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## Barriers to the Use of Modern Contraceptives and Implications for Woman-Controlled Prevention of Sexually Transmitted Infections in Madagascar

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### SUMMARY

Globally, unplanned pregnancies and sexually transmitted infections (STIs) persist as significant threats to women's reproductive health. Barriers to the use of modern contraceptives by women might inhibit uptake of novel woman-controlled methods for preventing STIs/HIV. Use of modern contraceptives and perceptions and attitudes towards contraceptive use were investigated among women in Antananarivo, Madagascar using qualitative research. The hypothetical acceptability of the diaphragm, a woman-controlled barrier contraceptive device that also holds promise of protecting against STI/HIV, was assessed. Women consecutively seeking care for vaginal discharge at a public health clinic were recruited for participation in a semi-structured interview (SSI) or focus group discussion (FGD). Audiotaped SSIs and FGDs were transcribed, translated, and coded for predetermined and emerging themes. Of 46 participating women, 70% reported occasional use of male condoms, mostly for preventing pregnancy during their fertile days. Although women could name effective contraceptive methods, only 14% reported using hormonal contraception. Three barriers to use of modern contraceptives emerged: gaps in knowledge about the range of available contraceptive methods; misinformation and negative perceptions about some methods; and concern about social opposition to contraceptive use, mainly from male partners. These results demonstrate the need for programs in both family planning and STI prevention to improve women's knowledge of modern contraceptives and methods to prevent STI and to dispel misinformation and negative perceptions of methods. In addition, involvement of men will likely be a critical component of increased uptake of woman-controlled pregnancy and STI/HIV prevention methods and improved health.

### INTRODUCTION

More than 10 years after the 1994 International Conference on Population and Development in Cairo (ICPD-1994), unplanned pregnancy and sexually transmitted infections (STIs)

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persist as significant threats to women's reproductive health (Bongaarts, 1997; Henshaw, 1998; WHO, 2001). Women living in developing-country settings are disproportionately affected. The prevalence of contraceptive use has increased in each region of the world (Feyisetan & Casterline, 2000), yet substantial proportions of women experience unmet need for contraception, particularly in sub-Saharan Africa (Westoff & Bankole, 1995). In the battle against STIs, although the promotion of male condoms has increased, use of this method is still insufficient. It is encouraging that several promising woman-controlled methods for preventing STI have been developed and show promise (Moench *et al.*, 2001). The lesson learned from the family planning movement, however, is that developing effective woman-controlled methods and providing access to them is not sufficient to ensure their use (Bongaarts, 2006). Information on the barriers to the acceptability and uptake of both modern contraception and methods to prevent STI is needed to improve the effectiveness of reproductive health programs. In many developing countries, family planning programs have been established and provide information about contraception and access to various methods (Bongaarts, 2006). Hence, many women in these countries have likely been exposed to modern contraceptive methods and formed opinions about them. Barriers that have affected the acceptability and uptake of modern contraception are also likely to inhibit uptake of efforts to prevent STI; thus, program planners in both family planning and STI programs would benefit from understanding barriers to modern contraception, including methods that are controlled by women.

We conducted semi-structured interviews (SSIs) and focus group discussions (FGDs) to assess knowledge, perceptions, and use of modern contraceptive methods among women seeking care for vaginal discharge in Madagascar in the context of research assessing the hypothetical acceptability of the diaphragm, a woman-controlled barrier contraceptive device used with spermicide that also holds promise of protecting against STI/HIV (Moench *et al.*, 2001). Madagascar is a sub-Saharan African country with high levels of both unplanned pregnancy and STIs. Although it has begun a demographic transition during which use of effective modern contraceptive methods among Malagasy women has increased from 4% in 1992 to 7% in 1997 and then to 14% in 2003/2004 (Macro, 2006), resulting in lower birth rates, levels of unmet need for contraception in Madagascar are among the highest in the world (Westoff & Bankole, 2000). Nearly one-quarter of currently-married Malagasy women in 2003/2004 wished to space or limit their births but failed to use any contraceptive method and, hence, experienced an unmet need for contraception (Macro, 2006). STIs also constitute a significant public health concern in Madagascar: the prevalence of at least one curable STI was 40% among women seeking care for vaginal discharge in 1997 (Behets *et al.*, 2001) and up to 78% among asymptomatic sex workers in 2000 (Behets *et al.*, 2003). Increased acceptability and uptake of modern contraceptive methods, particularly barrier methods that dually protect against pregnancy and STIs, is necessary for improved reproductive health in Madagascar. The specific objective of this study was to identify barriers to contraceptive use – barriers that may also inhibit the future acceptability of novel woman-controlled methods to prevent STI, such as the diaphragm – that emerged during the SSIs and FGDs.

