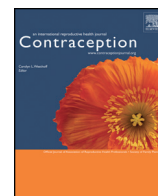




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Original research article

Video compared to conversational contraceptive counseling during labor and maternity hospitalization in Colombia: A randomized trial☆☆☆

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ABSTRACT

Objective: Assess if video-based contraceptive education could be an efficient adjunct to contraceptive counseling and attain the same contraceptive knowledge acquisition as conversation-based counseling.**Study design:** This was a multicenter randomized, controlled trial examining contraceptive counseling during labor and maternity hospitalization regarding the options of immediate postpartum contraception. At two urban public hospitals, we randomized participants to a structured conversation with a trained counselor or a 14-min video providing the same information. Both groups received written materials and were invited to ask the counselor questions. Our primary outcome was to compare mean time for video-based education and conversational counseling; secondary outcomes included intended postpartum contraceptive method, pre- and postintervention contraceptive knowledge, and perceived competence in choosing a method of contraception.**Results:** We enrolled 240 participants (conversation group=119, video group=121). The average time to complete either type of counseling was similar [conversational: 16.3 min, standard deviation (SD) ± 3.8 min; video: 16.8 min, SD ± 4.6 min, $p=.32$]. Of women intending to use nonpermanent contraception, more participants intended to use a long-acting reversible contraceptive (LARC) method after conversational counseling (72/103, 70% versus 59/105, 56%, $p=.041$). Following counseling, mean knowledge assessment scores increased by 2 points in both groups (3/7 points to 5/7 correct). All but two participants in the video group agreed they felt equipped to choose a contraceptive method after counseling.**Conclusions:** Compared to in-person contraceptive counseling alone, video-based intrapartum contraceptive education took a similar amount of time and resulted in similar contraceptive knowledge acquisition, though with fewer patients choosing LARC.**Implications:** Video-based contraceptive education may be useful in settings with limited personnel to deliver unbiased hospital-based, contraceptive counseling for women during the antepartum period.

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1. Introduction

There is limited research investigating how contraceptive counseling is provided, for example, through conversations with clinicians, written materials or audiovisual techniques. Few studies have assessed counseling for postpartum contraception, and most investigated postpartum counseling, missing an opportunity for patients to initiate long-acting reversible contraceptive (LARC) methods or permanent contraception, as their provision within the childbirth period is time-

sensitive [1,2]. Prior studies have shown that video-based contraceptive education can result in increased LARC uptake [3,4]. Others demonstrated increased knowledge gain and satisfaction, especially when paired with clinician counseling [2,5].

In a 2015 survey of Colombian women who were sexually active or in relationships, only 61% were using contraception regularly [6]. Of women using contraception, 8% reported using a LARC method, the copper intrauterine device (IUD) or contraceptive implant, and 23.6% reported use of permanent contraception [6]. In our baseline assessment of three public hospitals, 7.3% of women had undergone a tubal ligation procedure prior to hospital discharge. Many women in Colombia rely on permanent contraception due to limited access to LARC and cultural beliefs about contraception; however, a recent survey found that 16% of women utilizing permanent contraception regretted this decision at the time surveyed, of which 79% stated that they desired more children [6].

Since many women do not receive prenatal care at the facility in which they deliver, decisions about family planning prior to labor are not easily communicated to hospital staff. Given staffing limitations, it is challenging to provide individualized contraceptive counseling. Furthermore, contraceptive counseling is currently not incorporated into routine prenatal care. In this study, we sought to demonstrate that video-based contraceptive education could be an efficient adjunct to counseling and attain the same level of family planning knowledge as conversation-based counseling.

2. Material and methods

2.1. Study population

This was a randomized controlled trial of patients admitted to a hospital for childbirth conducted in 2015–2016 at two public, urban, high-risk maternity care hospitals in Colombia. Participants enrolled in this study were simultaneously enrolled in the “Colombia: Maternidad Segura” (COMSE) study, a multicenter cohort study investigating postpartum LARC uptake and continuation. The first site, “Unidad Hospitalaria de Manrique” (UHM) in Medellín, Antioquia, has approximately 4000 deliveries per year and has single-payer insurance. The second site, “E.S.E Clínica de Maternidad Rafael Calvo” (CMRC) in Cartagena, Bolívar, has approximately 9000 deliveries per year. We followed the CONSORT reporting guidelines. The Institutional Review Board at Oregon Health & Science University (OHSU) in Portland, OR, USA, Metrosalud in Medellín, the Ethics Committees at the “Universidad de Antioquia” in Medellín and the Ethics Committees at each hospital approved all research protocols. Participant inclusion criteria were hospital admission for anticipated delivery with a live pregnancy at least 20 weeks of gestation. We excluded participants if they rated their level of pain higher than 8 on the Wong–Baker FACES® pain rating scale at the time of enrollment as most of our participants were expected to be in labor during the intervention [7].

