

## GYNECOLOGY

# Motivational interviewing to promote long-acting reversible contraception among Rwandan couples wishing to prevent or delay pregnancy



Jeannine Mukamuyango, MPH; Rosine Ingabire, MD; Rachel Parker, MSPH; Julien Nyombayire, MD, MSc; Sarah Rae Easter, MD; Kristin M. Wall, PhD; Amanda Tichacek, MPH; Laetitia Nyirazinyoye, PhD; Nadine Kaslow, PhD; Susan Allen, MD, MPH; Etienne Karita, MD, MSPH, MSc

**BACKGROUND:** Few family-planning programs in Africa base demand creation and service delivery on theoretical models. Motivational interviewing is a counseling modality that facilitates reflection on the benefits and disadvantages of a health outcome to encourage behavior change.

**OBJECTIVES:** We evaluate a couples-focused joint family-planning and HIV counseling intervention using motivational interviewing to enhance uptake of long-acting reversible contraception (Paragard copper intrauterine device or Jadelle hormonal implant) among Rwandan couples.

**STUDY DESIGN:** In this experimental study, couples receiving care at 8 government health clinics in Kigali, the capital city, were referred from a parent study of couples who did not want more children or wanted to wait at least 2 years for their next pregnancy. Long-acting reversible contraception methods were offered on site following joint HIV testing and family-planning counseling. At the first follow-up visit 1 month after enrollment in the parent study, couples who had not yet chosen a long-acting reversible contraception method were interviewed separately using motivational interviewing and then brought together and again offered long-acting reversible contraception.

**RESULTS:** Following motivational interviewing, 78 of 229 couples (34%) requested a long-acting reversible contraception method (68 implant and 10 intrauterine device). Long-acting reversible contraception uptake after motivational interviewing was associated with the woman being Catholic (vs Protestant/Muslim/other, adjusted odds ratio, 2.87, 95% confidence interval, 1.19–6.96,  $P = .019$ ) or having an income (vs no income, adjusted odds ratio, 2.54, 95% confidence interval, 1.12–5.73,  $P = .025$ ); the couple having previously discussed long-acting reversible contraception (adjusted odds ratio, 8.38, 95% confidence interval, 2.54–27.59,  $P = .0005$ ); either partner believing that unplanned pregnancy was likely with their current method (adjusted odds ratio, 6.67, 95% confidence interval, 2.77–16.11,  $P < .0001$ ); or that they might forget to take or make an appointment for their current method (adjusted odds ratio, 4.04, 95% confidence interval,

1.32–12.34,  $P = .014$ ). Neither partner mentioning that condoms also prevent HIV/sexually transmitted infection was associated with long-acting reversible contraception uptake (adjusted odds ratio, 2.86, 95% confidence interval, 1.17–7.03,  $P = .022$ ), as was the woman citing long-term duration of action of the implant as an advantage (adjusted odds ratio, 5.41, 95% confidence interval, 1.86–15.76,  $P = .002$ ). The woman not listing any side effects or disadvantages of implants was associated with long-acting reversible contraception uptake (adjusted odds ratio, 5.42, 95% confidence interval, 2.33–12.59,  $P < .0001$ ). Clinic location (rural vs urban), couple HIV status, and concerns about negative economic effects of an unplanned pregnancy were significant in bivariate but not multivariate analysis.

**CONCLUSION:** Encouraging couples to reflect on the benefits and disadvantages of long-acting reversible contraception methods, the likelihood of unplanned pregnancy with their current contraception, and the impact of an unplanned pregnancy is an effective motivational interviewing technique in family-planning counseling. One third of couples who did not want a pregnancy for at least 2 years but had not chosen a long-acting reversible contraception method when provided with standard family-planning counseling did so after motivational interviewing. Involving the male partner in family-planning discussions facilitates joint decision making about fertility goals and contraceptive choice. Combining family planning and joint HIV testing for couples allows targeted focus on dual-method use with discordant couples, who are advised to use condoms for HIV/sexually transmitted infection prevention along with a more effective contraceptive for added protection against unplanned pregnancy.

**Key words:** contraceptive choice, couples' counseling, family planning counseling, family planning in Africa, long-acting reversible contraception side effects, men and family planning, obstacles to long-acting reversible contraception, preventing unplanned pregnancy, religion and contraception

World population is predicted to reach 10 billion by 2050.<sup>1</sup>

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Inroads have been made in family planning in the West, Latin America, and Asia, which together have seen total fertility rates (TFRs; the average number of children a woman has in her lifetime) decrease from 4.7 in 1960 to 2.0 in 2015. In contrast, Africa has had far less success with a decline in TFR from 6.6 in 1960 to 4.7 in 2015.<sup>2,3</sup>

Heterosexual dyads are required to create, and to prevent, a pregnancy, and HIV and other sexually transmitted

infections (STI) transmissions also require sexual dyads. Unfortunately, evidence-based, couple-focused interventions are not widely implemented in Africa. Reproductive health and infectious disease programs target the individual, not the dyad, and often do not incorporate innovative, theoretically based approaches.