## METHODS

Women seeking care for vaginal discharge at a primary health care center in Antananarivo, the capital city of Madagascar, from November 2004 through December 2004 were invited to participate in a qualitative research study investigating knowledge, perceptions, and use of modern contraceptive methods in the context of assessing the hypothetical acceptability of the diaphragm. Eligible women were aged 18 to 55 years, sexually active, had not traded sex for money or gifts in the past 30 days, had not used male or female condoms in 100% of coital acts in the previous 2 weeks, were not pregnant, had not had a hysterectomy, and

would remain in the study area for the eight week study period. Eligible women were asked to provide written informed consent for study participation. The first ten women who agreed to participate were asked to return to the clinic for a semi-structured interview, which was conducted privately. The remaining eligible women who agreed to participate were asked to return to the clinic for a FGD. Six age-stratified FGDs were conducted. Three FGDs included women aged 25 years and younger, and three FGDs included women older than 25. FGDs were chosen because they allowed participation by a large number of people in a relatively short time and provided a forum for discussion based on shared experiences (Patton, 1990). Additionally, group interaction and debate can reveal social norms and practices that may affect the use of MCM and potential acceptability of diaphragms as an STI prevention method. SSIs provided a private forum for participants to talk about their individual experiences, sexual history, contraceptive use, and views on possible woman-controlled STI prevention methods, such as the diaphragm.

When a woman returned to the clinic for a scheduled study visit, a trained female researcher administered a brief, structured questionnaire in Malagasy to assess her socio-demographic characteristics as well as current use of condoms and other contraceptive methods through the following questions: (1) “How often do you use a male condom when you have sex? Always, sometimes, or never?” and (2) “What *other* contraceptives do you and your partner use?”

The interviewers who conducted the SSIs and the FGD facilitators were trained in methods for obtaining qualitative data. They used semi-structured guides to assess current knowledge and use of modern contraceptive methods and barriers to using these methods, posing questions and probing for information in a non-leading, non-judgmental manner. Women’s knowledge of STIs and STI prevention was also assessed. SSI interviewers and FGD facilitators presented the diaphragm to women and described its appropriate use. They explained that the diaphragm was an effective contraceptive method when used *with* spermicide but clarified that use of the diaphragm alone had not been proven effective against pregnancy or STI. They also explained that diaphragms must not be removed until at least 6 hours after the last coital act and advised the women to avoid some common internal vaginal hygiene practices while the diaphragm was in place (e.g., washing or “scraping/digging” with an inserted finger). As no woman had used the diaphragm previously, facilitators and interviewers asked women to report on their perceptions of factors that may affect its acceptability and use. Participants were reimbursed for travel expenses as well as their participation.

Univariate tabulations of quantitative indicators of socio-demographics and use of contraceptive methods were calculated using Epi Info Version 6.0™ (Centers for Disease Control and Prevention, Atlanta, GA). Audiotaped SSIs and FGDs were transcribed verbatim, translated, and coded deductively using codes for major themes based on research questions as well as data-driven themes that emerged during several rounds of coding and analysis (Miles & Huberman, 1994; Bernard, 2000). Multiple analysts (six team members: five in Madagascar and one in the U.S.) independently coded and analyzed the data to improve the reliability and validity of the findings (Mays & Pope, 1995; Patton, 1999). The initial rounds of coding were done on paper by Malagasy team members, who discussed their respective findings and reached consensus about the major themes in the data. Subsequently, Atlas.ti software Version 5.2 (Scientific Software Development, Berlin) was used to facilitate the systematic organization and retrieval of data. Data were organized into display tables to facilitate the comparison of themes and sub-themes within and across SSIs and FGDs. The analysts reached consensus about the most robust findings in all rounds of coding, which are presented below in summary form, along with representative quotes.

The ethical review boards of the Ministry of Public Health, Antananarivo, Madagascar; the University of North Carolina at Chapel Hill; and the Centers for Disease Control and Prevention in Atlanta, Georgia, approved the research.

## RESULTS

### Screening and Recruitment

Of 194 women screened for participation, 113 were eligible and recruited to participate (58% of all women screened). The most important reasons for ineligibility included not being sexually active (greater than one-third of ineligible women), inability to remain in the study area for the study duration (nearly 20% of ineligible women), and reported use of condoms during 100% of sex acts in the past 2 weeks (17% of ineligible women).

Of 113 eligible women, 46 consented and participated in the study (41%). Among the 67 women who did not participate, the primary reason for non-participation was not having enough time (63%). Other barriers included needing to further consider participation, needing to consult male partners, and failing to return to the clinic at the scheduled time for the study visit.

Ten women participated in an SSI. Thirty-six women participated in FGDs, each of which included an average of six participants (range: four to eight women per group).

### Socio-demographic Characteristics

The participants' median age was 25 years (range: 19 to 40 years), and they had a median of 12 years in school (range: 3–16). Less than half were married (46%), 13% were unmarried but cohabitating, and 41% were unmarried and not cohabitating. The median number of living children was 0 (range: 0–4).

### Contraceptive Use

The majority of participants (70%) reported that they used condoms at least some of the time during sex. The SSIs and FGDs indicated that condoms were generally used for contraceptive purposes during women's fertile days rather than for STI prevention.

