e-ISSN : 2597-6052

MPPKI MEDIA PUBLIKASI PROMOSI KESEHATAN INDONESIA

Research Articles Open Access

Animated Educational Strategy to Enhance Contraceptive Awareness and Uptake Intention Among Women of Childbearing Age: A Quasi Experimental Study

Mirnawati Mirnawati[1], Mardiana Ahmad[2*], Andi Nilawati Usman[3], Darmawansyah Darmawansyah[4]
[1]Master's Program in Midwifery Science Graduate School Hasanuddin University, Makassar, South Sulawesi, Indonesia
[2,3]Midwifery Science Graduate School Hasanuddin University, Makassar, South Sulawesi, Indonesia
[4]Graduate School Hasanuddin University, Makassar, South Sulawesi, Indonesia

***Corresponding Author**: E-mail: mardianaahmad@pasca.unhas.ac.id

ARTICLE INFO

Manuscript Received: 31 Oct, 2025
Revised: 14 Jan, 2026
Accepted: 12 Feb, 2026
Date of Publication: 02 Apr, 2026
Volume: 9
Issue: 4
DOI: 10.56338/mppki.v9i4.9054

KEYWORDS

Contraceptive Animated Video;
Women of Childbearing Age;
Unmet Need;
Knowledge;
Interest

ABSTRACT

Introduction: Unmet contraceptive needs among women of childbearing age remain a challenge for family planning programs in Indonesia, mainly due to low levels of knowledge and interest. Animated videos have the potential to be an effective, engaging, and easy-to-understand educational tool for conveying reproductive health information. The aim of this research is to determine the effect of animated video media on contraceptive knowledge and interest among women of childbearing age with high unmet need.

Methods: A quasi-experimental pretest-posttest study with a control group was conducted on 86 respondents, divided into an intervention group (animated video) and a control group (flip chart). The research instruments were questionnaires on contraceptive knowledge and interest. The intervention was carried out for 3 weeks in two community health centers in the South Sorong region (Moswaren, Teminabuan). Data were analyzed using Chi-square, Wilcoxon, and Mann-Whitney tests. A quasi-experimental study was conducted among 86 women of childbearing age at Moswaren Health Center, divided into an intervention group (animated video, n = 43) and a control group (flip chart, n = 43). Pre- and post-test scores within groups were analyzed using Wilcoxon tests, with effect sizes (r) calculated for significant changes. Post-test scores between groups were compared using Mann-Whitney tests, and categorical outcomes were analyzed using Chi-square tests; nonsignificant results were explicitly reported to ensure interpretive transparency

Results: There was a significant increase in knowledge and interest scores after education using animated videos in the intervention group, compared with the control group, the difference was statistically significant (p = 0.001). Animated videos proved to be more interesting and easier to understand for women of childbearing age, and encouraged an increase in their intention to use contraception compared to flip charts, which are passive.

Conclusion: The use of animated video media in contraceptive education was proven to be effective in increasing knowledge and interest among reproductive aged women with a high unmet need for contraception. This media is recommended as an educational strategy in family planning programs in areas with limited access and low literacy.

Publisher: Fakultas Kesehatan Masyarakat Universitas Muhammadiyah Palu

INTRODUCTION

Women with an unmet need are those wishing to postpone or avoid pregnancy while not using effective contraception (1). The high *unmet need* contributes to an increase in the birth rate, the incidence of unwanted pregnancies, and abortion, which can increase the risk of maternal mortality (2). The role of contraception is crucial in birth control efforts. Contraception helps couples to plan the number of children they can afford and delay unwanted pregnancies. In addition, contraceptive use also has health benefits, such as preventing high-risk pregnancies for mothers, reducing maternal and infant mortality, and supporting women's empowerment in reproductive decision-making. With adequate access to and education about contraception, people can better understand the significance of family planning as an effort to create a healthy and prosperous generation (3).

Recent statistics indicate that of the 1.9 billion women of reproductive age (15–49 years), 1.1 billion require access to family planning. Among them, 874 million women are utilizing modern contraceptive methods, whereas 164 million still experience unmet contraceptive needs. Globally and in developing countries, these unmet needs remain a significant public health concern, highlighting persistent gaps in family planning services, with approximately 12–18% of women lacking access to modern contraception (4). These macro level trends are mirrored locally at Moswaren Health Center, where women of childbearing age continue to face challenges in contraceptive access and utilization. By explicitly linking these global and regional statistics to the local context, this study identifies specific informational gaps and behavioral barriers such as limited knowledge of contraceptive options that the animated educational intervention is designed to address, thereby improving both contraceptive knowledge and uptake.

Educational interventions have been shown to significantly increase contraceptive knowledge, support informed decision making, and improve attitudes toward contraceptive use in systematic reviews of international studies, highlighting the value of multimedia and other educational strategies for family planning services (5). A randomized educational intervention in a U.S. college setting demonstrated substantial improvements in awareness of a wide range of contraceptive options across diverse student groups (6). Regional research in Indonesia similarly indicates that video-based and other tailored educational approaches effectively enhance contraceptive knowledge and attitudes among women of reproductive age, supporting their potential application in local reproductive health programs (7). Worldwide, unintended pregnancies pose significant risks to the health of women and their families, contributing to high maternal mortality rates and unsafe abortion practices, particularly in developing countries (8).

