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Health Practices and Vaginal Microbicide Acceptability among Urban Black Women

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Abstract

Background: Intravaginal topical microbicides are being investigated for prevention of HIV transmission. Use of vaginal microbicides will constitute a new type of practice, occurring in the context of other vaginal practices related to contraception, hygiene, and self-care, which are affected by cultural norms and personal beliefs. Given the high rate of HIV infection among black women, research on practices and decision making relevant to microbicide acceptability is needed in this population.

Methods: Twenty-three black women in New York City, aged 25–64, completed in-person semistructured interviews and self-administered questionnaires. Quantitative analyses examined vaginal practices and willingness to use microbicides. Qualitative analyses explored underlying decision-making processes involved in choices regarding vaginal practices and general healthcare.

Results: Willingness to use vaginal products for HIV prevention was high, especially among more educated women. Safety was a major concern, and women were cautious about using vaginal products. Whereas some viewed synthetic products as having potentially harmful side effects, others perceived natural products as risky because of insufficient testing. Choices about vaginal practices were affected by assessments of risk and efficacy, prior experience, cultural background, and general approach to healthcare.

Conclusions: The majority of women in the sample expressed willingness to use a vaginal product for HIV prevention. Decision-making processes regarding vaginal practices were complex and were affected by social, cultural, and personal factors. Although specific preferences may vary, attitudes toward using a vaginal product are likely to be positive when side effects are minimal and the product is considered safe.

Introduction

Intravaginal topical microbicides are currently under investigation for prevention of HIV transmission.[1] Although condoms could protect women from HIV infection, their use is controlled by men.[2,3] Development of a female-controlled preventive product could potentially reduce HIV transmission among women by increasing women's autonomy in HIV prevention.[4] Current efforts are aimed at developing intravaginal topical formulations of anti-HIV agents or microbicides to prevent the transmission of HIV and other sexually transmitted infections (STIs). A range of products in varying stages of developments include gel, cream, film, and suppository.[1,5] The effectiveness of these formulations will depend, in large measure, on their acceptability.[4–7]

In 2004, HIV/AIDS was the leading cause of death for black women aged 25–34 in the United States.[8] Black women are at high risk of infection and account for the majority (66% in 2005) of new AIDS cases among women; white and Latina women each account for 16% of new AIDS cases.[9] It is, therefore, important to investigate the attitudes and practices that might be relevant to understanding microbicide acceptability among black women.

Although vaginal microbicide use may constitute a new type of practice for women, it will occur in the context of other vaginal practices and healthcare choices that are af-

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fected by social and cultural norms.[10,11] Vaginal practices, such as cleansing the vagina and genital area with commercial and noncommercial products, wiping inside the vagina, or inserting substances inside the vagina, are commonly employed by women.[10,12,13] Reasons for vaginal practices include hygiene (removing menstrual blood, vaginal discharge, and odors), sexual pleasure, pregnancy prevention, fertility, and prevention and treatment of vaginal infections.[10] Vaginal practice norms have been found to be linked to ideas about sexuality and the body, gender roles, age, education, geographic area, ethnicity, marital status, and rituals.[10] For example, douching (intravaginal cleansing with a liquid solution) is a common practice among African American women in the United States.[14,15] Other vaginal practices, including type of protection used during menstruation[16] and insertion of vaginal products,[17] also vary geographically and cross-culturally.

Knowledge about women's decision making and management of their health is relevant to understanding how to develop healthcare products that effectively promote healthier practices.[18,19] Medical pluralism among American women is common.[20,21] The use of complementary and alternative medicine (CAM), referring to practices and products not usually prescribed by doctors or taught in medical schools,[22] has been documented among African-American women.[23–29] Educational level, age, personal beliefs, and social factors, such as family members and the media, influence choice of treatments by African American women.[30,31] It is not known if these factors also predict vaginal practices. Research is needed on attitudes toward and use of a range of vaginal practices in the context of pluralistic healthcare and cultural influences.

This paper describes vaginal practices and preferences among black women in New York City, explores how choices in vaginal care may relate to an overall approach to health, and examines the implications for microbicide acceptability.