Our previous work has focused on the integration of HIV and unplanned pregnancy prevention among couples.<sup>4–11</sup> Joint counseling takes into

## AJOG at a Glance

**Why was this study conducted?**

To evaluate the impact of motivational interviewing (MI) on long-acting reversible contraception (LARC) uptake in Rwandan couples who had expressed a desire to limit or delay pregnancy by  $\geq 2$  years but had not chosen a LARC method after a family-planning education session.

**Key findings**

MI prompted 34% of couples to choose a LARC method. Uptake was associated with feeling that an unplanned pregnancy was likely with their current method; that the long duration of action was an advantage; and that side effects were not a disadvantage. Catholic couples were also more likely to request LARC than Protestant or Muslim couples.

**What does this add to what is known?**

MI has not been studied in the context of LARC promotion in Africa and has not been tested in family planning with couples. We confirm that MI adds substantially to the impact of educating couples jointly and providing access to LARC.

account both partners' HIV test results and fertility goals, and targeted messaging increases adoption of dual-method use among HIV discordant couples<sup>12</sup> and uptake of effective contraception among all couples.<sup>13–16</sup>

Given the widespread lack of knowledge of and access to long-acting reversible contraception (LARC), our recent efforts have included synchronizing demand creation with training staff to ensure an adequate supply<sup>17</sup> and expanding promotions to include community health workers (CHWs) as well as clinic-based staff<sup>17,18</sup> to mutually leverage heterosexual and perinatal HIV prevention (prongs 1 and 2 of prevention of mother-to-child transmission).

LARC methods, including the copper intrauterine device (IUD) and the hormonal implant, have the potential to substantially reduce unplanned pregnancy and perinatal HIV infections in Africa.<sup>19</sup> Expansion programs show promising potential,<sup>20</sup> but obstacles remain including widespread misconceptions,<sup>21</sup> particularly among men who have little familiarity with these methods.<sup>22</sup>

Analyses of Demographic and Health Survey<sup>23</sup> and research data<sup>24–27</sup> highlight the beneficial impact of

communication between spouses about contraception and fertility desires and modern contraceptive use.<sup>28,29</sup>

We present here the results of a motivational interviewing (MI) intervention provided to couples who had indicated a desire to limit or delay pregnancy for at least 2 years but had not requested a LARC method when traditional HIV and family-planning counseling and LARC access were provided.

**Materials and Methods**

In the parent study, we selected 8 health centers in and around Kigali, the capital of Rwanda, including 2 health centers in each of the following categories: urban Catholic, urban non-Catholic, rural Catholic, and rural non-Catholic. Catholic-affiliated clinics did not provide modern family-planning methods but referred to nearby health posts established by the Ministry of Health for that purpose.

Contraceptives are free in Rwandan government clinics and health posts. Clinic nurses referred couples to research study staff for screening. At enrollment, heterosexual cohabiting couples in which the woman was aged between 21 and 40 years and the man aged  $\geq 21$  years; they planned to live in

Kigali for at least 2 years; both partners were fertile; the woman was not pregnant; the couple was not wanting to conceive in the next 2 years; and the woman was not using a LARC method were invited to participate.

Enrolled couples reported using injectable (25%) or oral (7%) hormonal contraception, condoms only (46%), or no modern methods (22%). Trained CHWs conducted a LARC education session with groups of couples using a flip chart and counselors provided HIV and syphilis posttest counseling<sup>30,31</sup> with appropriate treatment and referral. Nurses then offered LARC methods that could be inserted immediately or at a subsequent appointment.

The parent study enrolled 1290 couples equally distributed by HIV status (the male is negative and the woman is also negative; the male is positive and the woman is also positive; the male is positive and the woman is negative; and the male is negative and the woman is positive), clinic location (urban vs rural), and clinic affiliation (Catholic vs non-Catholic).

At the first follow-up visit after enrollment in the parent study, men and women in couples who had not yet requested a LARC method completed interviewer-administered motivational interviews (MIs) separately, with data captured on Android tablets using Survey CTO software (Dobility Inc, Cambridge, MA). Trained research staff conducting the interviews were nurses with family-planning training and many years of experience with research and data collection. Neither the CHW (who conducted the group education sessions) nor the research staff (who administered informed consents and collected questionnaire data) nor the clinic nurses (who inserted LARC methods) received any incentive, recognition, or reward for clients choosing a LARC method.