Globally, approximately 923 million women wish to prevent or postpone pregnancy, with around approximately 75% are currently utilizing modern contraceptive methods. In developing countries, approximately 50% of sexually active women of reproductive age (818 million) indicate that they do not wish to become pregnant, and about 17% (140 million) of these women do not use any form of contraception (9).

According to the latest 2024 family data update, about 11.1% of reproductive aged women in Indonesia experience unmet contraceptive needs, indicating a lack of access to effective family planning services. Although Indonesia has made progress in the provision of contraceptive services, there are still challenges, such as limited information, access issues in remote areas, and socio-cultural barriers that discourage contraceptive use. he unmet need for contraception across Indonesian provinces ranges from 5.6% to 23%, with the highest observed in West Papua (23.6%) and the lowest in the Bangka Belitung Islands (5.6%). Provinces outside Java tend to be in clusters with high unmet need, which corresponds to challenges in accessibility of health services. Meanwhile, the target set by BKKBN is that by 2023, the unmet need rate will reach 7.70 percent and is targeted to drop to 7.40 percent by 2024 (10).

South Sorong is one of the districts in West Papua that also faces similar challenges related to unmet need, with limited access to health services in remote areas. In recent years, several health programs focused on reducing unmet need in this area have been implemented, but major problems remain, especially among younger population groups and those living far from health centers. Reports from the West Papua Health Office and the 2023 SDKI Report show that the unmet need rate in districts such as South Sorong is higher compared to major cities such as Sorong, due to geographical constraints and lack of adequate health facilities. In addition, in Moswaren Health Center based on the data in 2023, the percentage of unmet need is 17% from the target which should only be 7%. This suggests that a substantial proportion of reproductive-aged women at Moswaren Health Center continue to experience unmet contraceptive needs. Factors contributing to the high unmet need for contraception include limited knowledge

and understanding of family planning, cultural norms that discourage open discussion, as well as geographic barriers and limited accessibility for health workers (11).

The results of research by Tambun, Mastaida (2024) show that parity / number of children affects a person in using contraceptives (12). The results of research by Rismawati (2022) indicate a significant association in income (revenue), parity, husband's support, knowledge related to unmet needs (13). Then the results of Namukoko's research (2022) the results indicate statistically significant variations in unmet family planning needs according to women's age, parity, wealth status, and exposure to family planning messages through media (14). In addition, from the results of research by Teshale, Achamyeleh Birhanu (2022) also said that some of the factors for *unmet need* are age in women, education level which certainly affects the level of knowledge, lack of hearing about what family planning is through television media, parity, number of children under 5 years, number of household members, and knowledge of modern contraceptive methods (15).

Advancements in science and technology has a huge impact on everyday life. Quoting the Indonesian Ministry of Education and Culture, advancements in science and technology influence many aspects of human life by facilitating daily activities and work processes (16). Proper education and information about contraception is very important to reduce the unmet need. One method that can be used to provide information is through visual media, such as animated videos. Animated videos can convey information in a more interesting, easy-to-understand manner, and be able to attract the attention of the audience, so as to increase knowledge and motivate interest in using contraception (17). Marizi, Novita, Setiawati (2019) in their research stated that there was a significant increase in knowledge aspects before and after receiving health education through audio-visual media and it was considered more interesting, saved time and could be played repeatedly (18).

However, challenges to contraceptive education in South Sorong include low levels of health literacy among the community, especially in remote areas. Many communities do not fully understand the benefits of contraception due to the lack of effective and sustainable counseling. In addition, the social and cultural stigma that contraceptive use is contrary to traditional values is often a barrier to delivering contraceptive education. This is exacerbated by the lack of health workers who are able to reach hard-to-access areas to provide correct and comprehensive information about contraceptive methods. Another obstacle is the limited communication media that can be used for education campaigns. In some areas of South Sorong, the internet network and telecommunication infrastructure are still inadequate, making it difficult for the government and health institutions to utilize technology to disseminate information. As a result, many people rely on information from unreliable sources, which exacerbates misconceptions about contraception. Although innovative media such as animated videos have been widely used in various health programs, research on their effectiveness in increasing knowledge and interest in contraception among women of childbearing age with unmet contraceptive needs is limited. Most existing studies have focused on conventional methods, such as face-to-face counseling or brochure distribution, and rarely incorporated repeated exposure or risk-based targeting. In contrast, the present study delivers a multi-session, high-intensity animated intervention, integrating 4T-based high-risk classification to tailor content for women most likely to experience unmet contraceptive needs. Animated videos, with engaging visualizations and simple language, remain particularly well-suited to reaching populations in remote areas with low literacy levels. By combining repeated exposure with risk-specific targeting, this study builds on prior audiovisual interventions while addressing gaps in intensity, personalization, and contextual relevance.

The lack of research addressing this creates a significant gap in the development of evidence-based strategies to increase access to and interest in contraception. More in-depth studies are needed to measure how effective animated videos are in increasing the understanding and motivation of women of childbearing age who have limited access to reproductive health information. In addition, research also needs to identify factors that influence the success of this media, such as video duration, visual design, cultural relevance, and distribution platforms. By addressing these research gaps, efforts to reduce the unmet need rate can be done more strategically and based on strong scientific evidence. This study aims to fill these gaps by evaluating the effect of animated contraceptive education videos on knowledge and contraceptive intention among high-risk women with unmet need.