Materials and Methods

Data were collected as part of a follow-up study to a cross-sectional telephone survey of women aged ≥18 living in the United States. The survey was conducted in 2001 to provide nationally representative data on women's use of CAM during the past year[20] as well as estimates of use among women in four racial/ethnic groups: white, African American, Mexican American, and Chinese American.[23] In 2004, follow-up data were collected to examine culture-related beliefs and sensitive topics. A new sample was recruited by the survey research firm that conducted the original telephone survey. Participants completed the same telephone interview used in the national study[23] and were interviewed in person. The study was approved by Columbia University Medical Center's Institutional Review Board.

Households were telephoned using random digit dialing within geographic areas of New York City known to have a high proportion of African Americans. Respondents were screened for gender (female), age (>18), ethnicity/race (self-identification as African American or black), and CAM use. CAM users were overrecruited for the follow-up study. Of those who qualified, 36% refused to participate; the final sample consisted of 23 women, 16 CAM users and 7 nonusers.

In-person interviews were conducted by a trained African American female interviewer. The interviewer and respondents were matched for gender and ethnicity in order to facilitate cooperation and maximize communication and understanding. The interviews lasted between 1 and 2 hours and took place in respondents' homes or public spaces, and those who participated received compensation. The interviews were audiotaped and transcribed.

A semistructured questionnaire was used to elicit experiences and opinions relevant to healthcare practices and treatment choices, focusing on the use of CAM and feminine hygiene practices. The interview included open-ended questions and probes to explore the decision-making processes involved in healthcare choices and to identify and understand the factors affecting these choices. For example, questions about treatment, such as, What were the main reasons you chose to use that treatment? were followed by probes about how treatments were used and how they were combined with other health practices. Questions about vaginal practices focused on the use and reasons for use of products, including commercial and home-made, synthetic and natural, and methods of application, such as douches and creams. Additionally, open-ended questions were asked about ethnic identity and cultural background (e.g., How would you define your own culture? What ethnicity do you identify with?) and use of remedies or practices associated with the respondents' cultural background and upbringing.

Following the interview, participants completed a self-administered questionnaire about specific practices relating to feminine hygiene, contraception, treatment of vaginal infections, and use of a variety of vaginal products.

Willingness to use vaginal products was measured using a 4-point scale (1, very unwilling; 2, somewhat unwilling; 3, somewhat willing; 4, very willing), in response to the five following questions: Would you be willing to use a product in the vagina for any of the following reasons: (1) to reduce the chance of getting pregnant, (2) to reduce the chance of getting an infection;, (3) to reduce the chance of getting HIV or AIDS, (4) to make sex more pleasurable, (5) to treat a health problem or infection? The five items concerning willingness to use a vaginal product were combined to form a willingness scale (standardized Cronbach's alpha reliability of 0.74).

CAM users were defined as those who used at least one of the following CAM domains for a health problem in the past year: vitamins and nutritional supplements, a special diet (such as whole foods, macrobiotic or other vegetarian diet), medicinal herbs or teas, remedies or practices associated with a particular culture (e.g., Chinese healing, Ayurveda, Native American healing, Curanderismo), homeopathic remedies, yoga/meditation/tai chi, manual therapies (such as massage or acupressure), energy therapies (such as Reiki or therapeutic touch), or any other remedy or treatment not typically prescribed by a medical doctor. Use of prayer for health reasons was assessed but not included as a CAM domain, consistent with inclusion criteria used in previous research.[23,24]

This report uses quantitative and qualitative analytical methods. Quantitative analyses (using SPSS for Windows 15.0, Chicago, IL) focus on vaginal practices used by the women in the sample; willingness to use vaginal products; and relationships between past practices and willingness to

