

## Influencing compliance/adherence/continuation of contraception

Study ID	Participants	Interventions	Outcome	Statistical Method	Effect Size	Women's Knowledge	Positive Experience & Confidence	Unacceptable Side Effects and Safety Concerns	Information . Support, Advice	Ongoing husband/partner influences
Andolsek 1982	1030 women attending Human Reproduction Unit. Women with contraindications for any type of contraception were excluded from study.	Group motivation counseling by specially trained medical nurses versus routine counseling by physician or nurse. Lecture and audiovisual presentation; one time.	<p>Discontinuation of selected contraceptive at six months</p> <p>Discontinuation due to side effects of selected contraceptive</p> <p>Discontinuation due to dissatisfaction with selected contraceptive</p> <p>Discontinuation due to pregnancy</p> <p>Discontinuation because no contraception</p>	Odds Ratio (M-H, Fixed, 95% CI)	<p>1.04 [0.80, 1.34]</p> <p>1.34 [0.72, 2.48]</p> <p>0.61 [0.38, 0.98]</p> <p>0.67 [0.31, 1.45]</p> <p>1.03 [0.66, 1.59]</p>					

			was needed							
			Discontinuation for other reason		0.71 [0.44, 1.16]					
Canto De Cetina 2001	350 women attending Family Planning Clinic and willing to use DMPA for contraception. Inclusion criteria were: between 18-35 years old, living in rural area; proven fertility; regular menstrual cycles during previous 6 months; not breastfeeding; at least one child; normal PAP smear; willing to use DMPA as only contraceptive agent during course of study; willing to return to clinic every 3 months.	Structured pre-treatment and follow-up counseling versus routine pre-treatment counseling.	Discontinuation by 6 months	Odds Ratio (M-H, Fixed, 95% CI)	0.36 [0.20, 0.64]					
			Discontinuation by 12 months		0.27 [0.16, 0.44]					
			Discontinuation due to menstrual disturbances		0.20 [0.11, 0.37]					
			Discontinuation due to other medical reasons		0.84 [0.36, 1.92]					
Gilliam 2004	33 African American low-income females attending Prentice Ambulatory Care. This resident-run clinic serves low-	Antepartum, multi-component intervention consisting of counseling, a videotape about OCs, and written material vs resident-physician	Continuation of oral contraceptives at one year	Odds Ratio (M-H, Fixed, 95% CI)	1.14 [0.21, 6.16]					

	income women receiving public assistance. Inclusion criteria: 25 years or younger; with unplanned pregnancy; intending to use OCs postpartum.	counseling (usual care).	Known pregnancy by one year  Switched contraceptives by one year		1.3 [0.19, 9.02]  3.2 [0.67, 15.38]					
Jay 1984	57 adolescents attending adolescent gynecology clinic and were willing to use oral contraceptives.	Peer versus nurse counseling at three appointments for both groups	Non-compliance (Guttman score) at four months  Attrition at four months	Mean Difference (IV, Fixed, 95% CI)  Odds Ratio (M-H, Fixed, 95% CI)	-0.21 [-0.88, 0.46]  0.42 [0.13, 1.32]					
Keder 1998	250 women attending clinic and willing to use DMPA for contraception. Inclusion criteria: access to a telephone and planning to return to same facility for continuing care.	Mail and telephone reminders of next injection two weeks before each scheduled injection versus written appointment card.	Discontinuation at 12 months  On-time injections of those who continued DMPA  On-time injections overall	Odds Ratio (M-H, Fixed, 95% CI)	1.11 [0.67, 1.82]  0.75 [0.22, 2.63]  1.26 [0.75, 2.12]					

[Andolsek 1982](#) examined the effect of counseling by group motivation on contraceptive choice, length of use, and reason for discontinuation at six months. From 1030 women obtaining services at a university hospital in Slovenia (former Yugoslavia), 503 women were chosen at random for the group-motivation arm. Of the original 1030 women, 600 had an induced abortion a month earlier, while 430 came primarily for contraceptive advice. Group motivation was facilitated by five specially-trained nurses. They explained in a simple 30- to 60-minute lecture, using audiovisual aids, about genital tract anatomy and physiology, the physiology of conception, and general family planning. They also explained in detail the advantages and disadvantages of the available contraceptive methods. The women in the control group received only brief information on the existing methods from their physician or nurse. Length of use was assessed with the six-month discontinuation rates, which included only women who ceased using the chosen method and not those lost to follow up.