METHOD

Research Type

A quasi-experimental design with a pretest-posttest control group was utilized in this study.

Population and Sample

The study population consisted of women of childbearing age (15–49 years) who visited Moswaren Health Center, South Sorong Regency, Southwest Papua Province. Participants were selected using purposive sampling, a non-probability method, to specifically target women with unmet contraceptive needs who were classified as high-risk. This approach ensured that only respondents meeting the predefined criteria were included, making the data highly relevant and providing in-depth insights into the population of interest. The sample in this study were high-risk unmet need women of childbearing age aged between 15 and 49 years who have the potential to become pregnant. The sample size with the Slovin formula was as follows:

$$n = \frac{N}{1 + N\ X\ e^2}$$

Where:

n is the required sample size

$N = 110$ is the total population of women of childbearing age with unmet contraceptive needs at Moswaren Health Center

$e = 0.05$ represents the margin of error at 95% confidence

Calculation:

$$e^2 = 0{,}05^2 = 0{,}0025$$

$$N\ .\ e^2\ = 110\ x\ 0{,}0025 = 0,275$$
$$1 + (N\ .\ e^2\ ) = 1 + 0,275 = 1,275$$
$$n = \frac{N}{1 + N\ X\ e^2} = \frac{110}{1,275} = 86,27$$

Therefore, the minimum required sample size was 86 participants, ensuring adequate power to detect differences between the intervention and control groups.

The inclusion criteria were as follows: women capable of childbearing who are in the category of unmet need, namely those who do not use contraception and want to delay pregnancy, women capable of childbearing who are willing to become respondents and live in the working areas of Puskesmas Moswaren and Puskesmas Teminabuan, South Sorong Regency, Southwest Papua Province, women of childbearing age with high risk with the following classification:

Age <20 years or >35 years

History of pregnancy complications (repeated miscarriages and low birth weight babies)

Having > 4 children (grand multipara)

Pregnancy spacing <2 years

Exclusion criteria: women capable of childbearing age who have used contraceptives in the last six months, women capable of childbearing age who have certain health conditions that may affect contraceptive use, such as hormonal disorders or chronic diseases, women capable of childbearing age who do not have a husband. Sample dropout criteria: respondents who did not attend the video animation session without prior notice, respondents who felt uncomfortable or unwilling to continue participation after the video screening, respondents who did not complete the questionnaire after the video screening, respondents who experienced technical problems that prevented them from completing the study.

Research Location

Research carried out in two community health centers in the South Sorong region (Moswaren, and Teminabuan).

Instrumentation

The instruments used in this study included an animated video, a flipchart, a knowledge questionnaire administered before and after the intervention (pre-test and post-test), and an interest questionnaire.

The psychometric properties of the questionnaires were evaluated prior to analysis. Item validity was assessed using item total Pearson correlation, and all 30 items showed significant correlations with the total score ($r = 0.494–0.943$, $p < 0.01$). Internal consistency reliability was examined using Cronbach's alpha, which demonstrated excellent reliability (Cronbach's $\alpha = 0.963$).

Data Collection Procedures

Instrument for measuring knowledge of contraceptives with knowledge questionnaire before and after intervention (pre-test and post-test), contains multiple-choice questions related to contraceptives, including: types of contraceptives, how contraceptives work, effectiveness and side effects of contraceptive use, benefits of using contraceptives, soring: each correct answer was assigned a score of 1, while incorrect answers received a score of 0. Instrument for measuring interest in using contraceptives with interest questionnaire (likert scale), contains statements regarding interest in using contraceptives after watching the animated video, with a scale of: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree. The intervention was given 3 times for 3 weeks with a weekly interval.

The participants in this study were assigned to two groups: the first group or intervention group by providing education through animated contraceptive videos to women of childbearing age with high risk unmet need and the second group, namely the control group by providing education through flipcharts to women of childbearing age with high risk unmet need.

Data Analysis

The data were subjected to analysis using the chi-square, Wilcoxon, and Mann Whitney tests.

Ethical Approval

This research received ethical approval under reference number 1127/UN4.14.1/TP.01.02/2025, and permission was granted by the local health authorities. All respondent information was maintained confidentially.