Table 1. Willingness to Use Vaginal Product, by Education, Age, and CAM Use

	Willingness to use vaginal product to					
	reduce chance of getting pregnant	*reduce chance of getting an infection*	*reduce chance of getting HIV or AIDS*	*make sex more pleasurable*	*treat health problem or infection*	*Willingness scale mean*
Mean (n[a])	2.68 (19)	3.55 (22)	3.73 (22)	3.45 (20)	3.59 (22)	3.39 (22)
Education						
8th grade–some college ($n = 8$)	2.75 (4)	3.14 (7)	3.14 (7)	3.20 (5)	3.57 (7)	3.13 (7)
≥2-year college ($n = 15$)	2.67 (15)	3.73 (15)	4.00 (15)*	3.53 (15)	3.60 (15)	3.51 (15)
Age						
25–44 ($n = 7$)	2.29 (7)	3.57 (7)	4.00 (7)	3.29 (7)	3.14 (7)	3.26 (7)
45–64 ($n = 16$)	2.92 (12)	3.53 (15)	3.60 (15)	3.54 (13)	3.80 (15)	3.45 (15)
CAM use						
Nonuser ($n = 7$)	2.40 (5)	3.50 (6)	3.50 (6)	3.60 (5)	3.50 (6)	3.17 (6)
CAM user ($n = 16$)	2.79 (14)	3.56 (16)	3.81 (16)	3.40 (15)	3.63 (16)	3.47 (16)

[a]n, reported for the number of responses to each item.
*$p < 0.05$ (ANOVA).

use a vaginal product for HIV/AIDS prevention. Statistically significant differences were tested using analysis of variance (ANOVA). Because of small sample size, estimates and associations were not expected to be stable or generalizable to a larger population but do provide an overview of the practices and preferences of the women in the sample. The open-ended responses were analyzed using Atlas-ti, a qualitative software program,[32] to explore the reasoning underlying the respondents' choices and preferences regarding their vaginal practices. Relevant domains in the transcripts were identified, coded, and thematically organized. Themes explored included attitudes toward using vaginal products, reasons underlying these attitudes; and approaches to healthcare in general.

Results

Characteristics of the sample

Respondents were women between the ages of 25 and 64, the majority (70%, $n = 16$) over the age of 45. Most respondents (85%, $n = 15$) had completed at least 2 years of college. Most women were born in the United States (78%, $n = 18$). Other birthplaces were St. Vincent (2), Haiti (1), Jamaica (1), and Belize (1). Self-reported cultural backgrounds included Southern black (8), African American (4), Caribbean (6), Belizean (1), Haitian (1), mixed African American and American Indian (2), mixed African American and Caribbean (1).

Willingness to use vaginal products

Table 1 shows the mean scores for willingness to use a hypothetical vaginal product for various reasons (prevention of pregnancy, prevention of infection or HIV, pleasure, and treatment), by education, age, and CAM use. Women were more willing to use a vaginal product to reduce the chance of getting HIV or AIDS than for other reasons (e.g., to reduce risk of pregnancy and make sex more pleasurable). Women with more than 2 years of college education were more willing to use a vaginal product to reduce the chance of getting HIV/AIDS than were those with less education. Age did not affect willingness to use a microbicide, but results should be interpreted with caution because of the small number of women ($n = 7$) in the younger age group (18–44).

Vaginal practices

Table 2 shows the vaginal practices and products used in the past by women in the sample. More than 90% of the sample (91%, $n = 21$) used a douche in their lifetime. Open-ended responses indicated that almost all douches (homemade and store-bought) consisted of vinegar and water. Douching was reported by 94% ($n = 15$) of CAM users and 86% ($n = 6$) of nonusers of CAM (results not shown).

Regardless of women's past use of general vaginal products, women indicated a high degree of willingness to use a hypothetical vaginal product to prevent HIV/AIDS. Women who had not used birth control methods had slightly lower willingness scores, and this was statistically significant for condom use (Table 2).

Reasons for vaginal practices

The most common reason for using vaginal practices other than birth control methods was "cleanliness." This was true for douching ($n = 17$) and for other practices ($n = 12$). Other reasons were discharge ($n = 8$), odor ($n = 9$), bloody spotting ($n = 5$), itching/irritation ($n = 4$), and pain ($n = 1$). Douching was also used as a birth control method ($n = 3$). The mean willingness score for using a hypothetical vaginal product for HIV prevention was consistently high for women regardless of the reasons for use of a vaginal practice. Attitudes and knowledge underlying women's reasons for employing vaginal practices were explored in depth using the qualitative data. Findings were organized into three major themes, which overlap and inform each other: attitudes toward natural and synthetic products, issues of safety and efficacy, and the consistency of vaginal practices with general approaches to healthcare, such as CAM use.

