Microbicide Acceptability among Female Sex Workers in Beijing, China: Results from a Pilot Study

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Abstract

Objectives: To explore attitudes toward hypothetical vaginal microbicides and willingness to use them among female sex workers (FSWs) in a district of Beijing, China, and to identify factors likely to affect acceptability and use of microbicides for HIV prevention among this population.

Methods: An exploratory cross-sectional study using convenience sampling was conducted. A total of 54 FSWs were recruited from Shijingshan District in Beijing for a face-to-face interview. Main outcome variables were measured by a microbicide acceptability score, perception of HIV/STI risk and self-reported high-risk sexual behaviors, condom use, HIV/STI history, and self-reported experience of vaginal product use.

Results: Mean score of microbicide acceptability in FSWs was 2.73, with a standard deviation (SD) of 0.46 (ranging from 1 to 4). Acceptability score varied by partner types ($p=0.025$), history of HIV testing ($p=0.037$), and concern about contracting an STI ($p=0.042$). Covert use of microbicides in FSWs with various sexual partners was statistically different ($p=0.001$). FSWs preferred to pay for microbicides and to use them covertly.

Conclusions: In general, FSWs in Shijingshan District might have a positive response to microbicides across all hypothetical characteristics. Further study is needed for comprehensive understanding of the contextual factors of microbicide use.

Introduction

THE FIRST CASE OF HIV/AIDS in China was reported in 1985. Twenty-four years after HIV was first reported in China, HIV/AIDS remains a low prevalence epidemic; however, there is high prevalence in specific locations and among certain high-risk groups. As of October 2007, the cumulative reported number of people living with HIV/AIDS (PLWHA) in China was 223,501 with a total of 62,838 AIDS cases and 22,205 AIDS-related deaths.¹ The latest estimate suggests that as of late 2007, there were 700,000 PLWHA, of whom 40.6% were infected via heterosexual transmission. Among the 50,000 new HIV infections estimated in 2007, 44.7% were associated with heterosexual transmission, and 12.2% were associated with men who have sex with men (MSM). Among the transmission modes, the ratio of sexual transmission is

increasing each year. Heterosexual transmission was 10.7% of the reported number of people infected in 2005 and reached 37.9% of the reported number of people infected in 2007.¹ Sexual transmission has become the most common mode of HIV transmission in China, replacing injecting drug use as the main driver of the epidemic.

In the early 1980s, commercial sex reemerged in mainland China after two decades of virtual extinction, and since then prostitution has developed into a widespread industry. Depending on the different definitions and methods of estimation, estimated numbers of female sex workers (FSWs) in China vary from 1 to 10 million.² According to a nationwide survey in 2000, 6.4% of Chinese men aged 20–64 years had patronized a commercial sex worker at least once.³ Based on recent studies conducted in China, each FSW receives approximately 4–21 clients per week, 4–6 indicating China has a

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large population of men using the services of FSWs. Sentinel surveillance shows that HIV infection prevalence continues to rise among sex workers, with 0.02% reported in 1996 and 0.93% in 2004.⁷ With growing numbers of FSWs and increasing prevalence of HIV infection among them, the sex industry may cause increased infection in populations not considered to be currently at risk, namely, the monogamous wives of male FSW clients and the primary sexual partners of FSWs.^{8–10}

Although consistent condom use can greatly reduce the risk of HIV transmission, surveys conducted in 2003 in China showed that the proportion of sex workers claiming consistent use of condoms was only 19%.⁷ Comprehensive surveillance data from 2007 show that 60% of commercial sex workers do not use condoms during every sexual encounter.¹ Therefore, the majority of FSWs engage in unprotected sex with their clients and, as a result, are at high risk of contracting or transmitting HIV/STDs.