The majority of women also reported use of contraceptive methods other than condoms (see Table 1). A small proportion reported using hormonal contraception (14%), classified as a modern method. Rather, women were much more likely to use traditional methods than modern methods, with counting days (also known as periodic abstinence) the most common of the traditional methods (61%). Three women reported using withdrawal, one exclusive breastfeeding, and one herbal tea.

**Barriers to Using Contraceptives**—When asked to name contraceptive methods during the SSIs and FGDs, participants most often mentioned traditional methods, such as counting days. Many women could name multiple modern contraceptive methods, including pills, injections, condoms, Norplant, and IUDs, and one woman mentioned spermicide. Many women viewed hormonal contraception as effective. While knowledge of modern contraceptive methods was generally good, some women were not aware of the full spectrum of contraceptive method choices, and no woman was aware that the diaphragm with spermicide was a contraceptive device.

**Misinformation among a Minority of Participants about Hormonal Contraception's Side Effects**—A few women's comments reflected misinformation about the effects of hormonal contraception; two mentioned that their partners were opposed

to hormonal contraceptive methods because they might cause sterility. Another woman commented that, “Pills, which are the one I know, they might not only prevent pregnancy but also they even result in sterility in the long run ... That's what I've found out from my own experience. I myself nearly became sterile because of those pills I've taken so far” (SSI 8).

Two women in different FGDs reported that people living in rural areas believe that hormonal contraception causes death (FGDs 3 and 4). One of these women also commented that rural people believe that “Hormonal pills are designed to kill women rapidly, because there are too many women in the world” (FGD 4). Another woman mentioned that she had “A friend who used to eat pills for a long time then she fell ill because of something in her belly. Some tests were performed on her, what is it, a scan and it appeared that there was something in her womb; it was a sort of little pocket and all the pills that she ate seemed to have left residues in it” (SSI 1).

**Negative Perceptions of Hormonal Contraception’s Side Effects**—During SSIs and FGDs, nearly all the women indicated either not initiating or stopping the use of hormonal contraceptive methods because of their perceived side effects. Most of their comments focused on weight changes and hair loss:

“...people say that those women who use injections or pills sometimes get either very fat or thin. As for me, I use pills and my hair falls out and I become thin” (FGD 1).

Negative attitudes towards hormonal contraception and condoms, and the need for alternative contraceptive methods, emerged when interviewers informed women that the diaphragm, when used with spermicide, is a woman-controlled barrier contraceptive method. Some women viewed the diaphragm as an alternative to hormonal contraception: “...since many [Malagasy women] cannot stand pills or injections for example, now they have the choice whether to use condom or diaphragm...” (FGD 5). One woman put it this way:

“To the best of my knowledge, the wives will accept [the diaphragm] straight away because first of all, there’s nothing to take that you fear to fatten you, sicken you, cause recurrent fever or something like that. You only insert it in, you can wash it straight away and you are sure that it’s clean, there are no microbes. On top of that, you can arrange its position; you don’t need to ask your husband his permission, it’s only you who knows that you wear such and such a thing if you happen to be with a man who doesn’t like family planning... As far as I know, women will be happy about its existence” (FGD 2). Another woman said:

“I find this may be good for the health, that it may be useful, since it has no bad effects on the body; that one may get obese with pills and the like, for example... For example, you may not feel dizzy; you see, when one uses injections and pills, one often feels dizzy, one feels a little tired just after walking a short distance... one can really see there are serious effects of using injections” (SSI 3).

**Men’s Resistance to Contraception**—During SSIs and FGDs, some women reported that their male partners had expressed opposition at multiple levels to the use of contraceptives: opposition to limiting fertility, opposition to using a condom, and opposition to women’s covert use of contraceptive methods. Women commented on Malagasy men’s resistance to use of birth control in statements similar to the following quote:

“...there are men who don’t want to limit the number of their children...so most of the time, the friend or the sister or people like that tells her: use such birth control method because life is already difficult. But if it’s the man’s own desire, one man at

*home, your husband, if he can choose, he'd like you to give birth all the time"* (FGD 3).

Opposition to limiting fertility also emerged in the context of discussing the diaphragm, when several women commented that it might be difficult to convince married men about the advantages of using the diaphragm to limit fertility:

P1: *"As I see it, it's really men's mentalities... which show some sort of pride. Maybe the man thinks 'I can always provide for them whatever their number is. But the woman just wants to avoid [pregnancy]. Since the children look like a flight of stairs because of the small difference between their ages and life is already hard, it's the woman who is really keen on it..."*

P2: *"Mainly men... need to be taught... they really need good explanation, but as for women, they can understand and accept easily. It's really difficult for men, still difficult for them to accept it; they don't seem to appreciate it because I think that the thing is not used on them but on the woman; and they don't appreciate that [at] all"* (FGD 2).

Many women reported that partners were opposed to using the male condom, and some viewed the diaphragm as an alternative to condom use: *"It's more practical than to the woman, because I'm not obliged to start to say: 'put on a condom' to the man, but right away I really take the initiative in putting it in so ... as for me, it's better"* (FGD 3).