TABLE 2. VAGINAL PRACTICES AND WILLINGNESS TO USE VAGINAL PRODUCT TO PREVENT HIV/AIDS

	Used product % (n)	*Willingness to use vaginal product to reduce chances of getting HIV/AIDS*[a] *Mean (n)*	
		Product users	*Product nonusers*
General products (past year)			
Talcum powder	17.4 (4)	3.25 (4)	3.83 (18)
Towelettes/wipes	65.2 (15)	3.60 (15)	4.00 (7)
Feminine spray	26.1 (6)	4.00 (6)	3.63 (16)
Vaginal suppositories	13.0 (3)	4.00 (3)	3.68 (19)
Douche			
Douche (past year)	68.4 (13)	4.00 (12)	4.00 (6)
Douche (lifetime use)	91.3 (21)	3.70 (20)	4.00 (2)
Birth control method (lifetime use)			
Condom	65.2 (15)	4.00 (15)	3.14 (7)*
Diaphragm	30.4 (7)	4.00 (7)	3.60 (15)
Sponge	33.3 (3)	4.00 (3)	3.68 (19)
Spermicide	44.4 (6)	4.00 (6)	3.63 (16)
Douche	13.0 (3)	4.00 (3)	3.68 (19)
Birth control pills	56.5 (13)	4.00 (13)	3.33 (9)
IUD	17.4 (4)	4.00 (4)	3.67 (18)
Implants	—	—	3.73 (22)
Rhythm/natural family planning	21.7 (5)	4.00 (5)	3.65 (17)
Other (tubal ligation)	4.3 (1)	4.00 (1)	3.71 (21)
Menstrual products[b] (past year)			
Pads	92.3 (12)	3.75 (12)	1.00 (1)*
Tampons	30.8 (4)	4.00 (4)	3.33 (9)

[a]Based on $n = 22$ because 1 respondent did not answer this item.
[b]Based on respondents who menstruated in the past year ($n = 13$).
*$p < 0.05$ (ANOVA).

Attitudes toward natural and synthetic vaginal products. The open-ended interviews explored respondents' concepts of naturalness and their attitudes toward using natural and synthetic vaginal products. In defining what "natural" meant to them, respondents referred to products that originate from nature, and that were used by former generations, for example:

> Real, not synthetic; something that is organically based that I don't require a prescription for.
> No chemicals, and things that come from the earth.
> Home grown . . . Mother nature.
> Noninvasive and less side effects.
> Herbal rather than chemical.
> Using things from the earth that our grandparents used.

Respondents were asked about their propensity to use natural and synthetic vaginal products, and to explain the reasons for their preferences. Of 21 available responses, 14 (66.7%) reported that they preferred to use natural rather than synthetic vaginal products, 2 respondents reported a preference for synthetic products, 3 preferred to use both natural and synthetic, and 2 preferred neither (i.e., using nothing). It is worth noting that of 5 Caribbean-born women, 4 preferred natural, and 1 preferred to combine both natural and synthetic vaginal products. Enduring cultural influence is illustrated by the use of steam from boiled leaves for postpartum healing reported by 2 women, both with Haitian backgrounds (1 born in Haiti, the other born in the United States, with a Haitian grandmother), who were <45 years of age and had at least 2 years of college education. They described the practice as follows:

> Well, after I had my son, there is something that we use to heal inside after you've had a baby, stitches, after you've had all that done, it's sort of like a cleansing and a healing. For healing especially if you are having episiotomy . . . a soothing feeling because you're very uncomfortable after the childbirth. I feel like the doctors don't give you anything really because when I came home from the doctor they didn't give me anything for that. And I was like I know I have to go to the bathroom but it really, really hurts. So that was very helpful.

> There is something you use after you have a baby to clean out your system; you use a leaf. You boil the leaves and put it in a bucket and you sit over the bucket and let the hot steam just go right inside of you.

Reasons reported for preferring natural products included perceived safety (less risk of side effects), low cost, and effectiveness. Reasons for preferring synthetic products included perceived safety (tested or prescribed or both), effectiveness, tendency to be fast acting, and lack of knowledge about natural products for vaginal use.

Safety and efficacy. Safety and, to some extent, efficacy were the predominant reasons cited by women for their choices in vaginal healthcare regardless of whether respon-

dents preferred natural or synthetic products, home remedies or prescriptions. An American-born woman from South Carolina, in her early 40s, with less than 2 years of college education, explained why she had used yogurt for vaginal infections:

> . . . it was sloppy, messy. But I'd rather that than over the counter . . . [because] I don't know what's in it.

