

Choice of Female-Controlled Barrier Methods Among Young Women and Their Male Sexual Partners

By Alexandra M. Minnis and Nancy S. Padian

Context: Little is known about the factors associated with the choice of female-controlled, over-the-counter barrier contraceptive methods among women and their male sexual partners.

Methods: Predictors of method choice were assessed following an educational presentation on contraceptive use and risk reduction among 510 sexually active females aged 15–30 who were recruited in the San Francisco Bay Area. In addition, the primary partners of 160 of these women participated in the survey.

Results: Twenty-two percent of women who enrolled in the study alone, 25% of those who enrolled with their main partner and 18% of these male partners chose female-controlled, over-the-counter barrier methods alone. The strongest predictor of this choice was current use of a hormonal contraceptive both for women who participated in the study on their own (odds ratio, 2.1) and for those who enrolled their partner in the study (odds ratio, 6.3). Female-controlled methods were also chosen significantly more often by teenagers than by older women; for example, among those who enrolled with a male partner, the odds ratio for selection of a female-controlled barrier method by women younger than 18 was 6.0. Among women who enrolled without a partner, those who had had multiple partners in the previous six months and those who were current users of male condoms were less likely to choose female-controlled methods (odds ratios, 0.7 and 0.5, respectively).

Conclusions: Although the majority of participants did not choose female-controlled, over-the-counter barrier methods without also choosing male condoms, such female-controlled methods appear to offer an acceptable alternative for prevention of sexually transmitted infections. They may be a particularly attractive option for individuals using hormonal contraceptives and for teenage women.

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The need for female-controlled barrier contraceptive methods that also protect against both bacterial and viral sexually transmitted infections (STIs) is widely recognized.¹ Women, and young women in particular, remain at a disproportionately higher risk than men of acquiring an STI, including HIV. Therefore, the availability of barrier methods for which women can assume responsibility is critical. Furthermore, economic inequalities, violence and power imbalances in many sexual partnerships restrict women's abilities to negotiate male condom use, making female-controlled methods essential.² The choice of whether to use female-controlled barrier methods, however, is ultimately determined by a range of factors that extend beyond the context of the sexual partnership.

Researchers have generally evaluated the acceptability of female-controlled barrier methods by assessing method-use data from longitudinal studies in which women were assigned either female condoms or spermicides (and sometimes male condoms as well).³ In general, this domestic and international research suggests that

many women prefer female-controlled barrier methods and will use them.

Others have examined acceptability by assessing method preference based on participants' choices upon being presented with a range of methods. These studies might ultimately provide more relevant information regarding real use, since choosing among several options is an integral factor in adopting a method outside the research setting. Although some of this research evaluated hypothetical method choice,⁴ other studies examined acceptability through actual use of a chosen method.

For example, among 221 women who participated in an HIV education intervention in Rwanda and were offered a barrier method (male condom and two spermicidal formulations), 112 chose a method; among those selecting a method, the majority (75%) opted for a spermicide (47% chose suppositories and 28% cream), while an additional 24% selected male condoms.⁵ In a U.S. study conducted among sexually transmitted disease clinic clients in Philadelphia, women were randomized to counseling in one of three pre-

vention messages: male condom; female condom; or an expanded-choice hierarchy message in which a range of barrier methods, including female condoms, male condoms, spermicides and diaphragms or cervical caps were presented hierarchically based on their effectiveness in preventing STIs and HIV.⁶ At baseline, 86% of women in the "hierarchy message" cohort chose female condoms, with the percentage choosing a spermicide varying by formulation type (34% suppositories, 57% film and 61% foam).⁷

In addition to assessing over-the-counter barrier method choice, our study, conducted in the San Francisco Bay area, examines the factors associated with that choice (made directly after an educational presentation) among a sample of young women and their male partners. Unlike previous U.S. studies of female-controlled barrier methods, we enrolled a substantial number of teenagers in the study; the study population was also more ethnically diverse than those used in much prior research, as it contained a large proportion of Hispanic immigrants.

