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Comparative Effectiveness of Video-Based and Leaflet-Based Education on Perceptions and Decision-Making Regarding Postpartum Contraceptive Method Selection

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ABSTRACT Postpartum contraceptive planning is an important component of maternal healthcare because timely contraceptive selection can prevent unintended and closely spaced pregnancies and support informed reproductive decision-making. However, the effectiveness of different educational media in improving the psychological determinants of postpartum contraceptive selection remains insufficiently established. This study aimed to compare the effectiveness of video-based and leaflet-based education in improving perceptions and decision-making regarding postpartum contraceptive method selection among third-trimester pregnant women. A quantitative quasi-experimental study with a pretest–posttest two-group design was conducted among 40 third-trimester pregnant women at the Sukomoro Community Health Center, Magetan, Indonesia. Participants were allocated equally to a video-based education group ($n = 20$) and a leaflet-based education group ($n = 20$). Perceptions and decision-making were assessed using a structured questionnaire based on the Health Belief Model. Data were analyzed using paired-samples t-tests, Wilcoxon signed-rank tests, independent-samples t-tests, and Mann–Whitney U tests according to data distribution. Both groups demonstrated significant improvements following the intervention ($p < 0.001$). Perception scores increased from 64.95 ± 3.44 to 84.00 ± 4.03 in the video group, compared with 65.40 ± 3.05 to 73.50 ± 2.01 in the leaflet group. The between-group posttest difference was 10.50 points (95% CI: 8.46–12.54; $p < 0.001$). Decision-making also improved significantly in the video group ($Z = -4.038$; $p < 0.001$), with a significant post-intervention difference between groups ($U = 2.00$; $Z = -5.577$; $p < 0.001$). Video-based education produced greater immediate improvements in maternal perceptions and decision-making than leaflet-based education. Video-based education may therefore serve as a useful component of antenatal counseling to strengthen informed postpartum contraceptive planning.

INDEX TERMS Educational Video, Postpartum Contraception, Perception, Decision-Making, Health Belief Model.

I. INTRODUCTION

The postpartum period represents a critical stage for maternal and reproductive health because decisions regarding contraception can influence pregnancy spacing, maternal recovery, and subsequent reproductive outcomes. Postpartum family planning (PPFP) enables women to initiate an appropriate contraceptive method according to their reproductive intentions, medical conditions, and personal preferences. International guidance emphasizes the importance of providing accurate, understandable, and person-centered information during antenatal and postnatal care so that women can make informed decisions regarding contraception [1]. Family planning counseling integrated into maternal health services has also been associated with postpartum contraceptive uptake, although the magnitude of the effect may differ according to the setting and timing of counseling [2]. Evidence from longitudinal research further

indicates that exposure to family planning information during maternal and child health services is an important component of postpartum contraceptive decision-making [3].

Antenatal care provides an opportunity to introduce contraceptive information before delivery, when women may have sufficient time to consider available methods and discuss their preferences with health professionals and partners. Prenatal contraceptive counseling can facilitate informed choice by addressing contraceptive effectiveness, duration, benefits, adverse effects, eligibility, and individual reproductive intentions [4]. Systematic evidence indicates that postpartum family planning interventions involving education and counseling can increase contraceptive use and may contribute to reductions in unintended pregnancy [5]. However, counseling alone may not always produce consistent outcomes because contraceptive decisions can be influenced by knowledge, perceived benefits and barriers,

previous experiences, social support, and concerns about side effects [6].

The quality and format of health information are therefore important considerations in contraceptive education. Digital health interventions have increasingly been investigated as strategies for improving postpartum contraceptive use, with systematic review evidence suggesting that some digital interventions, including video-based education, may improve contraceptive uptake [7]. Multimedia education can combine narration, visual demonstrations, written information, and contextual examples, potentially facilitating comprehension of information that may be difficult to communicate through conventional verbal counseling alone. A randomized controlled trial of an educational video for postpartum contraceptive implants reported higher immediate implant uptake among women exposed to the video than among women who did not receive the video intervention [8]. Similarly, a postpartum contraception video intervention has been reported to be feasible and acceptable for delivering contraceptive information to women during the postpartum period [9].