During training, the importance of avoiding any coercive language or attitudes was emphasized. Men and women were interviewed separately to ensure that the views of each partner could be elicited without the influence of the

other partner. After the MI was administered separately by the research staff, the couple was brought together to meet with the clinic nurse who initiated the conversation by asking each of them to state their preference (stay with their current contraceptive method, implant, IUD), and this was recorded. If the man and woman disagreed, the nurse would encourage them to discuss and would address questions and concerns.

What men and women stated at the outset of this meeting at times differed from what their ultimate choice was after discussion. They could also choose to discuss further at home and the woman could come back at a later date for a LARC method. Women could return alone at any time and request a LARC method without the permission of their husbands. Interviews of couples recruited from Catholic clinics were done at the nearby health post where contraceptives were available.

The theoretical framework guided participants through a sequence of questions addressing fertility goals, current contraceptive use, benefits and disadvantages of their current contraceptive method, likelihood of becoming pregnant with current contraceptive method, anticipated impact of a new pregnancy on their lives, whether the couple had discussed LARC methods after enrollment, benefits and disadvantages of choosing a LARC method, and benefits and disadvantages of not choosing a LARC method.

Questions were asked in an open-ended fashion and multiple possible responses coded using lists developed during prior formative research. Respondents were prompted with “any other responses?” until they responded no. Responses not included in the existing codes were recorded as other, with details provided in a text field and retrospectively coded. After the MI, the couple was brought together and again offered LARC. Responses from the man and woman were recorded separately.

Couples who initiated a LARC method after the MI were compared with those who did not, with respect to variables collected at baseline and during the MI. Data collected on tablets using

survey CTO were imported into Access for preliminary cleaning. Subsequent analyses were performed with SAS version 9.4 (SAS Onstitute, Cary, NC).

A  $\chi^2$  or Fisher exact test was used to determine the association between the outcome (uptake of LARC after the MI) and categorical variables. A 2-tailed Student *t* test was used to determine the association between the outcome and continuous variables. Logistic regression models were used to estimate crude odds ratios in bivariate models and adjusted odds ratios in multivariate models as well as 95% confidence intervals and *P* values. Following a collinearity assessment, covariates were included in the multivariate model if they were significant in a bivariate analysis at an alpha of 0.05. The final multivariate model was generated via backward elimination of covariates not significant in the multivariate model at an alpha of 0.05.

### Ethics

Couples signed joint informed consents at enrollment in the parent study. The protocol was approved by Office of Human Research Protections-registered Institutional Review Boards at Emory University and the Ministry of Health of Rwanda.

### Results

At enrollment in the parent study and following a CHW presentation to groups of couples, 960 (74% of couples) selected a LARC (63% implant, 11% IUD). Uptake was strongly correlated with whether the clinic was in an urban vs rural area (82% vs 67% LARC uptake, respectively,  $P < .0001$ ) and whether the clinic was Catholic affiliated or not (63% vs 85% LARC uptake, respectively,  $P < .0001$ ).

The combined effect of these 2 variables was dramatic, with 95% of participants in urban non-Catholic clinics vs only 58% of those in rural Catholic clinics receiving a LARC method. Couples with HIV-positive men and HIV-negative women were the least likely to uptake LARC (66% vs 77% of other couples,  $P < .0001$ ).

Of the 330 couples who did not take a method prior to the first follow-up visit,

229 participated in the MI. The remaining 101 were either lost to follow-up after enrollment ( $n = 45$ ) or missed the first follow-up visit ( $n = 56$ ). The 229 who participated in the MI were more likely to be from a rural area ( $P = .004$ ), and among urban dwellers were more likely to be from a Catholic clinic ( $P < .0001$ ) compared with the 101 who were not participants in the MI group.

Unless specified, all comparisons between LARC and non-LARC initiators after MI mentioned in the following text have statistically significant *P* values ( $P < .05$ ) cited in the tables or text. Following MI, 78 of 229 couples (34%) requested a LARC (30% implant, 4% IUD). Of the 78 couples requesting LARC after MI, 55 (70%) gave the same responses about which method they preferred, and in 13 (17%), the man stated that “it is my wife’s choice to make.”

Of the 78 insertions, 61 (78%) occurred on the day of the MI, and in 17 the woman returned at a later date for insertion. The remaining couples gave different responses (eg, 1 partner preferred IUD, while the other preferred implant) and discussed with the nurse prior to agreeing on a choice. Of the 151 couples not requesting a LARC method, 77 (49%) included both partners responding that they did not want a LARC method, and in an additional 36 (24%), the man said it was his wife’s choice. Two couples did not receive a LARC method despite both partners wanting one because of medical contraindications.

In 3 additional couples who did not take a LARC method, the woman expressed interest at the outset of the meeting with the nurse, while the husband was against it. In 2 of these couples, the man was HIV positive and the woman HIV negative. One couple wanted to rely on condoms for HIV and pregnancy prevention, and the other chose to continue using condoms and injectables. The third couple was concordant negative and the woman’s interest in the IUD was prompted by her negative side effects with injectables. After discussion she chose to use oral contraception.