We hypothesized that the choice of a method would vary by participants' perceived risk of acquiring an STI, their current sexual risk behavior, their history of tampon use, factors related to partner communication and method negotiation, their gender role traditionalism and their current contraceptive use. We expected that participants at greater actual and perceived risk of acquiring an STI would be more likely to choose male condoms than female-controlled barrier methods, be-

Alexandra M. Minnis is a doctoral student in epidemiology at the School of Public Health, University of California, Berkeley. Nancy S. Padian is professor in the Department of Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco. The authors thank the following members of the research staff: Jessica Bowen, Lilia Cardenas, Cio Hernandez, Mary de la Roca, Heather Gould, Margaret Handley, Sarah Glass, Jill Johnson, Janet Jonte, Abigail Norris, Andrea Raider, Judy Quan, April Vogensen and Jane Wong; they also thank Stephen Shiboski for statistical guidance. In addition, they are grateful to the staff at Marin Family Planning Clinic, Planned Parenthood San Rafael and Tang Health Center at University of California, Berkeley. The research on which this article was based was funded by grant R01HD32789-01A1 from the National Institute of Child Health and Human Development.

cause of the male condom's known efficacy in STI prevention. In addition, we hypothesized that women who currently used tampons during menstruation would be more likely to choose female-controlled methods than a male method because they were already comfortable inserting a product into the vagina.

Moreover, because the choice of a female-controlled method is thought to reduce women's need to negotiate method use with a male partner, we hypothesized that women who communicated poorly with their partner about sexual topics, those with traditional gender values and teenagers would be more likely to choose a female-controlled method than a male method. We also hypothesized that following the educational session on STI risk reduction, participants who were not currently using male condoms would want to increase their use of barrier methods; thus, they too would be more likely to choose a female-controlled barrier method. Finally, because the use of male condoms is generally lower with long-standing partners than with new or casual partners,⁸ we anticipated that women who enrolled with a main male partner would be less likely to choose any type of barrier method.

Methods

Recruitment

Women aged 15–30 were recruited to participate from three San Francisco Bay Area reproductive health clinics (Planned Parenthood San Rafael, Marin Family Planning Clinic and the Tang Health Center at the University of the California, Berkeley). Community outreach was also conducted through the distribution of flyers at local markets, health fairs, adolescent social service agencies and college dormitories. In addition, clients were encouraged to refer their friends to the project. Study enrollment and interviewing took place at each of the three clinic sites.

Interested women were eligible to participate if they could provide informed consent; spoke English or Spanish; were sexually active (defined as having had vaginal sex at least three times in the previous three months); were not pregnant or did not plan to become pregnant in the next year; did not identify themselves as having tested positive for HIV; and intended to reside in the Bay Area for the next 12 months. We determined eligibility through a screening questionnaire. Participants were enrolled from March 1995 through March 1998 and were followed for one year.*

Participants were encouraged to ask their primary sexual partner (some of whom accompanied their female partner to the clinic) to contact the research staff himself or to allow a staff member to contact him directly. Since the main male partners of these young women could be of any age, they ranged in age from 14 to 44. Each of these men had to confirm that he was indeed currently sexually active (as defined above) with the woman who had referred him to the study.

Study Protocol and Measures

The interviews, which were conducted separately with women and men, used a questionnaire that assessed predictors of the choice of female-controlled barrier methods as well as other factors known to affect overall contraceptive choice. We measured three social and demographic factors—age, race and ethnicity (defined as non-Hispanic white; Hispanic; Asian; and black, Native American or multiracial[†]) and socioeconomic status (based on receipt of public assistance within the previous year; country of birth; parents' educational level and occupation when the participant was a child; and type of dwelling in which the participant currently lived).

We also assessed sexual behavior (age at first coitus, lifetime number of sexual partners, whether a female respondent currently had a main partner, and number of partners during the last six months); current contraceptive behavior; perceived STI risk; and self-reported reproductive health factors (history of pregnancy and history of diagnosis with chlamydia, gonorrhea, trichomoniasis, herpes simplex virus 2, hepatitis B, syphilis or human papillomavirus). Women's tampon use during menstruation was also evaluated, as was the extent of partner communication on current and past sexual activity (including the timing of such discussions in relation to the initiation of sexual activity) and sexual gender role traditionalism (i.e., which partner makes decisions about sex and contraception). We also examined characteristics of the partnerships and participants' knowledge about pregnancy and transmission of STIs, including HIV; these items were included to guide the educational and risk-reduction session.