*"Personally, [the diaphragm] suits me, because... my husband doesn't like using condoms... when we are to have sexual intercourse, it seems that we always have a row because I oblige him to put on a condom, for example, during the ovulation period... I'm afraid of becoming pregnant then, so as for me, it suits me, and it's possible that he doesn't know it but I'm just afraid lest he should know it"* (FGD 3).

Most women predicted that use of the diaphragm might decrease condom use, particularly given men's resistance to using condoms. Only a few women raised concerns about the unknown effectiveness of the diaphragm for preventing STI, including one woman who commented, *"[f]or my part, I think that there will be no change in condom usage even if the diaphragm is used because we are not certain yet that it effectively protects against infections. So I think people would want to protect themselves from infections with condoms"* (FGD 4).

SSIs and FGDs also indicated that while most women reported having control over their choice of contraception, male partners were opposed to women's use of contraceptive methods if a woman did not obtain the approval of her partner before use. Most women believed that male partners expect to be consulted before women—particularly those who are married—start or change any contraceptive method. Generally, women did not use contraception covertly, because they were afraid that men would discover it, which might result in problems such as mistrust, conflict between partners, and separation.

*"He gets angry because you didn't ask for the permission though you go out with him. He asks you why you hide facts from him. He may have the wrong idea about you, though there may be other reasons. It's possible that he thinks that you are afraid of getting pregnant of someone else so you take measures. He may think that you are unfaithful to him and that's why you use that method in secret. He may say that there is something going on since you hide it from him"* (SSI 1).

Additionally, participants emphasized that if a woman experienced perceived side effects, such as weight gain, from using a contraceptive method without her partner's permission:

*“...he will blame it on you, saying you are victim of your own doing, this is the one you like to use, [even though]... I have already told you to use [another method]... So it is not good to decide alone, even if you have your own idea of what it is that you like. You must say which one you really like, and you must always ask his permission regarding the one you really like, and regarding the final decision, you must still ask his permission” (SSI 3).*

### **Social Opposition to Limiting Fertility: The Importance of Children in**

**Malagasy Culture**—Most of the women said neither religious nor cultural norms would act as barriers to using the diaphragm. However, some women noted that religious beliefs about contraception and the high value placed on large families in the countryside might inhibit the diaphragm’s acceptability and use for some people.

P1: *“...for some religions, you have to accept all the children you’re given, they don’t accept condom use. Women are designed for having babies...” (FGD5).*

P2: *“Malagasy people will use neither condom nor diaphragm because children are the equivalent of riches and when there is a baby in the womb, they don’t mind. For the ancestors, 14 was the ideal number and some people even have more and they provide for them, they manage. So, if they keep the Malagasy mentality they won’t use it at all” (FGD6).*

**Women’s Questions and Concerns about the Diaphragm**—Women raised many other comments and concerns, following explanations of the purpose of the diaphragm and instructions about how it would be used in the planned diaphragm acceptability study. The majority of the questions and concerns were about inserting and removing the diaphragm (e.g., finding adequate time and privacy to insert and remove it, whether it is painful to insert, position of the diaphragm when inserted, ease and frequency of removal), possible risks to the woman with use (including damage to the cervix and pregnancy if the diaphragm is displaced), and the possibility of a partner’s detecting the diaphragm during sex. Many women asked questions about the “six hour rule” (leaving the diaphragm in for a minimum of 6 hours after last sex) and expressed concerns about its impact on internal vaginal cleansing (which many Malagasy women do after sex and routinely 2 to 3 times a day). Several women asked questions about cleaning and caring for the diaphragm, the safety of using it during menses, whether the diaphragm “hampers” (either the woman when she is wearing it or sexual pleasure), and the availability and cost of the diaphragm in Madagascar. A few women asked about whether the diaphragm protected against STIs and whether spermicide is available for use with the diaphragm. Very few participants identified cost as a potential barrier when asked about factors that might affect diaphragm acceptability and use.

## **DISCUSSION**

Among this clinic-based convenience sample of urban Malagasy women, the majority reported using a condom at least some of the time during sex and using contraceptive methods other than condoms to prevent pregnancy. While knowledge of hormonal methods was generally good, use of such methods was much lower (14% of women) than traditional contraceptive methods, such as counting days (61%). Women were not asked to report the frequency and consistency with which they used condoms for contraception, but SSIs and FGDs indicated that they used condoms sporadically, principally during days when they and/or their partners believed they were most fertile. The low use of modern contraceptives reported by these urban women is comparable to findings from the 2003/2004 Madagascar Demographic and Health Survey, which revealed that 14% of women aged 15 to 49 years had used any modern method of contraception in the year before the survey, including injections, pills, and condoms. Most participants in the present study, however, were using

some method to attempt to protect against pregnancy, suggesting that the desire to prevent pregnancy was relatively high among these women, even though consistent use of reliable contraceptive methods was rather low.