The reasons for FSWs engaging in unprotected commercial sex are complicated. One of the major obstacles to consistent condom use is that many FSWs lack the power to negotiate condom use with their clients.¹¹ Men in China traditionally play a dominant role in social, family, and private life, leaving FSWs with little bargaining power with which to take protective measures during commercial sex. Lau et al.¹² found in a survey that the reason 57.9% of respondents did not always use condoms was refusal by clients. In addition, FSWs in China may be reluctant to insist on condom use with a client who does not want to wear a male condom, fearing both the loss of income and a violent reaction.¹³ Therefore, microbicides and other measures for HIV prevention controlled by women themselves are needed.

Microbicides are new products being developed in the form of gels, creams, tablets, or films to help prevent sexually transmitted infections (STIs), most critically but not entirely limited to HIV/AIDS.^{14–16} A person can apply a microbicide inside the vagina or rectum before sexual intercourse without the knowledge of their sexual partner. Despite the fact that several important microbicide trials have been stopped early because of product failure or trial failures, there currently are 17 ongoing and 16 planned or funded trials evaluating 11 different candidate products.¹⁷ To have a meaningful public health impact, microbicides either must be acceptable to those who do not use condoms or must be used more consistently by sporadic condom users. A number of studies have been conducted across diverse populations to examine the acceptability of various forms of microbicides,^{18–20} and findings have indicated that populations from different countries with varied backgrounds might have completely different attitudes toward microbicides, necessitating research into microbicide acceptability in all countries and in important population subgroups.

Research on microbicides has only recently begun to be conducted in China,²¹ and little is known about personal psychological, socioeconomic, and cultural factors affecting acceptance of microbicides and how these factors work in China. More understanding of Chinese women's attitudes toward microbicides and cultural norms about this intravaginal practice is needed. Considering that FSWs are at higher risk than most other female populations of contracting HIV via sexual transmission, factors associated with their acceptance of microbicides may differ from those of the non-

FSW female population. This study was conducted, therefore, to assess microbicide acceptability among Chinese FSWs. Contextual factors that could direct microbicide formulation and their use for HIV prevention among this population were explored.

Materials and Methods

This is an exploratory cross-sectional study of microbicide acceptability among FSWs in Beijing. It is a pilot for a large-scale survey across China to explore the attitudes of Chinese FSWs toward vaginal microbicides and their willingness to use the product. Because of the exploratory nature of the study and its small sample size, these findings may not be generalizable. However, this study is intended to lay the foundation and identify directions for the more comprehensive study.

Participants

Fifty-four FSWs from the Shijingshan District of Beijing were recruited using a combination of convenience sampling with the help of social and healthcare institutions that serve FSWs in the area and snowball sampling in which participants were asked to refer FSWs who met study criteria. Women aged 18–45 years who understood and spoke Mandarin and reported engaging in sex work for more than 1 month were eligible for the study. People with mental health or hearing problems were excluded.

When an FSW was identified as eligible for the study, the researcher or research assistants would explain the purposes and procedures of the survey and invite her to participate. Once the candidate woman agreed to participate, a signed informed consent form, which included an overview of the risks and benefits of study participation, was obtained. All participants were permitted to use a nickname or a pseudonym, and they received a small gift valued at 20 Chinese yuan (approximately equivalent to U.S. \$3.00) for their participation. Ethical approval from the Institutional Review Boards of Peking Union Medical College and the China Center for Disease Control (CCDC) was obtained prior to study commencement.

Procedures

Upon recruitment, FSWs were interviewed by the principal researcher or a research assistant or both. Before the survey began, two experienced interviewers were hired to collect data and were given additional training in interview methods and microbicide-related knowledge. Constant communication between the principal researcher and the interviewers occurred during the process of data collection. All interviews were conducted in either Mandarin or the local dialect at a private location convenient for the participants. Each interview took approximately 15–20 minutes to complete. The interviewer began each interview by restating the aims of the study and stressing that the information participants provided would make an important contribution to the future development and promotion of microbicides and to HIV prevention. Each participant was also notified of her right to choose not to answer any questions or to terminate the interview at any time. Confidentiality was ensured by using a code on the questionnaire, and all print forms were stored in a

locked filing cabinet accessible only to the researchers, with the documents destroyed 6 months after research completion.