Trained health educators provided a standardized presentation on reducing the risk of acquiring HIV and other STIs to all female and male participants following their enrollment interview. So that each member of the couple could make his or her own method choice independently, a

different educator provided the educational session for each member of the couple individually, in English or Spanish, in a private room in the clinic.

The session was designed to provide participants with the information they needed to choose an over-the-counter barrier method offered through the study for STI or pregnancy prevention, or both. These methods included female and male condoms and four vaginal spermicide formulations containing nonoxynol-9: film, foam, suppositories and gel. Although a hierarchy of barrier method effectiveness was presented (the female or the male condom was highlighted as being more protective against an STI than spermicides alone), we emphasized the importance of choosing a method that would be used consistently, even if it was inherently less effective. The presentation also included a discussion of other pregnancy prevention options, such as hormonal methods and prescription barrier methods (i.e., diaphragms and cervical caps), and instruction on basic anatomy. Participants had an opportunity to use plastic anatomic models to learn how to use each method correctly, and to discuss strategies for negotiating method use in sexual relationships.

Upon completing the presentation, participants were asked to choose the barrier methods they preferred and how many they wanted to take home; participants could also choose to take no method. Participants were then asked to respond to open-ended questions about why they chose, or did not choose, each method. If the study participants preferred a prescription method for pregnancy prevention, such as a hormonal method or a diaphragm, nurses arranged for a prescription to be written. Young women eligible for state family planning program funds received prescription contraceptive methods free of charge.

Statistical Analyses

We report participants' choice of barrier methods as well as the predictors associated with that choice. The choice of a female-controlled, over-the-counter barrier method—the female condom alone,

*At follow-up study visits, scheduled for six and 12 months after the initial interview, we collected data on barrier method use and assessed a range of factors related to acceptability among individuals who chose to use a barrier method.

†We placed blacks, Native Americans and multiracial individuals into one category because the number of individuals in each was too small to permit the estimation of meaningful regression coefficients and because these groups were similar across the factors examined.

Table 1. Median age (and interquartile range) of study participants and percentage with selected characteristics at enrollment among participants in a barrier contraceptive acceptability study, by type of participant, Northern California, 1995–1998

Characteristic	Women enrolled without a partner (N=350)	Women enrolled with a partner (N=160)	All male partners (N=160)
Social and demographic			
Median age (in yrs.)	20.1 (18.0–24.3)	19.9 (18.3–24.0)	21.8 (19.1–24.8)
% white	48.9	49.4	50.0
% black	6.3	3.8	5.6
% Hispanic	25.7	26.9	23.8
% Asian	11.7	11.9	7.5
% other/multiracial	7.1	7.5	11.9
% foreign-born	25.4	25.6	26.9
% received welfare in last year	10.6	11.3	8.1
% whose mother completed no more than high school	48.6	40.6	40.0
% whose father completed no more than high school	37.0	36.3	33.1
Partner communication and gender norms			
% discussed contraception with partner	84.3**	98.1	94.3
% discussed sexual history with partner	78.5**	94.1	88.8
% distribution by who made decision about contraceptive use (in last 6 mos.)			
Study participant decided	29.8	36.5	4.4
Partner decided	6.9	1.9	22.5
Both	63.3	61.6	73.1
% distribution by view of who is more likely to cheat in relationship			
Men more likely	46.6	47.5	56.6
Women more likely	4.9	1.9	6.9
Both/neither	48.5	49.6	36.6
Sexual behavior/perceived STI risk			
% first had vaginal sex at 15	44.9	39.4	43.8
% ever used female condom	2.9	4.4	0.0
% ever used spermicides	33.1	38.1	0.0
% used male condom at last coitus	61.1	55.6	52.5
% used hormonal method at last coitus	28.0**	40.6	35.6
% used no method at last coitus	14.9	8.8	10.6
% had multiple partners in last 6 mos.	40.0**	28.8	23.1
% currently has main partner	77.4**	99.4	98.1
% feel unlikely to contract STI next yr.	54.9**	69.4	75.0
Reproductive health			
% ever been pregnant/ever impregnated partner	34.6	33.8	34.4
% ever diagnosed with STI	21.1	16.9	13.8
% ever had abortion	21.4	20.6	na
% distribution by study site			
Marin Family Planning Clinic	22.0	23.1	22.5
Planned Parenthood San Rafael	51.7	36.3	36.3
UC Berkeley Tang Health Center	26.3	40.6	41.3