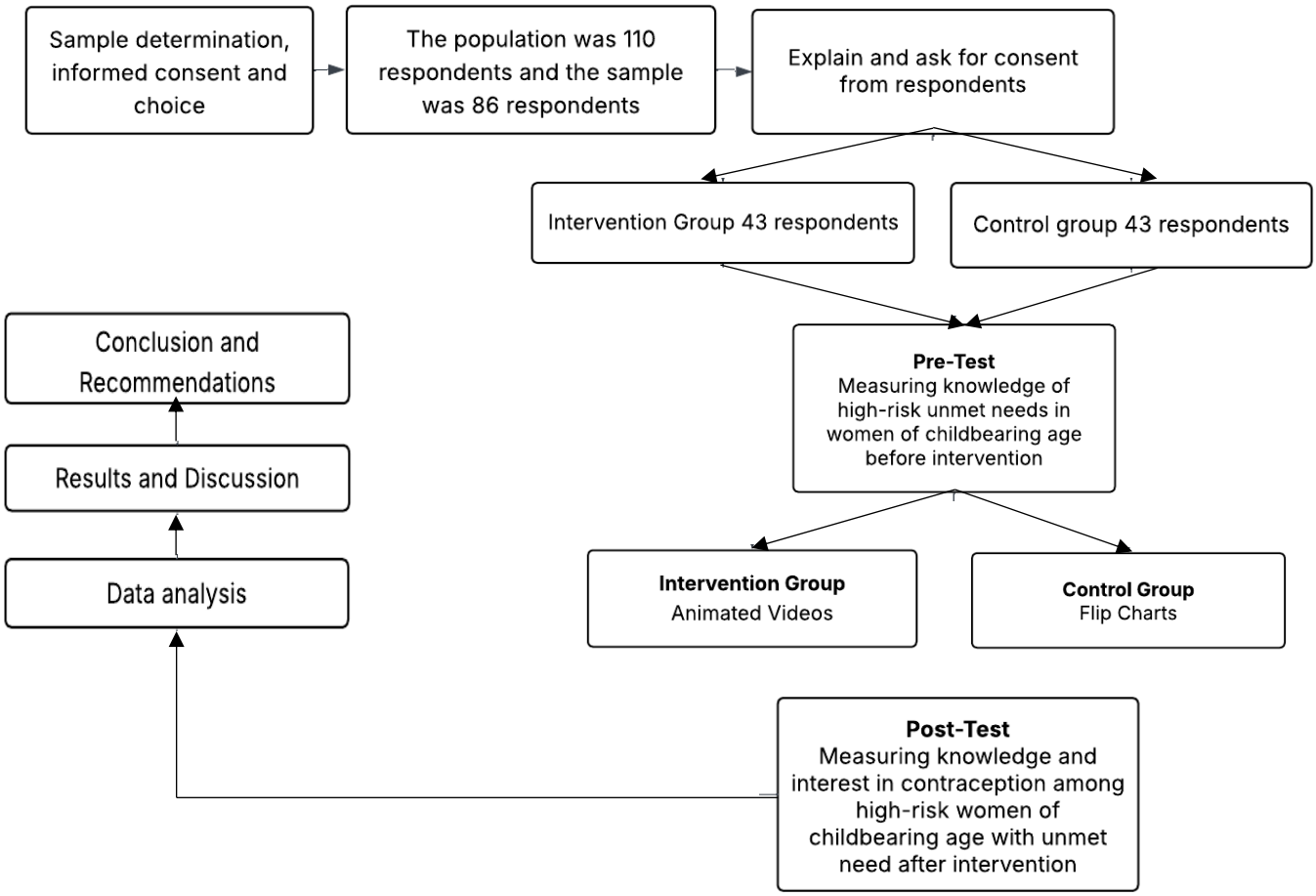

Figure 1. Flow Diagram of Animated Contraceptive Education as a Strategy to Enhance Knowledge and Contraceptive Uptake Intention Among High-Risk Women with Unmet Need

The study began with the determination of the sample, the provision of informed consent, and the selection of respondents. From a total population of 110 individuals, 86 respondents met the inclusion criteria and were enrolled in the study. The respondents were then given an explanation of the study's purpose and procedures, after which written informed consent was obtained. Following consent, the participants were divided proportionally into two groups: an intervention group consisting of 43 respondents and a control group with 43 respondents. Prior to the intervention, both groups completed a pre-test designed to measure their baseline knowledge regarding high-risk unmet needs among women of reproductive age.

The intervention group received educational materials in the form of animated videos, while the control group was provided with counseling delivered through flip charts. After the intervention, both groups completed a post-test to assess changes in their knowledge and interest in contraception among high-risk women with unmet needs. The data collected from the pre-test and post-test were analyzed using appropriate statistical methods to evaluate the effectiveness of the intervention. The results of the analysis were presented in the Results and Discussion section and formed the basis for the study's conclusions and recommendations.

RESULTS

Each group, both intervention and control, consisted of 43 respondents. Respondent characteristics displayed included culture, age, childbirth history, age of last child, parity, latest education, and occupation with the following characteristics:

Tabel 1. Respondent Characteristics

Category		Intervention Group (n=43)		Control Group (n =43)	
		n	**%**	***n***	**%**
Culture	Has ever used traditional family planning methods	19	44.2	15	34,9
	Never used traditional family planning	24	55.8	28	65.1
Age	20 - 35 years (low risk)	30	69.8	33	76.7
	<20 - >35 years (high risk)	13	30.2	10	23.3
Obstetric history	Vaginal delivery (low risk)	36	83.7	33	76.7
	Cesarean section (high risk)	7	16.3	10	23.3
Age of last child	< 2 years (high risk)	19	44.2	22	51.2
	> 2 years (low risk)	24	55.8	21	48.8
Parity	Primigravida	4	9.3	10	23.2
	Multigravida	35	81.4	31	72.1
	Grande multigravida (high risk)	4	9.3	2	4.7
Latest Education	Low education (elementary & junior high school)	14	32.6	26	60.5
	Higher education (high school and above)	29	67.4	17	39.5
Occupation	Not working (housewife)	41	95.3	42	97.7
	Employed	2	4.7	1	2.3