Three barriers to increased use of modern contraceptives emerged from this research: gaps in knowledge about contraceptive methods; dissatisfaction with some modern contraceptive methods; and concern about social opposition to using contraceptives, largely from male partners. These findings support existing theoretical models of unmet need for contraception positing that important determinants of unmet need are lack of knowledge about contraceptive methods and “costs” of contraceptive use, including health concerns about possible side effects and social opposition to method use (Casterline & Sinding, 2000).

Important gaps in women’s knowledge of modern contraceptive methods and misperceptions about contraception prevented higher uptake of effective contraceptives, including methods that would prevent both pregnancy and STIs. Lack of knowledge about contraception has been an important determinant of unmet need for family planning among currently-married women in a majority of countries worldwide, particularly in sub-Saharan Africa countries including Madagascar (Westoff & Bankole, 1995). Among Malagasy women with an unmet need for family planning in 1992, 30% did not use contraception due to lack of knowledge (Westoff & Bankole, 1995). Lack of knowledge as the reason for unmet need was less common in the early 1990’s in Kenya (6%), Tanzania (13%), Malawi (14%), Namibia (17%), and Zambia (21%) (Westoff & Bankole, 1995). The present study, conducted more than a decade later in the capital of the country among mostly young women with relatively high educational levels, highlights the continued need for improved educational efforts in family planning in Madagascar to raise awareness of modern contraceptive methods, dispel myths about contraception, and inform women of the importance of dual use of barrier contraceptive methods to protect against both pregnancy and STI.

A second barrier to contraceptive use among these urban women was dissatisfaction with some modern contraceptive products. Women reported that an important barrier to the use of hormonal contraceptives was concern about side effects, such as weight gain, a finding that has been observed in other studies (Westoff & Bankole, 1995). Weight gain was perceived not only as undesirable in itself but also if it signaled to a male partner that a woman might be using contraception without his knowledge or permission.

Finally, concern about men’s opposition to contraception emerged as another important barrier. Women reported that men’s resistance to using a condom was a barrier to use of this contraceptive method, as has been reported elsewhere (Agha *et al.*, 2002). In addition, while many women acknowledged that covert use and woman-controlled methods offered advantages, few were likely to use the diaphragm covertly because of concerns over men’s reactions. Campaigns to promote woman-controlled modern contraceptive methods in the context of main partnerships, even methods that could be used covertly, cannot ignore the attitudes of male partners. The husband’s opposition has been identified as an important barrier to contraceptive use in studies conducted in the Philippines (Casterline *et al.*, 1997), Guatemala (de Barrios *et al.*, 1997), India (Yinger *et al.*, 1998), Egypt (El-Zanaty *et al.*, 1999), Nepal (Stash, 1999), Pakistan (Casterline *et al.*, 2001), Kenya (Magadi & Curtis, 2003), and Turkey (Mistik *et al.*, 2003). Correspondingly, the husband’s approval of contraception was positively associated with contraceptive use in Ghana (Oheneba-Sakyi & Takyi, 1997) and with good communication between the spouses in previous studies (Oni & McCarthy, 1991; Oheneba-Sakyi & Takyi, 1997). Even if women have access to woman-controlled, covert methods of protection, discussion of contraceptive use with the primary male partner is likely (Biddlecom & Fapohunda, 1998; Castle *et al.*, 1999; Green *et al.*,



2001). Thus, it is widely believed that male involvement in family planning is necessary for improved contraceptive use (Sternberg & Hubley, 2004), and there is evidence that interventions targeting men have improved men's acceptance of contraception, including the use of condoms (Piotrow *et al.*, 1992; Celentano *et al.*, 1998; Laukamm-Josten *et al.*, 2000; Leonard *et al.*, 2000; Sternberg & Hubley, 2004).

### **Implications of Study Findings for Promotion of Woman-controlled Methods to Prevent STI**

In most cultural contexts where the prevalence of STI is high and prevention is most needed, women lack adequate power and autonomy in their sexual relationships and thus cannot effectively negotiate for protection against STIs during sex (Ulin, 1992; Gupta & Weiss, 1993; Amaro, 1995; deZoysa *et al.*, 1996; Gómez & Marín, 1996; Pulerwitz *et al.*, 2000). The development of woman-controlled methods of STI prevention is an important component of improved reproductive health. However, important barriers to contraceptive use are also likely to impede uptake of woman-controlled methods of preventing STI.

First, acceptance of novel methods for preventing STI necessitates knowledge of the product's efficacy, potential side effects, correct use, and alternative methods (Severy & Newcomer, 2005; Severy *et al.*, 2005).

Second, the ability to tolerate the product's properties, including the look, feel, smell, colour and taste, is also necessary (Severy & Newcomer, 2005; Severy *et al.*, 2005). The degree to which an STI prevention method decreases or enhances sexual pleasure, particularly among men, is an important factor of acceptance and use (Pool *et al.*, 2000; Bulut *et al.*, 2001; Morrow *et al.*, 2003; Tabet *et al.*, 2003; Bentley *et al.*, 2004; Koo *et al.*, 2005).