**Difference between women enrolled with a partner and those enrolled without a partner significant at $p < .01$. Notes: na=not applicable. The interquartile range is a measure of dispersion showing the interval between the 25th quartile and the 75th quartile.

spermicides alone or the female condom with spermicides—serves as the dependent variable in our analysis. We had insufficient statistical power to evaluate independently the predictors of each separate female-controlled method (i.e., individual spermicide formulations) because few participants selected only one formulation without also choosing either another formulation or the male condom. We explored predictors of choice among all women in the study, among the subgroup of women who enrolled with a male partner and among all men who participated. We also examined distributions

of the sample by social and demographic factors, sexual behavior factors and reproductive health outcomes.

In bivariate and multivariate analyses, we examined age both as a continuous and as a dichotomous variable. The relationship between age and female-controlled method choice was not linear. We selected age 18 as the cut-off in defining the dichotomous variable (younger than 18 vs. 18 and older) because we were primarily interested in investigating method choice differences between teenagers (nearly all of whom were living with their parents or guardians) and college-age and

older women. In addition, this permitted us to examine the combined influences of young age and partner communication on method choice.

We evaluated the concordance of method choice within enrolled couples using a weighted kappa statistic. Kappa statistics characterize concordance beyond chance for categorical variables, with a value of one indicating perfect agreement and a value of less than 0.4 suggesting poor agreement.⁹ Method choice was categorized as no method taken, female-controlled methods only, and male condoms, either alone or with female-controlled methods.

We used bivariate contingency analysis to examine the associations between female-controlled, over-the-counter method choice and the factors hypothesized to be associated with this choice. Multivariate logistic regression models were constructed to include factors that were significant in these exploratory analyses (at $p < .10$), as well as those factors believed to influence the hypothesized associations.

In analyses that included all female participants in the study, we tested for any interactions between each covariate included in the model and two indicator variables—whether the woman had a main sexual partner and whether she enrolled that partner in the study. We used likelihood ratio tests to determine the legitimacy of pooling results across all female participants. We also tested for any interaction between each of the demographic factors and current contraceptive method use, as well as the measures of partner communication. The analyses conducted for the participating couples treated the men's and women's responses individually in separate models.

Results

Participant Characteristics

Study eligibility was assessed for 826 women, of whom 654 were eligible. The two primary reasons why 172 women were ineligible were that they were not currently sexually active (67%) and that they did not meet the study's age criterion (23%). Ultimately, 510 women chose to enroll, yielding a response rate of 78%. Thirty-one percent of these participants (160) also enrolled their main sexual partner.

According to data collected during the eligibility interview, women who were eligible but chose not to enroll were comparable to the study population with regard to sexual risk characteristics and most social and demographic factors. They were more likely than participants, however, to be Hispanic ($p < .001$). Forty-

two percent of participants were recruited directly at one of the three study clinics, 10% were recruited by sexual health educators affiliated with the Berkeley clinic, 23% joined the study as a result of community outreach and 25% were referred to the study by a friend. The likelihood of also enrolling a partner in the study did not vary by the mode of recruitment into the study ($p=0.5$).

The median age was 20 years for all women participating in the study (whether they enrolled with a partner or not) and 22 years for the men (Table 1). One-quarter (24%) of all women were aged 15–17, as were 16% of men (not shown). Non-Hispanic whites comprised approximately half of the sample and Hispanics represented one-quarter, a breakdown that reflects the ethnicity of the target population of the study communities. Previous use of female-controlled barrier methods was relatively low; among all women (not shown), 3% had ever used the female condom and 35% had ever used spermicides. Among the men, none had ever used these methods with a partner.