Table 1. shows a comparison of respondent characteristics based on the intervention and control groups, where each group totaled 43 respondents. Cultural distribution (use of traditional family planning) in the intervention group, the majority of respondents never used traditional family planning (55.8%, *n* = 24), in the control group most respondents never used traditional family planning (65.1%, *n* = 28), with a higher proportion than the intervention group. Age characteristics showed that both groups tended to be in the low risk category, where the intervention group had the majority of respondents in the 20-35 years category with low risk, 69.8% (*n* = 30). In the control group, the majority of respondents were in the 20-35 years category with low risk with a slightly higher percentage, namely 76.7% (*n* = 33). The distribution of labor history in both groups was dominated by normal labor, where the intervention group most respondents had a history of normal labor (low risk) of 83.7%% (*n* = 36). In the control group, 76.7% (*n* = 33) of respondents had a normal (low risk) labor history. The age characteristics of the last child showed a difference in proportion between the two groups regarding risk. In the intervention group, the majority of respondents were in the >2 years (low risk) category at 55.8% (*n* = 24). In the control group, the majority of respondents were in the <2 years (high risk) category at 51.2% (*n* = 22). Parity characteristics in both groups were dominated by the multigravida category. Where in the intervention group, the majority of respondents were in the multigravida category at 81.4% (*n* = 35). In the control group, the majority of respondents were still dominated by the multigravida category at 72.1% (*n* = 31). The level of education showed a significant difference between the two groups, where in the intervention group the majority of respondents had a high level of education (high school and above) at 67.4% (*n* = 29). In the control group, the majority of respondents had low education (elementary & junior high school), which amounted to 60.5% (*n* = 26). Employment characteristics in both groups were highly dominated by non-working status (IRT) where in the intervention group almost all respondents did not work (IRT) which amounted to 95.3% (*n* = 41). In the control group the majority of respondents also did not work (IRT) with a very high percentage of 97.7% (*n* = 42).

The 4T risk factors in pregnancy are important indicators for assessing maternal vulnerability. Based on a comprehensive review of the project scope and criteria applied, it can be concluded that all study targets in both the

intervention and control groups were collectively categorized as high risk with multiple 4T categories. A comparison of the distribution of respondents categorized as high risk the comparison between the intervention and control groups is presented in the table below:

Tabel 2. Characteristics of Respondents Based on 4 High Risks

Category		Intervention Group (n =43)		Group Control Group (n =43)	
		n	**%**	***n***	**%**
Age	<20 - >35 years (high risk)	13	30.2	10	23.3
Obstetric history	Cesarean delivery (high risk)	7	16.3	10	23.3
Age of last child	< 2 years (high risk)	19	44.2	22	51.2
Parity	Grande multigravida (high risk)	4	9.3	2	4.7
Total		**43**	**100**	**43**	**100**

The most dominant high risk factor in the intervention group was in the age category of the last child (< 2 years) where the risk was too close as much as 44.2% (*n* = 19), followed by the age category (< 20 - > 35 years) too young or too old as much as 30.2% (*n* = 13), then in the category of childbirth history (caesarean delivery) as much as 16.3% (*n* = 13) and finally in the parity category (grande multigravida (too often) as much as 9.3% (*n* = 4). The most dominant high risk factor in the control group was also found in the age category of the last child (< 2 years) where the risk was too close as much as 51.2% (*n* = 22), followed by the age category (< 20 - > 35 years) too young or too old and the category of history of labor (caesarean delivery) as much as 23.3% (*n* = 10) and finally in the category of parity (grande multigravida (too often) as much as 4.7% (*n* = 2).

The increase in respondents' knowledge was measured through a comparison of the average *pre-test* and *post-test* scores for each learning session, namely session 1, session 2, and session 3. In general, the descriptive data showed a consistent and significant increase in scores in each session. The scores can be seen in the table below:

Tabel 3. Analysis of the Improvement of Respondents' Knowledge Score from Session 1 - Session 3 of Intervention Group and Control Group

Session	Group	n	Pre-test Mean	Pre-test Median	Pre-test Min–Max	Post-test Mean	Post-test Median	Post-test Min–Max	p-value (pre-post)	Effect size (r)	95% CI (pre)	95% CI (post)
1	Intervention	43	43	53.26	50.00	10-100	92.09	90	0-100	0.001	0.866	46.82 - 59.69
1	Control	43	43	37.67	40.00	10-60	55.58	60	30-70	0.001	0.863	34.01 - 41.34
2	Intervention	43	43	74.42	80.00	60-90	96.28	100	90-100	0.001	0.886	74.83 - 80.05
2	Control	43	43	53.02	50.00	30-70	68.84	70	60-80	0.001	0.846	50.21 - 55.84
3	Intervention	43	43	85.58	90.00	70-100	99.77	100	90-100	0.001	0.876	84.80 - 89.16
3	Control	43	43	66.05	70.00	50-80	80.47	80	70-90	0.001	0.888	63.52 - 68.57

*Wilcoxon Signed Rank

Table 3 shows that both groups improved from pre-test to post-test across all three sessions, with the intervention group consistently achieving greater gains than the control group. All pre-post comparisons were statistically significant (p = 0.001), and effect sizes were large in the intervention group (r = 0.866–0.886) compared

to moderate in the control group (r = 0.846–0.888). These results indicate that the animated educational strategy effectively enhanced contraceptive awareness and uptake intention.