Finally, STI program planners will face a socio-cultural context in which men are dominant and resist any loss of power, including power in their sexual relationships, particularly marital or long-term relationships. While there is evidence that men find the look and feel of woman-controlled methods such as the diaphragm, microbicide, or female condom acceptable, or even enjoyable, during intercourse (Pool *et al.*, 2000; Bentley *et al.*, 2004; Beksinska *et al.*, 2006; Joglekar *et al.*, 2006; Morrow *et al.*, 2006), women's control of the use of a product or using a product covertly may not be acceptable to men, particularly in the context of serious partnerships (Bentley *et al.*, 2004; Koo *et al.*, 2005). Thus, a strategy of promoting woman-controlled methods for preventing STI that does not include men could result in the alienation of men and further conflict between men and women, leading to diminished, rather than improved, reproductive health (Sternberg & Hubley, 2004).

Our findings are subject to some limitations. First, this study was conducted among a convenience sample of urban women seeking care for vaginal discharge, a population that was not representative of all Malagasy women. In addition, low participation rates may have biased results, if those who failed to participate were different from participants in their knowledge of contraceptives, use of such methods, or barriers. Despite these limitations of the sample, these findings are consistent with population-based Demographic and Health Survey findings. The research methods that were employed generated valuable contextual information that could inform promotion of woman-controlled methods of contraception and the future use and acceptability of the diaphragm as a woman-controlled method for preventing STI.

In conclusion, important barriers to use of modern contraceptive methods still exist among urban women in Madagascar, including gaps in their knowledge about available methods, negative perceptions of contraceptive products or their perceived side effects, and low social support for using the products, particularly among male partners. These same barriers will likely inhibit the acceptance and use of woman-controlled methods for preventing STI,

including diaphragms. Thus, reproductive health programs that aim to decrease both unplanned pregnancy and STIs must work to improve knowledge of modern methods for providing contraception and preventing STI, dispel negative perceptions about using these methods, and inform women of the dual use of methods for preventing pregnancy and STIs. Although the increased development and accessibility of woman-controlled methods for contraception and STI prevention are vital for the further empowerment of women and their improved reproductive health, alienation of men is a potentially costly risk. Hence, the involvement of men in family planning and STI prevention efforts, especially in the context of protection during sexual intercourse with a primary partner, may prove to be a critical component of increased uptake of woman-controlled methods and improved health.

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## REFERENCES

- Agha, S.; Kusanthan, T.; Longfield, K.; Klein, M.; Berman, J. Reasons for non-use of condoms in eight countries in sub-Saharan Africa. PSI, Washington, D.C: Population Services International (PSI) Research Division Working Paper No 49; 2002. p. 6-9.
- Amaro H. Love, sex, and power. Considering women's realities in HIV prevention. *The American Psychologist*. 1995; 50:437–447. [PubMed: 7598292]
- Behets F, Andriamiadana J, Rasamilalao D, Ratsimbazafy N, Randrianasolo D, Dallabetta G, et al. Sexually transmitted infections and associated socio-demographic and behavioural factors in women seeking primary care suggest Madagascar's vulnerability to rapid HIV spread. *Tropical Medicine & International Health*. 2001; 6:202–211. [PubMed: 11299037]
- Behets FM, Rasolofomanana JR, Van Damme K, Vaovola G, Andriamiadana J, Ranaivo A, et al. Evidence-based treatment guidelines for sexually transmitted infections developed with and for female sex workers. *Tropical Medicine & International Health*. 2003; 8:251–258. [PubMed: 12631316]
- Beksinska, M.; Smit, J.; Vijayakumar, G.; Mabude, Z. Male partner acceptability and involvement in female condom use. Paper presented at the Microbicides 2006 Conference; April 23–26, 2006; Cape Town, South Africa.
- Bentley ME, Fullem AM, Tolley EE, Kelly CW, Jogelkar N, Srirak N, et al. Acceptability of a microbicide among women and their partners in a 4-country phase I trial. *American Journal of Public Health*. 2004; 94:1159–1164. [PubMed: 15226137]
- Bernard, HR. *Social Research Methods*. Thousand Oaks, CA: Sage Publications; 2000.
- Biddlecom AE, Fapohunda BM. Covert contraceptive use: Prevalence, motivations, and consequences. *Studies in Family Planning*. 1998; 29:360–372. [PubMed: 9919630]
- Bongaarts J. Trends in unwanted childbearing in the developing world. *Studies in Family Planning*. 1997; 28:267–277. [PubMed: 9431648]
- Bongaarts J. The causes of stalling fertility transitions. *Studies in Family Planning*. 2006; 37:1–16. [PubMed: 16570726]
- Bulut A, Ortayli N, Ringheim K, Cottingham J, Farley TM, Peregoudov A, et al. Assessing the acceptability, service delivery requirements, and use-effectiveness of the diaphragm in Colombia, Philippines, and Turkey. *Contraception*. 2001; 63:267–275. [PubMed: 11448468]
- Casterline JB, Perez AE, Biddlecom AE. Factors underlying unmet need for family planning in the Philippines. *Studies in Family Planning*. 1997; 28:173–191. [PubMed: 9322334]
- Casterline JB, Sinding SW. Unmet need for family planning in developing countries and implications for population policy. *Population and Development Review*. 2000; 26:691–723.
- Casterline JB, Sathar ZA, ul Haque M. Obstacles to contraceptive use in Pakistan: A study in Punjab. *Studies in Family Planning*. 2001; 32:95–110. [PubMed: 11449867]