Questionnaire

Contents of the survey were divided into three sections: sociodemographic characteristics, relevant contextual factors, and microbicide acceptability, an instrument used by Weeks et al.²⁰ in Hartford, Connecticut, and Wang et al.²² in Hainan Province, south China.

Sociodemographic characteristics

Sociodemographic characteristics, including age, ethnicity, education, marital status, residence status, types of sexual partners (primary, paying, or other), total number of sexual partners in the last 30 days, and age of commercial sex initiation, were collected at the beginning of the interview.

Contextual factors

Sexual behavior and condom use were measured by the following variables: (1) number of sexual encounters in the last 30 days, (2) proportion of sexual encounters (vaginal, anal, and oral) where condoms were used in the last 30 days (estimated as the number of sexual encounters with condom use divided by total number of sexual encounters in the last 30 days), (3) proportion of FSWs using condoms during every sexual encounter in the last 30 days, (4) experiences of asking their partners to use condoms in the last 30 days, and (5) experiences of sexual partners refusing to use condoms in the last 30 days, with participants selecting one dichotomous answer for each question. Information on these variables was collected separately for each of the three types of sexual partners (primary, paying, and other). The primary sexual partner was defined as the person to whom the FSW feels closest or whom she cares about the most. A paying sexual partner was defined as a person whom the FSW had sex with only in exchange for money. Other sexual partners were any other person with whom an FSW might have sex, excluding her primary and paying sexual partners.

Information about health status, medical history, experience of vaginal product use, and perception of HIV/STI risk of FSWs was collected by asking (1) if they had been diagnosed with an STD (including gonorrhea, syphilis, *Chlamydia trachomatis* infection, pelvic inflammatory disease, genital herpes, genital warts, *Candida* infection, *Trichomonas vaginalis* infection) ever or within the past 6 months, (2) if they had

unusual vaginal symptoms (unusual whiteness, irritation of the vagina, pain during sexual intercourse, burning sensation when urinating, ulcers or open sores in the vagina, bleeding after sexual intercourse that is not associated with their menstrual cycle) within the past 6 months, (3) if they had ever had an HIV test, (4) if they had ever used a vaginal anti-inflammatory pill/suppository or other contraceptive methods, and (5) if they had ever practiced vaginal douching.

Microbicide acceptability

Microbicide acceptability was measured by the instrument developed by Weeks et al.²⁰ based on the findings of focus group discussions and elicitation exercises and supplemented with methods used in previous microbicide acceptability studies. This scale measures microbicide acceptability using a 19-item index on a Likert scale of relative acceptability of certain characteristics. A 4-point Likert scale was used to quantify attitude to microbicide acceptability of the participants, with 1 indicating very unacceptable and 4 very acceptable. Participants responded to questions that were neutral (What if microbicides were a cream?), negative (What if a small amount leaked out before sex?), and positive (What if the microbicide had a pleasant taste?). This microbicide acceptability index demonstrated a high internal consistency with a Cronbach's alpha of 0.90.²⁰

Before commencing the third section of the questionnaire related to microbicide acceptability, the interviewer introduced microbicides briefly to the participants saying, "Scientists are working on developing these products that women can use to prevent them from contracting HIV, which are called microbicides. The following is a list of possible characteristics of microbicides. Please consider how acceptable or unacceptable each characteristic would be to you." Participants were permitted to ask any questions they had about microbicides. Furthermore, FSWs were asked questions about microbicide acceptability for each type of sexual partner, if they would use them covertly with each of the three types of sexual partners, and if they would be willing to pay for them.