An American-born woman in her late 40s, with 2 years of college education, explained her preference for synthetic vaginal products as follows:

> That's a part of your body you have to take care of it and to use something that's not prescribed, I don't think that's healthy.

A similar concern for safety with an additional stated preference for the perceived fast effects of pharmaceuticals was expressed by a woman born in St. Vincent, in her early 50s, with 4 years of college education, who reported using prescription medication first and then natural products.

> Because that's scary stuff. You want it fixed right away with no jokes about it. . . . I know that most medicines are tried and true and I kind of don't want to fool around. I want to make sure that, you know, that whatever is cleared up and I think antibiotics and things like that I really don't think you can beat them. In terms of speed, anyway.

General approach to health care. We explored whether women's decision-making processes about vaginal practices seemed consistent with their approaches to healthcare in general, including their choices to use conventional and nonconventional medicine. Several respondents who used CAM reported a preference for conventional medicine for vaginal problems. An American-born woman in her early 50s, with a college education, explained why she would use prescription medication in the vaginal area, although she generally preferred natural products.

> I feel that some things that are technologically produced could have more hazardous effects, and I also find that with a lot of medications, sometimes the side effects are worse than what you actually started out with. You know, so which is worse? You know, I have one problem. I go to a doctor. He gives me a prescription that now gives me four additional problems that I never had. So I'm better off a lot of times with something more natural because I don't face having these side effects.

However, she adds:

> That's one area of my body that I'm very, very cautious with. . . . That is the one area that I feel . . . on that I go to my doctor regularly.

An American-born woman in her early 60s, with 2 years of college education, explained that her preference for natural vaginal products was consistent with her reason for avoiding conventional medicine in general: adverse side effects and ineffective treatments.

> they gave me antibiotics and I caught a urinary tract infection. . . . I think medicine is killing people. I think the drug companies are using people as guinea pigs. I tried drugs; and my conditions were still the same.

An American-born woman in her late 60s with 2 years of college education, who used CAM stated:

> I don't know any products for that. I don't think women think of natural products for the vagina . . . that part of the body.

In general, women did not tell their health providers about their use of nonconventional vaginal products, including douching. Only 1 respondent reported disclosing this kind of information to a health provider: she discussed her use of a douche with her gynecologist.

Overall, the qualitative data indicate that one of the main factors guiding respondents' choices of vaginal practices was their concern about safety and side effects. Synthetic products had the advantage of being tested for safety and effectiveness, but their side effects were considered potentially harmful; natural products may have less harmful side effects but have the disadvantage of being untested and not recommended by doctors. Many women reported a need for extra caution using any product in this sensitive area of the body, regardless of whether they expressed a preference for natural or synthetic products. In addition, beliefs about safety were not always consistent with the respondents' approach to treatments for other health conditions.

Discussion

A key finding of our study is that the women in this sample reported willingness to protect themselves from serious health risks, such as HIV/AIDS, through a vaginal method, with the caveat that caution is paramount because the vagina is a sensitive part of the body. Our data suggest that education levels and past condom use may affect willingness to some degree. More educated women may be more aware of the risks of HIV. Women who have used condoms, the most effective known method for HIV prevention, may feel the need to protect themselves from HIV and, therefore, be more willing to use a vaginal method.

Women's assessment of risk is an important factor in their decision to use or avoid a product. Concern about safety underlies women's choices whether they prefer natural or synthetic products. Those who preferred natural products perceived them to be less risky in terms of side effects. This observation confirms findings from another study of CAM use among those with HIV, which reported that safety was a concern in regard to prescription medications because of iatrogenic consequences and side effects.[33] Those who preferred synthetic products perceived them as safer because they are tested by health authorities and approved by physicians.