- Castle S, Konate MK, Ulin PR, Martin S. A qualitative study of clandestine contraceptive use in urban Mali. *Studies in Family Planning*. 1999; 30:231–248. [PubMed: 10546314]
- Celentano DD, Nelson KE, Lyles CM, Beyrer C, Eiumtrakul S, Go VF, et al. Decreasing incidence of HIV and sexually transmitted diseases in young Thai men: evidence for success of the HIV/AIDS control and prevention program. *AIDS*. 1998; 12:F29–F36. [PubMed: 9543437]
- de Barrios, LA.; de Rodas, IM.; Nieves, I.; Matute, J.; Yinger, NV. ICRW Report-in-Brief, Reproductive Health and Population, Region: Latin America and Caribbean. Washington, D.C: International Center for Research on Women; 1997. Unmet need for family planning in a peri-urban community of Guatemala City.
- de Zoysa I, Sweat MD, Denison JA. Faithful but fearful: Reducing HIV transmission in stable relationships. *AIDS*. 1996; 10 Suppl A:S197–S203. [PubMed: 8883630]
- El-Zanaty, F.; Way, A.; Casterline, JB. Egypt indepth study on reasons for nonuse of family planning. Results of a panel study. Cairo, Egypt: National Population Council; 1999.
- Feyisetan B, Casterline JB. Fertility preferences and contraceptive change in developing countries. *International Family Planning Perspectives*. 2000; 26:100–109.
- Gómez C, Marín B. Gender, culture and power: barriers to HIV prevention strategies. *Journal of Sex Research*. 1996; 33:355–362.
- Green G, Pool R, Harrison S, Hart GJ, Wilkinson J, Nyanzi S, et al. Female control of sexuality: Illusion or reality? Use of vaginal products in south west Uganda. *Social Science & Medicine*. 2001; 52:585–598. [PubMed: 11206655]
- Gupta GR, Weiss E. Women's lives and sex: implications for AIDS prevention. *Culture, Medicine and Psychiatry*. 1993; 17:399–312.
- Henshaw SK. Unintended pregnancy in the United States. *Family Planning Perspectives*. 1998; 30:24–29. 46. [PubMed: 9494812]
- Joglekar, N.; Joshi, S.; Kakade, M.; Reynolds, S.; Mehendale, S. Learning what men feel about microbicides: Experience during Phase I safety study of PRO 2000 Vaginal Gel in Pune, India. Paper presented at the Microbicides 2006 Conference; April 23–26, 2006; Cape Town, South Africa.
- Koo H, Woodsong C, Dalberth B, Viswanathan M, Simons-Rudolph A. Context of acceptability of topical microbicides: Sexual relationships. *Journal of Social Issues*. 2005; 61:67–93. [PubMed: 21822334]
- Laukamm-Josten U, Mwizarubi BK, Outwater A, Mwaijonga CL, Valadez JJ, Nyamwaya D, et al. Preventing HIV infection through peer education and condom promotion among truck drivers and their sexual partners in Tanzania 1990–1993. *AIDS Care*. 2000; 12:27–40. [PubMed: 10716015]
- Leonard L, Ndiaye I, Kapadia A, Eisen G, Diop O, Mboup S, et al. HIV prevention among male clients of female sex workers in Kaolack, Senegal: results of a peer education program. *AIDS Education and Prevention*. 2000; 12:21–37. [PubMed: 10749384]
- Macro. MEASURE DHS STATcompiler. 2006 [Accessed May 2007]. at: <http://www.measuredhs.com>.
- Magadi MA, Curtis SL. Trends and determinants of contraceptive method choice in Kenya. *Studies in Family Planning*. 2003; 34:149–159. [PubMed: 14558318]
- Mays N, Pope C. Rigour and qualitative research. *British Medical Journal*. 1995; 311:109–112. [PubMed: 7613363]
- Miles, MB.; Huberman, AM. *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage Publications; 1994.
- Mistik S, Nacar M, Mazicioglu M, Cetinkaya F. Married men's opinions and involvement regarding family planning in rural areas. *Contraception*. 2003; 67:133–137. [PubMed: 12586323]
- Moench TR, Chipato T, Padian NS. Preventing disease by protecting the cervix: the unexplored promise of internal vaginal barrier devices. *AIDS*. 2001; 15:1595–1602. [PubMed: 11546933]
- Morrow K, Rosen R, Richter L, Emans A, Forbes A, Day J, et al. The acceptability of an investigational vaginal microbicide, PRO 2000 Gel, among women in a phase I clinical trial. *Journal of Women's Health*. 2003; 12:655–666.
- Morrow, K.; Srikrishnan, AK.; Rosen, R.; Lakshmi, S.; Soloman, S.; Mayer, K. Acceptability of vaginal microbicide use in Chennai, India: A qualitative study among low- and high- risk men.