[Canto De Cetina 2001](#) compared structured counseling with routine counseling to improve adherence in women receiving DMPA for contraception. The study enrolled 350 women at a family planning clinic in Merida, Yucatan (Mexico), who voluntarily chose DMPA for contraception. In rural areas of Yucatan, Mexico, women have cultural beliefs about amenorrhea. They generally believe that when amenorrhea is not produced by pregnancy or breastfeeding the monthly blood fluid is deposited in the uterus and has a toxic effect on the body. The purpose of this study was to determine whether counseling about possible menstrual disturbances, such as amenorrhea or other side effects that could be expected with DMPA use, affects the rate of discontinuation. Participants were randomized to receive either structured or routine counseling (175 women per group). The women in the first group (counseling group) received a structured pretreatment counseling with indications about the mode of action of DMPA, the common side effects of the drug, including the possibility of irregular menstrual periods, heavy bleeding, spotting, and amenorrhea. To mentally prepare users for potential side effects, it was stressed that these side effects would be not detrimental to their health. These indications were repeated at each follow-up visit. We encouraged women to return to the clinic if they had concerns about the effect that DMPA was having on their health; the information was provided by means of an audiovisual set specially developed to uniform messages on risks, benefits and overall characteristics of the injectable. Participants in the control group received routine information on the expected side effects of DMPA. Timing of follow-up visits coincided with the injection time, which was every three months for one year. The study assessed side effects, discontinuation at 12 months, and reasons for discontinuation. The cumulative discontinuation at 12 months included those lost to follow up. Findings suggest that pretreatment counseling on expected side effects increases continuation rates of DMPA users.

Table 1 Sociodemographic characteristics

Characteristics	Counseling group (175 women)	Control group (175 women)
Age in years, mean (range)	33.9 (20–35)	34 (20–35)
Education mean (range)	2.9 (0–7)	3.1 (0–7)
Total live births, mean (range)	4.3 (1–6)	4.2 (1–6)
Previous contraceptive method	71 (41.0%)	78.0 (44.6%)
IUD	5 (7.0%)	3 (3.8%)
Orals	35 (49.3%)	41 (52.6%)
Injectables	10 (14.1%)	11 (14.1%)
Condoms	8 (11.3%)	10 (12.8%)
Traditional methods	13 (18.3%)	13 (16.7%)

[Gilliam 2004](#) studied an antepartum, multi-component intervention that included counseling, a videotape about oral contraceptives (OCs), and written material. It was compared with resident-physician counseling and aimed to increase adherence to OCs and to decrease repeat unplanned pregnancies in young women. They present the results of a contraceptive-promoting, pregnancy-preventing intervention for postpartum African American women based on the principles of self-efficacy. This program was developed through formative research with the target population to enhance self-efficacy in contraception, condom use and pregnancy prevention. The objective of the study was to examine whether a postpartum educational intervention aimed at enhancing self-efficacy would lead to an increase in OC compliance and a decrease in repeat pregnancies for adolescent and young adult women in the year following an unplanned pregnancy. A secondary outcome was to conduct a longitudinal assessment of OC knowledge. Prior to hospital discharge, all participants received resident-physician counseling, typical postpartum care for this hospital in Chicago, Illinois (U.S.). The investigators developed a program of counseling to be administered by a resident-physician to each participant prior to hospital discharge. Residents discussed how to take the pill, what to do if a pill is missed, side effects, risks and benefits of OCs. In addition, all participants received three labeled pill packets with pill-taking instructions taped to the inside cover and phone numbers to provide 24-h access to a physician if they had contraceptive questions. Procedures were identical for both the intervention and control group.