Overall, 20% of the women and 14% of the men said they had ever been diagnosed with an STI. Roughly one-third of the overall sample had either ever been pregnant or had gotten a partner pregnant. Women who enrolled in the study with their partner were significantly more likely than those who enrolled alone to have discussed contraception and their sexual history with their main partner; to be a current user of a hormonal contraceptive; to have had only one partner in the previous six months; to have a main partner currently; and to believe that they were very unlikely to contract an STI during the next year.

Choice of Female-Controlled Methods

Of the female-controlled barrier methods—the female condom and the four formulations of spermicides—the female condom was chosen by higher proportions of both women and men (see Table 2). The preferred spermicide formulations were film and foam, both among the women who enrolled without a partner (43% and 37%, respectively), and among those who enrolled with a partner (41% and 40%, respectively). The male partners in the study chose foam (30%) more often than the other spermicide formulations (18–26%).

Table 2 also presents a percentage distribution of the sample by the overall choice of methods. Most participants chose a combination of the female-controlled methods and male condoms (54–57% of

women and 46% of men). On average, only 5% of women, and 8% of men, chose female condoms alone, and 7% of women and 4% of men chose spermicides alone. Female-controlled methods alone (female condoms, with or without spermicides) were chosen by 22% of the women who enrolled without a partner, by 25% of those whose partner also participated, and by 18% of the men. The concordance of method choice among couples was poor, with women more likely than their partners to choose female-controlled methods

alone, and men more likely than their partners to take no method at all ($k=0.24$, 95% confidence interval 0.11–0.36).

Based on the responses to open-ended questions, more than two-thirds of participants who chose female-controlled methods stated that they did so because they were “curious” and “had never tried them.” In addition, participants were attracted to female condoms as an alternative to male condoms either because they disliked male condoms or because female condoms “seemed familiar,” since they “looked similar” to male condoms.

The majority of participants who did not select the female condom commented that their choice was shaped by the method’s appearance as “scary looking,” “intimidating” and “strange and awkward.” In addition, many men who rejected the female condom said that they did so because they were “not a woman” and were unsure how their partner felt about using it.

Participants who chose spermicides highlighted the “two-in-one benefit” (lubricant along with a contraceptive agent). Those who decided against spermicides, on the other hand, cited the method’s messiness and its uncertain efficacy.

Multivariate Analyses

Although the proportion of women who chose female-controlled, over-the-counter barrier methods did not vary between those who enrolled with and without a partner, the predictors of that choice did differ significantly between the two groups (likelihood ratio statistic of 31.4, $df=8$, $p=.0001$). This comparison includ-

Table 2. Percentage of study participants who chose a specific barrier method, and percentage distribution of participants by overall choice of method, according to type of participant

Method or choice	Women enrolled without a partner (N=350)	Women enrolled with a partner (N=160)	All male partners (N=160)
Any method			
Female condom	56.9	65.6	50.6
Male condom	65.7	60.6	60.0
Spermicides			
Film	42.9	41.3	25.6
Suppositories	24.9	23.1	18.1
Foam	37.1	40.0	30.0
Gel	29.7	27.5	21.3
% distribution by choice			
Female-controlled alone	22.3	25.0	18.1
Female condom only	4.0	6.3	7.5
Spermicides only	7.1	6.3	4.4
Female condoms & spermicides	11.1	12.5	6.3
Male condom and female-controlled methods	56.9	53.8	46.3
Male condoms only	8.9	6.9	13.8
None	12.0	14.4	21.9
Total	100.0	100.0	100.0

ed a constellation of eight factors, six of which corresponded with statistically significant interaction coefficients at $p<.10$. Thus, we present the results separately for women enrolled alone and for those enrolled with their current main sexual partner.

We restricted the multivariate analyses examining the predictors of female-controlled, over-the-counter method choice to individuals who chose an over-the-counter barrier method.* The reference group for these analyses was those who chose male condoms (either alone or with female controlled methods).

•Among women enrolled without a partner.

Of the 297 women who enrolled without a partner and selected any barrier method for whom we have complete data (11 were excluded due to missing values), several demographic and sexual communication factors were associated with the choice of a female-controlled method (Table 3, page 32). Whites were significantly more likely than blacks and multiracial women to choose female-controlled barrier methods (odds ratio, 2.6) and Hispanic women were marginally more likely to do so (odds ratio, 2.4, $p=.06$). We observed no associations between socioeconomic status and choice of female-con-

*Participants who selected no barrier method at all varied significantly from the reference group of those choosing the male condom, either alone or with a female method. Participants who took no method were less likely than the reference group to have had multiple sexual partners in the previous six months and to have used male condoms at their most recent sexual intercourse ($p=.001$). The strongest predictor of taking no barrier method was having used no method at last coitus ($p=.001$).