**TABLE 1**  
**Demographic correlates of LARC uptake following motivational interviewing**

Variables		LARC uptake after motivational interview (n=78)		No LARC (n = 151)		P value
		n/mean	Column, %	n/Mean	Col%/SD	
<b>Demographics couple level</b>						
Cohabitation, y	Mean (SD)	7.2	5.0	9.0	5.3	.0105
Biological children, n	Mean (SD)	2.2	1.4	2.6	1.7	.1128
Children in household, n	Mean (SD)	2.8	1.6	3.4	1.7	.0143
<b>Demographics individual level</b>						
Man's age	Mean (SD)	36.5	7.6	39.8	8.3	.0044
Woman's age	Mean (SD)	30.7	5.0	32.5	4.8	.0083
Woman's religion	Catholic/other	32	41%	37	25%	.0098
	Pentecostal/ Protestant/ Muslim/no religion	46	59%	114	75%	
Woman's frequency of attending religious services	>1/week	25	32%	72	48%	.0233
	Weekly or Less	53	68%	79	52%	
Woman's income	0	36	46%	99	66%	.0047
	>0	42	54%	52	34%	
<b>Reproductive health</b>						
Man: concerns about implant	Negative side effects/bad for health/does not work/other	15	19%	58	38%	.0111
	No concerns/do not know	59	76%	85	56%	
	Not heard of method	4	5%	8	5%	
Woman: concerns about implant	Negative side effects/bad for health/does not work/other	29	37%	81	54%	.0427
	No concerns/do not know	47	60%	67	44%	
	Not heard of method	2	3%	3	2%	

LARC, long-acting reversible contraception.

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Compared with couples who did not initiate LARC after MI, couples who initiated LARC were more likely to be in rural vs urban clinics (78% vs 64%,  $P = .03$ ) and within rural areas more likely to be in Catholic vs non-Catholic clinics (55% vs 34%,  $P = .026$ ). The distribution of couple HIV serostatus was significantly different between LARC and non-LARC initiators ( $P = .0002$ ), with the most marked difference being in couples in whom the man was HIV positive and the woman was HIV negative, who constituted 44% of non-LARC couples and only 15% of LARC initiators ( $P < .0001$ ).

Couples who initiated LARC after MI were younger, had cohabited less time, and had fewer children than those who did not initiate LARC (Table 1). Women selecting LARC were more likely to be Catholic rather than Protestant, Muslim, or other affiliation, and women who attended religious services weekly or less were more likely to choose a LARC method than those attending more frequently. Having an income was more common among women choosing LARC. Literacy of either partner in Kinyarwanda, English, or French was not associated with LARC uptake (not shown in the tables).

In both men and women, concerns about negative side effects of implant were more common in those who did not initiate LARC, while most men and women who had heard of the IUD were not able to cite concerns about them (not shown in the tables).

As reported by both men and women, the couple having discussed LARC together prior to MI was strongly associated with requesting a LARC method afterward (Table 2). Unexpectedly, both men and women in LARC-using couples were more likely to desire children in  $\geq 2$  years, while non-LARC-using couples were more likely to state that they

**TABLE 2**  
**Responses during the motivational interview in couples who did and did not request LARC**

Variables	Men				Pvalue	Women				
	LARC uptake after MI (n = 78)		No LARC (n = 151)			LARC uptake after MI (n = 78)		No LARC (n = 151)		
	n	Column, %	n	Column, %		n	Column, %	n	Column, %	Pvalue
LARC discussion as couple					< .0001					< .0001
Yes: IUD	8	10%	8	5%		7	9%	7	5%	
Yes: implant	37	47%	14	9%		38	49%	9	6%	
Yes: both	25	32%	49	32%		27	35%	47	31%	
No	8	10%	80	53%		6	8%	88	58%	
Any LARC method discussion as couple					< .0001					< .0001
Yes	70	90%	71	47%		72	92%	63	42%	
No	8	10%	80	53%		6	8%	88	58%	
When do you want your next child?					.0320					.0004
≥2 years	51	65%	74	49%		60	77%	78	52%	
No more children	27	35%	70	46%		18	23%	69	46%	
Not sure	0	0%	7	5%		0	0%	4	3%	
Current contraceptive method										< .0001
Injectable						43	55%	30	20%	
OCP						5	6%	9	6%	
Condoms						22	28%	98	65%	
Other/none						8	10%	14	9%	
Pros of current method										
No side effects	34	49%	79	56%	.3565	44	62%	76	54%	.2868
Easy to get and use	27	39%	31	22%	.0091	29	41%	41	29%	.0920
Works well to prevent pregnancy	8	12%	31	22%	.0689	9	13%	38	27%	.0170
Condoms prevent HIV/other STIs	18	26%	63	45%	.0093	11	15%	56	40%	.0003
Other/can stop anytime	5	7%	8	6%	.7619	8	11%	5	4%	.0280
Cons of current method										
Does not work well to prevent pregnancy	8	12%	2	1%	.0025	15	21%	3	2%	< .0001
Might forget (pills/appointment)	12	17%	7	5%	.0032	11	15%	9	6%	.0337
Condoms can break	19	28%	47	33%	.3953	21	30%	52	37%	.2750
Side effects	4	6%	6	4%	.7322	4	6%	5	4%	.4887
Other/none	30	43%	82	58%	.0452	26	37%	73	52%	.0328
Pregnancy likelihood on current method					< .0001					< .0001
Extremely likely	14	20%	10	7%		15	21%	7	5%	
Somewhat likely	20	29%	17	12%		24	34%	13	9%	
Somewhat unlikely	20	29%	55	39%		21	30%	64	46%	
Extremely unlikely	15	22%	59	42%		11	15%	56	40%	