In addition to the above, members of the intervention group participated in a one-time, post-delivery, intervention consisting of a program of counseling, a videotape about OCs and written material. In addition to counseling by a resident-physician, women in the intervention group received one-on-one counseling by a nurse prior to discharge. During this counseling, principles of self-efficacy were emphasized. For example, women were asked with which daily act they planned to associate their pill-taking. Each subject reviewed a typical day with the nurse and determined what activity would best fit in her schedule. Contact telephone numbers (with 24-h availability) were discussed, as were typical scenarios, "say you missed a pill, what would you do?" In this way, missed pills, backup methods, and when to contact a nurse or a physician were reviewed. The nurse also reviewed all written educational material in detail. All participating residents and nurses completed a training session for the purposes of this study. By signing a checklist, counselors documented that they had covered all topics. A central component of the educational intervention was a videotape based on principles of self-efficacy. The 10-min and 24-s videotape incorporated on-camera interviews with African American women who received care at our clinic. These women were similar to the target population, but were not pregnant. All women were articulate and engaging in describing their experiences with OC use. For example, one woman tells her story of receiving a scholarship to attend an East Coast preparatory school and her subsequent devastation when she has to leave college because she became pregnant. An African American physician and nurse provide didactic segments on the health benefits of OCs, dealing with side effects, emergency contraception and condom use. Music, visual images and street scenes from African American neighborhoods help to further root this videotape in the African American community. Participants viewed the videotape in their room or in the patient lounge prior to discharge. With the help of a graphic designer, we created six informational sheets about taking OCs. Attention was paid to using colorful graphics, question-and-answer format, bulleted messages and simple behaviors. Topics reviewed included (a) how to take OCs; (b) what to do if a pill is missed; (c) how OCs work; (d) emergency contraception; (d) risks and benefits of OCs and (e) myths about OCs. In addition, the last page included information on contacting a nurse or physician if a question should arise. We relied heavily on graphic representation. For example, the sheet entitled "How to Take the Pill" has large colorful pictures of a pill package with arrows indicating how to take the pill. Principles of self-efficacy were also stressed. The sheet of pill-taking instructions reminds women to take a pill each day and depicts alarm clocks in the margins. The study enrolled 43 women during their antepartum visits, but not all used OCs. 33 women were randomized into one of the study groups, with 18 women to the intervention group and 15 to the control group.

The study assessed adherence to OCs at one year through the following variables: still using OCs, switched to a different method, not using contraception, and pregnancy. Data were collected at the time of enrollment (between 34 weeks and term); immediately following the intervention (or resident-physician counseling); and at 6 weeks, 6 months, and 12 months postpartum. The follow-up visits were intended to complement routine clinical visits when possible.

We detail elsewhere that the intervention group showed greater knowledge immediately after the intervention compared to the control group. We repeated the 10-item knowledge questionnaire at each time point to see whether participants retained OC knowledge. A subset of participants had data at all three time points. When looking at this subgroup, a statistically significant change in knowledge is also demonstrated within the intervention group compared to the control group and this knowledge was maintained throughout the study period.

Several aspects of our program are notable. Videotape was a central component of counseling, providing an easily reproducible means of patient education. As health care practitioners have limited time, it is possible that videotape provides an inexpensive and efficient means of conveying contraceptive information and bridging cultural barriers. We have used a similar technique with a Latino patient population with success. Using peers to provide counseling has been shown to be effective in promoting OC use. A theory-driven program provides another strength of this study. Other investigators advocate using a theoretical basis for contraceptive interventions. Theory-based interventions have the advantage of focusing both the intervention and the evaluation around a set of behaviors and outcomes. In addition, women who participated in our intervention demonstrated an increase in knowledge that occurred immediately post-intervention; here we show that this knowledge was sustained throughout the study period. This change in knowledge is important, as others have shown that many women do not understand traditional methods of providing OC information and lack of knowledge, poor recall, and low literacy are risk factors for poor compliance. Using videotape and written materials, reviewed and approved by the target population, may be a particularly appropriate method for conveying complex information to low-literacy populations.