Nevertheless, the effectiveness of audiovisual education should not be interpreted as universally superior to other educational approaches. Previous research comparing video-based and conversational contraceptive counseling demonstrated improvements in contraceptive knowledge following both approaches, while differences in contraceptive preferences were also observed [10]. This indicates that the effect of educational media may depend on the content, target population, counseling context, and outcome being measured. Printed educational materials remain relevant because they can provide information that women can review repeatedly and discuss with family members. Structured counseling supported by audiovisual and educational materials has also demonstrated improvements in postpartum contraceptive acceptance and knowledge [11].

Contraceptive selection is not determined solely by knowledge but also involves individual perceptions and decision-making processes. The Health Belief Model (HBM) provides a useful framework for understanding how perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy may influence health-related decisions [12]. Recent research applying the HBM to contraceptive decision-making highlights the importance of individual perceptions and respect for autonomy when women consider contraceptive options [13]. Person-centered contraceptive counseling similarly emphasizes supporting women in identifying their preferences and making decisions consistent with their reproductive goals [14]. Research on peripartum contraceptive decision-making further demonstrates the importance of self-determination and individual decisional needs during contraceptive counseling [15].

Decision-making may also involve communication with partners and family members. Evidence from a systematic review indicates that couples-based interventions can influence postpartum contraceptive uptake, suggesting that interpersonal support may contribute to contraceptive

decisions [16]. However, contraceptive counseling should remain centered on the woman's informed preferences and autonomy. Patient-centered approaches have therefore increasingly been emphasized in perinatal contraceptive counseling to ensure that information is provided without coercion and that women are supported in making voluntary decisions [17]. Studies of postpartum contraceptive counseling in different settings have also demonstrated variation in counseling exposure and contraceptive initiation, reinforcing the importance of accessible and high-quality information during maternity care [18].

Although educational interventions for postpartum contraception have been increasingly studied, evidence specifically comparing two commonly accessible educational formats—video and leaflet—on immediate changes in perception and decision-making remains limited. Recent studies have examined educational videos, structured counseling, mobile health interventions, and multilevel postpartum family planning programs, but these interventions frequently combine several components rather than directly comparing video and printed materials as isolated educational modalities [19]–[22]. Furthermore, educational interventions may influence contraceptive preferences and decisional needs without necessarily producing equivalent changes in perceptions and decision-making processes [23]. These findings indicate a need to examine not only contraceptive uptake but also intermediate outcomes that may precede contraceptive selection, particularly perception and decision-making.

In the context of the present study, differences in local postpartum contraceptive achievement indicate the importance of strengthening antenatal educational strategies that can be delivered efficiently and understood by pregnant women. A comparison between video-based and leaflet-based education may provide practical evidence regarding which medium produces greater immediate improvement in women's perceptions and decision-making regarding postpartum contraceptive method selection. Therefore, this study aimed to compare the effectiveness of video-based and leaflet-based education on perceptions and decision-making regarding postpartum contraceptive method selection among third-trimester pregnant women. The findings are expected to provide evidence for improving antenatal contraceptive counseling through educational media that supports informed, person-centered, and autonomous contraceptive decision-making [24], [25].

II. METHOD

A. STUDY DESIGN AND SETTING

This study used a quantitative quasi-experimental pretest–posttest two-group design to compare the effects of video-based and leaflet-based education on perceptions and decision-making regarding postpartum contraceptive method selection. The study was conducted under routine antenatal care conditions at Sukomoro Community Health Center, Magetan Regency, East Java, Indonesia, from March to June 2026. The intervention was delivered prospectively, with

outcomes measured before and immediately after the educational intervention. Although participants were allocated to the two study groups using a simple random allocation procedure, the study was classified as quasi-experimental because it was implemented within routine antenatal care and did not fulfill all methodological criteria of a randomized controlled trial. Clear reporting of allocation procedures and intervention delivery is important for reproducibility and assessment of potential selection bias [26].

B. PARTICIPANTS AND SAMPLING

The target population comprised third-trimester pregnant women attending routine antenatal care at Sukomoro Community Health Center during the study period. Participants were recruited consecutively from eligible women attending the service. The accessible population consisted of 40 eligible participants, and all eligible participants were included in the study. Following completion of the pretest and written informed consent, participants were allocated equally into a video-based education group ($n = 20$) and a leaflet-based education group ($n = 20$).