Table 3. Odds ratios (and 95% confidence intervals) from multiple logistic regression analysis of choice of female-controlled barrier methods alone among women enrolled without a partner (N=297)

Factor	Odds ratio
<18 years old	
Has discussed contraception with current main partner	1.8 (0.9, 3.6)
Has not discussed contraception with current main partner	7.5* (1.1, 50.3)
Has discussed contraception with current main partner and is 18	1.0 (0.4, 2.5)
Race/ethnicity†	
Asian	1.1 (0.3, 3.3)
Hispanic	2.4 (1.0, 5.8)
White	2.6* (1.1, 6.2)
Had multiple partners in last 6 mos.	0.7* (0.6, 1.0)
Used male condom at last sex	0.5* (0.2, 0.9)
Currently using hormonal method	2.1* (1.1, 4.0)

*p<.05. †Reference group consists of black and multiracial individuals. Note: In this and the following table, female-controlled barrier methods are female condoms and spermicides.

trolled methods alone, nor did socioeconomic status confound the relationships between other factors included in the multivariate models.

Among social and demographic factors, only age was a significant predictor: Those aged 17 and younger were more likely than older women to choose female-controlled methods alone; however, this association varied by whether these young women had discussed contraception with their main or most recent partner. Participants aged 17 and younger who had not talked about contraception with their main or most recent partner were 4.2 times as likely as those who had discussed the topic to choose female-controlled barrier methods (odds ratio of 7.5 divided by odds ratio of 1.8).

Current contraceptive use and the number of recent partners were also significantly associated with the choice of female-controlled methods alone among these women who enrolled without a partner. For example, current use of a hormonal method (i.e., the pill, injectable or implant) increased the likelihood that participants would choose a female-controlled method

only (odds ratio, 2.1), while current use of the male condom decreased that likelihood (odds ratio, 0.5). Having had multiple partners in the last six months also decreased the odds of choosing female-controlled barrier methods (odds ratio, 0.7, p=.045).

Women's history of pregnancy, STI diagnosis, age at first intercourse and perceived risk of acquiring an STI were not significantly associated with choosing only female-controlled methods. There was also no association between tampon use and choice of these methods. In a separate examination of the influence of traditional gender-role values (not shown), we found that women who contended that men were most likely to cheat in a monogamous relationship (as opposed to women or to both men and women equally) had a reduced likelihood of choosing female-controlled methods only (p=.03). We excluded this factor from the final multivariate analysis, however, because of its collinearity with young age.

• *Among women who enrolled with a partner and their male partners.* In the bivariate contingency analysis (not shown), the only factors significantly associated with choice of female-controlled methods among both the women who enrolled their partners and the partners themselves were current use of a hormonal method and current use of male condoms (p<.001).

In the multivariate analysis, however, current hormonal contraceptive use independently predicted the choice of female-controlled methods only among women (Table 4). Current users of a hormonal method had significantly elevated odds of choosing female-controlled barrier methods only (odds ratio, 6.3). The nonsignificant association among males reflects a lack of precision. In most of our multivariate analyses, use of hormonal contraception remained significantly associated with an increased likelihood of female-controlled barrier method choice.

Women younger than 18 who enrolled with their partner also had increased odds of choosing female-controlled methods

(odds ratio, 6.0); this association did not vary by the level of partner communication on sexual matters. Moreover, no other factor studied here—socioeconomic status, ethnicity, tampon use, sexual behavior, perceived STI risk, reproductive health history, sexual communication with partner and gender-

role traditionalism—independently affected the likelihood of choosing female-controlled methods either among the women who enrolled with their partners or among the partners themselves.