Table 1 Demographic characteristics

Characteristic N (%)

Age

Range 15–25

Mean 19

Highest level of education reached

Grade school 1 (3)

High school 22 (60)

College 14 (37)

Marital status

Unmarried 43 (100)

Married 0

Employment status

Unemployed 32 (75)

Employed 11 (25)

Gravity

Mean \_ SD 2.2 \_ 1.43

Parity

Mean \_ SD 0.6 \_ 1.27

[Jay 1984](#) compared peer counseling with nurse counseling to improve adolescent adherence to COCs. From an adolescent gynecology clinic in Georgia (U.S.), there were 57 females who wanted to use COCs and agreed to participate in the study. They were randomly assigned to the peer-counselor or nurse-counselor group. All participants were followed up at one, two, and four months. Non-adherence was measured with a four-factor Guttman scale that consisted of whether the participant 1) became pregnant during the previous month, 2) missed her appointment, 3) reported missing three or more COCs during the month, and 4) had absence of urinary fluorescence at the follow up. The four-month loss rate included failing to keep the second rescheduled broken appointment or discontinuing the COC regimen. Adolescents with more frequent sexual activity ( $P \leq .027$ ), with one sexual partner ( $P < .04$ ), and who worried that they might become pregnant ( $P \leq .01$ ) had significantly lower levels of noncompliance when counselled by a peer than by a nurse. At the fourth month follow-up, adolescents who expressed feelings of hopelessness about the future had significantly ( $P \leq .036$ ) higher levels of noncompliance when counselled by a nurse than when counseled by a peer. These results suggest that incorporating a peer counselor into the health care team may be an effective method of increasing adolescent compliance.

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In [Keder 1998](#), a system of intensive reminders was compared to regular written appointment cards to improve adherence to DMPA. The trial enrolled 250 women who selected DMPA for contraception while attending a hospital clinic in Pittsburgh, Pennsylvania (U.S.). All women were given a written appointment card for their next injection, which was scheduled for 12 weeks. The mean age of the patients was 20.7 years. Mean gravidity and parity were 2.2 and 1.4, respectively. A total of 68.4% were black and 31.6% were white. The majority of patients' primary insurance was Medicaid (95.6%). No significant differences in age, gravidity, parity, education, or marital status were found between the 2 groups. The participants were randomized to either a no-reminder group that only got the standard written appointment card or to a reminder group that received mail and telephone reminders as well as the written appointment card. Women from the reminder group were sent a letter two weeks before each scheduled injection. Those who failed to keep their appointments were contacted by phone. This process was continued until they changed methods of contraception, were lost to follow up, or the study ended. Women were followed for one year or a total of four additional injections after the initial selection of DMPA treatment. The trial evaluated the discontinuation at 12 months, degree of satisfaction among the groups, side effects, reasons for discontinuation, and the number of on-time injections. We combined those lost to follow up and the discontinued participants to analyze discontinuation rates at 12 months. Participants who received their DMPA injections within 14 weeks of the prior injection were classified as 'on-time.'

Contraceptive compliance, continuation, and selection are affected by many factors. A previous psychologic investigation of failure to use contraceptive methods found that nonuse occurs more frequently when women have side effects. Side effects were described by almost all women who were interviewed at year end and were the most common reason for discontinuation. Most frequently cited side effects were bleeding, weight change, and mood changes. Additional contact with health care providers gained in the reminder system might be expected to reassure women about the side effects they had and give them additional knowledge that would in turn improve their compliance. We did not find this to be true.

## References

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