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(continued)

TABLE 2

Responses during the motivational interview in couples who did and did not request LARC (continued)

Variables	Men					Women				
	LARC uptake after MI (n = 78)		No LARC (n = 151)		Pvalue	LARC uptake after MI (n = 78)		No LARC (n = 151)		Pvalue
	n	Column, %	n	Column, %		n	Column, %	n	Column, %	
Effect of becoming pregnant now										
Woman will not be able to work	20	26%	13	9%	.0005	12	15%	17	11%	.4050
Cannot afford another child	48	62%	68	45%	.0179	56	72%	69	46%	.0002
Poverty	34	44%	47	31%	.0615	38	49%	47	31%	.0090
Other	19	24%	63	42%	.0094	14	18%	59	39%	.0012

IUD, intrauterine device; LARC, long-acting reversible contraception; MI, motivational interview; OCP, oral contraception; STI, sexually transmitted infection.

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wanted no more children. The majority of LARC initiators switched from injectable contraception to LARC, while the majority of non-LARC initiators reported using condoms as their only contraceptive.

Respondents could give more than 1 benefit or disadvantage of their current contraception. In both gender groups, no side effects and ease of access and use were the most commonly cited advantages, with the latter reported more often by LARC initiators. Men and women in couples who did not select a LARC method were more likely to say that their current method worked well to prevent pregnancy and to cite that condoms prevent HIV/STI as well as pregnancy. Cons of their current contraception more often reported by both men and women LARC initiators included “does not work well to prevent pregnancy” and “I might forget pills/appointment.”

“How likely is pregnancy with your current contraception?” drew “likely” responses more often among LARC choosers. In response to the question, “How would it affect your life if you did become pregnant now?” LARC initiators were more likely to respond, “We cannot afford another child” and “poverty.” Men in LARC-initiating couples were also more likely to say that the woman would not be able to work.

Men and women in LARC-choosing couples were more likely to agree that

an advantage of the IUD was that it “prevents pregnancy for a long time” (Table 3). Heavy bleeding and failure to prevent pregnancy (a misconception) were the most commonly mentioned disadvantages of IUD (43% and 14%, respectively) with no association with LARC uptake (not shown in the tables).

“Prevents pregnancy for a long time” was again the most commonly cited advantage of the implant and along with “reversible” was associated with more LARC uptake. “No need for frequent clinic visits” was also commonly mentioned by both groups (58% of LARC vs 51% of non-LARC,  $P = .052$ , not shown in the tables). Disadvantages of the implant were more commonly mentioned by members of non-LARC-uptaking couples including irregular/heavy bleeding, weight loss, dizziness, hypertension, and headache.

Men and women agreed that a pregnancy with their current contraceptive method was likely in 41% of couples who uptook LARC vs 7% of those who did not (not shown in the tables). One or the other partner thought pregnancy was likely in an additional 22% of LARC-uptaking couples and 17% of non-LARC couples. Among 76% of non-LARC couples, both partners agreed that pregnancy was unlikely with their current method, compared with only 38% of LARC-uptaking couples (not shown in the tables).

### In multivariate analysis (Tables 4 and 5)

LARC uptake after MI was associated with the woman’s Catholic religion and income, couples’ discussion of LARC prior to MI, either partner reporting that pregnancy was likely with their current method, either partner reporting that forgetting their current contraceptive (pills or appointments) was a disadvantage of their current method, and the woman citing long-term pregnancy prevention as an advantage of implant were independently predictive of LARC uptake following MI in adjusted analyses. Neither partner citing that condoms prevent HIV/STI and pregnancy as an advantage of their current method and the woman not citing any disadvantages to implants were also predictive of LARC uptake.