The inclusion criteria were: (1) being in the third trimester of pregnancy; (2) being able to communicate independently; (3) owning a smartphone with access to WhatsApp; and (4) providing written informed consent. Participants were excluded if they were in the first or second trimester, had communication or cognitive impairment, were unable to complete both the pretest and posttest questionnaires, or withdrew from the study. All 40 participants completed the study, resulting in complete pretest and posttest data without participant loss. The selection of third-trimester participants was consistent with the opportunity to provide contraceptive information before delivery, when women can consider available postpartum contraceptive options and discuss their preferences [27].

C. RESEARCH AND INSTRUMENT

The primary outcomes were maternal perception and decision-making regarding postpartum contraceptive method selection. Data were collected using a researcher-developed structured questionnaire consisting of 25 statements based on five Health Belief Model constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action. Each item was assessed using a five-point Likert scale. The total score was subsequently transformed to a standardized 0–100 scale for statistical analysis.

Content validity was assessed by experts in maternal and reproductive health to evaluate the relevance, clarity, and conceptual appropriateness of the questionnaire. Construct validity was evaluated in a pilot study involving 50 third-trimester pregnant women using Pearson product-moment item-total correlation. All 25 items demonstrated significant item-total correlations ($r > 0.279$; $p < 0.05$) and were retained. Internal consistency was assessed using Cronbach's alpha, which produced a coefficient of 0.631. The questionnaire was therefore considered sufficiently consistent for the exploratory nature of the study. Assessment of decision-related outcomes using structured measures is consistent with recent research

emphasizing the importance of evaluating women's participation and self-determination in contraceptive decision-making [28], while educational materials can address informational and decisional needs related to contraceptive selection [29].

D. EDUCATIONAL INTERVENTION

Before receiving the intervention, all participants completed the pretest questionnaire. The video group received a 3-minute 26-second educational video adapted from official reproductive health educational material developed by the Directorate of Reproductive Health of the National Population and Family Planning Board (DITKESPRO BKKBN). The video presented information on postpartum contraceptive methods, eligibility criteria, timing of initiation, benefits, possible side effects, common misconceptions, and informed contraceptive decision-making. The content was structured around the HBM constructs to address perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action.

The video was distributed individually through WhatsApp to participants' personal smartphones. Participants were instructed to watch the complete video during a two-day intervention period and were permitted to replay it as needed. Completion of viewing was confirmed through direct communication before posttest administration. The use of audiovisual educational material was selected because previous postpartum contraception studies have demonstrated that multimedia and video-based interventions can be implemented as structured educational strategies and may influence contraceptive-related outcomes [30], [31].

The leaflet group received a two-page A4 educational leaflet containing information equivalent to that presented in the video. The leaflet used simple language, illustrations, and standardized educational messages covering postpartum contraceptive methods, eligibility, timing, benefits, possible side effects, misconceptions, and decision-making considerations. Thus, the primary difference between the two intervention groups was the delivery medium rather than the substantive educational content. This approach was intended to improve comparability between interventions. Educational interventions delivered during the antenatal and postpartum periods have previously been associated with improved contraceptive-related outcomes [32], [33].

To minimize contamination, educational materials were provided individually, participants were instructed not to share materials with participants from the other group during the intervention period, and the posttest was administered immediately after completion of the intervention.

E. DATA COLLECTION AND STATISTICAL ANALYSIS

Participant characteristics and questionnaire scores were recorded using standardized data collection procedures. Descriptive statistics were used to summarize participant characteristics and outcome scores. Normally distributed continuous variables were presented as mean $\pm$ standard deviation, whereas non-normally distributed variables were summarized using the median and interquartile range.

Categorical variables were presented as frequencies and percentages.