Previous research has found that black American women commonly seek natural approaches to healthcare.[30,31] It is possible that microbicide acceptability can be enhanced and satisfaction with medical care can be improved by herbal products that are well tested for safety and efficacy. Several natural products (e.g., seaweed and *Azadirachta indica*, a common Indian medicinal plant known as *neem*) have been

tested as microbicides and spermicides.[34–36] Naturalness, familiarity, and tradition seemed to influence acceptability for Indian women in the study of *neem*.[34]

Douching was the most common vaginal practice of women in this sample. It is noteworthy that women categorized as non-CAM users (because they did not report using any CAM domains for health reasons) reported using a douche. In addition, most women who reported using a douche also reported never having used "any herbal remedies or other substance not prescribed by a physician in the vagina." This suggests that respondents do not think of douching as CAM, even though vinegar is a plant extract and douching is a practice not typically recommended by medical doctors. Most women probably consider douching to be in the realm of hygiene, and normative hygiene practices may not come to mind when reporting health-related behavior. Douching is a common practice among African American women and has been found to be associated with health risks, including adverse reproductive health outcomes.[14] Douching or otherwise cleansing the vagina around the time of sex may unintentionally dilute, remove, or interact with a microbicide product, having potentially harmful effects.[12] Including questions about specific vaginal practices, such as douching, would be beneficial in microbicide studies, as well as in health behavior research and in clinical settings.

Based on a review of microbicide studies, Mantell et al.[3] highlighted the importance of addressing the diversity of study populations and how cultural norms affect sexual practices, sexual satisfaction, product use during menstruation, perceptions about effects of product use on fertility, and vaginal insertion of a foreign substance. Prevention of HIV sexual transmission does not occur in a vacuum. Product acceptability has been found to differ among racial/ethnic groups (African American, Caucasian, Hispanic, Haitian) along several dimensions, including delivery systems and product characteristics.[37] Results of this study suggest that cultural influences from the Caribbean may differ from those operating among American-born black women, illustrating the diversity that exists within the sample of black American women and the wide range of factors that affect vaginal practices and healthcare in general. Certain vaginal practices that vary cross-culturally involve a level of comfort with touching the genitalia,[3,17] which is likely to affect acceptability of intravaginal microbicides. As douching is common among the women in this sample, there may be a relatively high level of comfort with self-touching, which may positively influence willingness to use a vaginal substance for HIV prevention. The relationship between self-touching and microbicide acceptability requires further investigation in diverse study populations.

Factors predicting behavior regarding vaginal practices may not be the same as those predicting general healthcare behavior. Our results suggest that perceived sensitivity of the vaginal area leads some women to follow medical advice concerning vaginal treatment, despite a general preference for natural treatments, but also leads others who generally do not use CAM to prefer natural vaginal products because of possible adverse side effects from synthetic products. Heightened physical and cultural sensitivity of the vagina is likely to influence women's decision making. Information about vaginal practices garnered through social networking may be limited because of social taboos, and women may choose products without adequate information or be less confident about making a choice to self-treat.

This study is limited by the constraints of the data, which were collected primarily to follow up a larger study on the use of CAM by women. Because of the sample selection and small sample size, results are not generalizable to other groups, particularly those most at risk for HIV/AIDS. Most women in the sample were over the age of 45 and may have different attitudes and needs than a younger age group regarding vaginal practices and microbicide use. Small sample size limited our ability to detect statistically significant differences and may have produced unstable estimates. Findings from the qualitative analyses have been emphasized in this paper, and statistical analyses provide an overview of the study sample. Another limitation is that women were asked to report willingness to use a hypothetical product, and this may not be an accurate indicator of actual use.[5,38]

Despite these limitations, the findings have important implications for the design and promotion of intravaginal products for the prevention of HIV/AIDS and other STIs. Women's choices regarding vaginal practices and their willingness to use vaginal products to prevent HIV/AIDS are likely to be related to perceptions of risk and decision-making processes about healthcare in general as well as to demographic factors. Health approaches and practices differ depending on varying cultural influences, even within racial/ethnic groups. These are important factors to explore further with larger sample sizes.

Conclusions

Women in the sample reported more willingness to use vaginal products for the prevention of HIV or AIDS than for any other reason. This was especially true for women with higher educational levels. Decision-making processes include assessing risk and effectiveness and choosing health products that are likely to be effective and not harmful. Risk assessments vary according to prior experience, cultural influences, and attitudes about general health and self-care. Perceptions differ as to the risks of synthetic and natural products: some view synthetic products as having potentially harmful side effects; others perceive natural products as potentially harmful because they may not be adequately tested for safety. If women are well informed about health products and if side effects are minimal, women's willingness to use a vaginal product is likely to increase.

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