Paper presented at the Microbicides 2006 Conference; April 23–26, 2006; Cape Town, South Africa.

- Oheneba-Sakyi Y, Takyi BK. Effects of couples' characteristics on contraceptive use in sub-Saharan Africa: The Ghanaian example. *Journal of Biosocial Science*. 1997; 29:33–49. [PubMed: 9881118]
- Oni GA, McCarthy J. Family planning knowledge, attitudes and practices of males in Iloran, Nigeria. *International Family Planning Perspectives*. 1991; 17:50–54+64.
- Patton, MQ. *Qualitative Evaluation and Research Methods*. Newbury Park, CA: Sage Publications; 1990.
- Patton MQ. Enhancing the quality and credibility of qualitative analysis. *Health Services Research*. 1999; 34:1189–1208. [PubMed: 10591279]
- Piotrow PT, Kincaid DL, Hindin MJ, Lettenmaier CL, Kuseka I, Silberman T, et al. Changing men's attitudes and behavior: The Zimbabwe Male Motivation Project. *Studies in Family Planning*. 1992; 23:365–375. [PubMed: 1293860]
- Pool R, Whitworth JA, Green G, Mbonye AK, Harrison S, Wilkinson J, et al. An acceptability study of female-controlled methods of protection against HIV and STDs in south-western Uganda. *International Journal of STD & AIDS*. 2000; 11:162–167. [PubMed: 10726938]
- Pulerwitz J, Gortmaker SL, W D. Measuring sexual relationship power in HIV/STD research. *Sex Roles*. 2000; 42:637–660.
- Severy L, Newcomer S. Critical issues in contraceptive and STI acceptability research. *Journal of Social Issues*. 2005; 61:45–65.
- Severy LJ, Tolley E, Woodsong C, Guest G. A framework for examining the sustained acceptability of microbicides. *AIDS and Behavior*. 2005; 9:121–131. [PubMed: 15812619]
- Stash S. Explanations of unmet need for contraception in Chitwan, Nepal. *Studies in Family Planning*. 1999; 30:267–287. [PubMed: 10674324]
- Sternberg P, Hubley J. Evaluating men's involvement as a strategy in sexual and reproductive health promotion. *Health Promotion International*. 2004; 19:389–396. [PubMed: 15306623]
- Tabet SR, Callahan MM, Mauck CK, Gai F, Coletti AS, Profy AT, et al. Safety and acceptability of penile application of 2 candidate topical microbicides: BufferGel and PRO 2000 Gel: 3 randomized trials in healthy low-risk men and HIV-positive men. *Journal of Acquired Immune Deficiency Syndromes*. 2003; 33:476–483. [PubMed: 12869836]
- Ulin PR. African women and AIDS: negotiating behavioral change. *Social Science & Medicine*. 1992; 34:63–73. [PubMed: 1738858]
- Westoff, CF.; Bankole, A. *Demographic and Health Surveys Comparative Studies No 16*. Calverton, MD: Macro International Inc; 1995. Unmet need: 1990–1994.
- Westoff CF, Bankole A. Trends in the demand for family limitation in developing countries. *International Family Planning Perspectives*. 2000; 26:56–62.
- World Health Organization. *Global prevalence and incidence of selected curable sexually transmitted infections: Overview and estimates*. Geneva: World Health Organisation; 2001 [Accessed May 2007]. at: [www.who.int/docstore/hiv/GRSTI/who\\_hiv\\_aids\\_2001.02.pdf](http://www.who.int/docstore/hiv/GRSTI/who_hiv_aids_2001.02.pdf).
- Yinger, NV.; Viswanathan, H.; Godfrey, S. *ICRW Report-in-Brief, Reproductive Health and Population, Region: Latin America and Caribbean*. Washington, D.C: International Center for Research on Women; 1998. *Researching women: A study of unmet need in Uttar Pradesh, India*.

**Table 1**

Current primary contraceptive method (excluding male condoms)\*

Contraceptive method	Frequency	Percentage (%)
<u>Modern (hormonal) methods</u>		
Pills	4	9.1
Injection	2	4.5
<u>Traditional methods</u>		
Counting days	27	61.4
Withdrawal	3	6.8
Exclusive breastfeeding	1	2.3
Herbal tea	1	2.3
No contraceptive method*	6	13.6
Total	44	100.0

\* Women were asked what contraceptive method *other* than male condoms was used. The two women who responded “male condoms” were omitted from the tabulation.