Data normality was assessed using the Shapiro–Wilk test. Perception scores were normally distributed; therefore, within-group pretest–posttest differences were analyzed using the paired-samples t-test, while between-group comparisons were performed using the independent-samples t-test. Welch's correction was applied when the assumption of equal variances was not met. Decision-making scores were not normally distributed and were therefore analyzed using the Wilcoxon signed-rank test for within-group comparisons and the Mann–Whitney U test for between-group comparisons. All statistical analyses were conducted using IBM SPSS Statistics version 26.0. Statistical tests were two-sided, and a p-value < 0.05 was considered statistically significant. The analysis strategy was selected according to the distribution of the outcome variables and the paired or independent nature of the comparisons, consistent with recommended reporting of intervention studies [34], [35].

III. RESULTS

TABLE 1

Baseline Characteristics of Participants in the Video and Leaflet Groups

Characteristic	Video (n=20) n (%)	Leaflet (n=20) n (%)
Parity		
Primiparous	8 (40.0)	6 (30.0)
Multiparous	12 (60.0)	13 (65.0)
Grand multiparous	0 (0.0)	1 (5.0)
Age (years)		
<20	0 (0.0)	0 (0.0)
20–35	18 (90.0)	19 (95.0)
>35	2 (10.0)	1 (5.0)
Education		
Elementary school	0 (0.0)	0 (0.0)
Junior high school	3 (15.0)	1 (5.0)
Senior high school	12 (60.0)	6 (30.0)
College/University	5 (25.0)	13 (65.0)
Occupation		
Housewife/Unemployed	2 (10.0)	2 (10.0)
Farmer/Laborer	3 (15.0)	3 (15.0)
Civil servant	7 (35.0)	4 (20.0)
Private employee	5 (25.0)	7 (35.0)
Self-employed	3 (15.0)	4 (20.0)

The study was conducted between March and May 2026 in the service area of the Sukomoro Community Health Center, Magetan Regency, East Java, Indonesia. The health center operates under the supervision of the Magetan District Health Office and serves a broad catchment area by providing comprehensive primary healthcare services, including integrated community health posts (Posyandu) for pregnant women, postpartum and breastfeeding mothers, infants, children under five years of age, and older adults. Regarding participant characteristics, the majority of respondents in both groups were multiparous, accounting for 60% of participants in the video group and 65% in the leaflet group. Most participants were between 20 and 35 years of age, representing 90% of the video group and 95% of the leaflet group.

Educational attainment differed between groups: the video group was predominantly composed of women with a senior high school education (60%), whereas the leaflet group was mainly comprised of participants with a college or university education (65%). In terms of occupation, civil servants constituted the largest proportion of participants in the video group (35%), while self-employed women represented the largest occupational category in the leaflet group (35%).

TABLE 1 presents the baseline characteristics of participants in both groups. In the video group, most participants were multiparous (60.0%), aged 20–35 years (90.0%), had completed senior high school education (60.0%), and worked as civil servants (35.0%). Similarly, the leaflet group was predominantly multiparous (65.0%) and aged 20–35 years (95.0%). However, a higher proportion of participants in the leaflet group had completed college or university education (65.0%), while private-sector employees represented the largest occupational category (35.0%).

Overall, the distributions of age and parity appeared comparable between groups, whereas some differences were observed in educational attainment and occupation. Because this study employed a quasi-experimental design with a relatively small sample, these baseline characteristics were described descriptively and were not included as covariates in the statistical analysis.

TABLE 2

Descriptive Statistics of Perception Scores Before and After Intervention

Group	N	Pretest Mean ± SD	Posttest Mean ± SD	Mean Change
Video	20	64.95 ± 3.44	84.00 ± 4.03	+19.05
Leaflet	20	65.40 ± 3.05	73.50 ± 2.01	+8.10

TABLE 3

Within-Group Comparison of Perception Scores

Group	Video	Leaflet
Test	Paired t-test	Paired t-test
Mean Difference	19.05	8.10
95% CI	17.70–20.40	6.41–9.79
t	29.46	10.03
df	19	19
p-value	<0.001	<0.001
Cohen'sd	6.59	2.24

TABLE 4

Comparison of Baseline (Pretest) Perception Scores Between Groups

Group	Video	Leaflet
Mean ± SD	64.95 ± 3.44	65.40 ± 3.05
Mean Difference	-0.45	
t(df)	-0.44 (38)	
95% CI	-2.53 to 1.63	
p-value	0.664	
Cohen'sd	-0.14	

As shown in TABLE 2, both groups demonstrated improved perception scores following the educational intervention. However, the increase was substantially greater

in the video group (mean change = 19.05 points) than in the leaflet group (mean change = 8.10 points), indicating a stronger educational effect of video-based learning.