2.2. Study procedure

Study personnel approached eligible maternity patients to participate in this study. We enrolled most participants during early labor, but participants were also enrolled during admission for high-risk pregnancies and prior to scheduled cesarean delivery. At UHM, eligible patients only included those admitted for a planned vaginal delivery due to a physical separation of surgical and vaginal delivery wards in the hospital. At CMRC, we recruited patients admitted for vaginal or cesarean delivery. After signing informed consent, we randomized participants to two groups using 1:1 randomization and sequentially numbered sealed opaque envelopes. Randomization was computer-generated by the primary investigators (www.randomization.com) using blocked randomization and completed separately for each of the two study sites. Block sizes allowed for a few more participants to be randomized in each group than planned, in order to allow for dropout.

The *conversation group* participated in a structured, face-to-face conversation with a trained counselor. The *video group* watched a video of a young, female Colombian nurse reading a script of the same information provided by conversational counseling, followed by an invitation to engage in a dialog about their contraception options and ask questions of the counselor. Participants and study personnel were not blinded. Study personnel conducted all interactions in Spanish.

Both groups underwent counseling in a variety of locations, including private and shared patient rooms, which occurred immediately after randomization. We administered a contraception knowledge questionnaire before and after the counseling. This study was complete after they completed the postcounseling questionnaire.

2.3. Counseling intervention

We developed the counseling protocol based on an evidence-based counseling technique called the “GATHER” method, also used in Project CHOICE [8]. We included information about methods that were available in the Colombian public health plan and considered safe during breastfeeding in order of decreasing effectiveness, including tubal ligation, copper IUD (380-A, Jai Pharma, Mumbai, India), subdermal implant (Jadelle implant®, Bayer AG, Berlin, Germany), progestin injection, progestin-only pills and condoms. All of these methods were available during the study prior to hospital discharge or by prescription. Typically, prescriptions or preauthorization for services (tubal ligation, IUD, implant) is provided through primary care sites, and all methods are covered by the public health plan. Information about lactational amenorrhea, the withdrawal method and cycle timing was also provided. We provided both groups with written materials and a chart of relative contraceptive effectiveness adapted from the World Health Organization [9]. Study personnel answered questions for both groups.

We used the same video for both sites, which lasted 13.75 min. Study coordinators showed the video on a small, portable DVD player that could be brought to the participant's hospital bed. Several health care professionals at both hospitals reviewed and approved all materials used in the counseling. We pilot-tested the counseling content with a sample of patients and made adjustments to terminology as needed for clarity.

2.4. Measures

Our primary outcome of interest was to compare the mean time for video-based contraceptive education with additional questions and answers versus conversational contraceptive counseling alone. For the conversational group, counselors measured time with stopwatches as the total duration from the beginning of counseling to the completion of participant questions answered by the counselor. For the video group, time was recorded from video start until the completion of participant questions answered by the counselor. Both were inclusive of possible interruptions.

We assessed family planning knowledge and preferences for postpartum contraception through a seven-question written test, which was administered both before and after the counseling. Questions were true/false or multiple choice and covered topics including contraceptive method effectiveness, fertility and basic definitions. Our secondary outcomes of interest included postcounseling knowledge scores assessed as mean total correct answers to seven multiple-choice questions and the change in the contraceptive method participants intended to use after counseling stratified by tier of effectiveness compared to their reported intention before receiving counseling. The top tier of effectiveness included copper IUD, subdermal implant and permanent contraception; the middle tier included progestin injection and progestin-only contraceptive pills; and the lowest tier included condoms or no method. We also compared the actual LARC uptake prior to hospital discharge by group.

2.5. Statistical analysis

We collected study data on paper precoded forms, which study personnel entered into a secure web-based application designed to support data capture for research studies called REDCap (Research Electronic Data Capture) hosted at OHSU. Study coordinators were trained in the use of REDCap. We used STATA version 14 (StataCorp LP, College Station, TX, USA) for data analysis [10]. A co-investigator completed several monitoring visits to the sites for data quality control.