### Comment Principal findings

Motivational interviewing prompted cohabiting Rwandan couples to reflect on the likelihood of pregnancy with their current contraceptive use, the impact of pregnancy on the household, and the benefits and disadvantages of LARC. Following MI, one third of couples not wanting to conceive requested a LARC method. Having discussed LARC together prior to MI was a strong predictor of uptake, as was the belief that respondents might forget to use their

current contraception and that pregnancy was likely with their current contraception. LARC uptake was highest in Catholic women, women with an income, and women who reported advantages and did not report disadvantages to implant use. Although concerns about side effects were a deterrent to LARC uptake, most side effects mentioned were bothersome but not dangerous. These findings confirm that MI with couples is feasible and effective in promoting LARC. Our study also illustrates the potential generalizability of MI to a variety of settings including rural areas where expansion programs are striving to address unmet need.<sup>20</sup>

### Results

While few family-planning programs in Africa include men, the influence of men on women's contraceptive choices has been examined in several countries including Ghana, Nigeria, Ethiopia, and Malawi.<sup>24,26,27,32-35</sup> Broadly, these studies showed significant differences in perceptions about family planning, contraceptive knowledge, and contraceptive use between wives and husbands and concluded that a better understanding of interactions between spouses could inform novel dyadic-based interventions. Our findings confirm the pivotal importance of male participation in LARC programs and highlight the benefit of facilitating dialogue and joint reflection.

### Clinical implications

In Rwanda, we previously found that discordant couples often had an inaccurate view of each other's fertility goals, with one quarter of men and women wrongly believing that their spouse wanted more children.<sup>36</sup> Subsequently, in Rwanda and Zambia, joint fertility counseling prompted one third of discordant couples to initiate LARC.<sup>12</sup>

Efforts to promote LARC methods among family planning clients in government clinics in Kigali, Rwanda's capital, when combined with training to ensure access, resulted in an increase in implant insertions from 186

**TABLE 3**

**Agreement between husbands and wives regarding advantages and disadvantages of IUD and implant**

Variables	LARC uptake after MI (n = 78)		No LARC (n = 151)		Pvalue
	n	Col%	n	Col%	
<b>Pros of choosing IUD</b>					
Prevent pregnancy for a long time					.0182
Man yes, woman yes	48	62%	68	45%	
Man yes, woman no	4	5%	21	14%	
Man no, woman yes	4	5%	21	14%	
Man no, woman no	22	28%	41	27%	
<b>Nonhormonal contraceptive</b>					
Man yes, woman yes	10	13%	11	7%	.0148
Man yes, woman no	1	1%	11	7%	
Man no, woman yes	9	12%	36	24%	
Man no, woman no	58	74%	93	62%	
<b>Pros of choosing Jadelle</b>					
Prevent pregnancy for a long time					< .0001
Man yes, woman yes	66	85%	83	55%	
Man yes, woman no	2	3%	16	11%	
Man no, woman yes	6	8%	16	11%	
Man no, woman no	4	5%	36	24%	
<b>Reversible</b>					
Man yes, woman yes	2	3%	4	3%	.0464
Man yes, woman no	7	9%	2	1%	
Man no, woman yes	3	4%	6	4%	
Man no, woman no	66	85%	139	92%	
<b>Cons of choosing Jadelle</b>					
Irregular/heavy bleeding					.0002
Man yes, woman yes	3	4%	26	17%	
Man yes, woman no	5	6%	11	7%	
Man no, woman yes	11	14%	44	29%	
Man no, woman no	59	76%	70	46%	
<b>Weight loss</b>					
Man yes, woman yes	0	0%	6	4%	.0127
Man yes, woman no	4	5%	8	5%	
Man no, woman yes	1	1%	17	11%	
Man no, woman no	73	94%	120	79%	
<b>Dizziness</b>					
Man yes, woman yes	0	0%	11	7%	.0011
Man yes, woman no	2	3%	10	7%	

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(continued)

**TABLE 3**  
**Agreement between husbands and wives regarding advantages and disadvantages of IUD and implant** (continued)

Variables	LARC uptake after MI (n = 78)		No LARC (n = 151)		Pvalue
	n	Col%	n	Col%	
Man no, woman yes	4	5%	25	17%	
Man no, woman no	72	92%	105	70%	
Hypertension					.0230
Man yes, woman yes	2	3%	6	4%	
Man yes, woman no	0	0%	9	6%	
Man no, woman yes	1	1%	11	7%	
Man no, woman no	75	96%	125	83%	
Headache					.0025
Man yes, woman yes	1	1%	9	6%	
Man yes, woman no	0	0%	8	5%	
Man no, woman yes	1	1%	15	10%	
Man no, woman no	76	97%	119	79%	

IUD, intrauterine device; LARC, long-acting reversible contraception.