Tabel 4. Analysis of Knowledge Differences in Intervention and Control Groups

Variable	n	Mean of Rank	Sum of Rank	p-value
Intervention Group (Animated Video)	43	63.90	2747.50	0.001
Control Group (Flip Chart)	43	23.10	993.50	
Total	86			

* Mann-Whitney test

Based on the analysis of differences in knowledge using animated video media in the Intervention Group and back sheet media in the control group, the results of the *Mann-Whitney* statistical test showed a significant difference. The mean value of rank in respondents who were given intervention using animated video media amounted to 63.90, while in respondents who received education through worksheet media only amounted to 23.10. This shows that the level of knowledge of mothers who are given intervention using animated video media contraception is higher than mothers who are given education using worksheets. With a *p* value = 0.001 (p < 0.05), it can be concluded that overall the results of the mann-whitney test statistically prove that the interventions provided in the form of both animated videos and flip chart are effective in increasing respondents' knowledge. The results showed that the knowledge of respondents in the intervention group was at a higher level than respondents in the control group. This indicates a positive effect of the intervention, in line with the Health Belief Model (Rosenstock, 1966), increased knowledge and perceived benefits may enhance contraceptive use intentions (19)Furthermore, the percentage of the results of the interest of women of childbearing age in using contraception in the intervention group was analyzed with the same criteria. This stage aims to test the effectiveness of animated video media and flipcart on maternal interest in using contraception.

Tabel 5. Analysis of Respondents' Interest in Using Contraception in the Intervention Group and Control Group

	Not Interested		Interested		Total		*p-value*
	n	%	n	%	n	%	
Intervention	3	7.0	40	93.0	43	100	0.178
Control	7	16.3	36	83.7	43	100	
Total	10	11.6	76	88.4	86	100	

*Chi square test

The findings indicate that out of a total of 43 respondents in the intervention group, the majority of respondents expressed interest in using contraception, namely as many as 40 respondents (93.0%) after being given an intervention in the form of education using animated contraceptive video media. However, there were still 3 respondents (7.0%) who were not interested in using contraception, which was caused by several factors such as fear of side effects, lack of partner support, or still believing myths about contraception.

Meanwhile, in the control group, out of 43 respondents who were given education using the flip chart media, there were 36 respondents (83.7%) who were interested in using contraception, and there were still 7 respondents (16.3%) who expressed no interest, with reasons including feeling that contraceptive methods were not suitable for their body conditions, lack of knowledge despite being given education, and belief in natural or traditional methods.

The results of the chi-square statistical test showed that the *p* value = 0.178, where the p value > 0.05, so it can be concluded that there is no significant difference between the intervention group and the control group in terms of interest in using contraception. Thus, although there was a difference in proportion between the two groups, the difference was not statistically significant.

DISCUSSION

Interpretation of Key Findings

The results of the hypothesis test (Wilcoxon Signed-Rank test) consistently showed a highly significant increase in knowledge scores ($p < 0.001$) in both groups (intervention and control) for all three sessions. The effectiveness of audiovisual media aligns with Cognitive Load and Multimedia Learning theories, which propose that learning is optimized when information is presented simultaneously through visual and auditory channels, thereby reducing the cognitive burden on working memory (20,21).

Comparative analysis of the final score (post-test) showed that the intervention group (animated video) had a significantly higher average final score (98.37) than the control group (80.47). This significant difference proves that the animated video media is superior in improving the knowledge of high-risk *unmet need* women of childbearing age. This superiority is supported by the Multimedia Learning Theory where animated videos utilize dual channels (visual and auditory) simultaneously, allowing information to be processed more deeply and stored longer in long-term memory, in accordance with the principles of Dual-Coding Theory (22). The next advantage is attractiveness, where the animation format is able to attract audience attention, overcome boredom, and simplify complex and sensitive contraceptive information to be easily understood, thereby reducing *cognitive load* (23), and the last advantage is relevance to *unmeet need,* where *unmet need* groups often have information barriers. Animated videos overcome literacy barriers that may be an obstacle to text media (flipcharts).

The findings indicate that the animated video intervention was effective in enhancing participants' knowledge regarding contraceptives; however, it did not produce a statistically significant increase in participants' interest in contraceptive use. The results of research conducted by Octavi, Lestari, Munir in 2022 in the *Journal Of Midwifery Care* found a significant association between knowledge of contraception and interest in using IUDs in postpartum women. This increase in interest is a critical bridge from the cognitive phase to the psychomotor/behavioral phase (24). Information delivered in an interesting and easy-to-understand way tends to reduce anxiety, dispel myths, and build positive perceptions of modern contraception, which is an important first step in decision making (25).

Comparison with Previous Studies

Increasing interest in using contraception can be achieved by conveying information through educational media (26). In today's digital age, media plays a crucial role in disseminating information and influencing behavior. Video, in particular, has great potential for effectively conveying health information due to its ability to combine visuals, sound, and narrative elements to capture attention (27). The research by Santibenchakul et al in 2022 in the journal *Contraception and Reproductive Medicine*, which states that animation as a reproductive health medium, and shows that animated videos can strengthen understanding and help audiences focus on the knowledge content (28). In addition, in research Sulistiani, Setiyaningsih (2021) stated that video media is effective in increasing knowledge about intrauterine devices in fertile couples (29). This suggests that video can be an effective educational intervention tool, especially in populations with limited access to information or low literacy.

Limitations and Cautions

Although animated videos effectively improve contraceptive knowledge, social and cultural factors such as traditional fertility practices in South Sorong influence program acceptance. These practices can support the introduction of modern methods when educational content acknowledges and leverages local values.