We compared mean time with standard deviation (SD), mean total correct answers and mean Likert scores between the two groups using *t* test and χ^2 test of proportions. We analyzed data for participants who had complete time data. We excluded one additional subject from all analyses – a participant in the video group with recorded counseling time of 137 min, an implausible result. We handled missing data with case-wise deletion for each variable.

For the sample calculations, we estimated that video-based contraceptive education with additional counseling would last 14 min with an SD of 5 min and conversational counseling 19 min with an SD of 10 min. We derived these numbers from an assumption that some women would not watch the entire video having already decided on a tubal ligation as it is so common in this population. The length of conversational counseling was based on prior experience with this population. We needed a sample size of 54 in each group to show a clinically significant 5-min difference in time, with 90% power and $\alpha < 0.05$. Since 120 participants were being enrolled at each site for the COMSE study, we used that number of participants at each site to enhance our ability to evaluate the knowledge questions and effect on method preferences.

3. Results

3.1. Study population

From 2015 to 2016, 305 women at the two sites were assessed for eligibility (Fig. 1). Sixty-one women declined to participate. Two hundred forty participants were randomized, 120 at each site. A total of 119 were randomized to conversational counseling and 121 to video-based education with additional counseling. One subject in the video group with extremely long total counseling time (137 min) was excluded from all analyses. Table 1 shows that the groups had comparable baseline characteristics. The population consisted of mostly young women (72.8% ≤ 24 years old) with a mean age of 22. Half of participants completed secondary education or higher. Most participants were married or in a civil union (74.1%). Over half had used some method of contraception before (68.2%). A majority of the participants stated they did not want more children in the future or were unsure (61.9%).

3.2. Study outcomes

The primary outcome was to compare the mean time to complete counseling between groups (Table 2). The mean total counseling time between the two groups was not statistically different (conversational: 16.3 min, SD ± 3.8 min; video: 16.8 ± 4.6 min, $p = .32$). Nineteen subjects in the video group had total counseling time less than 14 min, suggesting they did not watch the entire video. These subjects all agreed that the counseling improved their confidence and selected a variety of contraceptive choices. Nearly all participants agreed or strongly agreed that

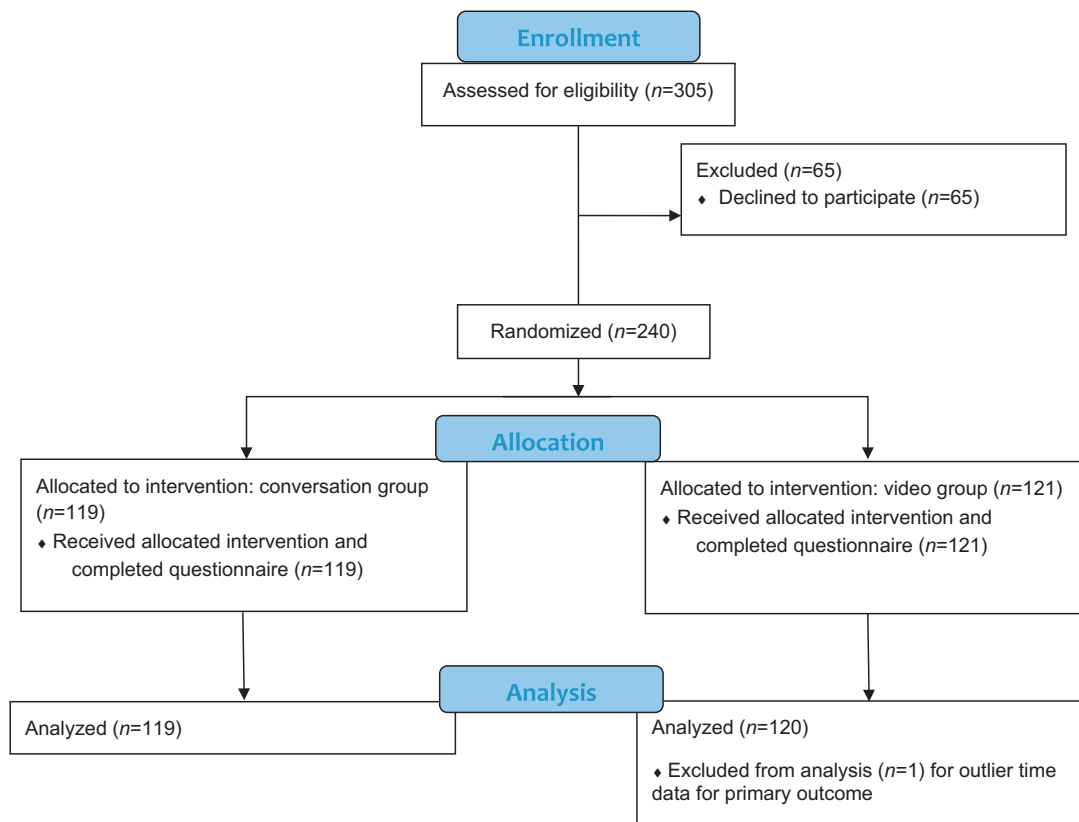


Fig. 1. Study eligibility and flow.