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in 2009 to 7037 in 2016, with a corresponding increase in IUD insertions from 30 to 1181.<sup>17</sup> As distribution of oral contraception and administration of depo-provera injections was task shifted to CHWs,<sup>37</sup> a program to train CHWs in Kigali to promote LARC among their clients resulted in 241 insertions/clinic per year in 8 clinics, compared with only 58/clinic per year in 13 clinics not served by the CHW promotions program.<sup>18</sup> In the latter study, CHW visits that included women and their partners prompted more LARC insertions than those including women alone.

Despite information about and access to LARC methods provided prior to MI, many couples who did not want a pregnancy were not yet optimally contracepting; MI is designed to address this contradiction between fertility goals and contraceptive behaviors.<sup>38</sup> Whitaker et al<sup>39</sup> described a critical aspect of MI as "... the empathic understanding of the patient's experience through the skillful use of

reflective listening and nonjudgmental acceptance of the patient's position, including her ambivalence."

While ours is the first study to test LARC-focused MI with African couples, MI has successfully prompted contraceptive uptake among women who have had repeated unplanned pregnancies<sup>40</sup> or postabortion.<sup>41</sup> A study in South Africa also showed the benefit of MI in women at risk of pregnancy and alcohol abuse.<sup>42</sup> MI should be considered an important tool in LARC programs.

### Research Implications

Multiple studies, including prior studies in Rwanda, show that when offered a choice between implant and IUD, implants remain the most popular.<sup>17,43</sup> Our study confirms a continued preference for implant rather than IUD. Satisfaction with the IUD has been reported in trials in which women are randomized to receive an IUD<sup>44</sup> or when women are offered an IUD in the immediate postpartum period.<sup>45</sup>

In the United States, half of obstetrician-gynecologists and their wives use the IUD,<sup>46</sup> and this indicates that those who are best informed about contraceptive choices understand the method's many advantages. Further work is needed to understand effects of provider bias and client lack of familiarity with IUDs in Africa. Repeated messaging may be necessary.<sup>47</sup>

At baseline and again after MI, couples with HIV-positive men and HIV-negative women were the least likely to uptake a method. Our previous work indicates that couples in whom the males is HIV positive and the females is HIV negative are more likely to report consistent condom use than couples in whom the man is HIV negative and the woman is HIV positive,<sup>48,49</sup> but unplanned pregnancy remains a substantial risk when cms are the only contraceptive used.<sup>9</sup> While couple HIV status did not remain predictive of LARC uptake in multivariate analyses, further investigation is needed to develop effective dual-method promotional messages for discordant couples.<sup>4,50</sup>

With few exceptions, side effects mentioned by participants were accurate, indicating that our educational messages at enrollment were effective in dispelling previously common myths about LARC.<sup>22</sup> That said, concern about side effects remained an impediment to LARC uptake despite MI. Jacobson et al<sup>51</sup> have developed an evidence-based guideline for managing side effects, and these therapeutic options could be discussed during family-planning counseling to mitigate concerns about LARC side effects. In particular, the benign and transient nature of many LARC side effects may be useful to highlight, and comparing side effects found with other contraceptives and with pregnancy may help contextualize the choices.

### Strengths and limitations

Our study has several limitations. We did not look at dual-method use assessing condom use alongside LARC or other hormonal contraception. We did not use mass media, which has been effective in other settings,<sup>52,53</sup>



**TABLE 4**  
**Variables significantly associated with LARC uptake in bivariate and multivariate analysis**

Baseline variables	Bivariate significant associations				Final multivariable model			
	cPOR	95% CI		Pvalue	aPOR	95% CI		Pvalue
		LL	UL			LL	UL	
<b>Clinic location</b>								
Urban	Referent	—	—	—				
Rural	2.00	1.06	3.76	.0319				
<b>Couple HIV status</b>								
M–F–	5.24	2.20	12.48	.0002				
M+F+	3.78	1.67	8.59	.0015				
M–F+	4.13	1.83	9.29	.0006				
M+F–	Referent	—	—	—				
Man age (per one year increase)	0.95	0.92	0.99	.0053				
Woman age (per one year increase)	0.93	0.88	0.98	.0092				
Cohabitation (per 1 year increase)	0.93	0.88	0.98	.0117				
Number of children in household (per each child increase)	0.80	0.67	0.96	.0159				
<b>Woman's religion</b>								
Catholic/other	2.14	1.2	3.84	.0105	2.87	1.19	6.96	.0193
Pentecostal/Protestant/Muslim/no religion	Referent	—	—	—	Referent	—	—	—
<b>Woman's frequency of attending religious services</b>								
More than once a week	Referent	—	—	—				
Once a week or less often	1.93	1.09	3.43	.0243				
<b>Man, any concerns about implant</b>								
Yes	Referent	—	—	—				
No	2.62	1.37	5.03	.0038				
<b>Woman any concerns about implant</b>								
Yes	Referent	—	—	—				
No	1.96	1.12	3.42	.0189				
<b>Woman has income</b>								
Yes	2.22	1.27	3.88	.0050	2.54	1.12	5.73	.0251
No	Referent	—	—	—	Referent	—	—	—

aPOR, adjusted prevalence odds ratio; CI, confidence interval; cPOR, crude prevalence odds ratio; F+, woman is HIV positive; F–, woman is HIV negative; LL, lower limit; M+, man is HIV positive; M–, man is HIV negative; UL, upper limit.