TABLE 3 demonstrated significant improvements in perception scores in both groups following the intervention ($p < 0.001$). Nevertheless, the magnitude of improvement was considerably larger in the video group (Cohen's $d = 6.59$) than in the leaflet group (Cohen's $d = 2.24$), indicating a substantially stronger educational effect of audiovisual media.

Based on the TABLE 4, independent-samples t-test showed no statistically significant difference between the video and leaflet groups at baseline ($t = -0.44$, $df = 38$, $p = 0.664$), indicating comparable pre-intervention perception scores.

TABLE 5

Comparison of Posttest Perception Scores Between Groups

Group	Video	Leaflet
Mean $\pm$ SD	84.00 $\pm$ 4.03	73.50 $\pm$ 2.01
Mean Difference	10.50	
t(df)	10.43 (38)	
95% CI	8.46–12.54	
p-value	<0.001	
Cohen'sd	3.30	

Based on TABLE 5, Post-intervention perception scores were significantly higher in the video group than in the leaflet group (mean difference = 10.50 points; 95% CI: 8.46–12.54; $p < 0.001$), demonstrating the superiority of video-based education.

TABLE 6

Comparison of Decision-Making Scores

Outcome	Group	n	Test	Test Statistic
Withingroup	Video	20	Wilcoxon SignedRank	$Z = -4.038$
Withingroup	Leaflet	20	Wilcoxon SignedRank	$Z = 0.000$
Betweengroup	Video vs Leaflet	40	Mann–Whitney U	$U = 2.00$; $Z = -5.577$

Based of TABLE 6, wilcoxon analysis demonstrated a significant improvement in decision-making scores following video-based education ($Z = -4.038$, $p < 0.001$), whereas no significant change was observed in the leaflet group ($p = 1.000$). Furthermore, Mann–Whitney U analysis revealed a significant post-intervention difference between groups ($U = 2.00$, $Z = -5.577$, $p < 0.001$), indicating that video-based education was more effective than leaflet-based education in improving maternal decision-making regarding postpartum contraceptive selection.

IV. DISCUSSION

A. INTERPRETATION OF THE FINDINGS

This study aimed to compare the effectiveness of video-based and leaflet-based educational interventions in improving perceptions and decision-making regarding postpartum contraceptive method selection among third-trimester

pregnant women. The findings demonstrated that both educational approaches produced improvements in maternal perceptions; however, the magnitude of improvement was considerably greater in the video-based education group. The mean perception score in the video group increased from 64.95 ± 3.44 before the intervention to 84.00 ± 4.03 after the intervention, corresponding to an improvement of 19.05 points. In comparison, the leaflet group increased from 65.40 ± 3.05 to 73.50 ± 2.01 , representing an improvement of 8.10 points. The post-intervention comparison showed a statistically significant difference between the two groups, with a mean difference of 10.50 points, a 95% confidence interval of 8.46–12.54, and $p < 0.001$. These findings indicate that although both media can be used to deliver postpartum contraceptive information, video-based education produced a substantially greater immediate improvement in maternal perceptions.

The baseline results provide important context for interpreting this difference. Before the intervention, the perception scores were not significantly different between the video and leaflet groups, indicating that the two groups began the intervention with broadly comparable perception levels. This comparability strengthens the interpretation that the observed post-intervention difference was associated with the educational exposure rather than a substantial difference in baseline perception. Nevertheless, descriptive differences were observed in educational attainment and occupation between the groups. The video group was predominantly composed of women with senior high school education, whereas the leaflet group contained a larger proportion of participants with college or university education. These differences were not incorporated into an adjusted inferential model and therefore remain potential sources of residual confounding.

The improvement in perception can be interpreted using the Health Belief Model (HBM), which was adopted as the theoretical framework of the intervention. The educational content addressed perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action by explaining postpartum contraceptive methods, eligibility, timing, benefits, possible side effects, misconceptions, and informed decision-making. Within this framework, the intervention can function as an external cue to action that increases awareness of the importance of postpartum contraception and encourages women to evaluate the advantages and potential barriers associated with available methods. Therefore, the increase in perception scores may reflect a more favorable appraisal of postpartum contraception following exposure to structured health information.