Table 1

Characteristics of participants who underwent contraceptive counseling for postpartum uptake during maternity care

	Conversation n=119 n (%)	Video n=120 n (%)
Age (mean ± SD)	22.1±5.47	21.8±5.21
Age		
<15	5 (4.2)	1 (0.8)
15–19	43 (36.1)	47 (39.2)
20–24	35 (29.4)	43 (35.8)
25–29	23 (19.3)	22 (18.3)
30–34	9 (7.6)	3 (2.5)
35+	4 (3.4)	4 (3.3)
Education		
Some secondary or less	54 (45.4)	63 (52.5)
Completed secondary or higher	65 (54.6)	57 (47.5)
Marital status		
Single	33 (27.7)	29 (24.0)
Married or civil union	86 (72.3)	91 (75.8)
Parity (median, range)	2 (1–4)	2 (1–6)
Nulliparous	87 (73.1)	83 (69.2)
Parous	32 (26.9)	37 (30.8)
Gestational age at admission (mean ± SD)	38.6 (2.2)	38.9 (1.4)
Received any contraceptive counseling previously	66 (55.5)	68 (56.7)
Used contraception prior	86 (72.3)	77 (64.2)
Current pregnancy due to contraceptive failure	25 (21.0)	18 (15.0)
Desire to have more children in the future		
Yes	45 (37.8)	46 (38.3)
No	52 (43.7)	53 (44.2)
Unsure	22 (18.5)	21 (17.5)

they felt more equipped to choose a method of contraception after counseling (conversational: 119, 100%, video: 118/120, 98.3%).

When participants were asked which contraceptive method they intended to use after counseling, many had changed their minds (Table 2). Most significantly, 23 (19.3%) in the conversation group and 26 (21.9%) in the video group desired tubal ligation prior to receiving counseling, yet this decreased to 11 (9.2%) and 9 (7.6%) postcounseling, respectively. The number of participants intending to use an IUD changed minimally in the video group from 16 (13.5%) to 17 (14.3%) and remained at 11 (9.2%) in the conversation group. However, the number of participants wanting the contraceptive implant nearly doubled. In the conversation and video groups, 38 (31.9%) and 27 (22.7%) desired the implant precounseling, and 61 (51.3%) and 42 (35.3%) desired the implant postcounseling, respectively.

The average scores on the pre- and postcounseling seven-question knowledge assessments were similar between conversational and video groups. The mean overall scores increased from approximately three to five correct responses out of seven (Table 3). Participants achieved higher performance on all questions after the counseling, yet one question regarding methods that might lead to infertility remained incorrect for more than 70% of participants.

4. Discussion

We aimed to evaluate the use of a video to deliver hospital-based, LARC-focused contraceptive education for immediate postpartum use. In this randomized controlled trial, we found that video-based contraceptive education with additional counseling and a conversational counseling session take nearly the same amount of time for women. Video as an educational tool provides standardized contraceptive information to women who could not receive it otherwise and with only minimal counselor time required for each woman. The routine incorporation of this simple and readily available technology into health education could be beneficial for this population, which consists of adolescents who are very receptive to technology. In alignment with prior studies investigating the use of video for information provision, participants in this study were equivalently able to answer the knowledge questions as the conversational counseling group.

Table 2

Time to complete counseling, competence in method choice after counseling, and intended contraception before and after counseling based on randomization to conversational versus video counseling