Data analysis

Sociodemographic characteristics of the FSWs in the study, as well as the other variables, including condom use, HIV and STI status, and experience using vaginal products, were described. Microbicide acceptability was measured as a mean of all scores of the 19-items in the microbicide acceptability

TABLE 1. SEXUAL ENCOUNTERS AND CONDOM USE BY SEXUAL PARTNERS IN LAST 30 DAYS AMONG 54 FSWs, SHIJINGSHAN, BEIJING, 2008

	Primary partners	Paying partners	Other partners
No. of FSWs who have this partner type (%)	42 (77.8)	54 (100)	19 (35.2)
No. of sexual encounters with this partner type, mean (SD)	7.74 (4.87)	7.20 (8.22)	4.37 (4.03)
No. of FSWs who used condoms at every sexual encounter with this partner type (%)	6 (14.3)	29 (53.7)	10 (52.6)
No. of FSWs who have ever asked their partners to use a condom (%)	24 (57.1)	47 (88.7)	15 (79.0)
No. of partners who have ever refused to use a condom (%)	15 (62.5)	15 (31.9)	6 (40.0)

instrument. Relationships between relevant variables and microbicide acceptability were analyzed using analysis of variance (ANOVA), the Kruskal-Wallis test, and the Mann-Whitney rank-sum test. Significance was set at $p < 0.05$. SPSS version 14.0 software for Windows (SPSS Inc., Chicago, IL) was used for data analysis.

Results

Sociodemographic characteristics

A total of 55 FSWs were recruited, but only 54 completed interviews. One FSW offered only masturbation to clients and was excluded, as this study was designed to explore attitudes toward HIV/STI prevention methods in women involved in sexual intercourse (vaginal, anal, or oral) with men. The majority of participants were recruited from karaoke television (KTV) rooms or dancing halls (48.1%), saunas or massage centers (22.2%), night clubs (20.4%), and street-based sex work areas (9.3%). Participants were predominantly Han Chinese (90.7%), with an average age of 29 years and a standard deviation (SD) of 5 years (ranging from 18 to 43 years). One quarter of them (25.9%) were unmarried, 27.8% cohabited, 27.8% were married, and 18.5% were divorced or separated. The majority had junior high school education (53.7%) or had senior high or secondary vocational or technical school education (20.4%), 18.5% of the FSWs had only primary school education, 5.5% had college education, and only 1.8% never went to school. All participants had migrated to Beijing from other provinces, and the average duration of residence in Beijing was 5 years (SD 4 years). All participants had paying sexual partners, approximately 80% reported they currently had a primary sexual partner, and one third (35.2%) of all participants had other sexual partners. On average, the FSWs had 5 sexual partners in the past 30 days (SD 3), ranging from 1 to 20. Their average age at initiating commercial sex work was 24 years with (SD 5), ranging from 18 to 38.

Self-reported sexual encounters and condom use

The number of FSWs having each kind of partner, FSW self-reported sexual encounters, and condom use with different sexual partners are shown in Table 1. The proportion of consistent condom use with various types of sexual partners varied significantly (chi-square = 17.153, $p = 0.000$). Twenty-nine of the 54 FSWs used condoms consistently with their paying partners, but only 6 of the 42 FSWs who had primary sexual partners reported using them consistently with their primary partners.

Self-reported HIV/STI history, vaginal product use, and attitude toward HIV/STI

Among the 15 (27.8%) FSWs who had ever been diagnosed with an STI, 7 (46.7%) of the STI infections reported occurred within the last 6 months. Nearly half (46.3%) of the FSWs surveyed had had at least one STI symptom in the last 6 months. Fifteen (27.8%) participants had ever had an HIV test. The most frequently used contraceptive method was the male condom (77.8%). Nearly half (46.3%), reported experiences with vaginal pills or suppositories, and 39 (72.2%) douched their vagina after sex. Nearly three quarters (74.1%) of the FSWs were very worried or worried just a little about contracting HIV, and 94.4% were worried about contracting an STI.