Discussion

Most study participants—56% of all women and 46% of the men—who were presented with the opportunity to try female-controlled, over-the-counter barrier methods elected not to take them without also taking male condoms. Indeed, no single female-controlled barrier method was chosen by more than 57% of participants. Our attempt to introduce female-controlled barrier methods to a population mostly unfamiliar with these products (as evidenced by low levels of their prior use and low knowledge of their efficacy in STI prevention) highlights the challenge of establishing trust for new methods in an environment where the efficacy of the male condom is well-established.

The fact that current use of a hormonal method was the strongest and most consistent predictor of the choice of female-controlled methods alone suggests that individuals are more likely to choose the female condom, with or without spermicides, if they perceive themselves to be already well-protected against unintended pregnancy. If pregnancy prevention is a primary concern for these women, then the choice of female-controlled methods may reflect a willingness to experiment with methods of unknown efficacy, especially when they are made available at no cost.

Alternatively, couples who rely on hormonal contraception might be concerned that their method provides no prevention against STIs, and thus may seek out female-controlled barrier methods for this purpose. In addition, women who already use a highly effective, female-controlled hormonal method to prevent pregnancy might be more committed than others to maintaining control over their method use, and thus be likely to use another female-controlled method to prevent STIs, including HIV. Thus, both women and men, particularly those already practicing hormonal contraception, may be amenable to a dual-method prevention message that advocates using two female-controlled methods—hormonal contraception for pregnancy prevention and a barrier method for STI prevention.

However, even though sexual behavior that raises the risk of STIs—i.e., having had multiple partners in the past six months—did not affect the likelihood of choosing

Table 4. Odds ratios (and 95% confidence intervals) from multiple logistic regression analysis of choice of female-controlled barrier methods among women (N=137) and men (N=123) enrolled as couples

Factor	Women	Men
<18 years old	6.0** (1.9, 19.1)	2.3 (0.8, 6.9)
Ever had STI	1.5 (0.5, 5.0)	1.0 (0.3, 3.9)
Had multiple partners in last 6 mos.	1.1 (0.6, 1.8)	1.0 (0.6, 1.5)
Used male condom at last sex	0.5 (0.1, 1.4)	0.5 (0.2, 1.6)
Currently using hormonal method	6.3** (2.1, 19.0)	2.3 (0.8, 7.0)

**p<.01. Notes: Logistic models were constructed independently for females and for males. Two men were dropped from the analysis because of missing values.

only female-controlled barrier methods among women who enrolled with their partners, such risky behavior significantly decreased that likelihood among women who enrolled without their partner. This reluctance to select female-controlled methods among women whose behavior would seem to indicate use of a method to protect against STIs may reflect prevention messages that promote male condoms as conferring the greatest protection against STIs. In fact, women who reported male condom use at their last coitus were unlikely to switch from that method; such women were less likely than others to take home female-controlled barrier methods alone.

Being younger than 18 was associated with an increased likelihood of choosing female-controlled methods for all women, regardless of whether they enrolled with a partner. We do not present the independent effects of age alone for those who enrolled without a partner because we found a significant interaction between young age and one measure of partner communication. The odds ratios, nonetheless, point to an increased likelihood of female-controlled method choice among these young women, regardless of whether they discussed contraception with their partner.

Teenagers may not yet have established strong method preferences, and may be more willing than older women to experiment with female-controlled barrier methods. Further, younger study participants are likely to have received youth-targeted prevention messages about HIV and STIs, and consequently might be particularly responsive to the opportunity to try alternative methods that prevent STIs. In addition, women who enrolled without a partner, for whom the effects of young age on choice varied by level of partner communication about contraception, may have perceived female-controlled barrier methods as offering a more discrete contraceptive option that obviates the need to negotiate male condom use.

While we identified several significant predictors of female-controlled method choice among women who enrolled with their main male partner, there were no significant predictors of this choice among the men themselves. Nonetheless, the directions of the nonsignificant associations—i.e., an increased likelihood of female-controlled method choice among men younger than age 18 and among men whose partner was currently using a hormonal method—were consistent with what we observed for women.

The high level of within-couple discor-

dance revealed in the method-choice concordance analysis was particularly striking. Thus, the factors prompting method choice acted inconsistently within couples. Each member of the couple made his or her choice without the knowledge of what the other had decided. We anticipate that this high level of disagreement could have implications for risk reduction. For example, couples might be more likely to use the methods they chose if a given method had looked attractive to them independently and each had elected to take a supply of it home.

