/AJHNM-EYXRWWKR

Fadhilah, H., & Subkhi, M. R. (2024). Provision of health information and counseling to parents through interactive video media [*in Indonesia*]. *MESTAKA: Jurnal Pengabdian Kepada Masyarakat*, *3*(2), 204–208. https://doi.org/10.58184/mestaka.v3i2.336

Farias, B. R., Faria, G. F., Ximenes, K. G. M., & França, A. S. (2025). Eficácia do Implanon NXT ®, fatores de continuação e descontinuação do método contraceptivo: uma revisão sistemática. *Contribuciones a Las Ciencias Sociales*, *18*(1), e14622. https://doi.org/10.55905/revconv.18n.1-198

Fernandes, P. C. C., Castro, F. F. de, Leão, M. B. B., Silva, K. C. R. da, Luciano, E. A., Lima, S. M. P. F., Silva, M. R. da, Reis, L. N. C., Nascimento, E. A., Silva, J. M. R. da, & Vouillat, S. E. (2024). La sobrecarga de la mujer: Confirmación como principal responsable en la

dinámica familiar. *Observatório de la Economía Latinoamericana*, *22*(12), e8341. https://doi.org/10.55905/oelv22n12-199

Fitriana, S. (2023). The use of animated videos as an educational tool on the knowledge and attitudes of posyandu cadres in stunting risk detection. *Papatung*: *Jurnal Ilmu Administrasi Publik, Pemerintahan Dan Politik*, *6*(1), 51–58. https://doi.org/10.54783/japp.v6i1.692

Grentzer, J., McNicholas, C., & Peipert, J. F. (2013). Use of the etonogestrel-releasing contraceptive implant. *Expert Review of Obstetrics & Gynecology*, *8*(4), 337–344. https://doi.org/10.1586/17474108.2013.811941

Hassan Ilegbusi, P. (2022). Contraceptive Implants. In *Studies in Family Planning*. IntechOpen. https://doi.org/10.5772/intechopen.101999

Huber, D. (2023). Faith leaders, healthy timing and spacing of pregnancies (HTSP), and family planning: What works? *Annals of Global Health*, *89*(1). https://doi.org/10.5334/aogh.4072

Ilmiya, I. (2025). Empowerment of posyandu cadres in selecting contraception appropriate to nutritional status. *Dental Agromedis*, *3*(1), 1–6. https://doi.org/10.19184/da.v3i1.1624

Shaikh, I. B., Jafry, S. I. A., Naqvi, S. M. Z. H., & Firdous, S. N. (2021). Knowledge, attitude and practices regarding implants among women of childbearing age. *Journal of the Pakistan Medical Association*, 1–9. https://doi.org/10.47391/JPMA.971

Karra, M., Maggio, D., Guo, M., Ngwira, B., & Canning, D. (2022). The causal effect of a family planning intervention on women's contraceptive use and birth spacing. *Proceedings of the National Academy of Sciences*, *119*(22). https://doi.org/10.1073/pnas.2200279119

Khan, Md. N., & Harris, M. L. (2023). Association between maternal high-risk fertility behaviour and perinatal mortality in Bangladesh: Evidence from the Demographic and Health Survey. *PLOS ONE*, *18*(11), e0294464. https://doi.org/10.1371/journal.pone.0294464

Laraeni, Y., Adiyasa, I. N., Darni, J., Irianto, I., & Tohriah, I. (2023). The use of video media on cadres' skills in weighing toddlers [*in Indonesia*]. *Pontianak Nutrition Journal (PNJ)*, *6*(1). https://doi.org/10.30602/pnj.v6i1.1145

Marbun, U., Irnawati, I., & Hasnita, H. (2025). Empowering couples of childbearing age to become active family planning acceptors to create quality families. *Abdimas Polsaka*, *4*(2), 125–132. https://doi.org/10.35816/abdimaspolsaka.v4i2.104

Martahayu, V., & Yuanita, Y. (2021). Health education during the pandemic and new normal era using audio-visual-based educational media [*in Indonesia*]. *Selaparang Jurnal Pengabdian Masyarakat Berkemajuan*, *4*(2), 6. https://doi.org/10.31764/jpmb.v4i2.2989

Martinez, F., Parra, I., Andeyro, M., Cristobal, I., & Quilez, J. C. (2019). Barriers to the use of intrauterine devices among healthcare professionals: Evidence against misconceptions . *Progresos de Obstetricia & Gynecologia*, *62*(1), 63–71.