Microbicide acceptability

The mean score of microbicide acceptability for all the FSWs surveyed was 2.73, with an SD of 0.4, indicating a generally positive response to microbicides across all hypothetical characteristics. Results of univariate analysis are shown in Table 2 and indicate that the microbicide acceptability score varied depending on the type of sexual partners the FSW had (one-way ANOVA $F = 3.374$, $p = 0.025$). FSWs who had all three types of sexual partners had the highest acceptability score, and those who had only primary and paying sexual partners had the lowest score. The mean score of acceptability also varied depending on whether or not they had experience of an HIV test (Mann-Whitney test $Z = -0.289$, $p = 0.037$) and were worried about contracting an STI (Kruskal-Wallis test chi-square = 6.342, $p = 0.042$). Participants who had ever had an HIV test had a significantly higher score than those who had never had an HIV test, indicating they were more concerned about their health than those who had not taken an HIV test.

Table 3 shows the results of FSWs' willingness to use microbicides covertly in sexual encounters with various types of sexual partners. Their willingness to use microbicides covertly varied significantly with sexual partner type by chi-square test, indicating that FSWs preferred their paying and other partners to remain ignorant of their use of the products, but they generally were not concerned about this with primary partners. If microbicides were as effective at preventing HIV and STIs as male condoms, 32 (59.3%) participants were willing to pay for microbicides, 18 (33.3%) said maybe they would buy them, and only 4 (7.4%) said they would not pay for them.

Table 4 shows the frequency of FSWs who reported definitely acceptable or definitely unacceptable to vaginal microbicides. Over half of participants reported the following characteristics as definitely acceptable: the microbicide made the vagina wetter, the microbicide had no noticeable smell, one application of the microbicide lasted for multiple instances of sexual intercourse, the microbicide is not noticeable to the sexual partner, and if the microbicide was a suppository. However, 43 respondents (79.6%) said it would be definitely unacceptable if the microbicide caused minor side effects, for example, itching, burning, or tingling in the vagina. Thirty-one FSWs (57.4%) said it would be definitely unacceptable if the microbicide made the vagina drier than normal during sexual intercourse.

Discussion

Given the high risk of HIV infection FSWs face, microbicide acceptability research needs to better understand the social contexts that impact initial and sustained use.^{23,24} This pilot study was conducted to explore the acceptability of hypothetical microbicides among FSWs in Shijingshan District, Beijing, and to prepare further research on the topic. The findings of this study indicate that FSWs in Shijingshan might feel positively about microbicides in all hypothetical contexts. Research has demonstrated that participants had a relatively high acceptability of microbicides.^{20,25–29} Factors affecting acceptability and use of microbicides for HIV prevention included features of the products,^{18,25,30,31} experience of physical or sexual violence,^{20,32} use of other contraceptive products or medicines,²² perceptions of HIV/AIDS risk,^{20,22,33} and

TABLE 2. MEAN SCORES OF MICROBICIDE ACCEPTABILITY AMONG FSWs BY DEMOGRAPHIC CHARACTERISTICS, PARTNERSHIP, GENITAL HYGIENIC PRACTICE, AND ATTITUDES AMONG FSWs, SHIJINGSHAN, BEIJING, 2008