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although this may have been premature, given the nationwide reach of Rwanda radio and the limited scope of our LARC training. Our participants were selected from government clinic attenders who expressed a desire to delay pregnancy but did not avail themselves of LARC after traditional family-planning education. In addition, participants learned basic

information about family-planning methods as a result of the required verbiage in the written informed consent.<sup>54</sup> Our results are thus generalizable to this defined target audience.

### Conclusions

Effective, long acting contraception is urgently needed in Africa where reduction of TFR is critical to economic

development and maternal-child health. Information about and access to LARC methods are necessary pre-requisites to any program and are sufficient to prompt an important increase in LARC uptake. To further enhance choice of LARC and avoid unplanned pregnancy among couples not wishing to conceive, motivational interviewing with both husband and wife is highly impactful,

TABLE 5

## Variables significantly associated with LARC uptake in bivariate and multivariate analysis, continued

	Bivariate significant associations				Final multivariable model			
	cPOR	95% CI		Pvalue	aPOR	95% CI		Pvalue
Motivational interview variables		LL	UL			LL	UL	
Either partner reports any LARC method discussion as couple								
Yes	16.41	5.71	47.16	< .0001	8.38	2.54	27.59	.0005
No	Referent	—	—	—	Referent	—	—	—
Either partner reports planning more children								
Yes/do not know	2.37	1.26	4.44	.0073				
No	Referent	—	—	—				
Either partner reports negative economic effects if pregnancy occurs now								
Yes	4.74	1.78	12.61	.0018				
No	Referent	—	—	—				
Either partner reports pregnancy likely on current method								
Yes	4.87	2.64	8.97	< .0001	6.67	2.77	16.11	< .0001
No	Referent	—	—	—	Referent	—	—	—
Either partner reports condoms prevent HIV, STI, and pregnancy as proof current method								
Yes	Referent	—	—	—	Referent	—	—	—
No	2.64	1.45	4.82	.0015	2.86	1.17	7.03	.0216
Either partner reports might forget as con of current method								
Yes	3.48	1.58	7.66	.0020	4.04	1.32	12.34	.0144
No	Referent	—	—	—	Referent	—	—	—
Man: composite of Jadelle pros significantly different in the bivariate								
Yes	4.74	1.78	12.61	.0018				
No	Referent	—	—	—				
Woman: composite of Jadelle pros significantly different in the bivariate								
Yes	6.30	2.57	15.47	< .0001	5.41	1.86	15.76	.0020
No	Referent	—	—	—	Referent	—	—	—
Man: composite of Jadelle cons significantly different in the bivariate								
Yes	Referent	—	—	—				
No	3.43	1.71	6.89	.0005				
Woman: composite of Jadelle cons significantly different in the bivariate								
Yes	Referent	—	—	—	Referent	—	—	—
No	5.42	2.93	10.02	< .0001	5.42	2.33	12.59	< .0001

aPOR, adjusted prevalence odds ratio; CI, confidence interval; cPOR, crude prevalence odds ratio; LARC, long-acting reversible contraception; LL, lower limit; STI, sexually transmitted infection; UL, upper limit.

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feasible, and acceptable to clients and providers. ■

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### Author and article information

From the Projct San Francisco, Rwanda Zambia HIV Research Group (Drs Ingabire, Nyombayire, and Karita

and Ms Mukamuyango) and School of Medicine and Health Sciences and School of Public Health (Dr Nyirazinyoye and Ms Mukamuyango), University of Rwanda, Kigali, Rwanda; the Rwanda Zambia HIV Research Group, Department of Pathology and Laboratory Medicine, School of Medicine (Dr Allen, Ms Parker, and Ms Tichacek), the Department of Epidemiology, Rollins School of Public Health (Dr Wall), and the Department of Psychiatry and Behavioral Sciences, School of Medicine (Dr Kaslow), Emory University, Atlanta, GA; and the Department of Obstetrics, Gynecology, and Reproductive Biology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA (Dr Easter).

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Corresponding author: Susan Allen, MD, MPH. [sallen5@emory.edu](mailto:sallen5@emory.edu)