The larger improvement in the video group further suggests that the effectiveness of health education may depend not only on the information provided but also on how that information is communicated. The video presented information through an audiovisual format, whereas the leaflet relied primarily on written information and illustrations. Audiovisual presentation may allow information to be processed through multiple channels simultaneously and may make complex explanations concerning contraceptive options,

timing, benefits, and possible side effects easier to follow. The video was also distributed through WhatsApp and could be replayed during the two-day intervention period, allowing participants to review the information according to their individual needs. Thus, the greater improvement should be interpreted as an effect associated with the educational delivery format within the conditions of this study.

The findings for decision-making provide a complementary perspective. Video-based education produced a statistically significant improvement in decision-making scores ($Z = -4.038$; $p < 0.001$), whereas the leaflet group showed no significant change ($p = 1.000$). The post-intervention comparison also demonstrated a statistically significant difference between groups ($U = 2.00$; $Z = -5.577$; $p < 0.001$). This pattern indicates that the effect of video-based education extended beyond changes in perception and was also reflected in the measured readiness for contraceptive decision-making. However, the findings should not be interpreted as evidence that video education directly determines actual contraceptive uptake because the study measured decision-making immediately after the intervention rather than subsequent contraceptive behavior.

The distinction between perception, decision-making, and actual contraceptive behavior is important. Contraceptive decision-making is influenced by more than the availability of information. Individual preferences, reproductive intentions, perceived risks and benefits, social circumstances, partner involvement, and interactions with healthcare providers may all contribute to the final choice of method. Recent research on peripartum contraceptive counseling emphasizes the importance of supporting patient autonomy and tailoring counseling to individual circumstances rather than relying on a uniform educational approach [36], [37]. Therefore, the improvement observed in the present study should be regarded as an important intermediate outcome that may support informed decision-making but does not by itself establish subsequent contraceptive adoption.

B. COMPARISON WITH PREVIOUS STUDIES AND IMPLICATIONS

The present findings are generally consistent with recent research demonstrating the potential value of multimedia and digital approaches in postpartum contraceptive education. Qureshey et al. evaluated an educational multimedia intervention for postpartum long-acting reversible contraception and demonstrated the feasibility of using multimedia education as an intervention to support postpartum contraceptive uptake [38]. The present study extends this evidence by directly comparing an audiovisual intervention with a leaflet containing equivalent educational content and by focusing specifically on perception and decision-making rather than only on contraceptive uptake.

The findings are also comparable with those of Boontor et al., who investigated an educational video for immediate postpartum contraceptive implant insertion [39]. Their randomized controlled trial demonstrated an effect of video-based education on immediate implant insertion, although the effect was not maintained at the later follow-up point. This

comparison is relevant because both studies suggest that video-based education can produce meaningful immediate effects. However, the present study assessed psychological outcomes immediately following the intervention, whereas Boontor et al. examined an actual contraceptive behavior. Consequently, the two studies support the potential short-term effectiveness of audiovisual education but should not be interpreted as demonstrating equivalent long-term behavioral effects.

The findings are further supported by the systematic review conducted by Sze et al., which examined randomized controlled trials of digital health interventions for postpartum contraception [40]. Their review indicates that digital interventions represent a potentially useful strategy for improving postpartum contraceptive outcomes. The use of WhatsApp to distribute the educational video in the present study is consistent with this broader movement toward technology-mediated health education. Nevertheless, the present intervention should not be classified as a comprehensive digital health intervention because its primary function was educational rather than continuous clinical monitoring or behavioral support.

The results also correspond with the systematic review and meta-analysis by Hu et al., which examined strategies for improving postpartum contraception compared with routine maternal care [41]. Their findings support the use of educational and counseling strategies within maternal healthcare services, while also indicating that intervention effects may vary according to the intervention design and outcome being measured. In the present study, the stronger improvement observed with video-based education suggests that the delivery format may be an important component when designing antenatal contraceptive education. However, the study does not establish that video is universally superior for every population or clinical setting.