<i>Characteristic</i>	<i>No. surveyed</i>	<i>Mean score (SD)</i>	<i>p value</i>
Age, years			0.208 ^a
16–25	17	2.55 (0.51)	
26–35	30	2.79 (0.44)	
>35	7	2.85 (0.31)	
Recruitment places			0.369 ^a
Sauna/massage centers	12	2.84 (0.36)	
Night clubs	11	2.58 (0.50)	
KTV rooms/dancing hall	26	2.76 (0.52)	
Street-side services	5	2.63 (0.17)	
Ethnicity			0.94 ^b
Han	49	2.72 (0.48)	
Other	5	2.81 (0.23)	
Marital status			0.075 ^c
Unmarried	14	2.70 (0.45)	
Cohabiting	15	2.73 (0.43)	
Married	15	2.84 (0.32)	
Divorced/separated	10	2.58 (0.68)	
Educational level			0.371 ^c
Primary school/no schooling	11	2.75 (0.35)	
Junior high school	29	2.72 (0.48)	
Senior high school/secondary vocational school/or above	14	2.71 (0.51)	
Sex partnership			0.025 ^c
With only paying partner	8	2.84 (0.13)	
With both primary and paying partners	27	2.55 (0.52)	
With both paying and other partners	4	2.79 (0.47)	
With all three types of partners	15	2.97 (0.32)	
Had ever been diagnosed with STI			0.221 ^b
Yes	15	2.81 (0.43)	
No	37	2.67 (0.47)	
Had at least one STI symptom in last 6 months			0.862 ^b
Yes	25	2.73 (0.46)	
No	29	2.72 (0.47)	
Vaginal product use experience			0.482 ^b
Yes	25	2.65 (0.55)	
No	29	2.79 (0.36)	
Vaginal douching			0.923 ^b
Yes	39	2.71 (0.46)	
No	15	2.76 (0.46)	
Experience with HIV test			0.037 ^b
Yes	15	2.93 (0.34)	
No	39	2.65 (0.48)	
Worried about getting HIV infection			0.154 ^c
Not at all	14	2.58 (0.54)	
A little	27	2.70 (0.47)	
Very	13	2.93 (0.26)	
Worried about getting STI			0.042 ^a
Not at all	3	2.23 (0.58)	
A little	37	2.71 (0.46)	
Very	14	2.87 (0.38)	

^aKruskal-Wallis test.^bMann-Whitney rank-sum test.^cOne-way ANOVA.

patterns of FSW sex partnerships.²² In this study, we found that patterns of sexual partnerships, the experience of HIV testing, and perception of STI risk were associated with high reported microbicide acceptability. These results are concordant with results of some previous studies.

Reported differences in microbicide acceptability among FSWs with different types of sexual partners indicated that microbicides may not necessarily be appropriate or desirable

for some women or in some contexts. Four patterns of sexual partnerships were reported by FSWs in our study, including paying sexual partners only, both primary and paying sexual partners, both paying, and other sexual partners, and all three types of primary, paying and other sexual partners. The acceptability score of FSWs with all three types of sexual partners was as high as 2.97 (a full score of 4), indicating that having more complicated sexual partnerships might drive women's

TABLE 3. COVERT USE OF MICROBICIDES BY VARIOUS TYPES OF SEXUAL PARTNERS AMONG FSWs, SHIJINGSHAN, BEIJING, 2008

<i>Covert use of microbicides</i>	<i>No. (%) with primary partners</i>	<i>No. (%) with paying partners</i>	<i>No. (%) with other partners</i>	<i>p value</i>
				0.001
Definitely yes	14 (28.0)	30 (55.6)	17 (70.8)	
Do not care	24 (48.0)	21 (38.9)	5 (20.8)	
Definitely no	12 (24.0)	3 (5.6)	2 (8.3)	

needs for more protective measures. This is similar to the results from another study in Hainan Province, south China, of females employed in brothels (including women who were not FSWs),²² which showed that high-risk women with both primary and paying sexual partners and those with paying sexual partners only reported a higher level of microbicide acceptability than those with a primary sexual partner only. Furthermore, more FSWs used condoms consistently with their paying and other partners but not with their primary partner. Therefore, it is possible that they would rather believe that paying and other sexual partners might put them at higher risk of contracting HIV/STI than their primary partners, which might explain why FSWs with various types of sexual partners had a relatively higher microbicide acceptability.

Similar to the study of Wang et al.,²² we found that FSWs who were very concerned about contracting STIs had a relatively higher microbicide acceptability score than those who did not. In addition, participants who had prior HIV testing tended to be much more accepting of those products. FSWs who worried about contracting STI or who had ever had an HIV test may have been more concerned about their health and the need for protective methods. Further evidence is needed to understand these factors.