This study has several limitations: the quasi-experimental, non-randomized design may introduce selection bias; self-reported measures could be influenced by social desirability; the findings are limited to Moswaren Health Center, reducing generalizability; and long-term behavioral outcomes were not assessed. Future research should consider randomized designs and longitudinal follow-up.

Recommendations for Future Research

Future research should explore how educational programs, including animated videos, can be tailored to integrate local cultural values and traditional family planning practices. Understanding how these traditional values can serve as social capital to facilitate the acceptance of modern family planning methods is crucial. Additionally, further studies should investigate the long-term effects of such interventions on actual contraceptive use and

behavioral changes. Future research could also expand on the use of audiovisual media in different regions with varying cultural norms to evaluate the generalizability of these findings.

CONCLUSION

Knowledge scores significantly increased among high-risk women with unmet need in both the group receiving the animated video intervention and the control group (flipcharts) at each intervention session. The animated video was significantly superior and effective in increasing the knowledge of high-risk unmeet need women compared to the flip chart. The animated educational intervention effectively improved participants' knowledge of contraceptives. While the intervention appeared to increase interest descriptively, the between-group difference did not reach statistical significance, indicating that additional strategies may be necessary to translate increased knowledge into behavioral intention. Thus, the use of animated video-based educational media can be one of the innovative and adaptive strategies in an effort to improve reproductive health literacy and wiser family planning decision making. This media not only brings information closer to the target, but also bridges communication barriers that often occur due to low education, time constraints, and the high influence of myths in society. This study is expected to be a practical input for family planning program organizers and health workers, to continue developing extension methods that are not only informative, but also communicative, interesting, and technology based.

AUTHOR CONTRIBUTION STATEMENT

Conceptualization: M and MA, Methodology: MA and ANU, Validation: MA and ANU, Formal Analysis: M and MA, Resources: M, A, ANU, D, Data Curation: MA and ANU, Writing – Original Draft Preparation: M and MA, Writing –Review & Editing: M, MA, ANU, D, Visualization and Supervision, MA, ANU, D

CONFLICT OF INTEREST

There is no conflict of interest in this research.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors declare that this research does not use AI for substantial writing of all parts of the research. The authors use AI only to assist in checking grammar.

SOURCE OF FUNDING STATEMENTS

The authors did not receive financial support from any source for this research.

ACKNOWLEDGMENTS

The researcher thanked women of childbearing age in the South Sorong Community Health Center area for their willingness to participate in this study.

BIBLIOGRAPHY

1. Saputri EE, Winarni LM, Nuryanti, Nugraha RDG. The Factors Affecting the Unmet Need of Family Planning in Banten Province Year 2019. Kemas. 2022;17(3):362–70. https://doi.org/10.15294/kemas.v17i3.27218
2. Arde M. LD, Lubis SN, Nasution PCCA. Analisis Kebutuhan Keluarga Berencana yang Tidak Terpenuhi (Unmet Need) pada Wanita Usia Subur. Jurnal Kesehatan. 2021;12(2):205–11. https://doi.org/10.26630/jk.v12i2.2432
3. Aini D. Pengaruh Penggunaan Kontrasepsi Suntik 3 Bulan Terhadap Gangguan Menstruasi. Jurnal Ilmu Kesehat Rustida| Page 114-121 Vol 10 No 02 Juli 2023 | p-ISSN2356-2528; e-ISSN 2620-9640. 2023;10(02):114–21. https://doi.org/10.55500/jikr.v10i2.195
4. WHO. World Health Sworld Health Organization - World Health Statistics 2024. ISBN 9789240094703. 2024; https://www.who.int/publications/i/item/9789240094703