The role of traditional gender norms in guiding choice of female-controlled barrier methods was less influential overall than we had hypothesized. We had anticipated that women who articulated traditional norms (in which men have more power in a relationship) would be less likely to choose female-controlled barrier methods. Indeed, women who asserted that men were more likely to cheat in a relationship were less likely to take female-controlled barrier methods alone, but this apparent association could not be examined in our multivariate analysis because of its strong collinearity with age.

No other measure of sexual gender norms was significantly associated with method choice. The one significant association suggests, nonetheless, that for women who may perceive gender imbalances in their relationships with men, the female-controlled barrier methods that currently exist—particularly the female condom, which is unlikely to be used without a partner's awareness—may have limited viability. Thus, even though female-controlled barrier methods appear to offer a feasible alternative to male condoms for women aged 17 and younger who have not discussed contraception with their partner, the degree to which traditional gender norms may reduce the perceived feasibility of female-controlled method use should be explored in further research. This observation underscores the fact that simply providing women with the opportunity and information to control their use of methods to prevent pregnancy and STIs does not resolve complex partner dynamics that ultimately shape method acceptability and use.

Our conclusions are limited by several factors. First, although recruitment activi-

ties included extensive community outreach, the study sample is primarily clinic-based. The study's limited generalizability is moderated somewhat, however, by the diverse socioeconomic and reproductive health backgrounds of the populations served by these three family planning clinics. Although eligible Hispanic women were less likely to participate than women of other ethnic backgrounds, these Hispanic women tended to be older (aged 25–30), to

“...individuals [appear] more likely to choose the female condom, with or without spermicides, if they perceive themselves to be already well-protected against unintended pregnancy.”

be married and to have completed their eligibility screening in Spanish. Their decreased willingness to participate, even compared to younger Hispanic immigrants, may point to less interest in or comfort with trying new contraceptive methods or in participating in a research study.

In addition, our results may be biased by a social desirability bias where participants felt compelled to take the methods simply because the products were being offered as part of the study or because they were available free of charge. Furthermore, individuals who participated in our study may have been more willing than nonparticipants to try new contraceptive methods. We attempted to offset this limitation by explaining to participants that selecting a method was entirely optional and that their sexual and contraceptive behavior was important to the research regardless of what methods, if any, they ultimately chose.

A further limitation is our inability to examine predictors of choosing specific spermicide formulations and the female condom. As stated earlier, because most participants chose combinations of methods, we were unable to isolate the predictors associated with any one method because of the resulting loss of statistical power. Bivariate associations between key predictors derived from study hypotheses and the choice of female condoms and spermicides alone suggest, nonetheless, that the directions and magnitudes of the associations observed for the study outcome—choice of any type of female-controlled method—are generally consistent with those for each method chosen sepa-

rately. Finally, while examining the method choice made by a group of individuals provides one measure of method preference, choice may not predict actual use. Acceptability based on women's and men's experiences using these products will be explored using the follow-up data from this study.

Conclusions and Implications

The majority of participants who chose female-controlled methods appear to have had an interest in experimenting with an alternative STI prevention method. Moreover, the willingness to choose female-controlled barrier methods appears to apply to a wide range of young women who use reproductive health care services in diverse health care settings—a community-based clinic, a public health department clinic and a university health center. This diversity in the population underscores women's broad desire for expanded choices to prevent STIs.

Although the need for some partner cooperation in the use of existing female-controlled barrier methods might limit their use, these methods were considered to be acceptable options for some young women and men. Introducing these barrier methods to young women in particular—a group that may not have well-established method preferences yet and that may be less able to negotiate male condom use—might effectively increase the use of female-controlled methods for STI prevention. In addition, individuals at low risk of unintended pregnancy because of hormonal contraceptive use may be most willing to experiment with a barrier method of unknown STI prevention efficacy. Clinic-based education in contraception

and STI-risk reduction that is targeted to young sexually active women, including those initiating hormonal contraceptive use, might incorporate over-the-counter, female-controlled barrier methods into the method mix offered. In fact, such an expanded choice of barrier methods might ultimately lead to increased barrier method use overall.

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