A number of international studies reported that women would prefer to tell their partners they were using such products both during the study and in posttrial real-world practice to preclude their partners from thinking they were unfaithful.^{34–36} Results of our study, however, showed a significant difference from those in previous studies with regard

to informing sexual partners of microbicide use. Generally speaking, the majority of participants reported they would definitely prefer not to tell their partners about the use of microbicides. Most FSWs in the study said they would definitely prefer not to let their paying and other sexual partners know they were using microbicides, but some FSWs reported they did not care if their primary partners knew they were using microbicides. Not surprisingly, partner relationship played an important role in covert use of the products, especially considering the Chinese cultural context. In China, men traditionally play a dominant role in social, family, and private life, and it is difficult for women to bargain with their partners to take actions to protect themselves during sexual intercourse. Moreover, a study reported that FSWs may be reluctant to argue with their clients who do not want to use male condoms, fearing both loss of income and violence.¹³ Therefore, many Chinese women who would like to use vaginal microbicides prefer covert use. This is strong evidence that microbicides may serve as a complement to condoms and may address women's specific needs in HIV prevention.

Regarding preference for the physical characteristics of microbicides, Chinese women manifested both similarities to and differences from women in western countries. Two thirds of participants thought microbicides were definitely acceptable if they made the vagina wetter than normal during sexual intercourse, which is consistent with previous studies.³² Women in international studies thought that lubricating characteristics of microbicides may enhance sexual pleasure and relieve the agonies of sex work, and some studies

TABLE 4. FREQUENCY OF FSWs WHO REPORTED DEFINITELY ACCEPTABLE OR DEFINITELY UNACCEPTABLE TO VAGINAL MICROBICIDES, BY SELECTED CHARACTERISTICS, SHIJINGSHAN, BEIJING, 2008

<i>Characteristic</i>	<i>No. of FSWs reporting definitely acceptable (%)</i>
What if the microbicide made your vagina wetter than normal during sex?	37 (68.5)
What if one application of the microbicide lasts for multiple occasions of sex?	34 (63.0)
What if the microbicide has no noticeable smell?	32 (59.3)
What if the microbicide is not noticeable to your sexual partner?	31 (57.4)
What if the microbicide is a suppository?	29 (53.7)
	<i>No. of FSWs reporting definitely unacceptable (%)</i>
What if the microbicide made your vagina feel drier than you normally are during sex?	31 (57.4)
What if the microbicide causes minor side effects, for example, itching, burning, or tingling in your vagina?	43 (79.6)

indicated that gel use could increase sexual pleasure during intercourse.^{25,30} We found most Chinese FSWs expressed preference for a vaginal suppository, however, which is different from preferences expressed by western women.

The following limitations of this study should be noted. First, only a limited number of FSWs were recruited, which may explain why some results were not statistically significant even though there was a trend in acceptability of microbicides. Second, we relied on the participants to self-report their sexual behavior. Although self-reporting was the most feasible way of collecting microbicide use data, the data yielded may not have been entirely reliable. Finally, this is a study of hypothetical products conducted at the cognitive level; therefore, inferences from the study results in relation to actual use are limited. Considering that microbicides are still in development, however, their acceptability can only be evaluated hypothetically outside of actual product trials by explaining the concept of and possible features of microbicides. To gain a more accurate understanding of women's attitude toward microbicides and their willingness to use them, acceptability studies in realistic contexts that accompany clinical trials are essential. It is important to note that this is a pilot study in an entirely new area of research on HIV prevention, and all findings from this study will require further hypothesis testing.

Conclusions

Vaginal microbicide acceptability will play a key role in the promotion and marketing of the products for HIV/STI prevention, but unfortunately, it takes years for disease prevention activities and practices to achieve widespread acceptance after their development. Further studies to gain a deeper understanding of microbicide acceptability among Chinese women are needed for better preparation of educational information on use and for general promotion.

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Disclaimer Statement

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