	Conversation n=119 n (%)	Video n=120 n (%)	p value
Time to complete counseling (mean ± SD)	16.3±3.8	16.8±4.6	.32 ^a
Subjects “felt more equipped to choose a method of contraception”			.04
Strongly agree	17 (14.3)	7 (5.8)	
Agree	102 (85.7)	111 (92.5)	
Neutral	0	0	
Disagree	0	2 (1.7)	
Strongly disagree	0	0	
Intended contraception before counseling			.28
Copper T IUD	11 (9.2)	16 (13.5)	
Implant	38 (31.9)	27 (22.7)	
Tubal ligation	23 (19.3)	26 (21.9)	
Injection	28 (23.5)	36 (30.3)	
Pills	7 (5.9)	5 (4.2)	
Condom	5 (4.2)	7 (5.9)	
No method	7 (5.9)	2 (1.7)	
Intended contraception after counseling			.18
Copper T IUD	11 (9.2)	17 (14.3)	
Implant	61 (51.3)	42 (35.3)	
Tubal ligation	11 (9.2)	9 (7.6)	
Injection	26 (21.9)	40 (33.6)	
Pills	3 (2.5)	2 (1.7)	
Condom	2 (1.7)	4 (3.4)	
No method	5 (4.2)	5 (4.2)	
Tier change for intended method (if any)			.13
Moved up 1–2 tiers	8 (6.7)	11 (9.2)	
Stayed at same tier	91 (76.5)	98 (82.4)	
Moved down 1–2 tiers	20 (16.8)	10 (8.3)	

Unless otherwise marked, the p values were calculated using χ^2 test of proportions and reflect significant differences between groups at a level of significance $\alpha=.05$.

^a The p value was calculated using t test.

In our study, conversational counseling resulted in more participants intending to use a LARC method, most notably the implant, after the counseling, suggesting that receiving contraceptive information from a counselor affected decision making and speaks to the potential benefit of using a counselor over a video. In both groups, the number of participants wanting permanent contraception decreased, which is an important finding in this young population due to the life-long implications of choosing a permanent method. The two-point gain in average knowledge scores demonstrated that the counseling provided new information to participants; however, there were still gaps in knowledge after the counseling, revealing that improvements could be made to the counseling content. In particular, prevalent myths, such as IUDs causing infertility, should be addressed directly.

This study had limitations. During enrollment, participants were informed that we were studying the impact of counseling on contraceptive method uptake and told which methods were available to them during the study, which could have impacted their decision. When recording time for the video, participants were able to pause the video, but the time for counseling was still recording. This could have skewed the mean time for video-based education higher. Labor pain could have impacted the ability of a participant either to focus on information or to retain knowledge. However, we did not measure pain so cannot comment on this potential confounder. Additionally, since participants interacted with a counselor, we did not evaluate the video as a stand-alone method of providing contraceptive information; therefore, we are unsure of the extent to which the question-and-answer portion affected the outcomes. However, since patients interface with clinicians at some point during the obtainment of contraception, this closely mimicked the use of a video in real clinical settings.

There are many strengths of this study. We designed and implemented this study with a coalition of investigators and policy makers from Colombia and the United States. We engaged in capacity building

Table 3

Contraceptive knowledge assessment before and after counseling based on randomization to conversational versus video counseling during hospital admission for birth

Question	Conversation n= 119 ^a		Video n= 120 ^a		p value for postintervention between groups
	Pre	Post	Pre	Post	
	n correct (%)				
Q1: What is family planning?	83 (69.8)	119 (100)	96 (80.7)	114 (95.0)	.01
Q2: Are there differences in the chance of getting pregnant based on the method of contraception used?	66 (55.9)	104 (88.1)	63 (52.5)	95 (79.2)	.06
Q3: What is the copper T?	70 (58.8)	117 (98.3)	69 (57.5)	117 (97.5)	.66
Q4: Which of these methods is most effective?	28 (23.7)	92 (77.3)	33 (27.7)	88 (75.2)	.71
Q5: Can women get pregnant while breastfeeding?	85 (72.0)	89 (74.8)	83 (69.2)	88 (73.3)	.80
Q6: Which of these methods leaves a woman sterile?	13 (10.9)	20 (16.8)	12 (10.0)	31 (26.1)	.08
Q7: Are the implant and copper T as effective as permanent methods?	20 (16.9)	82 (68.9)	14 (11.7)	76 (63.9)	.41

The p values in this table were calculated using χ^2 test of proportions.^a The number of responses may not add to group totals since some questions were not completed.

to ensure that improvements to the delivery of care would be sustainable after the end of the study. We utilized secure web-based tools to share data internationally and performed regular remote and on-site monitoring to ensure that study parameters and quality of data collected were upheld through the duration of the study.

Often in resource-limited health care facilities, a sufficient number of contraceptive counselors cannot be maintained on staff to meet the needs of all patients, which contributes to a deficit of family planning knowledge in communities. A video can be created locally and provide standardized unbiased, contraceptive education quickly when health care workers are uncertain or have limited knowledge. Future studies should investigate the use of a video for contraceptive education in other settings.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.contraception.2018.05.004>.

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