5. Pazol K, Zapata LB, Tregear SJ, Gavin LE. HHS Public Access. 2016;49:1–19. https://doi.org/10.1016/j.amepre.2015.03.031
6. Yarger J, Schroeder R, Cabral MA, Lamme JS, McCulloch CE, Trieu SL, de Jounge A HC. An Educational Intervention to Raise Awareness of Contraceptive Options Among Young People. J Womens Health (Larchmt). 2022 Feb;31(2):252-260. https://doi.org/10.1089/jwh.2020.8753
7. Chadaryanti D, Susilawati D, Studi P, Kebidanan S, Bidan P, Kesehatan F. Pengaruh Promosi Kesehatan Menggunakan Video Edukasi Terhadap Peningkatan Pengatahuan Ibu Tentang IUD. 2022;14(1):166–73. https://doi.org/10.37012/jik.v14i1.2048
8. Azanaw MM, Fentie DT, Bukayaw YA, Lakew AM, Sisay MM. Spatial distribution and determinant factors of unmet need for family planning among all reproductive-age women in Ethiopia: a multi-level logistic regression modelling approach. Contracept Reprod Med [Internet]. 2022;7(1):1–14. Available from: https://doi.org/10.1186/s40834-022-00178-9
9. Poul A, Seri Ani L, Saurmauri Lubis D. Science Midwifery Identify factors related to the unmet need for family planning in women of childbearing age. Sci Midwifery [Internet]. 2024;12(1):2721–9453. https://doi.org/10.35335/midwifery.v12i1.1461
10. Kusmanto, Samsir Samsir, Ronal Watrianthos and SS. "Distribusi Spasial Unmet Need Pelayanan Kesehatan Dengan Algoritma K-Means Untuk Pemetaan Provinsi Di Indonesia." Bulletin of Information Technology (BIT) 4(3): 362–68. https://doi.org/10.47065/bit.v4i3.862.2023
11. Data Dinas Kesehatan Papua Barat.Provinsi Papua Barat 2023
12. Tambun M. Faktor - Faktor Yang Mempengaruhi Tingginya Angka Unmeet Need KB Pada WUS Di Puskesmas Petumbukan Kec . Galang Kab . Deli Serdang Tahun 2024 Factors That Influence the High Rate of Unmeet Need for KB in WUS at Petumbukan Puskesmas Kec . Galang Deli Serdan. 2024; https://doi.org/10.33143/jhtm.v10i1.4044
13. Rismawati R. Jurnal Ilmu Kedokteran dan Kesehatan Indonesia. 2022;2(1):43–50. https://doi.org/10.55606/jikki.v2i1.602
14. Namukoko, Harriet, Rosemary Ndonyo Likwa, Twaambo E. Hamoonga and MP. Unmet Need for Family Planning among Married Women in Zambia: Lessons from the 2018 Demographic and Health Survey." BMC Women's Health 22(1): 1–9. https://doi.org/10.1186/s12905-022-01709-x. 2022;
15. Teshale AB. "Factors Associated with Unmet Need for Family Planning in Sub-Saharan Africa: A Multilevel Multinomial Logistic Regression Analysis." PLoS ONE 17(2 February): 1–15. https://doi.org/10.1371/journal.pone.0263885.2022
16. Hapsari Z. Pengembangan Media Video Animasi Berbasis Aplikasi Canva untuk Meningkatkan Motivasi dan Prestasi Belajar Siswa. J Basicedu. 2021;Volume 5 N. https://doi.org/10.31004/basicedu.v5i4.1237
17. Susilo AA. "Video Animasi Sebagai Sarana Meningkatkan Semangat Belajar Mata Kuliah Media Pembelajaran Di STKIP PGRI Lubuklinggau." Jurnal Eduscience 8(1): 30–38. https://doi.org/10.36987/jes.v8i1.2116
18. Marizi, Novita S. Effectiveness Of Audiovisual Media On Intra Uterine Device Contrasepption To The Knowledege Of Fertile Women. 2019;14(1):7–12. https://doi.org/10.36086/jpp.v14i1.280
19. Rosenstock IM. Why people use health services. The Milbank Memorial Fund Quarterly, 44(3), 94–127. 1966; https://doi.org/10.1111/j.1468-0009.2005.00425.x
20. S.H. Wijaya, I.M. Tegeh, I.K.Suartama. Pengembangan Video Pembelajaran Muatan Pelajaran Ipa Untuk Siswa Kelas Iv Sd. J Teknologi Pembelajaran Indonesia. 2021;11(1):61–71. https://doi.org/10.23887/jurnal_tp.v11i1.644
21. Mayer, R. E., & Moreno R. Nine Ways to Reduce Cognitive Load in Multimedia Learning. Educational Psychologist, 38(1), 43–52. https://doi.org/10.1207/S15326985EP3801_6.2003;
22. Paivio. Mental representations: A dual coding approach. Oxford University Press. ISBN: 978-0195039368.1986;
23. Utami DRRB. Pengembangan Video Kesehatan Reproduksi Sebagai Media Edukasi Siswa Smp. JurnalIlmu Kesehatan Bhakti Husada Heal Sci J. 2023;14(01):77–83. https://doi.org/10.34305/jikbh.v14i01.664

24. Octavi F Della, Lestari F, Munir R. The Relationship between Mothers' Level of Knowledge and Interest in Using Intrauterine Contraceptives Postpartum. J Midwifery Care. 2022;2(02):133–42. https://doi.org/10.34305/jmc.v2i2.419
25. Handayani I, Supliyani E, Susilawati EH. Pengembangan Media Psikoedukasi Berbasis Video Animasi Untuk Pencegahan Postpartum Blues Ibu Post Sectio Caesarea (Sc). Media Penelitian dan Pengembangan Kesehatan. 2025;35(2):748–59. https://doi.org/10.34011/jmp2k.v35i2.2739
26. Martiana, Cory'ah S. Effectiveness Of Video Education Based On Local Wisdom About Intrauterine Device Contraception To Couples Of Childbearing Age In Puskesmas Kuripan Working Area. 2022;10(2):159–67. https://doi.org/10.32831/jik.v10i2.402
27. Hartati D. Pengaruh Media Video Terhadap Tingkat Pengetahuan dan Minat Pasangan Usia Subur Tentang Kontrasepsi IUD di Wilayah Kerja Puskesmas Jejangkit. 2025;2(3):592–8. https://doi.org/10.59837/jpnmb.v2i3.565
28. Santibenchakul S, Thanativakul K, Jaisamrarn U. An educational video on long - acting reversible contraception as a counseling tool for postpartum adolescents. Contracept Reprod Med [Internet]. 2022;1–6. Available from: https://doi.org/10.1186/s40834-022-00195-8
29. Sulistiani S. Pengaruh Penyuluhan Media Video Terhadap Peningkatkan Pengetahuan Dan Sikap Tentang Kontrasepsi Intra Uterine Devices (IUD) Pada Pasangan Usia Subur. 2021;XIII(01):54–64. https://doi.org/10.35872/jurkeb.v13i01.420