An important contrast can be identified in the findings of Karlin et al. Their 2024 scoping review found that patients often value direct provider–patient discussions and that preferences regarding the timing, content, and modality of contraceptive counseling should be individualized [36]. The review specifically indicates that written or video materials may be useful as components of counseling but should not necessarily replace interpersonal communication. This observation provides an important qualification to the present findings. Although video produced greater immediate improvements than the leaflet in this study, the result should not be interpreted as evidence that video-based education should replace healthcare-provider counseling. Instead, video may function as a standardized preliminary or supplementary educational resource that enables women to obtain basic information before engaging in individualized counseling.

This implication is particularly relevant for antenatal care. The video used in the present study contained standardized information concerning contraceptive methods, eligibility, timing, benefits, possible side effects, misconceptions, and informed decision-making. Such standardization may reduce variability in the information initially received by patients. Healthcare providers can subsequently use the consultation to

clarify questions, address individual concerns, and relate contraceptive options to the woman's reproductive intentions and clinical circumstances. A combined approach may therefore preserve the accessibility and consistency of audiovisual education while maintaining the patient-centered nature of contraceptive counseling.

The findings also have implications for primary healthcare facilities with limited consultation time. A short standardized video can be distributed through commonly used digital communication platforms and replayed by participants, potentially allowing essential information to be delivered outside the direct consultation period. This approach may be particularly useful for third-trimester pregnant women because antenatal counseling provides an opportunity to discuss postpartum contraception before delivery. However, implementation should consider access to smartphones, internet connectivity, digital literacy, language preferences, and individual patient needs. Consequently, video-based education should be implemented as an adaptable educational resource rather than as a mandatory or exclusive communication method.

C. LIMITATIONS, WEAKNESSES, AND FUTURE IMPLICATIONS

Several limitations should be considered when interpreting these findings. First, the study involved only 40 participants, with 20 participants in each group. The small sample size limits statistical precision and restricts the extent to which the findings can be generalized to pregnant women in other healthcare facilities or geographical settings. Although statistically significant differences were observed, replication using a larger and more diverse sample is required to determine whether the observed effect remains consistent across different populations.

Second, differences in educational attainment and occupation were observed between the two groups. The video group was predominantly composed of participants with senior high school education, whereas the leaflet group had a higher proportion of participants with college or university education. Because these characteristics were not adjusted using multivariable analysis, their possible contribution to the observed differences cannot be completely excluded. Future studies should consider baseline-adjusted analyses, such as ANCOVA or regression models, particularly when demographic or socioeconomic characteristics differ between intervention groups.

Third, the study measured outcomes immediately after the educational intervention. This design allows assessment of immediate changes in perception and decision-making but does not determine whether the observed improvements are sustained over time. This limitation is particularly important because contraceptive decisions may change after further counseling, discussions with partners, delivery experiences, or changes in reproductive preferences. Longer follow-up is therefore necessary to determine whether improved perceptions and decision-making are maintained and whether they subsequently influence actual contraceptive selection and continuation.

Fourth, the study measured perceptions and decision-making rather than actual postpartum contraceptive uptake. The significant improvement in decision-making among participants receiving video education is an important finding, but it should not be equated with confirmed contraceptive adoption. Future research should follow participants after delivery and evaluate method initiation, continuation, satisfaction, discontinuation, and reasons for changing methods. Such outcomes would provide stronger evidence concerning the practical effectiveness of the intervention.

Fifth, the questionnaire was researcher-developed and demonstrated a Cronbach's alpha coefficient of 0.631. Although the manuscript considers this acceptable for exploratory research, the relatively modest internal consistency indicates that further validation may be beneficial before the instrument is applied to larger studies. Future research should consider confirmatory validation, test-retest reliability, and evaluation of the instrument across different populations.

Finally, the intervention was designed to reduce contamination by distributing materials individually and instructing participants not to share materials, while posttests were administered immediately after the intervention. Nevertheless, complete elimination of information exchange between participants cannot be guaranteed. In addition, the immediate posttest may be influenced by short-term recall or response effects. These methodological considerations should be addressed in future studies through longer follow-up periods, larger samples, clearly documented allocation procedures, and, where appropriate, blinded outcome assessment.