Mukti, B. H. (2025). Sample size determination: Principles and applications for health research. *Health Sciences International Journal*, *3*(1), 127–143. https://doi.org/10.71357/hsij.v3i1.63

Mulekhwa, J., & Nakasolo, S. (2022). Knowledge, attitude and practices towards utilization of implants among women aged 15-45 years attending Bunapongo Health Centre III, Mbale District. A Cross-section Study. *Section of Endocrinology and Reproductive Health*, *3*(6), 12. https://doi.org/10.51168/sjhrafrica.v3i6.159

Nurdiawan, W. (2025). One-rod contraceptive implant as a postpartum contraceptive option. *Indonesian Journal of Obstetrics & Gynecology Science*, *8*(2), 203. https://doi.org/10.24198/obgynia.v8i2.960

Nyongesa, P., Ekhaguere, O. A., Marete, I., Tenge, C., Kemoi, M., Bann, C. M., Bucher, S. L., Patel, A. B., Hibberd, P. L., Naqvi, F., Saleem, S., Goldenberg, R. L., Goudar, S. S., Derman, R. J., Krebs, N. F., Garces, A., Chomba, E., Carlo, W. A., Mwenechanya, M., … Esamai, F. (2023). Maternal age extremes and adverse pregnancy outcomes in low-resourced settings. *Frontiers in Global Women's Health*, *4*. https://doi.org/10.3389/fgwh.2023.1201037

OECD/WHO. (2022). *Health at a Glance: Asia/Pacific 2022: Measuring Progress Towards Universal Health Coverage*. OECD Publishing. https://doi.org/10.1787/c7467f62-en

Polis, C. B., Bradley, S. E. K., Bankole, A., Onda, T., Croft, T., & Singh, S. (2016). Typical-use contraceptive failure rates in 43 countries with demographic and health survey data:

Summary of a detailed report. *Contraception*, *94*(1), 11–17. https://doi.org/10.1016/j.contraception.2016.03.011

Prieto-Pinto, L., Lara-Díaz, M. F., Garzón-Orjuela, N., Herrera, D., Páez-Canro, C., Reyes, J. H., González-Gordon, L., Jiménez-Murcia, V., & Eslava-Schmalbach, J. (2019). Effectiveness assessment of maternal and neonatal health video clips in knowledge transfer using neuromarketing tools: A randomized crossover trial. *PLOS ONE*, *14*(5), e0215561. https://doi.org/10.1371/journal.pone.0215561

Salimah, V. Z., Erwina, W., & CMS, S. (2025). A bibliometric analysis of research on health information-seeking behavior among housewives. *Tibanndaru : Jurnal Ilmu Perpustakaan Dan Informasi*, *9*(1), 37. https://doi.org/10.30742/tb.v9i1.4265

Shah, N., Jehajo, N., & Moazam Hussain, H. (2025). Family planning effects on maternal and child health in Pakistan - A narrative review. *Insights-Journal of Health and Rehabilitation*, *3*(3 (Health & Rehab)), 34–40. https://doi.org/10.71000/jcz83r08

Sothornwit, J., Kaewrudee, S., Lumbiganon, P., Pattanittum, P., & Averbach, S. H. (2022). Immediate versus delayed postpartum insertion of contraceptive implant and IUD for contraception. *Cochrane Database of Systematic Reviews*, *2022*(10). https://doi.org/10.1002/14651858.CD011913.pub3

Kolnik, T. Š. (2020). Health literacy. *Obzornik Zdravstvene Nege*, *54*(3), 196–203. https://doi.org/10.14528/snr.2020.54.3.3057

Tertiana, W., Ariani, N. K. S., & Darmayanti, P. A. R. (2022). Family planning education for women of reproductive age as an effort to mitigate baby booms during the COVID-19 pandemic [*in Indonesia*]. *Jurnal Pelayanan Dan Pengabdian Masyarakat (Pamas)*, *6*(2), 93–104. https://doi.org/10.52643/pamas.v6i2.1792

United Nations Conference on Trade and Development. (2023). *Trade and entrepreneurship in Indonesia from a gender and development perspective*. United Nations. https://doi.org/10.18356/9789213585825c002

Utomo, B., Sucahya, P. K., Romadlona, N. A., Robertson, A. S., Aryanty, R. I., & Magnani, R. J. (2021). The impact of family planning on maternal mortality in Indonesia: what future contribution can be expected? *Population Health Metrics*, *19*(1), 2. https://doi.org/10.1186/s12963-020-00245-w

Veras, M. P. (2019). Gender and informal care: differents sense and meanings for men and women. *Revista de Enfermagem Da UFPI*, *8*(1), 11. https://doi.org/10.26694/2238-7234.8111-16

Wathoni, N., Alfauziah, T. Q., & Rantika, N. (2018). Evolution of contraceptive implants: A review. *International Journal of Applied Pharmaceutics*, *10*(6), 16. https://doi.org/10.22159/ijap.2018v10i6.28391

Yuliasih, N., Sari, P., Bestari, A., Martini, N., & Sujatmiko, B. (2025). Does health education through videos and e-leaflet have a good influence on improving students' reproductive health knowledge, attitudes, and practices? An intervention study in Jatinangor, Indonesia. *Advances in Medical Education and Practice*, *Volume 16*, 29–39. https://doi.org/10.2147/AMEP.S487338

Zuliyanti, N. I., & Karomah, M. R. (2023). The role of cadres in improving the success rate of exclusive breastfeeding in the working area of Winong Community Health Center, Purworejo Regency. *Jurnal ABDIMAS-HIP Pengabdian Kepada Masyarakat*, *4*(1), 24–30. https://doi.org/10.37402/abdimaship.vol4.iss1.219