Overall, the findings suggest that video-based education has potential as a complementary strategy for improving perceptions and immediate decision-making regarding postpartum contraception among third-trimester pregnant women. The principal implication is not that video should replace leaflet-based or interpersonal counseling, but that audiovisual education may strengthen existing antenatal counseling by providing standardized, accessible, and repeatable information. This interpretation is consistent with contemporary evidence supporting individualized and patient-centered contraceptive counseling [36], [37]. Future studies should therefore investigate multimodal interventions that combine video, written materials, and direct provider-patient counseling, while assessing longer-term contraceptive behavior and reproductive outcomes.

V. CONCLUSION

This study aimed to compare the effectiveness of video-based and leaflet-based educational interventions in improving perceptions and decision-making regarding postpartum contraceptive method selection among third-trimester pregnant women at Sukomoro Community Health Center, Magetan. The findings demonstrated that both educational approaches improved maternal perceptions, but the magnitude of improvement was greater following video-based education. The mean perception score in the video group increased from 64.95 ± 3.44 before the intervention to 84.00 ± 4.03 after the

intervention, representing a mean increase of 19.05 points, whereas the leaflet group increased from 65.40 ± 3.05 to 73.50 ± 2.01 , corresponding to an 8.10-point increase. The between-group difference in post-intervention perception was statistically significant, with a mean difference of 10.50 points (95% CI: 8.46–12.54; $p < 0.001$). For decision-making, video-based education produced a significant improvement ($Z = -4.038$; $p < 0.001$), while no significant change was observed in the leaflet group ($p = 1.000$); the post-intervention comparison between groups was also statistically significant ($U = 2.00$; $Z = -5.577$; $p < 0.001$). These findings indicate that video-based education can provide stronger immediate improvements in psychological readiness for postpartum contraceptive selection than leaflet-based education. Nevertheless, the findings should be interpreted within the context of the small sample of 40 participants, the quasi-experimental study design, potential baseline differences in educational attainment and occupation, and the use of immediate post-intervention outcomes. The study therefore provides evidence of immediate educational effectiveness rather than definitive evidence of long-term contraceptive behavior. In clinical practice, standardized educational videos may be incorporated as a complementary component of antenatal contraceptive counseling, while individualized communication with healthcare providers should remain central to voluntary and informed contraceptive decision-making. Future studies should recruit larger and more diverse populations, apply clearly defined randomized allocation and baseline-adjusted statistical analyses, extend follow-up beyond the immediate intervention period, and assess actual postpartum contraceptive initiation, continuation, satisfaction, and method choice. Further research should also investigate whether combining video-based education with interpersonal counseling and written decision-support materials provides additional benefits for informed and patient-centered contraceptive decision-making.

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DATA AVAILABILITY

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request. The data are not publicly available because they contain confidential participant information and are protected in accordance with the approved research ethics protocol.

AUTHOR CONTRIBUTION

Ashio Liana Yudha Wijaya conceived and designed the study, prepared the research proposal, developed the video-based educational intervention, collected the data, implemented the intervention, performed the data analysis and interpretation, and drafted the initial version of the manuscript. Nurlailis Saadah contributed to the study conceptualization, methodological refinement, research supervision, and provided critical review and substantial revisions of the manuscript. Sulikah contributed to the validation of the research methodology, interpretation of the study findings, and scientific review and manuscript editing. Heru Santosa Wahito Nugroho contributed to the statistical analysis, interpretation of the research data, evaluation of the manuscript's scientific quality, and critical revision of the manuscript. All authors reviewed and approved the final version of the manuscript and accept responsibility for the integrity, accuracy, and validity of the work.

DECLARATIONS

ETHICAL APPROVAL

This study was conducted in accordance with established ethical standards and received approval from the Institutional Review Board (IRB) of Poltekkes Kemenkes Surabaya, Indonesia (Approval No. EA/4426/KEPK-Poltekkes_Sby/V/2026). Written informed consent was obtained from all participating third-trimester pregnant women attending the Sukomoro Community Health Center. Participant confidentiality and anonymity were strictly maintained throughout the study, and all research procedures complied with ethical guidelines for research involving human participants.

CONSENT FOR PUBLICATION PARTICIPANTS

Written consent for publication was obtained from all study participants.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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